China, Arms Control, and Nonproliferation

Wendy Frieman

POLITICS IN ASIA

China, Arms Control, and Nonproliferation

In the past two decades, China has emerged as a significant player in international arms control and nonproliferation regimes, but the nature of China's interaction with the rest of the world, and specifically with global institutions, remains a subject yet to be examined in detail.

China, Arms Control, and Nonproliferation, an empirically and conceptually trailblazing book, is the first to document China's participation in international arms control in the late twentieth and early twenty-first centuries. It focuses on the distinction between U.S. expectations of Chinese compliance, which China has not always met, and international standards against which Chinese performance is acceptable. Frieman carefully documents China's role in the seven specific arms control regimes and uses the accompanying examination to offer suggestions about how to gain China's commitment and compliance in the future. The book argues that policy initiatives grounded in the history of Chinese behavior are much more likely to be successful than those stemming from overstatements and misconceptions.

Based on extensive fieldwork and interviews with over a hundred Chinese and U.S. government officials, this work casts new light on both the nature of Chinese military power and the regimes that have attempted to constrain it. It will be invaluable for policy makers and analysts and will appeal to scholars of Chinese security issues, foreign policy, international relations, and arms control and disarmament.

Wendy Frieman has spent 20 years studying and writing about China at Stanford Research Institute International and Science Applications International Corporation.

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To David

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Abbreviations

ABM	antiballistic missile
ACDA	Arms Control and Disarmament Agency
APL	antipersonnel landmine
ASEAN	Association of Southeast Asian Nations
BMD	Ballistic Missile Defense
BWC	Biological Weapons Convention
CCW	Convention on Conventional Weapons
CD	Conference on Disarmament
CFE	Treaty on Conventional Forces in Europe
CGA	China Customs General Administration
CIA	Central Intelligence Agency
CNNC	China National Nuclear Corporation
COCOM	Coordinating Committee for Multilateral Export Controls
COSTIND	Commission for Science, Technology and Industry for National Defense
CSCAP	Council for Security Cooperation in the Asia Pacific
CTBT(O)	Comprehensive Test Ban Treaty (Organization)
CWC	Chemical Weapons Convention
DoD	Department of Defense
EIF	Entry Into Force
EMP	Electro Magnetic Pulse
GSETT	Group of Seismic Experts
IAEA	International Atomic Energy Agency
ICRC	International Committee of the Red Cross
IDC	International Data Center
IMS	International Monitoring System
INF	Intermediate Nuclear Forces

MFN	Most Favored Nation
MIRV	Multiple Independent Reentry Vehicle
MTCR	Missile Technology Control Regime
MOFA	Ministry of Foreign Relations
MOFERT	Ministry of Foreign Economic Relations and Trade (predecessor to MOFTEC)
MOFTEC	Ministry of Foreign Trade and Economic Cooperation
NAM	Non Aligned Movement
NGO	Non Governmental Organization
NPC	National People's Congress
NPT	Nonproliferation Treaty
NSG	Nuclear Suppliers Group
NTM	National Technical Means
OPCW	Organization for the Prevention of Chemical Weapons
OSI	on-site inspection
P-5	Permanent Five Members of the United Nations Security Council
PLA	Chinese People's Liberation Army (also includes air and naval forces)
PNE	peaceful nuclear explosion
PRC	People's Republic of China
PTBT	Partial Test Ban Treaty
ROCA	Register of Conventional Arms
START	Strategic Arms Reduction Treaty
TMD	theater missile defense
UN	United Nations
UNGA	United Nations General Assembly
UNSCOM	United Nations Special Committee
UNMOVIC	United Nations Monitoring, Verification, and Inspection Commission
VEREX	Group of Government Experts to Identify and Examine Potential Verification Measures from the Scientific and Technical Standpoint
WMD	weapons of mass destruction

1
Introduction

Even the most cynical observers of world affairs agree that there are ways to resolve conflicts other than by military force. Even the most realpolitik, hard-nosed foreign policy scholars agree that negotiated arms reductions can, under the right circumstances, play a useful role in reducing tensions. No doubt history offers many reasons to be pessimistic about the future success of such efforts. Moreover, international arms control and nonproliferation regimes have suffered some serious blows in the past decade: the threat posed to the validity of the Treaty on the Nonproliferation of Nuclear Weapons (NPT) by North Korea, India, and Pakistan; the removal of the director general of the Organization for the Prevention of Chemical Weapons; the dissolution of the Biological Weapons Convention verification talks; the refusal of the U.S. Senate to consider ratification of the Comprehensive Test Ban Treaty; the abrogation of the Anti-Ballistic Missile (ABM) treaty. Nevertheless, most of the regimes persist. They have not been decimated, or dismantled, or abandoned. Their number and the degree to which they have taken on a life of their own suggest that they will be part of international politics for some time to come.

China remained at the margin or outside of global arms control efforts for the 50 years following World War II. In the 1980s, facing an international environment dramatically different from that of the previous few decades, the Chinese leadership began to reevaluate this hands-off approach. The ten years between 1989 and 1999 saw a rapid—unprecedented—increase in Chinese participation in arms control and nonproliferation regimes. The change came about at a time of many other remarkable developments in China: an economic boom of historic proportions; rapid scientific advances, albeit in only a few niche fields; fundamental shifts in the locus of economic decision-making power; vast increases in imports, exports, and foreign investment; a huge jump in personal income for two-thirds of the population, and a reduction of the role of the Communist Party that gave individuals not the kind of freedoms thought of as democracy in the West, but at least the confidence that they could make personal, financial, and professional choices without coercion by the state.

With all of these (and many more) developments taking place, China's arms control story remains untold, both in China and in the United States. Scholars have devoted attention to the way China interacts with other types of global institutions,

including those that pertain to trade, human rights, legal reform, crime, and environmental protection. China's entry into formal arms control and nonproliferation regimes, however, has received little attention. The topic appears in the news briefly when there is a Chinese weapon sale to which the United States objects. Yet analysts and newspaper columnists, when they have written about China's arms exports, have done so with very little reference to the global treaties and agreements that are intended to limit those exports. Selected headlines from 1989 through 1997 are illustrative of the tone of most of this writing. They include "Atom Arms Parts Sold to Pakistan by China, U.S. Says," "To Curb China's Arms Trade," "China Aids Pakistan Nuclear Program," "Those Chinese Missiles," and "China Cheats (What a Surprise)."[1] Even the scholarly literature has addressed Chinese arms control and nonproliferation in value-laden terms. A *China Quarterly* article asked whether China is a rogue elephant or team player and concluded that "As one of the world's largest arms merchants and a nuclear power, the PRC [People's Republic of China] must participate in any meaningful international regime to control both the spread of conventional weapons and nuclear proliferation. Yet the PRC has proved a reluctant participant in such efforts."[2] A leading American China scholar commented that in the area of nonproliferation he had "fundamental questions about Peking's credibility."[3] Finally, a think tank that focuses on nuclear policy issued a report entitled "China's Record of Proliferation Misbehavior."[4]

Do these judgments represent global consensus or U.S. opinion? Bringing China into the world community and judging China by internationally recognized standards has been a cornerstone of American foreign policy since the normalization of relations in 1979. When it comes to arms control and nonproliferation, however, the United States has tended to bypass international standards and focus instead on Chinese compliance with specific American objectives. This is true despite the fact that the United States was in the forefront of establishing many of the international arms control regimes. No one has asked or examined how Chinese arms control and nonproliferation activities measure up when judged against international, rather than strictly American, standards. The only way to find out is to delve into the details of each treaty and each commitment.

The process of examining China's record according to international standards offers a window into an area of Chinese policy that has been encased in mystery, and one in which China's post-Mao leaders have been very careful to show that Chinese sovereignty is being protected. For those who care about the direction and pace of change in Chinese attitudes towards national security, the arms control case study offers important lessons. Any agreement by China to reveal, reduce, abandon, disarm, dismantle military hardware, especially if China also agrees to international verification, represents a new era in Chinese defense and security thinking. In many respects, arms control commitments are consistent with the new, outward-looking series of economic policies that emerged in China in the early 1980s. Yet these economic policies did not require Chinese leaders to give up or

limit the means used for physical protection of the state. This study is a first attempt to understand what Chinese arms control and nonproliferation commitments mean. It focuses on Chinese participation in regimes that have at least two of the three following characteristics: legal standing, broad multilateral participation, and formal definitions for compliance or verification. Only seven regimes meet these criteria, thus limiting the scope of this inquiry. But these seven regimes make it possible to examine specific Chinese commitments, including the disclosure of military information, restraint on the use or testing of weapons, the establishment of controls on weapons-related exports, and other concrete measures of support for, and compliance with, arms control regimes. Limiting the scope of the inquiry also makes it possible to examine Chinese participation empirically, within a comparative framework.

The book consists of 12 chapters. The seven "treaty" chapters address the Nuclear Nonproliferation Treaty, the Comprehensive Test Ban Treaty (CTBT), the Chemical Weapons Convention (CWC), the Biological Weapons Convention, the Missile Technology Control Regime, the U.N. Register of Conventional Arms, and the Convention on Conventional Weapons. In each the reader will find background on the treaty itself, a discussion of China's relationship to the treaty, standards for measuring treaty compliance, and an assessment of Chinese compliance with the treaty. Although treaty compliance is often difficult to measure precisely, it is possible to assemble the existing evidence and make some preliminary judgments. Chapter 9 briefly examines the less formal regimes in which China has played a role. Chapter 10 summarizes what is known, based in part on the history provided in the regime chapters, about the roles of different parts of China's arms control bureaucracy in the negotiation and implementation of treaties. Chapter 11 compares the costs imposed on China by all the regimes and then explores potential benefits that could offset them. Chapter 12 draws conclusions about the nature of Chinese participation to date and what these suggest about future Chinese policy.

One objective of this study is to determine whether or not Chinese leaders have made significant sacrifices as a result of their desire to be part of international arms control regimes. For this reason, this study excludes China's participation in regimes such as the Treaty of Tlateloco, which calls for members to agree to not deploy nuclear weapons in Latin America. China's participation helped strengthen the treaty, but the commitment reveals little about China's view on the use of weapons to resolve international conflicts, or China's willingness to accept international restrictions on its own use of weapons. China would have been unlikely to deploy nuclear weapons in Latin America in any case; forfeiting an option that has little value is inherently less interesting than a decision that has more tangible costs. Chinese participation in security dialogues (such as the Asian Regional Forum and the Northeast Asia Cooperation Dialogue) is also excluded from consideration here. Although these regimes do involve issues directly relevant to China's security concerns, they demand very little of the participants by way of legally binding commitments or difficult decisions. The declaratory

statements China has made at these meetings, whether about the Spratlys or North Korea, have been little more than rhetoric about general principles, not specific commitments that reflect difficult trade-offs. This is not to devalue the concept of security dialogues, or to denigrate China's role in them; both are significant. It is merely to say that China's participation in these organizations in and of itself does not yield new or interesting information about what the Chinese are willing to do, in practical way, to support the general principles they articulate.

The exclusive focus on regimes with specific requirements and verification procedures has disadvantages. It discounts the value of informal and innovative concepts of international security relations, including confidencebuilding measures and cooperative security. Yet it offers a distinct advantage: it permits the use of empirical data to compare Chinese positions and activities with those of other countries using objective standards.

The study also excludes consideration of China's attitude towards regimes in which China cannot participate. Much could be learned from examining China's changing attitude towards U.S.-Russian arms control and nonproliferation initiatives; however, China remains on the outside of these agreements and is likely to remain so. It also excludes consideration of regional security regimes such as the Sino-Indian and Sino-Russian confidence-building activities.

The focus on a small number of regimes also means excluding China's role in the major U.N. deliberative bodies that address disarmament and arms control: the First Committee of the General Assembly and the Conference on Disarmament (CD).[5] This is a topic ripe for exploration, since deliberations in these bodies reveal the evolution of China's position on key arms control issues. In these meetings China, like other countries, can influence the shape of treaty negotiations before they begin. Chinese expanding involvement in each of these organizations merits an entirely separate effort.

Finally, this study also excludes Chinese participation in nonofficial "Track Two" activities such as the Council for Security Cooperation in the Asia Pacific (CSCAP), not because the mechanisms themselves lack value. On the contrary, these organizations are extremely valuable in breaking down the mistrust created by lack of information, lack of familiarity, and lack of cultural understanding. They represent important channels for communication with Chinese officials in a benign setting. However, participation does not demand anything tangible from China, and therefore doesn't represent any real commitment, clarification, or change in Chinese security policy. The record of Chinese participation in these activities does not provide empirical data.

Anyone who has a more than casual interest in any aspect of Chinese security policy knows that accurate information is not easy to extract. Data pertaining to participation in international institutions and regimes is somewhat more accessible, but not without difficulties. Understanding the different organizations in China's arms control bureaucracy is another challenge.

Few bureaucracies worthy of study are easy to penetrate, and the resistance of the Chinese government to transparency remains a constant even as many other

political realities are changing. One highly placed Chinese friend remarked at the outset of this study that: "There are some things that you will simply never find out, that I myself can never know." In other words, perfect knowledge is an unattainable goal. In fact, it is not a simple task to fully unpack the policy formulation process for arms control and nonproliferation even in relatively open societies. There are simply too many players and too much of the information has to be protected for national security reasons. The Chinese case poses additional obstacles because there is a relatively small number of official Chinese government statements on key treaties, and there are virtually no government papers or studies from which one can understand the evolution of Chinese thought on these subjects. Interest groups and informal coalitions are obscure in China. They don't identify themselves as such, and they don't publish independent views in journals or other media. National defense and security policies remain sensitive topics. Open debate is rare and, even in private, Chinese scholars as well as officials are hesitant to express views contrary to those already formally expressed by the central government. When United States-China policy became a polarized debate between those who were perceived as apologists and those who believe that China constitutes a threat to U.S. interests, U.S. government officials became equally reticent, in some cases more so than their Chinese counterparts. No American officials or even retired officials were willing to speak on the record on this topic. One Arms Control and Disarmament Agency official explained in 1999 that the reason the annual report on arms control compliance had been delayed by so many months was the internal debate over Chinese nonproliferation behavior.

In the absence of meaningful data, new approaches are required. Emerging theories of arms control policy formulation suggest that there might be important linkages across countries between certain types of security and nonsecurity policies. For example, in some countries, interest groups who support market-oriented economic objectives can also be expected to support participation in arms control regimes, while those who support a more autarkic ideology can be expected to oppose them.[6] This concept offers an attractive approach to analyzing the China case, since economic debates are more widely publicized in China than those on security issues and empirical economic data is somewhat easier to acquire. It is plausible to speculate, for example, that those in China who have been pushing more aggressively for market reform were the same types of people who advocated China's participation in certain arms control regimes, possibly the CTBT or the CWC. At present, it is a considerable challenge to identify who in China belongs to any given economic coalition, much less any position those individuals might have on security matters. Currently most officials or scholars involved in economic policy appear to have little voice or little opinion with respect to security issues. Nevertheless, this approach might well have merit as recognizable and predictable linkages emerge between security issues and other topics on which there is more open debate.

Two final caveats are in order. First, throughout this book, the term "arms control" is used as shorthand to refer to regimes and policies that involve either

arms control or nonproliferation. Second, this book addresses China's participation in the regimes exclusively from a U.S. perspective. Although it would have been revealing to explore the viewpoints of Europeans or Asians, it remains a fact that only the United States has chosen to make arms control and nonproliferation an important issue in dealing with China.[7]

2
Nuclear nonproliferation regimes: the Nuclear Nonproliferation Treaty and the International Atomic Energy Agency

Introduction

China's status as one of only five legally declared nuclear weapons states has given Beijing an important opportunity to exert decisive influence on the world stage; but it was only in the 1980s, in the context of post-Mao reforms, that the Chinese government began to perceive the value of participation in nuclear nonproliferation regimes. Chinese decisions about entry into nuclear nonproliferation commitments assume significance at different levels. First, at a practical and mechanical level, Chinese nuclear exports (or imposition of control on exports) can affect concrete political and military outcomes; only a few countries are potential suppliers to states that want to acquire nuclear weapons. Second, at a symbolic level, the success of international regimes designed to limit the spread of nuclear weapons will depend on universal acceptance, and China's official position on a particular regime can send a powerful signal about its viability. Third, China's role in nuclear nonproliferation has become emblematic of its acceptance—or nonacceptance—into the international community. Ever since China embraced an open door foreign policy in the early 1980s, allegations that China has been an irresponsible proliferator of nuclear weapons technology have been an irritant to the Chinese government, and an obstacle to full acceptance of China into the international community. This chapter addresses Chinese nuclear nonproliferation behavior in the context of the two most important international regimes, the International Atomic Energy Agency (IAEA) and the Nuclear Nonproliferation Treaty (NPT).

IAEA

History of the IAEA

The IAEA is not a nonproliferation regime *per se,* but an agency established by the U.N. in 1957 to promote safe use of nuclear power for peaceful purposes. Its system of safeguards and inspections, based on voluntary disclosures by the

member countries about the location and nature of their nuclear activities, was intended to prevent the diversion of nuclear material and equipment to weapons programs. Teams of IAEA inspectors periodically visit facilities in IAEA member states (that is, member states that have signed safeguards agreements) to make sure that nuclear material inventories can be accounted for and that nuclear-related equipment is being used for its originally intended (peaceful) purposes.[1]

The rules and procedures governing inspections and the conditions under which they would be conducted were hotly debated when the IAEA first came into existence: developing countries argued for minimal intrusion, whereas industrialized countries wanted to see tighter controls and more rigorous inspections. The need to reach consensus resulted in a compromise whereby it was agreed that inspections would be announced in advance and could be refused by the host country. The inspection regime, in conjunction with a country's disclosures to the IAEA of information about its nuclear program, was intended to provide reassurance to its neighbors and thereby contribute to the goal of nuclear nonproliferation[2] while at the same time promoting the development of civilian nuclear power.[3]

After 1968, the IAEA became an important element in NPT implementation because of the requirement that NPT members who do not possess nuclear weapons enter into IAEA safeguards agreements, and thereby accept international inspections of all their facilities that might produce, use, handle, or transfer nuclear materials. In addition to entering into safeguard agreements, NPT parties (including nuclear weapon states) also agree to implement IAEA safeguards for all transfers of nuclear technology to nonnuclear weapon states.[4] Even after the IAEA became associated with the NPT, however, the IAEA safeguards system was never intended to serve as a complete verification regime, since the IAEA is only authorized to inspect declared nuclear sites, not suspected nuclear sites. Therefore an aspiring nuclear weapons state can simply choose not to disclose a location in order to avoid an embarrassing inspection. In addition, the safeguards agreements and inspection procedures were designed to focus specifically on diversion of nuclear material from a civilian reactor.[5] The notion that a country would establish a clandestine nuclear weapons program in parallel with a safeguarded civilian program was not contemplated at the outset of the regime. Furthermore, there have been many allegations that the IAEA itself became co-opted by representatives of countries suspected of clandestine nuclear weapons development programs. This allegedly led the agency to look the other way when presented with evidence that would cause an international confrontation over the proliferation of nuclear technology. Finally, IAEA critics have charged that participation in the inspection process has enabled countries who want to develop nuclear weapons to learn how best to avoid detection of such an effort.[6]

In the case of Iraq, Gary Milhollin of the Wisconsin Project on Arms Control has charged that "The agency's timid managers…gave the Iraqis the crucial time they needed to spin a web of deception." He also reported that "Most of the [Special Commission] inspectors I've spoken with—all of whom insist on anonymity—

despair of finding anything as long as the IAEA remains in charge."[7] Whether these allegations are true or not, the limitations of the IAEA's ability to prevent nuclear proliferation became more visible and more controversial when the agency started to conduct "special" unannounced inspections at non-declared sites in Iraq in 1992 as part of the Gulf War ceasefire agreement, and in North Korea in 1993 when the latter threatened withdrawal from the NPT.[8] Both countries had been IAEA members and both countries had used IAEA cover for clandestine nuclear weapons programs. These two events led to a systematic effort to strengthen the lAEA's safeguards program and to make inspections more regular, more intrusive, and more effective in preventing proliferation. This effort was initiated in 1993 and is known as "93 plus 2" because it was not formally adopted until 1995.

China and the IAEA

China's entry into the international nonproliferation world began formally with an application in December 1983 to join the IAEA; the application was approved at the next meeting and China joined the organization officially the following year.[9] China's entry into this organization is worth noting for several reasons. First, it signified for the first time Chinese acceptance of an international regime including safeguards and inspections. Despite the limited nature of the IAEA inspection system, and despite China's special status as a nuclear weapons member of IAEA, this merits recognition. Second, China's membership in the IAEA meant that China could build a nuclear power industry informed by modern standards of safety, process control, and material accounting. Third, China's IAEA membership made it possible for the international community to see into China's civilian nuclear power industry, albeit in a limited way, and thereby reduce—not eliminate—the chance that a growing nuclear industry in China would contribute to regional instability and suspicion. Finally, China's membership in IAEA illustrated the degree to which China could use its weight to strengthen the international system; the IAEA was a much more credible organization once all the Permanent Five Members of the United Nations Security Council (P-5) were inside the regime. The nature of lAEA's structure and purpose, however, made China's entry a less significant political commitment than entry into a formal treaty.

For China in 1983, IAEA membership brought concrete practical advantages. After two oil crises in the West, China's leadership had begun to realize the degree to which economic modernization would require energy sources well beyond what had been available during the previous several decades. Although China has abundant coal and considerable oil reserves, extraction of these reserves will be difficult and costly. To China, and to many foreign observers, it was increasingly obvious that the establishment of a nuclear industry would be critical to China's economic success.[10] In the early 1980s China's nuclear industry consisted of facilities that had been built to support the nuclear weapons program, as well as a number of research reactors. There was no civilian nuclear power industry.

Moreover, Chinese leaders realized that, although the nuclear weapons program had been largely an indigenous effort, it was not desirable to attempt the same course for civilian nuclear power. Foreign suppliers of equipment were anxious to sell to China and to transfer technology. The Chinese anticipated that this would enable the establishment of a vibrant domestic industry and that the PRC, too, would be able to export nuclear equipment. Several European government officials discussed the possibility that China would store their radioactive waste from other countries; China denied entering into any formal agreements to do so.[11]

From a practical perspective, therefore, joining the IAEA was a low-cost, high-payoff decision. Joining the organization gave China the opportunity to sit on the Board of Directors and to receive technical assistance and training, without requiring that China sign agreements that included intrusive verification or onerous export constraints. China could reap substantial benefits without agreeing to submit to inspections, which, despite their limitations, in 1983 would have been seen within China as politically sensitive, possibly even a violation of Chinese sovereignty.

Moreover, membership in the IAEA made it easier for China to begin to discuss civilian nuclear technology cooperation agreements with Argentina, Belgium, Brazil, Britain, France, Germany, Japan, Pakistan, and the United States, in some instances as a customer for nuclear technology and in others as a supplier. In most of these negotiations, however, potential nuclear trade and technical cooperation partners began to raise the question of IAEA safeguards. Although IAEA inspections are seen as only minimally intrusive by the standards of the late 1990s, in 1983 China had not participated in any international regimes that included inspections by teams of foreign experts. The PRC was still in the process of opening up to the outside world; many areas of the country were off limits to foreigners, and even for ordinary Chinese, domestic travel was restricted and monitored. Thus China's willingness to agree to IAEA-imposed safeguards was an early test of what Beijing was willing to sacrifice in order to be a member in good standing of the nuclear club. Some supplier countries told China that any equipment sold would be placed under IAEA safeguards as a condition of the transfer. A draft United States-China nuclear cooperation agreement that was being debated in the Congress at this time did not contain this requirement, although several senators had argued for its inclusion. The draft U.S. agreement did provide for a mutually acceptable system of accounting and inspections, but this was seen by many critics as less than sufficient,[12] and as an example that might set a dangerous precedent for other developing countries–a charge that was repeated when the agreement was debated again in 1997.[13]

In fact, the U.S. agreement remained frozen in Congress for the next thirteen years due to a clause requiring the president to stipulate that China was not assisting Pakistan to develop nuclear weapons, but not as a result of the safeguards issue (the 1985 U.S. debate about China's nuclear proliferation record is discussed later in this chapter). The Chinese reportedly *did* agree to bilateral IAEA safeguards in nuclear cooperation agreements with Japan and Argentina, although,

since neither of these countries sold significant amounts of either equipment or material to China, the relevant safeguards were never applied. France did not insist on safeguards before selling China the Framatome equipment for its subsequent sale of equipment for the Daya Bay nuclear power plant near Hong Kong, and said that Chinese verbal assurances that the material and equipment would not be diverted to military use were sufficient.[14] Nor did the U.K. demand safeguards on nuclear transfers to China—but since there was minimal nuclear trade, the issue was less significant than it might have been.

Shortly after joining the IAEA, perhaps as a result of negotiations with the United States and other potential suppliers, China began to discuss the possibility of a "voluntary" IAEA safeguards agreement, comparable to the ones signed by other nuclear weapons states. For a nuclear weapon state, the safeguards process consists first of providing the IAEA with a list of nonmilitary nuclear facilities[15] from which the agency then selects those where safeguards will be applied.[16]

After entering into a safeguards agreement, the agreement stipulated that China would permit periodic inspections to ensure that no nuclear material or equipment had been diverted from those facilities. Chinese officials began in 1984 to work with the IAEA on a draft safeguard agreement and inspection regime, and signed such an agreement in 1988.[17] China has two reactors that are under IAEA safeguards (the Qinshan nuclear power plant near Hangzhou and a heavy-water research reactor in Beijing). Two more (one from Canada and one from Russia) will be placed under safeguards when they are installed.[18]

The lAEA's resources to carry out inspections do not begin to meet the demands of a regular or thorough inspection routine. For most of its existence, moreover, the IAEA has focused on inspections in the nonnuclear weapon states rather than in the declared nuclear weapon states. Inspections were to be announced in advance and remained voluntary. The chance that China would be in any way constrained or exposed by the IAEA was small. Nevertheless, given the sensitivity in China to foreign inspections, even limited access for the IAEA represented a significant departure from the past. Furthermore, China's voluntary IAEA agreement provided important symbolic support to the nuclear nonproliferation regime, since China was the last nuclear weapons state to enter into such an agreement. Finally, it is worth noting that China supported the enhancement of the IAEA safeguards system embodied in the "93 plus 2" proposals that were formally adopted in 1997.[19] The 93 plus 2 reforms did not pose a significant additional burden on China, but they did add more "teeth" to the IAEA's inspection procedures. Since the Chinese have tended to be wary of intrusive international inspections on general principle, support was not a foregone conclusion.

The NPT

Despite having lived with the threat of nuclear war for almost 50 years, the world has not seen the use of a nuclear weapon since the end of World War II. The 1968 Nuclear Nonproliferation Treaty embodies and reflects an international consensus

on the need to eliminate the danger of annihilation inherent in the existence of nuclear weapons. The NPT is the oldest and most inclusive international nonproliferation treaty and has endured despite imperfections and charges of irrelevance and ineffectiveness.

Background on the treaty

The NPT itself is a short and spare document in which most of the constraints apply to the nonnuclear weapon states; the specific demands or restraints that the treaty requires of declared nuclear weapon states are relatively few. Briefly stated, the treaty prohibits nuclear weapon states from exporting these weapons or helping nonnuclear weapons states to develop them. This commitment is expressed in Article I of the NPT which says that each nuclear weapon state undertakes to "not in any way assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons."[20] Nonsafeguarded transfers of fissionable material or related equipment are prohibited. The text does not specify what constitutes "equipment or material especially designed or prepared for the processing, use or production of special fissionable material." Nor does it define what activities constitute "assistance…to a non-nuclear weapon state to manufacture or otherwise acquire nuclear weapons." It does not delineate export control practices or regulations to be used in its execution.

NPT members who do not possess nuclear weapons (defined by the treaty as any member which did not possess nuclear weapons prior to 1967) must meet specific requirements. These states must renounce any intention to develop or deploy nuclear weapons, and they must place all their nuclear facilities under IAEA safeguards—a condition referred to as "full scope" safeguards. Thus, the treaty locks nonnuclear weapon members into a permanent position of nonpossession, while at the same time requiring more of them by way of disclosure and submission to international inspections. This distinction between nuclear and nonnuclear states is responsible for the recurring charges of discrimination leveled at the regime. In response to the concerns of the nonnuclear weapon states, the drafters of the NPT added a provision (Article VI) that committed the nuclear weapons states to work in good faith towards the elimination of these weapons. All nuclear weapon states could, therefore, in theory, face constraints on their own nuclear weapons collectively they chose to engage in a serious discussion of Article VI of the NPT.

Finally, it is important to remember that the NPT does not pose any specific constraints on the development of nuclear weapons for states that already possessed them in 1967. Its provisions address the spread of nuclear weapons to additional countries. The NPT does not address the dangers inherent in the expansion of existing indigenous nuclear weapons inventories beyond what is stated in Article VI.

China's accession to the NPT in 1992 marked a turning point in the validity of the regime, and the NPT's prospects for survival increased further with the

indefinite extension of the treaty in 1995. Nevertheless, the treaty does not have universal adherence. Two declared nuclear states (India, Pakistan) and Israel, who most experts agree has nuclear weapons, remain outside the NPT framework. Beijing's decision to enter the regime reflects changing Chinese attitudes about the role of nuclear weapons and nuclear proliferation in global security, while underscoring the regime's limitations and shortcomings.

Chinese attitudes towards nuclear nonproliferation during the Mao era

It is worth remembering that when the NPT came into existence China was in the throes of the Cultural Revolution, and Mao's revolutionary theories shaped and controlled Chinese foreign policy. Within China, knowledge about events in other countries was limited. At the time China rejected the notion that nuclear proliferation was a significant security threat, and Mao himself did not see much value in the NPT. Thus, for over two decades China remained aloof, criticizing the treaty as a superpower ploy to maintain a nuclear weapons monopoly at the expense of weaker, nonnuclear weapon states. China criticized the treaty as discriminatory because it had created two levels of membership—the declared nuclear powers and the rest of the world; and the NPT had different standards for each. The Limited Test Ban Treaty of 1963 and the entire process of U.S.-Soviet strategic and intermediate-range nuclear force reduction talks were likewise dismissed by China as insincere. Criticism of the NPT was not a uniquely Chinese position; many members of the Non Aligned Movement (NAM) and the developing countries rejected the assumptions inherent in the treaty. China's revolutionary identification with downtrodden and oppressed countries and a desire to be seen as their vanguard provided another reason for China to stay outside the regime. As long as Mao was alive, animosity towards both the United States and the Soviet Union converged with China's desire to be a champion of developing countries' interests and kept China outside the nuclear nonproliferation club. At the same time, Chinese officials did not speak often in public about the NPT. A statement read at the United Nations in November 1984 by Qian Jiadong, China's disarmament ambassador, summarized the PRC position on the treaty:

> China is critical of the discriminatory 'treaty on the non-proliferation of nuclear weapons' and has declined to accede to it. But we by no means favor nuclear proliferation, nor do we engage in such proliferation by helping other countries to develop nuclear weapons… China has made sure that the nuclear materials and equipment it exports or imports are used for peaceful purposes only.[21]

Changing views in the 1980s

The comprehensive economic modernization program set forth by the post-Mao regime under Deng Xiaoping set the stage for a new foreign policy and made it possible to revisit earlier assumptions. This reevaluation included an analysis of previous Chinese attitudes towards nuclear proliferation. Signs that Chinese opinions were changing began to appear in the mid-1980s in the context of negotiations with U.S. diplomats on a United States-China nuclear agreement. In 1984 Premier Zhao Ziyang mentioned nuclear nonproliferation in a speech before the National People's Congress (NPC), significant because the subject had been referred to so rarely by senior officials. Zhao had likewise expressed China's opposition to nuclear proliferation at a White House dinner in January of the same year.[22] Although China continued to criticize the NPT, PRC officials began to suggest that China would support its goals and objectives.

China's entry into the NPT

China attended the NPT Review Conference of 1990 as an observer. During discussions with Japan about nuclear power technology cooperation, Japan's foreign minister urged China to consider formal membership. In August 1991, two months after France announced its intention to join the NPT as part of a broader policy of nuclear disarmament, Prime Minister Li Peng also announced that China had decided "in principle" to sign the treaty.[23] This would require ratification by the Standing Committee of the NPC, which met in late August, in late October, and again in late December. For reasons that remain unknown, despite the "rubber stamp" nature of the congress, ratification seems to have encountered resistance.[24] Some foreign commentators speculated that NPC delegates wanted to wait until the United States and the Soviet Union had made further progress in arms reduction before formally acceding to the treaty; others suggested China was waiting to see the outcome of the coup in the Soviet Union. [25] Secretary of State James Baker was told by the Chinese during his November 1991 visit that the treaty would be ratified later in the year, and that the accession would take place three months after that. The NPC did in fact vote on the treaty in late December of 1991 and China formally deposited its instrument of accession[26] in London in March 1992.[27] The United Kingdom, Canada, Japan, and several other countries issued statements of support and congratulations. The United States neglected to formally recognize China's decision, possibly intentionally, and possibly because other bilateral issues distracted the attention of the Bush administration.

Reasons behind China's decision to enter the NPT

The exact chain of events that led to China's reversal on the NPT remains obscure. The United States' role appears to have been limited and indirect. American condemnation of Chinese policy during the June 1989 Tiananmen demonstrations

had been severe, and China's leadership was probably looking for areas of convergence, issues on which the two countries could agree. This resulted in a diplomatic offensive for the next several years, and NPT accession can be seen as part of this package. From this perspective, U.S. pressure played a role in China's decision. However, there is little evidence that formal accession to the NPT had been a focus of discussion between Chinese leaders and those of any other countries. The United States had expressed concern about China's potential to become a nuclear proliferator, especially during the 1985 debate about a bilateral nuclear technology agreement. However, the agreement was not made contingent on China joining the NPT. The annual renewal by the U.S. Congress of China's Most Favored Nation (MFN) trade status[28] was linked by statute to China's proliferation record, and this record as a result had become an irritant in the United States-China relationship.[29] However, MFN renewal was not made contingent on Chinese membership in the NPT and China's nonmembership in the NPT was at most a marginal factor in the domestic debate within the United States about China. When Secretary of State Baker visited Beijing in November 1991, Chinese nuclear transfers were only one on a long list of objectionable Chinese activities he hoped to bring to an end. Baker recalls in his memoirs that the NPT was discussed, but that it was not the focal point.[30]

In the 1980s and 1990s, the Arms Control and Disarmament Agency (ACDA) held regular bilateral consultations with non-NPT members to promote the regime and its contribution to global as well as regional stability. However, China's nonmembership in the NPT had not, in and of itself, been a major obstacle in United States-China relations. In fact, the early 1980s had seen the growth of bilateral military to military ties, as well as the transfer to China of U.S. conventional weapons technology, despite the fact that China remained outside the NPT, and despite concerns about Chinese nuclear sales to Iran and Pakistan. When the arms transfers were suspended in 1989, it was not because of concerns about proliferation, but as part of a package of Tiananmen Square sanctions to protest human rights abuses. Japan and Australia had raised the issue of China's joining the NPT on numerous occasions but apparently applied only minimal pressure. An exhaustive study of United States-China relations during the Bush (Sr.) administration makes no mention whatsoever of China's accession to the treaty.

Without specific evidence of cause and effect, it is safe to assume that several senior and influential leaders must have started discussing a potential shift in China's policy in the late 1980s. The need to reverse world opinion of Chinese policy following the 1989 Tiananmen demonstrations was an overriding concern for the subsequent three years. Thus it was not by coincidence that Chinese officials announced their decision to enter the NPT during the first post-Tiananmen visit to Beijing by a foreign dignitary, Japanese Prime Minister Toshiki Kaifu. One Hong Kong newspaper speculated that the decision was made in the context of Chinese fears about an upcoming vote in the U.S. Congress on Most Favored Nation Status (now referred to as Normal Trading Relations). In all

likelihood, Chinese leaders recognized the persistent and growing influence of international nonproliferation regimes, acknowledged their inevitability, and evaluated the costs over time of being a nonparty to something that would exist regardless. One Chinese nuclear scientist explained, "We thought we could do more good from inside the NPT than from outside it."[31] These officials were ultimately able to persuade Deng Xiaoping that the benefits of joining, including the opportunity to influence the regime, outweighed the costs of remaining on the outside. At a time when Chinese foreign policy was becoming more pragmatic and less ideological, such a transition was consistent with other reforms. Moreover, a new tolerance in China for limited policy debate made it possible to revise old interpretations. For example, several scholars in the Chinese Academy of Social Sciences had argued in 1988 that previous criticisms of the NPT as discriminatory should be revisited, on the grounds that whereas the treaty does create two "classes" of members (the nuclear haves and have-nots), it is non-discriminatory because it imposes the same prohibitions on transfers of nuclear material on all its members.[32] It is also possible that the People's Liberation Army (PLA) actually argued in favor of China's accession to the NPT on the grounds that it would legitimize Chinese possession of nuclear weapons.

It is important to recognize that acceding to the NPT did not require a substantive policy reversal for China. Chinese leaders had already publicly reviewed the goals and objectives of the treaty and found fault only with the means for achieving those ends. In addition, formal accession to the NPT held out the possibility of a more liberal flow of advanced technology into China. Although already at that time eligible under U.S. and Coordinating Committee for Multilateral Export Controls (COCOM) regulations to import a wide range of dual use items, as well as some U.S. and European military hardware, China was clearly in a separate class from U.S. friends and allies. Whether or not it materially affected China's ability to modernize the economy, this status was offensive and reinforced China's sensitivity to anything that could be interpreted as domination by foreign powers. NPT membership gave China a "Good Housekeeping" seal of approval, which many Chinese believed would ultimately result in the elimination of all restrictions on U.S. technology exports to China. Finally, the timing of China's decision leaves little doubt that a desire to avoid international isolation, particularly in light of the world's reaction to the events of June 1989, was a critical part of the calculation. Had China waited beyond 1991 to join, it would have been the only P-5 member to be outside the regime.

China's role in NPT prepcoms and review conferences

China's first real opportunity to play an important role in changing the terms of the NPT occurred at the 1995 NPT Review Conference. Review conferences had been held regularly since the treaty was originally signed; however the agenda for 1995 included a critical vote on indefinite extension of the treaty. Indefinite extension of the treaty by an overwhelming majority of the members was seen as

absolutely essential to the viability of the regime. China did not announce a firm position on extension when going into the review conference, saying only that it supported a "smooth" extension.[33] The term "smooth" had little meaning in the NPT context, since it could mean support for either a finite or indefinite extension. In private conversations, diplomats from Western countries pressed Chinese Foreign Ministry staff for clarification. One diplomat later recounted that Chinese Ambassador Sha, who led the PRC delegation to the review conference, exasperated after being hounded for several days, finally responded unofficially that China would support indefinite extension. "But," he added, "don't expect us to *say* so." Since Beijing's position remained ambiguous, Chinese leverage that could have been used to muster support among less enthusiastic NPT parties never materialized. PRC support was therefore perceived as lukewarm, but at the end of the day, China voted for indefinite extension and remained a member of the nuclear nonproliferation club. Whether China engaged in any side conversations in which Chinese diplomats exacted concessions from key NPT members on other issues is difficult to say. At the end of the conference, China could not point to any obvious, public victories. Yet the delegation certainly preserved China's standing in the NPT and avoided condemnation. Moreover, the 1995 Review Conference also generated a series of political commitments to which China agreed. These included the establishment of a strengthened process for treaty review, completion of the Comprehensive Test Ban Treaty (CTBT) negotiations, enhanced nuclear safeguards, and negotiation of a fissile material cut-off agreement.

In between the NPT review conferences members attend preparatory meetings ("Prepcoms") roughly once a year. The prepcoms and the review conferences themselves are significant not only for concrete accomplishments that pertain directly to the treaty, such as its indefinite extension, but also because they result in consensus statements on other, related arms control and nonproliferation matters. The 1995 Review Conference document, for example, made reference to the CTBT, even though that treaty was being negotiated in a different venue. The NPT meetings have become platforms members use to voice their views on a variety of arms control nonproliferation and broader security and foreign policy issues.

Since the 1995 Review Conference there have been three prepcoms and another review conference. Initially, China kept a relatively low profile at NPT prepcoms, possibly because Chinese officials were still learning about the workings of the regime. Over time, China's role and influence have expanded. In 1997 China called for the elimination of non-IAEA practices to restrict nuclear transfers, a move which was seen as undermining the validity of the NPT. Under China's proposal, all export controls and restrictions would have had to be blessed by the IAEA. This was a thinly veiled criticism of U.S. policy, which imposes many restrictions on nuclear exports beyond the letter of the IAEA regulations. This position was not unique to China, as it was echoed by most members of the NAM, but it never materialized into any concrete proposals.

The 1998 prepcom achieved little of substance and China's positions were in line with those previously expressed. In 1999 a New Agenda Coalition appeared at the prepcom for the first time. This coalition, composed primarily of nonaligned nations, pushed forward an ambitious agenda aimed at increasing the pressure on the nuclear weapon states to take concrete steps towards nuclear disarmament. The proposal supported by the coalition included bilateral de-alerting of nuclear arsenals by the United States and Russia; initiation of START III (Strategic Arms Reduction Treaty) negotiations; the inclusion of Britain, France, and China in multilateral disarmament negotiations; transparency in nuclear deployments and operations (including those of tactical nuclear weapons); sharp reductions in tactical nuclear weapons; and commitment to a global regime of negative security assurances. China supported each of these propositions except transparency, and the United States opposed all of them. China effectively used the prepcom platform to express outrage at the U.S. bombing of its embassy in Belgrade and forceful opposition to U.S. plans for theater and national missile defense. An excerpt from Ambassador Sha Zuang's speech at the prepcom is illustrative:

> Nuclear disarmament and non-proliferation of nuclear weapons are complementary to each other, and their progress is closely linked to international peace and security. At this very moment, hegemonism and power politics are seriously jeopardizing certain countries' sovereignty, security and even their very existence. Innocent civilians are under brutal and indiscriminate bombardment by U.S.-led NATO and even diplomatic missions cannot be spared. It is hard to imagine that under the above circumstances, discussion on nuclear disarmament and non-proliferation at this forum can lead us anywhere. People have every reason to worry that if the United States, instead of changing its course, continues to threaten or bully other countries, those countries will be forced to resort to every possible means to protect themselves. That may eventually result in the collapse of existing international regimes on disarmament, including those aiming at preventing the proliferation of weapons of mass destruction.[34]

Unlike the previous three review conferences, the 2000 NPT Review Conference resulted in a consensus document supported by 155 nations. The New Agenda Coalition was even more successful in strengthening its position and making sure its language was adopted in the final document. One accomplishment of the conference was the commitment by the nuclear weapon states to the "unequivocal undertaking to eliminate their nuclear weapons." Previous statements had referred to "general and complete disarmament," and constituted only qualified commitments to get rid of nuclear arsenals. For the first time, the implicit obligations of the nuclear weapon states with respect to ultimate disarmament were made explicit.[35] Furthermore, the consensus document identified specific measures that the nuclear weapon states should adopt to begin the elimination of their weapons. Most of the suggestions were in line with positions China had

previously supported, including deep unilateral cuts in inventories (Chinese support being specifically for cuts by Russia and the United States), de-alerting of nuclear forces, establishment of five-power talks on the elimination of nuclear weapons (China had previously stipulated that deep unilateral cuts by Russia and the United States would be a prerequisite to such talks). Other issues addressed in the document included early entry into force of the CTBT, the safe and secure control and disposition of fissile material; nuclear facility security; nuclear accidents, transport, and liability; and conditions for cooperation on the nonmilitary uses of nuclear energy.

The Chinese delegation to the 2000 NPT Review Conference influenced the content of the consensus document in one important respect. The original text had included an unequivocal commitment to complete negotiation of a fissile material cut-off treaty. China insisted that these negotiations take place within the context of an agreed program of work at the Conference on Disarmament (CD). This was tantamount to opposing the treaty, since the CD had been unable to arrive at a work program for almost five years. This is in large measure because China has insisted on linking fissile material negotiations with negotiations on a treaty preventing the use of weapons in space, to which the United States remains unequivocally opposed. Thus, China's position at the review conference put a significant roadblock in the way of a successful fissile material treaty.

In retrospect, China's decision to join the NPT was a historic turning point, marking the first real step in China's entry into the arms control and nonproliferation community. Support for indefinite extension in 1995 was of almost equal significance. At the time, however, both events were lost among other headlines. Although several countries issued positive statements in 1991, in general, foreign response was subdued. The White House did not issue a statement. Perhaps this is explainable, at least in part, by the fact that Beijing was still emerging from a period of international condemnation following the 1989 Tiananmen demonstrations. Nevertheless, the lack of attention to this event remains a curiosity and merits more examination given the subsequent volley of accusations and denials about China's nuclear sales.

Has China violated the NPT?

China's entry into the NPT was significant in part because it signaled China's entry into the nonproliferation community. At the same time, it raised the standards against which Chinese nuclear policies and nuclear exports would be evaluated. Were these standards ever made explicit?

U.S. allegations of Chinese NPT violations have occurred regularly since the early 1980s, but they emerged in the forefront of United States-China relations at several specific instances: first, during congressional hearings in 1985 on the proposed United States-China bilateral nuclear agreement; second, when U.S. intelligence became aware of Iranian plans to develop nuclear weapons in 1991; third, when the U.S. intelligence community disclosed the sale of ring magnets

(for use in an enrichment centrifuge) to a Pakistani nuclear facility in 1996; fourth, when the bilateral nuclear agreement was revisited in 1997. Each of these allegations requires separate examination. At each instance, China was bound by a different level and kind of commitment—not all were formal or legal commitments. In particular, it is critical to distinguish among Chinese activities which are violations of international law, Chinese actions which constitute a recognizable treaty violation only according to U.S. law, Chinese activities that violate a bilateral pledge or promise by a Chinese official to a U.S. official, and Chinese activities which do not support U.S. interests. This analysis is made more difficult by the fact that many of the accusations are based on classified evidence and cannot be definitively proved or refuted using open sources.

What constitutes an NPT violation?

A necessary baseline for determining Chinese compliance is an understanding of what obligations China entered into upon acceding to the NPT. Underthe NPT China is permitted to transfer nuclear materials and technology tononnuclear weapon states solely for peaceful purposes, and China isrequired to transfer fissionable material under IAEA safeguards.

The section of the treaty that addresses nuclear technology acquisition and transfer (Articles I–IV) primarily spells out the obligations of the nonnuclear weapon states, not the obligations of the nuclear weapon states. Since the Chinese joined the NPT as a declared nuclear weapons state, they are (a) not required to put any of their own facilities under safeguards (although China did agree to do this in 1988); (b) not prohibited from using nuclear material for weapons purposes (although the prohibition does apply to material China's safeguarded facilities); or (c) not required to demand that countries to whom they export nuclear technology or materials have full scope safeguards.

The legality of China's nuclear trade after its 1992 accession to the NPT depends on a careful reading of the treaty and the rules of associated control regimes. The difficulty of relying on the treaty alone, because of its imprecise language, to prevent nuclear proliferation became evident shortly after it was signed in 1968. Between 1970 and 1995, the United States and other industrialized countries clarified the treaty's language and developed ancillary organizations to strengthen its implementation.

Additional control regimes: Zangger and the Nuclear Suppliers Group

Because the NPT only implies and does not identify many of the technologies whose trade should be restricted, the United States has advocated multilateral efforts to clarify and refine NPT commitments. One of these efforts was the establishment of a group of countries who export nuclear technology known as "the Zangger Committee."[36] In 1974 the Zangger Committee published a "trigger"

list of nuclear technology items[37] and a definition of what constitutes assistance to a nuclear weapons program.[38] The trigger list was later incorporated as a formal IAEA document known as "Information Circular 254." All Zangger members agreed to use the Zangger definitions to interpret the NPT and enforce commitments.[39]

The Zangger trigger list made NPT commitments more explicit, but it is not an international export control regime. Instead, it is an agreement to use shared definitions to implement national export control systems and, on occasion, to share information. Although Zangger has been helpful, its structure and mission do not go far enough to satisfy U.S. nonproliferation objectives. For this reason, the United States defined different layers of restraint beyond what is specified in the treaty or the Zangger Committee rules. Specifically, the United States decided in 1978 to permit nuclear exports to nonnuclear weapon states only when all the nuclear installations in that country have been placed under IAEA safeguards, a condition referred to as "full scope safeguards." Such safeguards were also a requirement for nonnuclear weapon states that were NPT members. However, the full scope safeguard requirement makes a critical distinction between states that have both safeguarded and unsafeguarded plants and those that have only safeguarded facilities. Under the terms of the NPT, it is permissible to export nuclear material to a state with both safeguarded and unsafeguarded nuclear facilities, even if that state is not itself an NPT member, as long as the shipment in question is protected by IAEA safeguards and its destination is a safeguarded facility. Such shipments are not permitted by a state that adheres to the full scope safeguard requirement advocated by the United States. The full scope safeguard requirement increased in salience after the 1974 explosion by India of a nuclear device.

In parallel with the activities of the Zangger Committee, another suppliers' group, originally called the London Club and later renamed The Nuclear Suppliers Group (NSG), further clarified the meaning of Article III.2 of the NPT by issuing a list of dual use technologies that its members agreed to interpret as items that could contribute to a country's nuclear weapons program but could also have civilian applications. The list was first discussed in 1990 but not published until 1992. In 1992 the NSG also agreed that its member states would only transfer nuclear technology to countries that apply full scope IAEA safeguards, a provision that was already part of U.S. policy. The list of states with full scope safeguards is virtually identical to the list of NPT member states. Thus, the NSG is more exclusive[40] in its transfer requirements than the Zangger Committee.[41] The distinctions between the obligations of NPT members, NSG members, and Zangger Committee members are illustrated in Table 2.1.

Above and beyond membership in these supplier cartels, the United States has a complex set of domestic laws that define nuclear proliferation. U.S. law requires not only curtailment of the export of U.S. nuclear and other weapons-related technologies but also economic sanctions against countries that do not adhere to its export policies and against countries determined to be in violation of the NPT.

Table 2.1 Further clarifications of the NPT.

Regime	*Zangger Committee*	*London Club or Nuclear Suppliers Group*
Purpose	defines nuclear exports more precisely than the NPT; members agree to use shared definitions in enforcing national export control systems and to share information	defines nuclear dual-use technologies; members agree to export these items as well as specifically nuclear items *only to NPT members or countries all of whose nuclear facilities are safeguarded by the IAEA*
Chinese membership	China joined in 1997	China not a member
U.S. membership	U.S. joined at inception (1971)	U.S. joined at inception (1975)

The definition of a treaty violation used in those determinations is a matter of U.S. interpretation, not international law.

What did China understand its NPT commitments to be?

In 1992, when China acceded to the NPT, it did not join either of the NPT-related supplier groups. In all likelihood Chinese officials had a minimal understanding of the complicated—and changin—U.S. domestic laws related to nuclear nonproliferation.[42] Without clarification, China's accession to the NPT left room for misunderstanding on two issues: first, sales of either specifically nuclear equipment or dual-use items to safeguarded facilities in states that are not NPT members; and second, dual-use sales to nonsafeguarded facilities. Both were prohibited by U.S. law. China's approach to these categories of exports in comparison with that of the United States is summarized in Table 2.2. Some U.S. officials clearly expected China to go beyond the literal requirements of the NPT and promise to export nuclear-related equipment only to NPT members, thereby accepting the full scope safeguard requirement that the United States itself had not adopted until 1978. China never agreed to accept this requirement. The United States has continued to emphasize to China the importance of a full scope safeguard requirement. In fact, this requirement only affects exports to three countries: India, Israel, and Pakistan.[43] The other nonNPT countries are not importers of nuclear technology. U.S. insistence on a full scope safeguard policy could be seen, therefore, as a demand that China stop nuclear exports not to an entire class of countries but only to several specific states.

If China did not adopt a policy of full scope safeguards, meaning that it planned to export nuclear equipment to the handful of countries that had both safeguarded and nonsafeguarded nuclear facilities, what kinds of items would China export to nonsafeguarded locations? This is not an issue for the United States because its

Table 2.2 U.S. versus Chinese regulations on exports to unsafeguarded facilities.

Destination of export	*NPT regulations on nuclear exports*	*U.S. nuclear export laws/ regulations*	*Chinese nuclear export regulations*
To NPT members' safeguarded facilities	permitted	permitted in general but opposed for specific countries (Iran, Iraq)	permitted
To non-NPT members safeguarded facilities	permitted	prohibited after 1978	permitted
To non-NPT members' nonsafeguarded facilities	nuclear transfers prohibited; treaty ambiguous on dual-use items	nuclear and dual use items both prohibited	dual-use permitted until verbal commitment of 1996

regulations exclude the possibility of *any* sales to nonsafeguarded facilities. The NPT itself only addresses transfers of nuclear material or technology specifically designed for use in nuclear weapons; it does not say anything about dual-use sales to either safeguarded or unsafeguarded facilities. U.S. government officials, in an attempt to promote the 1985 bilateral nuclear agreement, implied during the debate of that year that China had made a verbal commitment to refrain from such exports, but Chinese statements from that time do not confirm that assertion. Even if China had made such an assurance privately, the definition of a nuclear dual-use item remained open to interpretation. It was the NSG that had defined these technologies, and China remained silent about adherence to NSG lists and rules. This history shows that Chinese commitments remained vague at a time when the United States was continuously refining and reinterpreting nonproliferation commitments and progressively tightening the controls on exports of sensitive technologies.

U.S. allegations of Chinese NPT violations

The earliest U.S. accusations of "irresponsible" Chinese nuclear exports date back to the 1984–5 congressional debate about a United States-China nuclear cooperation agreement. Negotiating such an arrangement with China was a high priority both to Beijing and to Washington in 1985. The zero-growth prospects for U.S. energy companies in the domestic nuclear market made them entirely dependent on emerging foreign markets, of which China remains the largest. Chinese energy demand was seen to be growing at a rate that would virtually guarantee large expenditures on nuclear power which would therefore translate

directly into U.S. jobs and profits at home at a time when domestic growth was sluggish and unemployment remained high despite four years of supply-side economic policies.[44]

In the debate about whether the United States should sell nuclear technology to China, the latter's own nuclear sales assumed a central position. U.S. law forbids nuclear sales of any kind to countries with which the United States does not have a government-to-government nuclear exchange agreement. The U.S. Atomic Energy Act of 1954 specifically prohibits conclusion of a nuclear agreement with any state that assists nonnuclear weapon states to build a bomb. Despite the economic imperatives, many in Congress nevertheless remained skeptical about the wisdom of negotiating a nuclear agreement with China. In October 1985, specifically, Senator Alan Cranston said that the Chinese had been selling nuclear technology to "outlaw nations" including Argentina, Brazil, Pakistan, South Africa, and Iran, all of which had reportedly established clandestine nuclear weapons programs.[45] Senator Cranston also accused the State Department of hiding reports of Chinese nuclear cooperation with Iran during testimony given the previous June. At that time, the annual congressional renewal of China's MFN was officially contingent on Chinese progress in nonproliferation. Cranston's allegations referred specifically to Assistant Secretary of State Richard Solomon's testimony before the Senate Subcommittee for East Asian and Pacific Affairs. In his testimony Solomon had indicated "some form of nuclear cooperation" between the two countries. Cranston's charges were vague; they mixed together transfers of peaceful nuclear technology, dual-use technology, and weapons technology; nor did China's critics make any distinction between safeguarded and unsafeguarded facilities. This can be explained in part by the fact that Cranston's allegations were based on classified sources, that could not be cited in their entirety. Reporters speculated at the time that the Defense Department sided with the Congress in opposing a nuclear cooperation agreement and therefore leaked the information to Cranston. Chinese officials denied some of these charges outright; in other instances, the Chinese acknowledged nuclear sales but said that the equipment was for peaceful purposes.

Assuming the allegations had some basis in fact, the 1985 congressional debate focused on what was legal according to U.S. law, and not what was legal under the NPT. There is a distinction between the legal Chinese transfer of peaceful nuclear technology and Chinese assistance with a nuclear weapons program. The lines are not always clear cut, and a nuclear proliferation purist would argue that ultimately all nuclear transfers, including those intended for peaceful purposes, can indirectly contribute to a weapons capability. In the absence of unclassified evidence, it is still not possible to know if China had knowingly and intentionally contributed to a Pakistani (or other clandestine) weapons program, if China had been selling nuclear technology for peaceful purposes to unsafeguarded facilities, or if China had been selling nuclear technology in accordance with IAEA requirements to safeguarded facilities. This distinction is significant because direct assistance to a weapons program indicates political intent, whereas indirect

assistance could result simply from a lack of awareness or a difference of opinion as to what constitutes nuclear proliferation.

Timing is also important. At the time that some of the transfers were alleged to have occurred, 1981–3, China had not even joined the IAEA, much less made a commitment *not* to transfer peaceful nuclear technology to unsafeguarded facilities. Charges that China had exported nuclear technology implied that China had signed up to and accepted a restriction of some kind on peaceful nuclear sales. However, the Chinese had accepted no restrictions and had themselves announced certain forms of nuclear cooperation with Pakistan prior to 1985. Even if China had been bound at that time by NPT restrictions, China could still have legally sold nuclear equipment for peaceful purposes to safeguarded facilities, even to non-NPT members.

The problem arose because, according to U.S. policy and U.S. law, regardless of their legality, peaceful nuclear sales to any facility in a country believed to have a clandestine nuclear weapons program were not prudent or desirable. In effect, China was being asked to base its foreign policy and trade decisions on the content of U.S. intelligence assessments. From China's perspective, U.S. suspicions of a clandestine weapons program, especially when based on evidence from intelligence satellites not available to China, constituted a subjective standard that could be used by the United States for political purposes unrelated to proliferation. This implied a U.S. ability to push China around because of superior technology, and it illustrated a profound Chinese sensitivity to policies, that revealed Chinese weakness. Thus, although it was reported at the time that U.S. Ambassador at Large for Disarmament Richard Kennedy explained the U.S. interpretation of NPT commitments in a memo to the Chinese, no record of this communication is available. Nor is there any indication that China concurred with the U.S. position.[46] According to press reports, Ambassador Kennedy received only verbal approval from Beijing that China would adhere to the U.S. standard. In congressional testimony, he said: "Our contacts with the Chinese, Mr. Chairman, have demonstrated clearly that they appreciate the importance we attach to nonproliferation. We are satisfied that the policies they have adopted are consistent with our own basic views."[47] Ultimately a written commitment to this effect was provided to the Congress,[48] but it remained classified. Thus, the public record offers no evidence that China was either aware of, or accepting of, U.S. nuclear export policies or expectations and the extent to which they surpassed what was specified in the actual text of the NPT itself.

Although the Congress raised concerns about Iran, Brazil, Algeria, and other countries, in 1985 it was particularly concerned about China's nuclear exports to Pakistan.[49] Pakistan was believed to have a "bomb in the basement" and many officials thought that any form of nuclear assistance to Pakistan, even for peaceful purposes, would ultimately contribute to an effort to deploy a nuclear weapon. At the end of the debate on the nuclear agreement, the Congress made its implementation contingent on a presidential certification that China was providing no assistance to the Pakistani weapons program. This went considerably further

than what was legally required by the NPT. At the time, not only were NPT members legally permitted to export nuclear technology to Pakistan, but the United States had itself in the early 1980s chosen to overlook possible evidence of a Pakistani bomb program that would have triggered economic and military sanctions. The United States had also failed to strictly enforce its own nuclear export control laws during the years that Pakistan was reinforcing U.S. policy by providing support to anti-Soviet rebels in Afghanistan. In part because of the failure of U.S. policy to deny Pakistan nuclear technology, many in Congress (and indeed in the executive branch of government) recognized that the NPT was insufficient to prevent a Pakistani bomb, and they therefore sought to impose a higher standard of nuclear nonproliferation than the one specified in the NPT. Having developed detailed domestic regulations to enforce that standard, the Congress wanted to measure China by U.S. rules and to hold China to the higher standard as well.

The Chinese, naturally, had their own policy concerns, which included a long history of friendly relations with Pakistan and no particular reason to see Iran as a near-term threat to Chinese security. China had compelling political and economic reasons for wanting to maintain nuclear trade with both Iran and Pakistan. More important, until the 1985 United States-China nuclear agreement, the United States had offered China no compelling incentives to reassess nuclear export policies. Critics of China in the 1985 debate seemed to be assuming that Beijing would naturally see the same relationship between nuclear nonproliferation and a stable international environment that was so evident in Washington as a reality of the rapid diffusion of advanced technology, but there is no evidence that prior to 1985 the United States had worked systematically with Beijing to change Chinese perceptions. It is not particularly surprising that prior to that time Beijing did not in fact share Washington's assessment that nuclear proliferation *per se* constituted a real threat to China's security. Thus, in 1985 China was being criticized not for specific treaty violations but for not conforming to U.S. policy.

Furthermore, the debate on a nuclear agreement with China occurred in the context of partisan differences between the executive branch under a Republican (President Reagan) and a Democratically controlled Congress. Unlike the previous split between political parties that characterized Cold War foreign policy, the alignment of political forces on the China nuclear agreement reflected a conservative Republican administration that was pressing for liberalized trade with China and a Democratic Congress that was resisting.

In response to pressure from Washington, the Chinese government began a series of attempts to clarify nuclear export policies in the spring of 1991. At that time a foreign ministry spokesman reiterated the three conditions for Chinese nuclear exports that had initially been announced in 1986: the items would have to be exclusively for peaceful use; they would have to be subject to IAEA safeguards; and they could not be shipped to a third country without China's permission. China reiterated its position at the IAEA meeting later in the year.[50]

This still left open the question as to how a nuclear export would be defined; would China's principle cover nuclear dual-use items or only equipment specifically designed for use in construction of nuclear weapons? Did the statement imply that China would stop all transfers, nuclear as well as dual use, to unsafeguarded facilities? No one asked, and China never clarified. Moreover China was in the process of an extraordinary economic revolution, one feature of which was the decentralization of foreign trade authority. How the new economic organizations that were emerging at the municipal provincial levels would be equipped, both logistically and technically, to enforce the export controls implicit in Chinese commitments was (and to some extent remains) unknown. China made no explicit statements about an internal export control regime, although several reports indicate that the China National Nuclear Corporation (CNNC) had issued regulations as early as 1989.

In this context, China's statements on nuclear exports in early 1991 did not go far enough to satisfy the Congress, nor did Chinese formal accession to the NPT later in the year. In April 1991 China acknowledged a nuclear relationship with Algeria. At that time China also announced that Chinese and Iranian companies had signed contracts in 1989 and 1991 that covered the transfer of an electromagnetic isotope separator (calutron) and a small nuclear reactor. Only days after acceding to the NPT in December 1991 China was reported to have signed a $500 million contract to build a 300-megawatt nuclear power reactor for Pakistan. Although the project was placed under IAEA safeguards, Pakistan was not a full scope safeguards state.

These allegations came in the wake of heightened concern about the proliferation of weapons of mass destruction (WMD), and specifically about the possibility that Iran was pursuing a clandestine approach to nuclear weapons development. Since the formal constraints of the NPT did not provide adequate protection according to U.S. standards, State Department officials had reportedly told China "not to sell nuclear technology of any kind to Iran." They received no commitment from Beijing at the time.[51] Furthermore, since China made its sale to Iran contingent on the application of IAEA safeguards, and since Iran is a signatory of the NPT, the United States could not legitimately claim that Chinese transfers were in violation of international law. The sales to Algeria and Pakistan were likewise within the letter of the law and within the scope of China's formal political commitments. In fact, in 1992 an IAEA team reported that a Chinese-supplied calutron and a small nuclear reactor in Iran were not part of that country's weapons program.

In response to international pressure, China made a commitment in 1993 to report to the IAEA all nuclear trade. The content of these reports is tightly held by the IAEA, so there is no way to correlate what China reported with allegations of illegal sales. The IAEA commitment was accompanied by a renewed effort on the part of the CNNC to clarify its nuclear export rules. A refined set of regulations were apparently issued internally, but not made available to the international community, in 1994. The Chinese nuclear industry had begun work on these

regulations as early as 1989, although those earlier versions were also unpublished, so it is impossible to verify their existence.

In 1995, news reports resurfaced stories of a 1992 Chinese agreement to provide nuclear assistance to safeguarded Iranian plants. These stories said that China was planning to provide Iran with two 300-megawatt reactors as well as related equipment, including the equipment to make nuclear fuel rods. Secretary of State Warren Christopher discussed the matter in New York with Chinese Foreign Minister Qian Qichen in late 1995. Qian reportedly agreed to cancel the sale.[52] Industry sources suggested that the reason for the cancellation was actually not Christopher's request but the difficulty of doing business with the Iranian government and repeated delays in the project. Regardless, it appeared that China was complying with the U.S. request. However in the spring of 1996 Iranian-Chinese cooperation appeared to be back on track when Chinese nuclear scientists were observed visiting Iranian facilities. Arms Control and Disarmament Agency (ACDA) director John Holum explained that Chinese cooperation did not involve nuclear weapons, usable material, equipment or technology, and acknowledged that Chinese transfers were conducted under IAEA safeguards. He also said, "We oppose this cooperation because we are convinced Iran is using its civilian nuclear program and its NPT status as a cover for nuclear weapon development. We have made it clear to the PRC that we oppose all cooperation in the case of Iran."[53] Thus there remained a gulf between what was legal from an international perspective and what was desirable from the perspective of U.S. policy.

The first public allegation that China had violated a specific legal nuclear nonproliferation commitment occurred in 1996. U.S. newspapers leaked intelligence reports that in 1995 a subsidiary of the CNNC had sold 5,000 ring magnets to an unsafeguarded Pakistani nuclear facility at Kahuta. Inasmuch as magnets of certain tolerances were on the Zangger Committee trigger list, and the Chinese magnets might have matched those tolerances, according to U.S. law, the executive branch had to consider imposing sanctions when the sale was discovered. The specific sanctions applicable in this case would have denied China $10 billion in loans from the U.S. Export Import Bank, although the law contains a loophole that enables the president to waive the sanctions under certain circumstances.

Whether the sale constituted an NPT violation depends on the precise interpretation of the commitment by nuclear weapon states to refrain from helping nonnuclear states to acquire nuclear weapons "in any way." Some nonproliferation experts read those words to include all the controls imposed by the Zangger Committee as well as the NSG. However, even disregarding the fact that China hadn't signed up to those restrictions, the export of ring magnets was a borderline case. Whether the sale of the magnets constituted a violation depended on their technical characteristics. U.S. intelligence experts familiar with the evidence insist that the type of magnet in the Chinese shipment has only one use: the enrichment of uranium in a gas centrifuge to the point where it could be used to make a nuclear bomb. Since the allegations depended on classified U.S. intelligence, the evidence

was never released. The details that were leaked to the press, however, gave the impression that China was at best careless about exports to unsafeguarded facilities and at worst attempting indirectly to help Pakistan build a nuclear weapon. Officially, the Clinton administration maintained that China had not explicitly violated its NPT commitments. However, there was little doubt that the sale was not consistent with U.S. policy, nor in compliance with various U.S. domestic laws.

Publicly China issued several kinds of denials. Some statements rejected the idea that the ring magnet sale had taken place, despite the PRC having previously acknowledged nuclear sales to Pakistan, all of which Beijing claimed were for peaceful purposes. In Beijing, foreign ministry spokesman Shen Guofang insisted that "China has never transferred or sold any nuclear technology or equipment to Pakistan."[54] Other statements were less clear. A Hong Kong newspaper reported that a CNNC representative had said that "a subsidiary of the CNNC sold the parts to its client from Pakistan. They are civilian products and not sophisticated enough to be used to process uranium for nuclear weapons." The article referred to CNNC sources being quoted as saying that "the company had learned from the incident and had tightened export restrictions," but the CNNC spokesperson also acknowledged in the same interview that market forces made it difficult to control any given CNNC subsidiary: "The CNNC head office in Beijing has no idea what it manufactured, let alone the central Government."[55] Most public denials were either vague or ambiguous. Whatever was meant by the public statements, U.S. newspapers reported that Chinese officials had privately acknowledged the sale, but insisted, when asked, that the government in Beijing had not been aware of it. This gave the U.S. government the room required to avoid sanctions, although Export Import Bank loans were temporarily delayed. After several days of negotiations, U.S. State Department officials announced that China had made a pledge to refrain from providing any assistance to non-IAEA-safeguarded facilities.

This commitment, if taken at face value, went considerably beyond earlier promises. Before 1996, the only exports to nonsafeguarded facilities that China had promised to ban were those identified in the text of the NPT: source and special fissionable material and specifically nuclear equipment. The 1996 promise extended that commitment to include virtually *all sales to nonsafeguarded facilities:* nuclear items, nuclear material, dual-use items, and even nonnuclear equipment and services. This is not as tight a restriction as some in the United States had wanted (a ban on all sales, nuclear as well as dual-use, to all non-NPT members), but the commitment, if adhered to, would further restrain Chinese nuclear exports.

According to the State Department Spokesperson Nicholas Burns, "These were not winks and nods and smiles. These were express, clear assurances at the senior-most level of the Chinese government to the secretary of state." He added that the assurances consisted of

> oral commitments made to us by the government of China [and also] commitments that were conveyed through cable traffic… There is a written record of this that the historians here…will be able to talk about in ten years time or so… We and the Chinese were very clear that this general pledge the Chinese made in their written statements specifically includes ring magnets… Moreover, the United States and China together have agreed to follow up consultations at the expert level to build on these assurances…. There is going to be verification of this agreement. And there's going to be a big American spotlight on some of the Chinese companies that have engaged in these practices in the past. The Chinese understand that.[56]

The Chinese statement was much shorter than the American statement, and appeared to be primarily a restatement of earlier Chinese commitments to the NPT. It was issued only in English. When asked about the Chinese statement of their commitment, a U.S. administration official responded: "We would have preferred greater specificity and clarity and all of that… I cannot promise you that their definition of assistance is the same as ours, but it is clearly more extensive [than what China had said earlier] and it clearly indicates ring magnets." Another official indicated that while China did not wish to make these pledges publicly, the U.S. announcement followed by a failure by Beijing to deny the announcement could be taken as assent.[57]

The Congress, not satisfied with this response, added words to the FY97 defense authorization bill stating "the sense of Congress that China was contributing to the Pakistani program." The Congress at this time also prohibited the expenditure of funds for any activity associated with the conduct of cooperative programs relating to nuclear weapons or nuclear weapons technology, including stockpile stewardship, safety, and use control, with the PRC.

In 1997, the Clinton administration began discussing the possibility of once again seeking congressional approval for the bilateral nuclear cooperation agreement. Renewal of interest in the agreement did not begin in China, but in Washington during a planning session for one of Energy Secretary Hazel O'Leary's overseas trips. The administration knew that China would have to meet requirements stipulated in U.S. law as well as some political objectives before the Congress would agree to implement the agreement. President Clinton would have to certify that China was adhering to NPT obligations.

Although China did not initiate discussion of the nuclear agreement in 1997, Beijing had a strong interest in meeting congressional requirements to implement it. This was only in part because of the technology that would be available under the agreement—in fact, since the agreement came into effect, Chinese nuclear imports have been modest. A refusal by the United States to sell nuclear technology to China was perceived as a form of anti-China discrimination, and was one of the few bilateral sanctions that had not been lifted in the post-Tiananmen period. To remove this cloud from the United States-China relationship, China made several important clarifications of its nuclear export policies beyond the general

principles articulated first in 1991 and repeated since then. In May 1997 China published draft nuclear export control regulations in the form of a State Council Circular entitled "Notice on Issues Concerning Strict Implementation of China's Nuclear Export Policy." The preliminary document was made more formal in September 1997 with the publication of both the final regulations and a control list for nuclear items (but not dual-use technologies) identical to that used by the Zangger Committee. This document was published as State Council Decree # 230, "PRC Regulations on the Control of Nuclear Exports and the Nuclear Export Control List." For the first time Chinese officials made the Circular in both its preliminary and final form available to representatives of the U.S. government.

China also announced that it would join Zangger. After participating in Zangger as an observer in May 1997, China became a full member in October 1997. The Zangger Committee does not legally bind its members but instead seeks to coordinate and rationalize export control policies. It is voluntary and includes no compliance or verification mechanisms. Nevertheless, China's membership in this club is significant because the committee's trigger list includes specific items. Once China became a member of the committee, there would be no more uncertainty as to what constituted a nuclear sale, because China would be understood by its membership to be forswearing sales of all equipment on the Zangger list. It is also true that being inside the committee gave China some influence on its future direction. Thus, some speculated, China could effectively block a move within Zangger to require that all its members impose a full scope safeguard standard for nuclear exports. Thus far, the committee has not formally taken up the issue.

The Chinese government also announced that in summer 1998 China would publish regulations on the export of nuclear dual-use items, and that the control list for these regulations would be identical to that used by the NSG. This should not be confused with a Chinese willingness to join the NSG, more restrictive than the Zangger Committee, but the appearance of dual-use regulations along with a dual-use control list in 1998 did clear up another ambiguity in Chinese nuclear export control policy and brought Chinese practices into line with many members of the NSG.[58]

Finally, China had already agreed in 1997 to stop new nuclear transfers of kind, including dual-use technology, to Iran. The promise to stop new nuclear sales to Iran was not a formal, written commitment; nor was it binding under international law. It did go beyond what had been required by U.S. law to ratify the United States-China nuclear cooperation agreement. Since nuclear sales to safeguarded Iranian facilities were, and are, legal under the NPT, China was agreeing to meet an enhanced U.S. standard of nuclear nonproliferation beyond their legal commitments. However, the commitment was never made public, although newspaper reports indicated that the Chinese government would make the promise in a letter to a U.S. government official. In a news conference, reporters tried to clarify the legal status of such a commitment by asking whether or not the letter had been signed. The unidentified official responded that the letter was an

authoritative, written communication. When asked why the actual text had to be kept private when its existence was being made public, the official responded, "Well, we're dealing with relations with third parties and there are naturally some sensitivities in this regard. And this is the basis on which we agreed to go forward. But there's no effort to conceal what's being done. We will be speaking to members of Congress, as I say, in great detail. They will know precisely what has been agreed."[59] Chinese Foreign Ministry officials later refused to acknowledge that the promise about Iran was binding on China, but equally would not deny that it had been made.

Chinese nuclear policy pronouncements notwithstanding, many in The Congress continued to oppose implementation of the agreement. Congressional critics of China raised the same issues that had surfaced in the 1985 debate, adding to the list the ring magnet incident and, although not directly relevant to the nuclear agreement, allegations about missile transfers to Pakistan and Iran. Once again, critics failed to distinguish legal from illegal Chinese exports, they did not separate bilateral political commitments from international legal commitments, and they did not make a distinction between Chinese activities that preceded a political or legal commitment from those that followed one. Critics argued that China had done too little and too late, and that if the administration chose to implement the agreement, it would send a signal that nuclear nonproliferation was not a serious U.S. foreign policy priority. Some implied that the agreement was the only form of U.S. leverage available to influence future Chinese nuclear exports; once it was approved, China would have no incentive to comply. Some critics pointed to the lack of specific information about how China would implement an export control system, suggesting that Chinese laws be compared with those of the United States to determine whether or not they would be effective. Others cited testimony of Clinton administration officials who had themselves acknowledged that China's nonproliferation record left something to be desired. Paul Leventhal of the Nuclear Control Institute openly acknowledged that approval of the agreement depended on much more than China's adherence to the letter of the NPT. "Certification of China is not a question of adhering to legal niceties," he said in congressional testimony. He wondered whether "a nonproliferation guarantee from the Chinese means the same thing to them as it does to us."[60]

The degree to which the debate extended beyond China's legal international obligations can be seen by reviewing one often quoted, unclassified 1997 CIA study. This report stated that "China was Pakistan's primary source of nuclear related equipment and technology."[61] This and similar reports imply illegal activity, but they neglect to mention that certain sales of peaceful nuclear technology to safeguarded Pakistani facilities were perfectly legitimate, both according to international law and according to political commitments made to the United States by China. In a similar vein, a 1996 CIA report said that for the previous six-month period China had been "the single most important supplier of equipment and technology for weapons of mass destruction worldwide." The report does not specify which items are included in the list of equipment and

technology that are relevant to WMD. Specifically nuclear items? Dual-use items? Missile-related technology? Both statements could be accurate and still be consistent with the notion that China was, in fact, complying with international nonproliferation commitments. Thus it is no surprise that in 1997 the ACDA annual report acknowledged, "the information [about China] is not sufficient to reach a judgment of non-compliance with the NPT."[62]

The nuclear industry also testified on Capitol Hill, conceding the point that China's proliferation record was less than perfect but arguing that the agreement would increase, rather than decrease, U.S. leverage. The industry also submitted a report that said that nuclear trade with China would generate as many as 20,000 American jobs. Ultimately, the president submitted a certification package. When Congress failed to act on the agreement, this had the effect of making it legal after 60 congressional days.

The dangers inherent in the kind of bilateral, non-specific, and nonpublic Chinese commitment made in the interest of getting congressional approval for the agreement were evident only several months later. A CIA memorandum about Chinese exports was leaked to the *Washington Times.* The report accused China of transferring a special industrial furnace and hightech diagnostic equipment to an unsafeguarded facility in Pakistan. Various explanations were offered at this point: Chinese officials claimed the equipment had been shipped earlier in the year, before the May pledge; the State Department said it had not found that China had violated its commitment of May 11 because the sale had been concluded before then; other U.S. administration officials said that the equipment had been shipped to the Pakistani reactor site at Khusab, and that the sale was less egregious than the sale of ring magnets because the equipment was connected less directly to the production of nuclear weapons. Then in March 1998, China was once again accused of selling nuclear technology to Iran. When newspaper reports announced that China had cancelled the sale, both the administration and the critics of China claimed victory. The administration insisted that the modification in Chinese behavior was the direct result of U.S. pressure; critics of China used the incident to argue that China could not keep international nonproliferation commitments.

Prior to the 1996 and 1997 clarifications–which themselves leave certain questions unanswered—it might have been clear *that* Chinese nuclear exports would be constrained, but it was not clear *how* they would be constrained. A key question is whether either China or the United States actually wanted or tried to get further clarification of the issue. Press reports and other available documentation do not suggest that the United States questioned the Chinese about the meaning of their NPT commitment when Secretary of State Baker visited Beijing in November 1991 or, indeed, at any time during the next five years. In 1991, in the aftermath of Tiananmen Square and in the context of a strained bilateral relationship, Baker's focus was on the GATT,[63] human rights, and the Missile Technology Control Regime. As mentioned earlier, Chinese accession to the NPT was barely remarked on by U.S. officials, reporters, or commentators.

Lessons of the NPT

The United States has continued to expand its definition of unacceptable nuclear proliferation behavior well beyond what is specified in international treaties or law. From 1985 on, therefore, the stage was set for Chinese sales of hardware as well as expertise that would be characterized by the Congress, the executive branch, and various nonproliferation NGOs as treaty violations. The Chinese were in a position to argue that these activities were in fact legitimate transfers of civilian nuclear power technology. Not only do the IAEA and NPT permit such transfers, they actually encourage nuclear trade. In short, nuclear proliferation as a concept is in the eyes of the beholder. This is because the NPT has no formal, internationally recognized verification regime attached to it; the IAEA is related to NPT implementation but cannot effectively measure compliance with the treaty. U.S. allegations of treaty violations are based primarily on U.S. national technical means and cannot be publicly evaluated either by China or by the American public.

Within the U.S. government, the State Department and other executive branch departments have tended to interpret Chinese obligations in a confined and legalistic framework, whereas a coalition of left-and right-wing congressmen and various nonproliferation NGOs have used a more expansive definition of proliferation to evaluate Chinese performance. A narrow definition of China's obligations casts a positive or ambiguous light on China's record and suggests that China has been incrementally curtailing what might have otherwise been a large volume of nuclear exports. A broad definition of NPT obligations goes to the spirit rather than the letter of the law, and suggests that China has only modified appearances while still resisting the limits inherent in U.S. law. Furthermore, within the United States there is a persistent debate about how to influence future Chinese behavior. Some have argued that precisely because China had been outside the nonproliferation regime, the United States should work harder to offer incentives that would ensure future compliance. Others maintained that noncompliance in the past constituted proof that China could not be trusted in the future. Closely related to this question is the ongoing debate among specialists over whether the Chinese government could have controlled nuclear exports, and whether it can control them today. It is at least debatable whether Chinese officials have had a good understanding of how export controls work until very recently. It is also open to question whether, in those instances where China did agree to exercise restraint on nuclear sales at various times, the Chinese government could predict what would be required to exercise the necessary control. By 1996 China's nuclear industry was comprised of 300,000 people working in the 50 subordinate bureaus, institutes, laboratories, mines, factories, and corporations under the umbrella of the CNNC. Technical and bureaucratic skills were lacking when China's nuclear industry was expanding and the industries producing dual-use nuclear items were undergoing a process of decentralization. Simply because China remains in many respects an authoritarian regime when it comes to political dissent, it does not necessarily follow that the central government is able to control

all aspects of the economy and society. Much evidence suggests the China's central government has to pick and choose carefully and that there is a significant political price to be paid for interfering in economic activity.

The NPT case illustrates the degree to which rhetoric about nonproliferation can differ from the facts. Critics of China implied or stated that China had violated international laws or norms. The cycle of charges and counter-charges between the United States and China was not, however, about international law or international norms: it was about the fundamental difference between U.S. and Chinese foreign policy priorities and export control systems. Congressional critics of China and some executive branch officials used legal language and references to implied international norms to describe U.S. policy objectives, presumably in the hope that a legal context would give their words additional legitimacy with the Chinese. Quick to perceive a double standard, the Chinese pointed out that Washington ignored certain nonproliferation "norms" when the situation involved a U.S. ally or a country that was helpful in achieving its other foreign policy objectives (as Pakistan had been in the early 1980s). From China's perspective, it seemed that the United States had developed its own nuclear nonproliferation regime and then assumed that others would adhere to it. This attitude appeared condescending and insulting to a country that wanted to be seen as an equal on the world stage.

U.S. criticism of Chinese compliance with nuclear nonproliferation regimes ultimately revealed less about China than it did about the limitations of the regimes themselves. It was the shortcomings of the NPT and related organizations that caused the United States to reinterpret them and to create a regulatory system well beyond what had been accepted internationally.

Continual U.S. pressure on China resulted in a series of incremental commitments, some of which were legal and most of which were essentially political. The record shows that these commitments did help to constrain Chinese behavior, yet, for several reasons, they carried a high political price. First, the United States has been the only country exerting pressure on China to restrain nuclear exports beyond what is legally required by the NPT. Nuclear nonproliferation has been effectively reduced to a bilateral issue between the United States and China. When other contentious bilateral issues arise, such as Taiwan or human rights, China's political commitments on nonproliferation can get traded away. Second, Chinese political commitments often convey the idea that China has significantly changed foreign policy priorities when in fact the commitment might be only a short-term, tactical measure for specific ends. Third, the appearance that China is caving in to U.S. pressure can end or substantially weaken the careers of the very Chinese officials who make the commitments in the first place.

The Indian and Pakistani tests of nuclear weapons in May 1998 called into question the utility and, to some, the viability of the NPT. Many attributed the success of Pakistan's test to Chinese assistance. If true, this suggests that Chinese membership in the NPT either came too late or has had little practical result.

Nevertheless, China's 1991 decision has enormous symbolic importance. It signaled a reversal of previous Chinese policy and a greater willingness to be a member of the big power club dominated by industrialized countries. By joining the regime, China was publicly giving its stamp of approval to a widely accepted international institution it had previously decried. Moreover, whatever might have been vague or undefined about China's membership in the NPT, by signing the treaty, China made an unequivocal commitment to transfer nuclear materials and specifically nuclear technology only to facilities that were under IAEA safeguards. While not as stringent a restraint as many in the United States might have desired, Chinese acceptance of *any* internationally imposed constraints on exports represented a significant turning point. Finally, the goal of NPT universality seemed unattainable as long as two permanent members of the U.N. Security Council had refused to join it. After 1992 when China formally acceded to the regime, the NPT's legitimacy did increase, even if it has fallen short of some of the goals established at its inception.

3
The Comprehensive Test Ban Treaty

Background on the treaty

The completion of negotiations for a Comprehensive Test Ban Treaty (CTBT) in 1996 marked a major achievement, long sought by the international arms control and nonproliferation community. Although the slow pace of movement towards its entry into force has been disheartening to many supporters, as a practical matter, the very existence of the treaty has served as a de facto deterrent for its signatories. China played a central role in the completion, and the fundamental change in China's position between 1970 and 1996 toward a test ban is worthy of much more attention than the formal record of the treaty negotiations would suggest. Many different reasons lie behind this evolution, or perhaps revolution, in China's attitude; some are unique to the CTBT; others provide valuable insights that are relevant to Chinese attitudes about other arms control and nonproliferation regimes.

The CTBT has a unique combination of features that make it an important arms control case study.[1] First, unlike many other agreements related to nuclear weapons and nuclear technology that China has joined, the CTBT has only one "class" of signatory. The treaty contains no special provisions or exceptions for states that already possess nuclear weapons. Each state is bound by the same restrictions. Second, CTBT membership is broad and inclusive, including over 150 countries. Thus it represents, perhaps more so than other arms control treaties, a norm of international behavior. Third, the treaty provides for objective and scientific verification, including on-site inspections, under a system that is internationally operated and supervised. Fourth, the CTBT requires China to accept, for the first time, internationally imposed limitations on the development of its strategic nuclear forces.[2] Fifth, the treaty does not affect exports or imports of nuclear technology. In contrast to other regimes, Chinese compliance with this treaty does not call for either creation or enforcement of contentious and complicated export control legislation. Finally, this is the one arms control treaty China has signed about which there have been no allegations of Chinese noncompliance. Before China signed the CTBT, the foreign ministry issued an information bulletin each time there was a nuclear test, eliminating any possibility

of misperception and false allegation. In the years since China signed the CTBT, China has conducted no nuclear tests and there have been no allegations of suspicious events or attempts to block treaty implementation.

The CTBT opened for signature in August 1996 after four years of negotiations.[3] Limitations on nuclear tests represent an important achievement in preventing nuclear proliferation, and imposition of a test ban has been a goal of the arms control community for over three decades. Testing is a critical threshold for states with a crude nuclear device; without testing, it is difficult (but not impossible) to significantly reduce warhead size or to deploy weapons with new designs.

Nuclear weapon scientists have also used tests to insure safety and reliability of stockpiled warheads, although debate continues as to whether or not these tests are essential to national security. Moreover, the treaty only prohibits tests of nuclear devices themselves and does not restrict the test of the missiles, submarines, or aircraft that are used as launch vehicles. For these and other reasons, the CTBT encountered powerful opposition from constituencies within nuclear weapon states that wanted to preserve the option to increase warhead sophistication. Opponents of the treaty have also pointed to the Indian and Pakistani tests of May 1998 as evidence of the treaty's limitations in preventing nuclear proliferation.

The treaty prohibits any "any nuclear weapon test explosion or any other nuclear explosion" and includes detailed verification provisions, including on-site inspections, which were, to some extent, inspired by those negotiated for the CWC. The Conference on Disarmament (CD) was not able to reach consensus on the treaty text, in large measure because of India's opposition to certain aspects of it: specifically the provisions for entry into force and the absence of a timetable for ultimate nuclear disarmament. Pakistan refused to sign the treaty until India signed. Because the CD could not achieve consensus, the committee sent the treaty to the United Nations General Assembly for a vote where it passed 158–3 with 5 abstentions.[4] The conditions of entry into force (EIF) of the CTBT require that India and Pakistan sign the treaty and, even if India should reverse its current opposition to the treaty, other important obstacles remain. As of 2002, 93 states had ratified the treaty.

China's attitude towards the CTBT negotiations

China opposed any kind of test ban throughout the 1960s, a position consistent with Mao's beliefs about the superpowers' propensity to use their nuclear superiority to threaten and bully less advanced countries. Chinese arms control speeches and statements were focused on the need for no-firstuse commitments and on steps aimed at the complete elimination of nuclear weapons.[5] The Chinese government opposed the Partial Test Ban Treaty (PTBT) on the grounds that it only prohibited atmospheric tests, which they claimed the U.S. and the Soviet Union no longer needed to conduct anyway. Thus, Mao argued, the U.S. and Soviet Union had not really made a significant sacrifice. He further argued that even a

complete ban on all tests would not stop the superpowers from possessing and manufacturing nuclear weapons or from using them, whereas it would hinder the nonnuclear weapon states or states with a limited number of nuclear weapons from strengthening their defenses.

In 1981 the post-Mao leadership modulated its comments on test ban talks, indicating that merely stopping tests would not necessarily lead to ultimate disarmament and would be useless without significant reductions in arsenals by the superpowers. Later the same year China acknowledged that a test ban could be one useful step towards the ultimate goal of disarmament. In 1983 China appointed an ambassador for disarmament and in 1985 China said it would not oppose the establishment of an *ad hoc* committee at the CD to discuss a comprehensive test ban treaty.

During the 1980s, however, neither the United States nor the Soviet Union was prepared to enter into serious talks about a test ban. Thus, the committee at the CD was not formed until the Cold War had essentially ended in 1990. In the subsequent years the Bush and Clinton administrations wanted to use a potentially limited window of time to commit the Russian government to significant arms control agreements which would then be binding on successor regimes. The U.S. Congress passed a law in 1992 requiring a U.S. nuclear testing moratorium, and the Clinton administration made the conclusion of a CTBT a top foreign policy priority.[6] China, meanwhile, indicated that agreement to a CTB would have to follow U.S. and Russian strategic nuclear reductions of 50 percent. The Chinese ambassador to the U.N. repeatedly linked China's willingness to sign a CTB with a no-first-use pledge by all the nuclear powers, implying on many occasions that the latter was indeed a prerequisite for the former. However, in October 1993 in an official statement following China's fortieth nuclear test, the PRC government said that China would abide by a CTBT "after it is concluded and comes into effect" without specific reference to any prerequisites, apparently abandoning an earlier insistence that the superpowers first reduce their nuclear arsenals.[7] The addition of the words "and comes into effect" were important because there can be a significant lapse in time between the signing of any given treaty and its entry into force. Often a treaty enters into force only after a certain number of states have ratified it in their national legislatures and deposited instruments of ratification. Had the Chinese decided to postpone adherence to the CTBT until entry into force, it would have delayed their obligation to comply by at least two years. In the case of the CTBT, in fact, at the time the treaty was signed in 1996 it appeared unlikely that it would ever legally enter into force.

When CTBT negotiations began in 1993, China was under pressure to enter the nuclear testing moratorium that was being observed by the United States and that was ultimately also adopted by Russia, France, and the U.K. The Chinese government initially downplayed the significance of the U.S. and Russian moratorium, saying it had historically been shown to have "little significance." It further argued that since China tested so infrequently, it had in effect been observing a moratorium between each of its tests.[8]

During the course of the CTB negotiations China raised various concerns about the treaty text, most of which were shared by other countries at one time or another. By August 1996, the Chinese delegation had either with-drawn its objections or made concessions on most of these issues. Still, it is useful to review what these objections were. The most significant involved the scope of the treaty, the verification procedures, and the conditions for entry into force.

Scope of the CTBT

Definition of scope is often the most contentious part of any arms control treaty negotiation, and the debate over exactly what kinds of nuclear explosions or tests would be banned by the CTBT consumed large amounts of time and energy. In March 1994, China stated the opinion that peaceful nuclear explosions (PNEs) should be permitted under the CTBT provided that the explosions were rigorously monitored. Support for excluding PNEs from the list of prohibited activities was consistent with China's negotiating position since 1992 and others, including Algeria and Iran, had shared it. China's rationale for permitting PNEs consisted of economic and technical arguments. Chinese officials asserted that as a developing country with vast energy requirements, PNEs were essential to modernization of China's energy sector. The Chinese delegation drafted treaty language that spelled out the conditions that would have to be met for conducting permissible PNEs, and also stipulated that only nuclear weapon states would be allowed to conduct PNEs. Opponents held that it would be impossible to verify whether or not any given explosion had military utility. The international scientific community, in fact, had long been divided as to whether PNEs had any legitimate civilian purpose that could not be met by other technologies or methods. Many saw permission to conduct PNEs as a serious loophole that would invalidate the essence of the CTBT. Nonnuclear weapon states opposed PNEs because they wanted the CTBT to ban all types of nuclear explosion without exception. The Indians modified the Chinese text so that they themselves would be permitted to conduct PNEs, even though they were not a declared nuclear weapon state. Russia's position was ambiguous: the Russian delegation did not oppose PNEs but did not actively support China's position. By 1996, other countries had dropped their support for PNEs and China was isolated in its desire to have them permitted under the CTBT. In late June 1996 the Chinese delegation therefore agreed to a temporary ban on PNEs that could be revisited if a consensus among states parties at the first review conference agreed to negotiations on an amendment to the treaty regarding PNEs.[9] Chinese officials stressed that this represented a significant concession due to the slim chance that a consensus would ever be reached even to begin negotiations, much less to actually conclude an amendment.[10] More cynical observers speculated that the Chinese had always intended to give up on PNEs and had held on to the issue to gain negotiating leverage in other areas.

The debate over including a threshold in the definition of a nuclear explosion proved to be more contentious than the PNE question. In 1994 the United States

supported a very low threshold (a release of nuclear energy up to the equivalent of 4 lbs or 1.8 kg of TNT explosive power) below which nuclear explosions would be permitted by P-5 states. These very low-yield tests release an amount of nuclear energy so small as to be considered insignificant. U.S. government officials argued that the United States needed these tests to ensure the future safety and reliability of the stockpile.[11] Other P-5 countries wanted different exceptions to a zero yield standard. France and the United Kingdom argued in 1994 for the inclusion of safety tests under certain circumstances. However, France wanted a threshold of 100–300 tons, whereas the United Kingdom (the only other country with access to U.S. nuclear test facilities) wanted a threshold of 40–50 kg. China had originally opposed a threshold and supported a complete ban for two reasons. First, the Chinese argued, the type of low-yield explosion supported by the United States would be extremely difficult, if not impossible, to verify. Second, China's less sophisticated nuclear weapons scientists were not capable of conducting extremely low-yield tests. Therefore the United States and other more advanced P-5 countries would gain valuable information potentially relevant to the modernization of *their* nuclear weapons, whereas China would be denied the opportunity to conduct comparable experiments. This would create an asymmetry and perpetuate the gap between China and more advanced nuclear weapon states. When it appeared that the treaty would contain a threshold, China was caught in a difficult bind. Chinese negotiators could not support a very low threshold that they believed would benefit only the United Kingdom and the United States.[12] Yet support for a very high threshold would appear inconsistent with the earlier insistence on a zero yield treaty. During 1994, therefore, Chinese negotiators avoided endorsing a specific threshold. Once the French government announced its support for a zero yield treaty, the rest of the P-5 achieved a speedy consensus; the other negotiating parties, especially the Non-Aligned Movement (NAM), had supported the zero yield concepts from the beginning.[13]

CTBT verification

A second set of objections involved the treaty's verification system. To be effective, the CTBT would require an international verification system to which each state would be required to contribute resources. Verification of a test ban entails processing large amounts of data, since there is much seismic activity and many seismic "events" per week, all of which must be checked to make sure they do not involve a release of nuclear energy. Various technologies exist to monitor, sort, and analyze these events, all of which can be evaluated for their potential cost and contribution. The International Monitoring System (IMS) ultimately was designed to include four types of sensors: seismic, radionuclide, hydroacoustic, and infrasound. Each country in the treaty would participate in treaty verification by establishing monitoring stations that would report data to an internationally controlled IMS. Costs were to be shared according to the formula used to assess U.N. dues.[14]

Technical measures alone would not be sufficient to insure compliance with the treaty, and the CTBT negotiators drew up procedures for information exchanges and on-site inspections to supplement the data collected from the sensors. Information exchanges were not new, and the United States and the Soviet Union had used on-site inspections to verify other treaties. However, this was a new experience for China. At the time of the CTBT negotiations, the Chemical Weapons Convention (CWC) (which also has an intrusive on site inspection provision) had not yet entered into force, and China had kept a safe distance from intrusive inspections in Iraq and North Korea.

From the beginning of the CTBT negotiations, China supported an international verification system. Both the NPT and the Missile Technology Control Regime (MTCR) in practice rely on unilateral verification by U.S. reconnaissance satellites and aircraft; allegations by the United States of Chinese violation of these regimes had been contentious and intractable in large measure because they took place in the context of the bilateral relationship. Multilateral verification held the promise of a neutral playing ground. Because of this, and because it was increasingly clear that consensus for an international system was nearly unanimous, Chinese experts paid close attention to proposals for a verification system. Chinese scientists began participating in the CTBT "Group of Seismic Experts" (referred to as GSETT) in 1994. Although less familiar with radionuclide and hydroacoustic sensor technology, China has a large supply of well-trained geologists who were familiar with seismology through research on earthquake prediction.[15]

China's main disagreement with the draft treaty text surrounded the types of technology that would be used and the circumstances under which there would be an on-site inspection. The Chinese wanted the IMS to include both overhead photography (from satellites) and EMP (electro-magnetic pulse) equipment, in addition to the four types of sensors already agreed upon. This proposal would have raised the price of CTBT implementation dramatically; it would also have provided China access to valuable technology.[16]

Whether or not to fund an international satellite network was closely tied to China's position on the use of national technical means (NTM), another way of referring to reconnaissance satellites and aircraft, to verify the CTBT. Most of the negotiating parties agreed that satellite imagery was an important component of verification of the test ban. Chinese negotiators argued that if the IMS did not have its own satellites, CTBT signatories would have to be allowed to use their own spy satellites or NTM to detect a potential violation of the treaty. Whereas the other verification methods of the IMS were likely to generate objective, technical data, NTM incorporated sources that were open to varying interpretations. Data from the IMS could be shared with representatives of the parties involved; data from NTM remained secret. The United States had already, on several occasions, charged China with violations of the MTCR and the NPT using data from American NTM. China believed these accusations to have been subjective and politically motivated. However, the potential consequences of U.S. accusations were primarily bilateral sanctions and condemnations. The difference in the CTBT

was that the advanced, industrialized countries wanted to permit the use of data from NTM to trigger an international on-site inspection. Thus, the stakes were considerably higher than they had been in regimes without intrusive verification. Consequently, the Chinese team argued that no party to the treaty should be allowed to use satellite imagery when making the case for a challenge inspection of another country to the Executive Council. Chinese officials argued that because only certain countries would have access to the imagery, those countries would be able to trigger unnecessary inspections as a form of espionage or political harassment to the detriment of the technology-poor parties to the treaty. Ambassador Sha pointed out that NTM was "controlled and used by individuals or small groups of states parties," and said that if NTM were allowed in the IMS, "that would inevitably put most of the states parties into an extremely unequal position… This is obviously unreasonable and unjustifiable."[17]

Pakistan and India, as well as many countries in the NAM, shared China's viewpoint on the use of NTM to trigger an on-site inspection. The United States, in addition to Russia and many European states, insisted that countries with their own national technical means should be able to use the data to support the other sensors in the IMS without incorporating the satellites themselves into the IMS, a proposal that failed to win consensus because of the high cost. The inclusion of satellite data, rather than the satellites themselves, would theoretically be a useful deterrent to countries that were contemplating clandestine tests. Other countries shared China's objection to the unrestricted use of NTM to justify an inspection but did not share China's all-or-nothing position and wanted instead to limit the potential for abuse of NTM.

China's alternative to using NTM to monitor the CTBT was further augmentation of the IMS to include additional technologies, all of which would come under international control. Chinese officials argued in 1995 that the IMS as proposed would "not be sufficient to detect effectively nuclear weapon test explosions taking place in all environments." A Chinese working paper presented in September 1995 asserted that only an EMP sensor network would be able to detect low-yield nuclear test explosions carried out at high altitude. This paper identified the unique advantages of EMP sensors: their high sensitivity, their ability to pinpoint the location of an activity with great accuracy, their easy operation, their reliable performance, and their relatively low cost. Others, especially the United States, disagreed, insisting that the cost of an EMP sensor system would be disproportionate to its benefits, and that the same functions could be accomplished by using other technologies.[18] Other countries argued that an EMP network would generate an unacceptable rate of false alarms.

China was also in the minority in its opposition to the inclusion of noble gas sensors in the IMS. Underground nuclear explosions release certain types of gas, and sensors to detect this gas could supplement the proposed set of sensors to detect radioactive particulates to enhance accuracy. Supporters also believed that it would be very difficult for a would-be violator to predict how quickly the traces of gas would disappear, thus complicating any attempt to evade detection. The

Chinese argued that precisely because the gases are released in unpredictable amounts for uncertain times, it is unlikely that a network could be set up to monitor them effectively. Noble gas detectors would have to be located near a potential violator's test facility. Finally, the Chinese delegation argued that a noble gas sensor network was superfluous given the capabilities of the radionuclide system (which measures radioactive particulates in the atmosphere).[19]

China also took issue with the proposed organization of the International Data Center that was to be established to report on data collected from the four types of sensors under international jurisdiction. Since the treaty permitted no nuclear explosion whatsoever, the number of events that resembled a small nuclear explosion (small earthquakes, for example) that would have to be analyzed was certain to be large. The center was expected to generate thousands of pages of data per day, and states differed in their opinion as to how the data should be reported. The United States proposed that the IDC only process, condense, and distribute data, leaving the responsibility of data analysis to each country. A sophisticated analytical capability at the IDC would add to the cost of treaty verification. Chinese negotiators, as well as representatives from other less-developed countries, pointed out that the technology and knowledge to effectively interpret raw IDC data were unevenly distributed. The net effect of this disparity would be that only the advanced, industrialized countries would be able to use IDC data to identify suspicious activity and demand an on-site inspection. Less developed countries, which would be the likely inspection targets, would not themselves be able to make the technical case for an on-site inspection elsewhere. China took particular exception to the type of discrimination between more and less developed countries represented by the debate over the IDC. Ultimately the CD was able to arrive at a compromise through the definition of different levels of screening and analysis. The solution did not completely satisfy all of China's (and the G-21's) demands; nevertheless, it included much more than the United States had originally proposed.[20]

China's negotiation position between 1994 and 1996 on the composition of the IMS issue is open to varying interpretations. A cynical view is that China's proposal for an IMS that included satellites and an EMP network was a deliberate "non-starter," an idea so expensive that it was guaranteed to fail due to objections from numerous countries. This is consistent with the idea that China raised the objection to NTM early in the process so that the Chinese delegation would be able to show flexibility by withdrawing it later on. Excluding NTM from the verification system would also make it easier for states–including China–to conduct clandestine test preparations. Even if this view is an accurate depiction of Chinese reasoning, it is likely that a sense of national pride and a need to avoid signing a treaty that appeared to favor the more advanced countries also played a role in Chinese attitudes. This concern for fairness and universal standards is a constant in Chinese attitudes towards arms control and nonproliferation regimes. The United States as well as European countries tend to be more concerned with accurate verification. They argue that if verification technology is reduced to the

lowest common denominator, it will be less accurate. Construction of an international verification system with state-of-the-art equipment is a costly proposition. Allowing some states to use data from NTM that is not available to other states creates a double standard among treaty signatories. In fact, even after the treaty was signed, Chinese scientists continued to speak of the unfair advantage possessed by the United States because of the latter's access to satellite data. During an extended conversation in 1998 about the ability of the IMS to detect and analyze seismic events, Chinese scientists simply repeated the charge that the IMS was inherently unfair, without ever stating their degree of confidence in the accuracy of the regime. The fact that satellite data was of little use to the United States in predicting the Indian test of May 1998 (and therefore did not provide the unfair advantage China predicted) has not changed China's objection to its use in the IMS; nor has it changed the U.S. insistence that such data is needed to verify the CTBT.

By the summer of 1996, the number of countries willing to support Chinese objections to the treaty text was dwindling, and the Chinese delegation became more and more isolated. At the same time, international attention had been focused on China because of its continued nuclear testing during the course of CTBT negotiations. This was more pronounced after France began a nuclear testing moratorium in January 1996. In the summer of 1995, Japan had cut off some (not all) financial aid to China as a protest against continued Chinese testing. Shortly thereafter, while protesting that Japan's decision had been unwarranted and unfair, the Chinese government indicated that there would be only two more nuclear tests before concluding the CTBT. Until June 1996, however, it was not clear when the last test would be. On 9 June 1996 China said it would conduct one more test before September and then begin a testing moratorium. [21]

The Chinese delegation announced it would consider dropping all objections to the IMS in early August 1996 in return for a modification in the proposed language that would govern on-site inspections. The main sticking point in the NTM discussions had been China's fear of the ability of countries with sophisticated overhead assets to uncover evidence that could be used to gain a consensus for politically motivated, rather than technically justified, on-site inspections (OSI). Many in China saw the provision for challenge inspections as a *carte blanche* to invade Chinese sovereignty. [22] Unlike the United States and Russia, China had never been party to a treaty that called for challenge inspections and had never experienced one on Chinese soil. Although China had signed the CWC, which also included a provision for challenge inspections, in 1993 the CWC had not yet entered into force and the Organization for the Prevention of Chemical Weapons (OPCW) had not yet conducted any inspections. It is also possible that some individuals within the Chinese bureaucracy, especially the military, had opposed the OSI provisions of the CWC and wanted to prevent China's exposure to additional inspections. Therefore, the conditions under which an on-site inspection would be conducted were of intense concern to the Chinese delegation. From the beginning, China had advocated a treaty text that articulated a clear

difference between the routine operation of the IMS and the conduct of on-site inspections. Chinese officials stated their belief that

> the sole purpose of an OSI is to clarify whether or not an ambiguous event detected by the IMS was a nuclear weapon test explosion carried out in violation…of the CTBT and, to the extent possible, attribute the event to a violator. The IMS is the main organ of the verification regime …(and) OSI should be the last resort following an inconclusive process of consultation and clarification.[23]

With the CTBT negotiations rapidly drawing to a close, it was clear that data from NTM would not be excluded as justifiable grounds for a party to request an OSI. Chinese negotiators began to approach this issue from another angle and focused instead on the conditions under which an inspection would actually be authorized.[24] The United States as well as other countries had been arguing for a "red light" procedure to authorize onsite challenge inspections. This meant that once evidence of a treaty violation was submitted, a challenge inspection would automatically take place unless a certain number of the 51 countries represented on the Executive Council opposed it. The burden would be on those who opposed the inspection. China favored a "green light" provision, which placed the burden on those who supported an inspection by requiring a certain number of Executive Council votes in order for an inspection to go forward. The United States finally agreed to a green light formulation, but only with reservations, arguing that no more than a simple majority of Executive Council votes should be required to trigger an inspection. In May 1996 China's Conference on Disarmament (CD) ambassador, Sha Zukang, indicated a "new flexibility" in Chinese positions. In the three months that followed, Chinese and American negotiators, in bilateral discussions, were able to reach a compromise on all the outstanding issues involving scope and verification. The Chinese withdrew many of their earlier objections, the most significant ones being the inclusion of PNEs in the scope of activities controlled by the treaty and the acceptance of NTM as sufficient basis for an OSI. In return, they demanded that the minimum number of votes required to authorize an inspection be set at 30. China's ambassador did not specify why 30 votes were chosen as the right level of consensus; it appeared to be an arbitrary number. One outside observer suggested that China assumed that if an on-site inspection only required a simple majority, the United States would be able to call in political favors or apply diplomatic pressure to get an agreement from at least 28 countries on the Council to vote for a challenge inspection, even without the requisite technical data. This would enable the United States to call for challenge inspections without probable cause. The requirement for 30 votes would ensure that the U.S. would not be able to rely solely on political pressure but would also have to produce concrete evidence of a violation. If this explanation is accurate, it suggests a profound distrust of the United States and a deep suspicion of U.S. motives that probably colors Chinese positions on other arms control and

nonproliferation issues, an obstacle to future progress that will not be resolved by changing the details of a treaty text.

CTBT entry into force provisions

The final issue on which China registered a strong opinion was the requirement for entry into force. China was one of several countries that insisted the CTBT should only legally enter into force if signed and ratified by the three so-called nuclear threshold states: India, Pakistan, and Israel.[25] The United States favored a less restrictive EIF requirement in the interest of concluding the negotiations and opening up the treaty for signature. Other countries supported entry into force after signature by only the P-5, or the P-5 plus a selected number of other countries (all of whom were likely to sign). China's position therefore appeared to be almost the equivalent of a de facto opposition to the treaty, since there was little chance that India or Pakistan would be able to get the members of the CD to meet their conditions for signature. This could in theory have been a way for China to avoid the constraints posed by the treaty while maintaining the moral high ground and upholding the treaty's objectives. Although China was by no means isolated in this view (Russia and the United Kingdom agreed with the Chinese position), the entry into force clause was the final sticking point and one that threatened to unravel the entire treaty in the summer of 1996. The compromise position consisted of a list of 44 countries, including India and Pakistan, who would have to sign the treaty before it could enter into force. India took strong exception to the final treaty text and was effectively able to block consensus at the CD. In the final analysis, the CD members could not formally conclude the treaty process, and the text was forwarded to the General Assembly of the U.N. This made it possible for the treaty to open for signature in late August 1996 without India and Pakistan's participation. China conducted its 45th nuclear test on 30 July 1996, less than two months before a CTBT text was sent to the General Assembly. China signed the treaty in September 1996 and has not tested since then.[26]

Events after the signing of the CTBT

Before evaluating the implications of the outcome for China, it is important to examine briefly China's role in the major events related to nuclear testing that have occurred since the treaty opened for signature in 1996: the early steps towards CTBT implementation, the South Asian nuclear tests of 1998, the NPT Review Conference of April–May 2000, and the October 2000 conference on CTBT entry into force.

CTBT implementation

Progress towards full implementation of the CTBT once the treaty opened for signature in 1996 has been slow. Of the 155 states that signed the CTBT, 93 have

ratified it. Of the 44 states whose ratifications are prerequisites for CTBT entry into force, 41 have signed; 30 have ratified. In the autumn of 2000, the U.S. Senate decided not to consider ratification of the treaty, which dealt the future of the regime a serious blow.[27] Nevertheless, the CTBT Preparatory Committee (Prepcom) has been taking the initial steps towards establishment of the verification regime identified in the treaty. Until the treaty legally enters into force, many countries are reporting the data from their sensors to the IMS data center, the IDC.[28] China has six seismic stations, three radionuclide stations, and two infrasound stations. Ultimately the CTBT organization will control the sensors and the reporting of the data; until then, the budget for Prepcom activities is likely to be a continuing source of friction. China has made no public statement about the budget, but Chinese officials have expressed concern about limited resources for verification and about incompatibility of software. No member countries have directly accused China of holding up progress in CTBT implementation. At the IMS office in Vienna, however, technical staff have indicated that the Chinese are among the "foot draggers" of the regime. Chinese officials dispute this notion, insisting that: "As one of the first countries to sign the Treaty, China has always actively participated in the work of the Preparatory Commission of the Treaty Organization, and earnestly carried out the preparatory work for the implementation of the Treaty in China."[29] Details about the activities of specific countries towards the implementation of the CTBT are not publicly available from the CTBTO itself, and China has provided only the most general information.

Indian and Pakistani tests

The Indian and Pakistani nuclear tests of May 1998 dealt a serious blow to the emerging global norm on a nuclear test free world. The Chinese response to these events can be seen, to some degree, as a measure of their commitment to the viability of the CTBT and its entry into force. China's reaction was also shaped by its long-standing friendship with Pakistan and its long-standing competition with India. The Chinese Foreign Ministry took several days to respond to the Indian test, unlike many other countries whose response was immediate public condemnation. Foreign journalists and diplomats speculated that the ministry was caught entirely off-guard and had difficulty organizing a statement among the responsible players. It is possible that the timing surprised Chinese officials. However, it is doubtful that the event itself was unforeseen. Ambassador Sha Zukang asked a U.S. NGO in March 1998, just after the election of the Indian Bharaitya Janata Party to power, what the likely U.S. response would be to an Indian nuclear test, suggesting that by May China had already anticipated the event, or at least the possibility. When the Foreign Ministry did issue a statement, it was a strongly worded document that resembled that of other countries in many respects. The Chinese statement expressed "deep shock and strong condemnation" of the Indian tests, which it called "an outrageous contempt for the common will of the international community for the comprehensive ban on nuclear tests, and a

hard blow to international efforts to prevent nuclear weapons proliferation."[30] Chinese Foreign Ministry officials explained that this was the first official *sheng ming* issued by the ministry in 22 years. They implied that previous statements by the ministry had been less significant, thus making a distinction between the *sheng ming* and other pronouncements that was at best opaque to foreign observers. The Chinese official daily *Renmin Ribao* said on May 15 that the Indian tests had shocked the world and would affect peace and stability in the region. It accused India of seeking hegemony in South Asia and criticized India for making China the scapegoat for its decision to test. The Chinese also confirmed that they would not reconsider their own commitment to a nuclear test ban and that they would not resume nuclear testing in response to India's actions.[31] Informally, officials from the Foreign Ministry suggested that the United States had known all along about India's plans to test, and some went so far as to accuse the United States of "collusion" in the Indian test.

Western journalists reported that China tried to dissuade Pakistan from conducting its own test in response to India.[32] When Pakistan did test on May 25, China's response was more muted, expressing concern more than outrage. An excerpt from the official announcement (not a *sheng ming* this time) conveys its tone:

> China expresses its deep regret over Pakistan's nuclear test today. China has always advocated the complete prohibition and thorough destruction of nuclear weapons and is opposed to any form of nuclear weapon proliferation. The Chinese government is deeply worried about this and feels uneasy about the present nuclear race in South Asia. We hereby call on countries concerned in South Asia to exercise the utmost restraint and to immediately abandon all nuclear weapons development programs.[33]

China's attitude can be explained by its close relationship to Pakistan that put China in the awkward position of choosing between commitment to a strategic partner and commitment to the viability of the CTBT. In fact, in the United States, nonproliferation experts alleged that Pakistan could never have tested a nuclear weapon without having received technical assistance from China in the 1980s. Thus, the Pakistani test ignited the U.S. debate about China's adherence to the NPT and, by extension, its nonproliferation credentials (although not its adherence to the CTBT).

In June 1998, China chaired a special P-5 meeting which condemned both nuclear tests and called for renewed efforts to encourage India and Pakistan to sign the CTBT, as well as the NPT, and to pursue negotiated settlements rather than military deployments to solve their bilateral security problems. By agreeing to this statement, and by chairing the P-5 group, China officially weighed in on the side of the international arms control establishment, rather than abstaining or supporting the traditional concerns of the developing countries and the non-aligned movement about the disarmament regimes. PRC officials repeatedly

referred to the obligation of "responsible" countries like the United States and China to stem further nuclear proliferation, occupying the moral high ground in a way that would not have been possible if China itself had not entered a testing moratorium. China did not use the South Asian tests as a pretext to withdraw from international regimes, but committed itself to strengthening those regimes. This was reinforced by a United States-China joint statement on South Asian security during Clinton's visit to China in June 1998. At the same time, the reaction could have been stronger. China did not take any concrete bilateral diplomatic measures to express dissatisfaction with either India or Pakistan, and the reaction consisted largely of words rather than deeds. It is also true that most other countries also failed to do anything other than utter rhetorical statements; Japan and the United States are the only two countries that even contemplated targeted sanctions.

Progress towards entry into force

The October 1999 Conference on Article XIV of the CTBT fulfilled a requirement in the treaty to convene those states that had ratified it to discuss "and decide by consensus what measures consistent with international law may be undertaken to accelerate the ratification process in order to facilitate the early entry into force of this Treaty." However, the conference itself was powerless to change the entry into force provisions.

China's statement at the conference lamented the slow pace of CTBT implementation. Ambassador Sha said he hoped "that those which have not yet signed and/or ratified the Treaty will do so at an early date so as to contribute to the early entry into force." The Chinese statement also referred to a "new security concept based on mutual trust, mutual benefit, equality and cooperation" as the "precondition and foundation for the early entry into force and the increasing universality of the CTBT."[34] China used the conference as a platform to express dissatisfaction about other events not directly related to nuclear testing, specifically the U.S. bombing of China's Belgrade embassy earlier in the year. The conference did not make any substantial headway towards entry into force, but probably would not have done so regardless of what the Chinese did.

The other public forum for an expression of Chinese views on the CTBT was the NPT Review Conference of April–May 2000. The final declaration of this conference contained several paragraphs on the CTBT, none particularly contentious and to which China agreed without exception. The paragraphs noted the opening for signature of the treaty and called on "all States…to continue to their efforts to ensure the early entry into force of the Treaty." [35]

Despite the slow progress towards legal entry into force, the CTBT has extended the nuclear testing moratorium by the P-5 for over five years. Without Chinese participation, there would have been no treaty, and it is likely that one or more of the declared nuclear powers would have resumed nuclear testing. Thus, Chinese participation in the treaty was, and remains, crucial. The Chinese brought with them the support of many countries in the underdeveloped world and the NAM,

many of whom had initially said that their vote would depend on the agreement of the P-5 to adopt genuine measures towards complete nuclear disarmament. It appears that the Chinese used their leverage judiciously, holding out for positions that were defensible on their own terms and avoiding a temptation to blackmail the process.[36] It could be argued that some of the positions taken by the Chinese delegation appeared inconsistent: for example, the use of a financial argument to oppose the inclusion of noble gas sensors, which were at most an incremental cost, while maintaining support for the construction of an international satellite network, which would have cost a great deal more. Nevertheless, China could hardly be singled out as the only country whose arguments changed from issue to issue.

What did China give up in signing the CTBT?

The treaty negotiation process had been challenging for the Chinese delegation. The technical questions that divided the negotiating parties in the CD were not easy to communicate to the political leadership. By the time the Chinese became actively engaged in discussions about verification, many of the main principles had been established, and observers had the impression that Chinese negotiators were perpetually in a "catch-up" mode. At the end of the process, the Chinese could point to only a few items they had initiated which remained in the treaty text.[37] The final text contained a number of provisions to which China had specifically objected: the prohibition of peaceful nuclear explosions, the inclusion of a noble gas monitoring system, and the acceptance of NTM data as sufficient to trigger the request for an OSI. China had also dropped other demands, some of which had been perceived as rhetorical, such as the requirement that parties to the CTBT make a no-first-use pledge or provide negative security assurances (to non-nuclear weapon states).[38]

The most significant concession on China's part appears to have been the compromise on NTM as a trigger for an OSI. It is possible that Chinese officials perceived a genuine threat to China as a result of OSIs. It is also likely that if China were to be subjected to a politically motivated inspection without the means to retaliate, such an event would recall a historical pattern of humiliation by foreign powers. Another interpretation of China's position is that it emerged from other foreign policy objectives, and that it was specifically directed at the United States. Ambassador Sha's 1995 speech at the CD plenary session referred to the danger that:

> one country…should take advantage of their exclusive NTM and monopolize international verification in disregard of the IMS with a self-assumed mandate of "world police."… The institutionalization of NTM in the CTBT would be tantamount to legalizing the ability of one State party or a small group of States parties with superior technical means to police the world, conduct all kinds of activities, including espionage, against other

> States parties and keep watch over the majority of States parties that do not have such means.[39]

The "one State party" appears to be a thinly veiled reference to the United States, emerging in the mid-1990s as the sole surviving superpower and forcing the Chinese to reevaluate their perceptions of their own position in the world.

After the conclusion of negotiations, Chinese officials as well as scholars emphasized the concessions they had been forced to make to insure that the treaty would become a reality. Dr. Xiangli Sun from the Institute of Applied Physics and Computational Mathematics in Beijing stated simply: "China is not ready for a CTB."[40] This argument has some merit, but is also effective rhetoric for gaining the moral high ground in an international setting. At the same time, it leaves the very people who use it open to criticism within their own system that they gave away too much. The true cost of the clauses to which China took exception can only be assessed after the treaty has entered into force and the verification regime has been in operation for a number of years, perhaps many years. It is also worth remembering that China was not the only country to raise objections, and all parties have had ultimately to live with provisions that might not have seemed desirable at the outset of the negotiations.

A more significant question is what China might have sacrificed by agreeing to a CTBT in any form whatever, and whether participation in the CTBT represents an important turning point in Chinese foreign and strategic policy. The answers depend primarily on whether China paid a serious military price to join the treaty, or whether the CTBT simply enabled China to appear to be part of the disarmament club while still pursuing the same military and security objectives that would have obtained without agreeing to the treaty. Simply put, the higher the military price, the more the decision represents an important point of departure. Because of the secrecy surrounding Chinese nuclear force deployments and doctrine, exactly where China was on its nuclear agenda in mid-1996, and how much that had been planned had to be derailed because of the CTBT remains a subject of debate. A range of possibilities exists:

- China might have already achieved a nuclear posture sufficient to meet defense requirements for the foreseeable future;
- The Chinese might have still been in the process of insuring the survivability and reliability of minimum deterrent;
- Chinese leaders had laid down plans to modernize, expand, and transform their strategic nuclear forces;
- China might have achieved sufficient nuclear forces for the present but continued to rely on the option to change course at a later date.

At one end of the spectrum, it is possible that the Chinese sacrificed nothing they hadn't been prepared to do without even if there had been no treaty. If this is true, the decision to sign the treaty and enter a testing moratorium has considerably less

import. Chinese declaratory nuclear policy has always emphasized the defensive nature of the strategic forces and Chinese leaders have publicly rejected suggestions that China aspires to superpower status. The conditions under which China would contemplate using nuclear weapons remain a matter of speculation, but many indicators point to a desire for a small deterrent force that would only be used to respond to a nuclear attack. Chinese forces are smaller than those of Russia and the United States by orders of magnitude and increased only incrementally at a time when those of the two superpowers grew exponentially. Whether this restraint has been a function of economic constraints or strategic intent cannot be known with certainty, although domestic political upheavals and associated economic problems restrained the program to some degree. Before the Four Modernizations program of the 1980s, most American analysts had traditionally accepted the notion that China would not move beyond a position of minimal deterrence. Incremental modernization over the past 20 years can be seen as an attempt to enhance the credibility and reliability of China's deterrent rather than the beginning of a transition to a different nuclear doctrine. This interpretation of Chinese intent would be consistent with a decision to stop testing in 1996.

It is also possible that even if the U.S. view had been incorrect, and China had once had more ambitious nuclear plans, the leadership reevaluated the international environment after the end of the Cold War and decided that a *force de frappe* would meet the country's security requirements in the coming decades. This reassessment perhaps led to a consensus that the existing force would serve China's needs for the foreseeable future and therefore that testing would no longer be necessary. In other words, it is possible that, given the new international environment, the Chinese would have elected to stop testing regardless of the CTBT.

On the other hand, China's economic expansion of the 1980s and 1990s was accompanied by more attention to military modernization, simultaneous with more assertive diplomacy, leading some foreign analysts to question China's ambitions with respect to nuclear weapons. Some observers have suggested that Beijing is reevaluating its previous reliance on a strategy of "city-busting," a course that is only viable if China is secure in its survivability of a nuclear attack. An alternative is a doctrine of "flexible response" or limited deterrence. This would entail the use of nuclear forces in scenarios other than a retaliation for someone else's first strike. It would require the development of a force that could hit not only an enemy's cities but also its military assets. The potential reasons for such a shift in doctrine are many: a growing unease about unilateral U.S. power and influence, increasing wealth and technological sophistication, and easier access to relevant technology are only a few. Chinese military writings in the 1980s and 1990s contain discussions of a limited response doctrine, and some of these writings openly advocate such a shift. At the same time, observers have pointed to indicators that China is actually pursuing this objective: improvements in Chinese missile accuracy, range, guidance, control basing, and launch time. China has also been working on warhead miniaturization, presumably with an eye

toward MIRVed missiles, along with the transition from liquid to solid fueled missiles. The gap between China's current nuclear force and one that could successfully execute counterforce strikes or control escalation during a nuclear war is large. China would have to vastly increase its number of ICBMs, develop tactical and theater nuclear weapons, pursue the use of space-based command and control, deploy antisatellite weapons, and explore ballistic missile defense. Economic resources would have to be reallocated in a rather dramatic way. Ultimately, China would have to abandon its no-first-use commitment. Attainment of these objectives would be extremely difficult without the ability to test. If China had, in fact, been intending to move beyond minimum deterrence, nuclear testing would have been critical to that goal, and the decision to stop testing therefore that much more meaningful.

At the same time, it is worth remembering that writings in military journals might well reflect wishful thinking more than current reality. The very same indicators used to make the case that China is shifting its doctrine from minimal deterrence to limited response are ultimately ambiguous and could be used to support different conclusions. They could, for example, be interpreted as evidence that the Chinese are shifting from a nonsurvivable minimum deterrent to one that is survivable. This transition has more sanguine implications: a China with an unreliable deterrent is likely to be much less predictable than one with confidence in the survivability of its forces. Of course, improvements in survivability are also made more difficult by a test ban, and it is difficult to know whether Chinese tests up until 1996 provided adequate confidence, or whether the viability of the deterrent remains open to question in the minds of the leadership. Dr. Sun of IAPCM asserted that under the CTBT, "China cannot modernize its nuclear warheads Efforts to improve its nuclear weapons technology to ensure its limited nuclear retaliatory capability are in progress, and it is not surprising that China desires some more tests for technical improvement in nuclear weapons." Dr. Sun points to the challenges posed by missile defense systems, the need to insure warhead safety and reliability, and concludes that "it is obvious that the CTBT would impose substantive constraints on China's efforts to develop and improve nuclear warheads."[41] These remarks suggest that China gave up a great deal militarily by agreeing to the CTBT.

If the case is clear that the Chinese paid a military price by signing the CTBT, it remains open to debate how large or significant that cost might have been. It is possible to argue that the costs are incremental and long term -not easy to quantify. China can pursue modernization of its strategic forces while still adhering to the CTBT, and can even increase the size and capability of its nuclear deterrent by adding to its inventory, improving the guidance and aerodynamics of its delivery systems, and by using information derived from previous tests. Arguably, the reason for the final flurry of Chinese testing in 1994–6 was to store up information that could be used for designs downstream. Until the early 1990s China had been testing only infrequently, approximately once every nine months, and Chinese scientists are believed to have gained a lot of information from each test (in contrast

to the United States, which conducted over a thousand tests). Between June 1994 and July 1996 China conducted six tests, leading U.S. analysts to believe that there is now a repository of information which will enable the Chinese to design warheads for the next 10–20 years. Some of the tests were probably for warheads that cannot be accommodated on existing delivery systems, and cannot be managed by existing guidance and control systems, both of which will require another decade or two to modernize. This puts China's sacrifice in a different context.

Several observers suggested that the Chinese agreed to a CTBT in part because they had been given or promised sophisticated computers capable of performing simulations that would substitute for tests. Of the countries that possess this technology Russia and France have declined to comment publicly on any transfers; the United States has denied that any transfers took place. However, Chinese scientists have pointed out that even if China had sophisticated simulation equipment, technology *per se* would not close the gap between China's nuclear force and that of the United States or Russia. Such equipment could, perhaps, narrow the gap and lower the price paid by China for joining the CTBT. Allegations in the 1999 Cox Committee Report that China had stolen U.S. designs for an advanced nuclear warhead reenforce this idea.

An outside possibility is that the Chinese agreed to the CTBT in bad faith, believing it would be possible to test at very low levels, perhaps in an insulated location or an area that is already seismically active. This would enable them to test without being detected. The ability of the CTBT sensors to evaluate the Russia "event" of August 1997, whether or not it was a test, indicates that evasion might not be easy.

Did the gains offset the concessions for China?

The treaty also offers China certain benefits, some more concrete than others, that should be offset against costs. By signing the treaty China has been able to continue to support developing countries' concerns about disarmament by the developed countries. Signing the treaty also enabled China to reinforce its China's P-5 credentials; as mentioned earlier, accession to the treaty made it possible for China to join the "responsible" club of countries after the South Asian nuclear tests of May 1998. It is worth noting that the United States did not capitalize on the chance to congratulate the Chinese government for the achievement represented by an agreement to sign the CTBT, and that Chinese participation in the treaty went almost unacknowledged at levels where it could have made a difference.[42] Another opportunity to welcome China into the community of nations occurred when China entered a testing moratorium, a month before conclusion of the treaty.[43] Unfortunately, this event was simultaneous with China's announcement of its last nuclear test, and was thus greeted with more condemnation than praise. Even if China did not gain specific political points, at least Chinese officials could argue that they had avoided substantial losses. China was able to avoid the political

isolation, both within the P-5 and in the larger international community, which would have resulted from remaining on the outside. There is little doubt that refusing to sign the treaty would have carried a serious political stigma even if China were to refrain de facto from nuclear testing. The treaty also brings China certain security benefits, the most important being the prospect that further modernization of U.S. and Russian nuclear forces will at least be constrained, if not prevented.

These suggestions reinforce the idea that China's commitment to abide by the CTBT did not represent a significant sacrifice or a material change in defense or arms control policies. In other words, China's decisions might reflect no more than a continuation of existing policy, a logical response to new geostrategic realities, together with a desire to reap the benefits of being inside the regime.

However, China did relinquish certain options by signing the CTBT. A test ban will make it much more of a challenge to introduce new designs that minimize warhead size while maximizing yield, even if one assumes advanced computational capability and some access to high-performance computers. No treaty offers a positive guarantee that an event will not occur; but treaties such as the CTBT can raise the cost of prohibited activities. Arguably, the Chinese have accepted a higher price tag. The possibility that the United States or Russia will enjoy success in fielding ballistic missile defense systems could pose new defense requirements that would warrant a change in China's nuclear posture. It is true that most current missile defense systems can be overwhelmed by increasing the number of incoming missiles and warheads. As one Chinese author pointed out, the notion that defenses can be overcome by increasing the inventory of warheads only holds true as long as there is no fissile material cutoff agreement. China supports the fissile material production ban, and has stopped its own production. Without testing, China has fewer options for insuring the safety and reliability of its nuclear force.[44] Although several Chinese indicated in 1998 that many nuclear weapons laboratories in China had received funding for a sciencebased stockpile stewardship, a set of technologies and procedures intended to preserve nuclear warhead reliability without testing, this activity is considerably less advanced in China than in the United States. It is worth noting that the idea of the Chinese government "buying off" its own nuclear weapons scientists, many of whom reportedly opposed the CTBT, by giving them a research budget for stockpile stewardship, was apparently copied from the United States.

Thus, even if China had been prepared to stop testing anyway, and even if China retains some alternatives for modernizing its nuclear force, signing the CTBT has made modernization of the nuclear deterrent more expensive and more difficult. Even if China had been prepared to take this step unilaterally and unofficially, it is a different matter to commit to doing so formally and publicly. The price for withdrawing from a regime, even one that has not legally entered into force, is considerably higher than the price for violating the regime without having been a member. Although routine monitoring through seismic and other sensors is relatively unintrusive, verification will entail a financial cost to China. The

Chinese genuinely believe the verification system agreed to by CTBT parties to be unfair, and one that will subject China to unjustified accusations. Moreover, the possibility of an on-site inspection in areas not previously open to foreigners is politically sensitive; accusations of treaty violations could create an impression that Chinese sovereignty is being violated. Agreeing to yet another regime with an intrusive on-site inspection provision also increases the risk that such inspections will become standard features of all treaties in the future.

The security benefits of the treaty, moreover, could easily be seen as suspect. Some American analysts, for example, maintain that the CTBT is essentially unverifiable for levels of tests that are militarily significant, suggesting that at best the treaty has a deterrent value. Chinese opinion on the accuracy of the IMS is ambiguous. Discussions in May 1998 revealed that some scientists believe that the IMS will not be able to detect explosions that are less than 10 kilotons; others appear confident in the system's ability to detect 1 kilotron tests. Some Chinese experts indicated in 1994 that they believed U.S. weapons labs could (and would) still conduct nuclear tests despite a congressionally mandated moratorium. They appeared to have little faith in the validity of U.S. commitments or in the power of congressional oversight of the Executive Branch. Others in China believe that the United States will not adhere to the spirit of the CTBT, and will use sophisticated technology to modernize nuclear warheads without testing. Once again, these ideas reflect a profound mistrust of U.S. motives and intentions and they demonstrate the limited utility of arms control regimes *per se*, regardless of other political initiatives, in building confidence.

But even if the CTBT constrains U.S. and Russian modernization, the gap between China's inventory and that of the two nuclear superpowers is so large that China has been effectively frozen into a position of perpetual inferiority. Finally, the CTBT does not address nuclear issues that the Chinese do perceive to be germane to their security, the most significant being a no-first-use commitment by declared nuclear powers. China has also voiced public concern about progress in missile defense systems, which are not at all limited by the CTBT. Chinese pronouncements on the CTBT have consistently returned to the notion that the CTBT is only one step towards the ultimate elimination of nuclear weapons, and probably not the most significant one. All of these factors explain the grudging attitude expressed by one senior Chinese diplomat who told an American colleague at a dinner in early 1996, "Make no mistake, China will sign the CTBT; and make no mistake, once signed, China will adhere to the CTBT. But we *hate* it!" Not surprisingly, informal discussions reinforce the notion that many within China opposed the moratorium and the CTBT. Resistance to the CTBT within China, especially by the military, no doubt reflects bureaucratic, as well as security, concerns. One senior Chinese scientist, who had spent his entire career in the nuclear testing program, when asked how he felt just before China's 45th and last test in July 1996, responded that he was only glad to have the Foreign Ministry "off my case!" Opposition to the CTBT is not limited to China moreover;

respected scientists and arms control analysts in the United States also question the value of the treaty, and U.S. ratification appears doubtful.

Thus from a Chinese perspective, the costs of the regime could be seen as real, whereas the benefits could be interpreted as primarily symbolic. For this reason, Chinese accession has to be seen as a critical milestone. It is a decision whose origins will have to be more carefully explored when those within the Chinese government can speak more freely and in more detail.[45]

Lessons from China's involvement in the CTBT

At the end of the day, many Chinese seem to believe that China was pressured into joining the CTBT to avoid international isolation and to preserve symbolic P-5 credentials. If this is an accurate perception, it carries with it enormous implications that should guide future thinking in order to insure Chinese participation in other regimes and treaties. It suggests that once the Chinese perceive solid international support for a regime, and once they believe that they will suffer from remaining on the outside, they are prepared to negotiate and compromise. They will fight to protect what they believe to be their national interest, but they will also be prepared to deal, particularly if they can walk away with the moral high ground. This means that any country seeking Chinese accession, or compliance, or approval might do well not to rely solely on bilateral pressure but to engage the support of a multilateral coalition that China would find difficult to defeat. A final CTBT lesson is that, whenever possible, it makes sense to create positive incentives for China rather than to rely on a Chinese desire to avoid negative consequences. China clearly expected to see benefits from signing the CTBT; thus far, few have materialized.

4
The Biological Weapons Convention

Background

The effort to eliminate biological weapons dates back to the Geneva Protocol of 1925, the first international agreement to articulate a consensus that the use of biological agents is morally repugnant. The Geneva Protocol (for the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare) represented an important international consensus in that its members agreed to ban the use of an entire class of weapons.[1] It stipulated that the signatories would "agree to extend this prohibition to the use of bacteriological methods of warfare and agree to be bound as between themselves according to the terms of this declaration."[2] Yet in practice, the agreement had many limitations. It only banned first use of bacteriological weapons against another state party. It contained no verification or enforcement procedures.[3] The protocol did not adequately define biological weapons, and did not address the development, possession, or stock-piling of biological agents intended for military use.[4]

The successful negotiation of a Biological Weapons Convention (BWC) of 1972, to which 144 countries belong, constituted an important step forward because it addressed the actual possession of biological toxins.[5] The convention, which entered into force in 1975, called on parties to refrain from developing, producing, or stockpiling biological agents intended for military use; that is, those agents or toxins "that have no justification for prophylactive, protective, and other peaceful purposes." The main sticking point in eliminating biological weapons completely has been the difficulty of establishing an effective enforcement and verification regime. The 1972 convention did not include any provisions for inspections or declarations, made more difficult by the number of research and production activities which could contribute both to legitimate civilian biological science and to weapons development. Biological toxins can be produced in small quantities in unsophisticated laboratories, with relatively little equipment or advanced scientific expertise. This poses a large challenge for establishing a verification system; many believe such a system to be both politically and technically impossible. Furthermore, the distinction between military and civilian

applications of biological science has become more complicated with rapid advances in genetic engineering. At the same time, the need to address the threat of biological weapons has been amply demonstrated by the subway attack in Tokyo, the success of the Iraqis in concealing a dangerous BW program from international inspectors, and the anthrax attack in the United States in 2001.

The first, second, and third Review Conferences of the BWC added provisions requiring state parties to exchange data on biological research, biological defense programs, and the outbreak of diseases thought to be caused by biological toxins. During the Second Review Conference parties agreed to share information about their biological research programs as a confidence-building measure. The parties agreed in 1987 to provide annual reports on four specific topics to the U.N. Department of Disarmament Affairs. The third review conference expanded the scope of these reports, which now include data on:

- biological defense programs and facilities;
- unusual outbreaks of disease;
- biological research directly related to the convention;
- visits to biological research centers;
- legislation and other regulations to implement the provisions of the convention and to control the export or import of pathogenic micro-organisms;
- past activities in offensive or defensive biological research and development programs;
- vaccine production facilities.

The Third Review Conference also specifically called on states to declare past offensive or defensive BW activities; to declare domestic legislation or regulation regarding BW activities; and to make a "nothing-to-declare" statement when appropriate, leaving little room for ambiguity in the absence of a specific declaration. However, there was no objective way to verify the accuracy of these voluntary declarations. The parties to the BWC established a working group of government experts to explore ways of verifying the provisions of the treaty in 1991. The formal name of this Group of Government Experts to Identify and Examine Potential Verification Measures from the Scientific and Technical Standpoint was shortened to VEREX. VEREX had jurisdiction over technical issues, not political ones. The VEREX talks gained momentum after the ratification and entry into force of the Chemical Weapons Convention, which mandates inspections almost as intrusive as those that would be required by an effective BWC enforcement regime. In 1994 VEREX ceased to exist and the BWC, the Convention set up an *ad hoc* group to negotiate a legally binding agreement on measures to enhance confidence in compliance with the BWC.

The Fourth Review Conference of the BWC, which concluded on December 6, 1996, was not able to agree on the content of a legally binding instrument to strengthen the convention, nor was it even able to even establish a deadline for

the conclusion of the VEREX work plan. The conference discussed the role of multilateral export control without reaching any conclusions.[6]

Meanwhile, the *ad hoc* group continued to meet on a regular basis. After seven years of talks and 24 sessions, the group was able to agree on the outlines of a text. The draft text describes a verification system which relies on mandatory declarations, declaration follow-up, and investigations of allegations of noncompliance. However, disagreement persists over critical questions pertaining to verification: export control requirements, declaration follow-up procedures, declaration triggers, inspections, and scope. One indication of how contentious the negotiations were is the number of brackets in the text of the protocol, since bracketed language indicates points of disagreement by one or more parties.

During the September-October 1999 session of the *ad hoc* group, it was considered a mark of significant progress that the number of bracketed items was reduced from 3,200 to 2,000.[7,8] Despite these differences, the ad hoc group did not abandon its goal of reaching a consensus by the Fifth BWC Review Conference, scheduled for November 2001.

The first indication of the challenges facing the regime emerged in the summer of 2001, at which time the new Bush administration had made its reservations about the VEREX protocol well known. In written testimony submitted to the Subcommittee on National Security, Veterans' Affairs, and International Relations of the House Committee on Government Reform, Ambassador Don Mahley indicated that the Bush administration stood behind the convention as negotiated in 1975 but was "grappling" to arrive at a final position on the proposed VEREX protocol.[9] U.S. reservations revolved around the role of export controls and the proposed requirements for transparency under the protocol. Mahley went to far as to suggest, in referring to the upcoming November meeting, that "we can expect a very troublesome review conference, with some bitterly fought attempts to incorporate national views in the final document." This impression was reenforced in July 2001 when the United States formally withdrew its support for the VEREX-negotiated text, insisting that "the current approach to a Protocol… not, in our view, capable of achieving the mandate set for the Ad Hoc Group…. We are unable to support the current text, even with changes."[10,11]

In November 2001, the U.S. representatives to the Fifth BWC Review Conference tabled a paper that called for an end to protocol negotiations under the *ad hoc* group and instead proposed annual meetings of state parties and expert groups. Rather than adjourn in deadlock, the delegations to the conference agreed to postpone all discussion of the verification protocol for a year.[12] The BWC resumed its meetings in December 2002, at which time members agreed on a work program for the next four years.

Chinese participation in the BWC

China remained outside the treaty for the first 12 years of its existence. Initially the Chinese criticized the BWC as simply another disarmament "fraud" concocted

by the superpowers to prolong their military superiority. In a commentary about U.S.-Soviet disputes over biological and chemical weapons, one Chinese author wrote that their quarrel

> is just a smokescreen to conceal their arms race, and the fiercer the quarrel, the more intense the explosion of their armaments. The Soviet Union and the United States have now moved their quarrel over the manufacture and use of biological and chemical weapons to the European Security Conference and the Geneva disarmament talks. This precisely shows that a new field has been opened up in their arms race; that is, they are racing for biological and chemical weapons superiority. People should be vigilant against this.[13]

In addition, China objected to the failure of the convention to address chemical as well as biological weapons:

> The two superpowers…talk glibly about prohibiting biological weapons first while leaving aside the chemical weapons which are being used on a large scale and whose simultaneous prohibition has been urgently demanded by the people of all countries. Their true purpose is to enable themselves to continue their possession and development of chemical weapons so that these weapons can be used freely.

The Chinese representative to the First Committee of the U.N. General Assembly also noted that Taiwan had signed the convention, signifying that the BWC as an institution recognized Taiwan as a sovereign state. "The Chiang Kai-shek clique was even allowed to put its signature on the convention. The Chinese Delegation expresses its indignation at this."[14]

China's position changed in 1984, at which time the Chinese government repeated previous objections to the convention but said Chinese participation in the regime was "in keeping with China's consistent stand and…beneficial to peace-loving countries and peoples in opposing aggression and defending world peace."[15] When asked by a reporter whether the convention would require destruction of Chinese biological weapons, the Foreign Ministry spokesman responded that China had never "researched, manufactured, produced, and possessed biological weapons," adding that China would not do so in the future.[16] The Standing Committee of the National People's Congress ratified the convention in September 1984.[17] China came to the convention later than some of the industrialized democracies, but Japan and Germany did not join the BWC until 1983, and France did not join until 1984.

Government officials from other countries who participated in BWC negotiations have remarked that China has opposed many of the proposed measures to strengthen the convention and give its verification "teeth." In many instances, other countries who shared China's objections allowed the Chinese to

remain silent, let others make the necessary arguments for them, and avoided drawing attention to their objections. One report of the VEREX IV negotiations in 1993, for example, indicated that China and India had opposed provisions being discussed at the time for intrusive inspections. Since VEREX operates on a consensus basis, China's position would have been publicly recorded in the final report of the meeting. When it appeared they would be isolated in their opposition, the Chinese decided to join the consensus document.[18] With the U.S. withdrawal of support for the BWC Protocol in 2001, it will be easier for China to avoid the blame for any breakdown in negotiations.

The transcripts of Chinese remarks at BWC Review Conferences, VEREX meetings, and *ad hoc* group meetings are not publicly available. The convention issues reports which summarize the results; however, these reports usually reflect the consensus of the entire meeting and do not spell out the positions of different countries. It is possible to understand Chinese positions on the convention by examining the Chinese working papers prepared for the VEREX meetings, as well as China's membership in the NAM group within the BWC.[19] China implicitly agreed with confidence-building measures adopted in the 1986 and 1991 Review Conferences, even if Chinese officials did not say so explicitly.[20] By 1999, China's position on the protocol were well understood, and they have remained consistent since then.[21] In January 1999, Ambassador Sha summarized China's attitude towards the BWC at an international conference:

> The negotiation on a protocol aimed at strengthening the BWC has entered its final stage. The establishment of any verification system should be guided by the principles of fairness, appropriateness, and effectiveness. Otherwise, verification weakens rather than strengthens the non-proliferation regime… The purpose of verification is to deter potential violators from violating its *[sic]* obligations. At the same time, we should be realistic enough to see that no verification regime, however perfect or complete, could provide 100% guarantee that no violations could happen. Therefore, verification measures should be appropriate and feasible. If they are too intrusive and affect the legitimate security or economic interest of the states parties, or too costly and impossible to sustain in the long run, they will not be able to get widespread support and in the end the universality of the treaties will be undermined, which in turn, will be detrimental to the strengthening of the non-proliferation regime.[22]

Some Chinese positions focused on the details of BWC implementation and were shared by countries in other regional groups. For example, the original draft of the protocol had provided for inspections of declared sites to verify the content of the declarations. Whereas some countries had favored a comprehensive, intrusive, and random system of visits, China and India favored less intrusive methods of inspection. The United States, Japan, and Germany, it should be noted, shared China's position on this issue. Triggers for an inspection were another contentious

issues. China favored a system that would define triggers according to existing categories established by the World Health Organization, based on the physical dangers inherent in handling different materials, such as level of filtering, protective clothing utilized by research personnel, and facility security measures. These classification categories are already used almost universally in both commercial and government facilities. China's formulation would therefore focus on high containment facilities, a preponderance of which are in the developed world. Implicit in China's position was the assumption that the convention would only be able to monitor the activities of states, and not substates. In contrast, the Western Group maintained that offensive biological warfare programs were likely to be conducted outside of high containment facilities. Another point of debate has been the transition between different levels of investigation. According to one observer, the Western Group had been hesitant to give the internationally mandated investigation team too much leeway to step up the degree of intrusiveness. China was among the countries particularly anxious about this.

Export controls have been a source of contention since the inception of the BWC. The Western Group has, in general, been supportive of the continuing role of the Australia Group, an informal arrangement by which members countries coordinate export control policies. In fact, one reason cited by the United States for withdrawal of support for the protocol was that it would interfere with the success of the Australia Group. Many members of the NAM, including China, not members of the Australia Group, have insisted that states parties should be able to trust each other sufficiently that multilateral export control arrangements would be redundant. They hold that export cartels are inherently discriminatory and deny important economic benefits to developing countries.[23] As the U.S. support for the continuation of the Australia Group intensified in the first six months of 2001, so did Chinese and NAM opposition to the group. On May 8, 2001, China submitted a working paper implicitly calling for the elimination of the Australia Group. The paper argued for an export control regime to which all state parties would adhere. It further argued that: "With the multilateral export control mechanism in place, any parallel export control arrangements incompatible with the Convention or Protocol shall have no ground to exist. All states parties shall, within the framework of the Protocol, follow uniform standards and take effective measures…[Any parallel export control arrangements incompatible with the Convention or Protocol] shall cease to exist."[24] Several other nonaligned countries joined China in a similar statement several days later.[25]

At the beginning of the Fifth Review Conference in November 2001, Ambassador Sha reaffirmed China's support for the BWC without objecting to any specific provision of the proposed protocol. He reiterated previous statements that "China firmly opposes the proliferation of these types of weapons to any country or any individual" and that "China attaches great importance to this Convention and has always abided strictly by its provisions." Sha insisted that China welcomes "any proposals made by states parties within the multilateral framework to comprehensively strengthen the Convention." However he warned

that "no proposal should only benefit one while impairing other state parties, nor should it obstruct the applications and international cooperation in the civilian field." [26]

Chinese compliance with BWC terms

In 1993 the United States government began to assert that, in contradiction of its public statements, China had operated an offensive biological weapons program and was still manufacturing infectious microorganisms and toxins. The 1996 Annual Report of the Arms Control and Disarmament Agency stated that "China had an offensive BW program prior to 1984" which it maintained through most of the 1980s.[27] In each of the subsequent two years, the annual ACDA report published the same U.S. position (there was no report published in 1999, 2000, or 2001):

> The United States believes that China had an offensive BW program prior to 1984 when it became a Party to the BWC, and maintained an offensive BW program throughout most of the 1980s. The offensive BW program included the development, production, stockpiling or other acquisition or maintenance of BW agents. China's CBM-mandated declarations have not resolved U.S. concerns about this program, and there are strong indications that China probably maintains its offensive program. The United States, therefore, believes that in the years after its accession to the BWC, China was not in compliance with its BWC obligations and that it is highly probable that it remains non-compliant with these obligations.[28]

Other U.S. government reports have included similar accusations, pointing out that China "possesses an advanced biotechnology infrastructure and the biocontainment facilities necessary to perform research and development on lethal pathogens."[29] A 1997 *Washington Times* article quotes U.S. intelligence sources as saying that: "China recently sold Iran dual use equipment and vaccines with both civilian medical applications and biological weapons applications."[30] In 1998, a Russian defector, Kanatjan Alibekov, now known in the United States as Ken Alibek, described an accident near China's Lop Nor nuclear test site in the late 1980s as evidence of a Chinese BW program. According to this account, an outbreak of a rare disease was the result of Chinese scientists working to weaponize certain viruses. Alibek reported that "spy satellites peering down at China found what seemed to be a large biological weapons laboratory. Intelligence agents then found evidence that two epidemics of hemorrhagic fever swept the region in the late 1980s. The area had never previously known such diseases, which cause profuse bleeding and death… Our analysts concluded that they were caused by an accident in a lab where Chinese scientists were weaponizing viral diseases."[31]

No other country has publicly accused China of violating the convention, and there is no international verification mechanism to support these charges, which are supported only by classified data. Furthermore, China's possession of the capability to perform research on pathogens does not in and of itself constitute evidence that China has violated the convention–nor does the transfer of dual-use equipment, which is not specifically addressed in the text of the convention, although it could be interpreted as a violation of its spirit. Furthermore, these same two allegations made about China could be applied to many other countries which are not mentioned in the ACDA report.

It also appears from some news reports that the U.S. government assessment of Chinese compliance has been a subject of domestic political debate. The *Washington Post* reported in 1993 that earlier compliance analyses had been altered for political reasons, suggesting that evidence of Chinese biological weapons had been available in previous years but suppressed in the hope of bolstering United States-China relations, specifically by the Bush administration in advance of Secretary Baker's November 1991 trip to Beijing.

China has flatly denied U.S. allegations by repeating its 1991 statement and insisting that U.S. charges are "groundless." The White Papers on arms control and national defense issued in 1995, in 2000, and in 2001 said China has

> consistently advocated a complete prohibition and thorough destruction of biological weapons. It opposes the production of biological weapons by any country and their proliferation in any form by any country. In 1984 China acceded to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and on Their Destruction, and since that date it has fully and conscientiously fulfilled its obligations under the convention. Since 1987 China has year after year reported to the United Nations on convention-related information and data in accordance with the decisions of the Review Conference of the convention. China supports measures that help strengthen the effectiveness of the convention. It will actively join in discussions of the Ad Hoc Group on promoting international cooperation, enhancing trust, strengthening verification, and other issues.[32]

The charges and countercharges, back and forth, between the United States and China on this issue do not shed any real light on Chinese compliance with the letter or the spirit of the BWC. In an attempt to resolve some of the bilateral tension that this issue has generated in the past, President Clinton and Chinese President Jiang Zemin released a joint statement at the end of the president's 1998 visit to China. The statement committed the two countries to compliance with the regime as well as to the establishment of a practical and effective compliance mechanism:

> The two sides believe the protocol must include efficient, practical and cost effective measures to deter proliferation or violation of the convention and improve transparency. Appropriate measures should be formulated and implemented in a manner that takes into account protection of sensitive commercial information and legitimate security needs, and in light of relevant national laws and regulations. The two sides express their desire to cooperate in the negotiations and work together to further accelerate an early conclusion of the negotiations on the protocol.[33]

However, the statement amounted to declarations of good faith rather than binding commitments against which either side could measure concrete progress. China took an additional step to build confidence in its BWC-related commitments in 2002 by issuing biological dual-use export regulations as well as lists of biological dual-use items whose export would be controlled.[34]

Costs to China of BWC membership

As the convention now stands, participation in the BWC does not impose a serious burden on China. First, the cost of intentional or accidental violations is relatively low. Without an international verification system, China can write off U.S. allegations of violations as politically motivated. Second, although the convention requires certain declarations of all states parties, no mechanism exists to verify the declaration, so the Chinese government is not really compelled to reveal anything it would prefer to keep confidential. Third, at present, there is no risk of a challenge inspection or other potentially embarrassing event. Fourth, even if a verification regime were established, the technical judgments would involve many gray areas. China (as well as any other country) might well be able to use technical arguments and opposing scientific opinion to counter any allegations. According to a U.S. expert on the BWC, "cultivation of disease-causing microbes cannot be banned outright, because the same organisms that can kill thousands of people also have legitimate medical and industrial uses… It is difficult to distinguish between offensive activities and benign ones."[35] The analytical and sampling techniques now being proposed for BWC verification could yield "false positives" and could be open to scientific challenge. This contrasts with evidence of a nuclear test, for example, evidence of which is not likely to be debated on scientific grounds. Finally, if in fact all the U.S. allegations are false, and China is complying with the convention, it is doubtful that China is sacrificing military options or making serious security concessions by giving up the potential use of biological weapons. On the positive side, participation in the convention allows China to take the moral high ground and also to promote technology exchanges, confidence-building measures, and other activities which can result in concrete benefits.

Lessons of the BWC

In agreeing to join the BWC, the Chinese were willing to accept certain risks. The possibility exists that the BWC will in the future establish an international verification mechanism, despite the many gray areas, scientific problems, and financial burdens that such a system would entail. After successful entry into force of the CWC, the likelihood of such an event seems greater than it did before.

A viable verification system, even a less than perfect one, would by definition be extremely intrusive. Biotechnology[36] and genetic engineering are emerging centers of excellence where Chinese scientists are likely to have a comparative advantage, and where a single breakthrough could have enormous financial and symbolic consequences. The potential market for China is estimated to be in the billions of dollars over the next decade. An intrusive inspection regime would complicate the protection of commercially sensitive technologies. China would also risk public humiliation if a violation were discovered. Given the number of laboratories and other facilities that would be subject to inspection, the task of educating scientific personnel about the convention and implementing domestic regulations would be enormous. The potential exists that some of these laboratories or companies, perhaps in an effort to improve profits, would act in contravention of directions from Beijing in violation of the convention. For all these reasons, many other countries are also likely to oppose intrusive inspections. Nevertheless it remains a possibility that a consensus will emerge, in which case China would have to choose between the costs associated with intrusive verification and those associated with political isolation. China's willingness to participate in the BWC despite these risks suggests that Chinese officials believe that they will be in a stronger position to prevent an objectionable inspection regime from inside the BWC process than from outside it.

5
The Chemical Weapons Convention

Introduction

The Chemical Weapons Convention (CWC) is one of only two treaties in this study in which China played an active role from the earliest negotiations through to the conclusion and signature. Most of the other regimes, such as the Nonproliferation Treaty, came into existence without any concern for Chinese interests or involvement, and this made for an uneasy relationship when China did decide to join the club. There existed a built-in obstacle to successful integration. Of the two that China was in on from the inception, the CWC is the only one that has actually entered into force. Thus it offers a unique case study, and provides the chance to examine Chinese participation on a level playing field, free from historical factors that are not likely to affect treaties negotiated in the future.

Background on China and the CWC

The desirability of banning chemical weapons is not a new concept, and attempts to achieve this objective go back several hundred years.[1] The first serious global effort to ban the use of chemical weapons under U.N. auspices began in 1980 with the establishment of a U.N. *ad hoc* working group; this group completed formal treaty negotiations in 1992. The treaty opened for signature in 1993 but did not enter into force until 1997, several years later than negotiators had anticipated. The conclusion and entry into force of the CWC mark a new era in international arms control agreements, both because the treaty eliminates an entire category of weapon, and because it includes much more intrusive verification procedures than had ever existed in previous arms control or nonproliferation regimes.

China is an important part of the CWC story. China participated in the CWC negotiations from their inception, and became one of the first countries to sign the treaty 1993. This signature is significant because it marked China's real entry into the arms control community. Unlike entry into the NPT, which for China was largely symbolic and which had been in force for over a decade before the Chinese joined, the CWC bore a Chinese "stamp" due to their participation in the negotiations. China's contributions to the treaty included participation in the

development of rules for on-site challenge inspections that all parties could agree to, the invention of a methodology for calculating the threat posed by different types of chemical weapons, the stipulation that former aggressors should be responsible for destroying old chemical weapons, and the rules by which old chemical weapons would be destroyed.[2] Furthermore, the CWC posed important challenges to the Chinese leadership. On the one hand, it aimed at global membership, which meant that there could be a very high price for staying on the outside; on the other, it had provisions for intrusive verification, which meant that there could be a very high cost for being on the inside. China, like many other countries, waited to ratify the treaty and deposit the instrument of ratification until the United States had done so first in April 1997. However, a year and half after entry into force, China was in compliance with its treaty obligations, whereas the United States was not.[3]

China's participation in the CWC negotiations and signature of the treaty itself represented a major step forward, although it received little public attention at the time. Beginning in 1985, China has maintained its opposition to the use or production of chemical weapons. In 1998 China reaffirmed its nonpossession of chemical weapons, and the official white paper "China's National Defense" asserted that "China does not possess chemical weapons and has always stood for the complete prohibition and thorough destruction of such weapons. As a State Party to the Chemical Weapons Convention (CWC), China has faithfully fulfilled all its obligations under the Convention." [4] However, U.S. government reports had accused the PRC of pursuing a chemical weapons program, and China's rhetorical statements about nonpossession tend to be treated with skepticism.

What does the treaty mean for China?

Before examining China's role in this treaty, it is important to review the contents briefly. The text of the Chemical Weapons Convention is over a hundred pages long, and during the first two years after its entry into force, additional clarifications added 250 pages to the document.[5] Its objective is simple: to prevent signatories from developing, producing, acquiring, transferring, using, or storing chemical weapons. Signatories are also required to submit declarations of existing chemical weapons or production factories, and they must agree to destroy them. They must also declare their annual production of three categories (referred to as "schedules") of industrial chemicals that have legitimate, nonoffensive use in small quantities.[6] There is a requirement to permit inspectors to validate the declarations. The CWC, for the first time in the history of multilateral arms control and nonproliferation negotiation, requires that states parties enact domestic legislation to ensure compliance with the terms of the treaty.[7]

Inasmuch as a key challenge for China in implementing this treaty is the effective control of chemical exports, it is important to clarify those parts that pertain to transfers. The CWC includes a "general purpose" criterion that defines the items to be controlled not by the chemicals themselves, but by the purposes

for which they may be employed. The convention defines CW to be "any toxic chemical or its precursors intended for purposes other than those not prohibited by the CWC as well as munitions, devices or equipment specifically designed to be used with them."[8] The CWC includes specific rules for transfers of the three schedules of chemicals among states parties, and for transfer between states parties and states that are not parties to the convention. Schedule 1 chemicals can be transferred between any two states parties only for research, medical or pharmaceutical use or protection, and only in specified quantities, but cannot be retransferred to a third state.[9] Countries are allowed to transfer Schedule 2 chemicals among themselves three years after the CWC's entry into force. Schedule 3 chemicals can be transferred without limit, but the exporting state party must ensure that the chemicals will not be used for purposes prohibited by the convention.[10]

Enforcement of these restrictions poses significant technical and logistic burdens. Unlike the development of nuclear weapons, which requires specialized and easily identifiable materials and procedures, precursors for chemical weapons have many legitimate uses in hospitals, scientific research, and industry. Although large-scale production of chemical weapons would be somewhat easier to detect, toxic chemicals can be made in thousands of laboratories virtually anywhere in the world. Small amounts of toxic chemicals are permitted under the treaty for defensive purposes, so verification procedures must determine not only whether or not a chemical exists, but in what quantity and for what purpose.

For these and other reasons, comprehensive and air tight verification of a CW ban would be virtually impossible. The CWC instead calls for a verification regime that includes a combination of declarations by states parties, routine inspections of potential CW manufacturing sites by an international team, and provisions for challenge inspections with relatively little advance notice of any site where other states parties can provide evidence of suspicious activities. Each of these provisions requires some elaboration, because each poses difficulties for China–although not uniquely for China–serious enough to have been very real obstacles to Chinese signature and ratification of the treaty.

Declarations

The first requirement is declarations. Each state must disclose commercial and military information not previously in the public domain. The Organization for The Prevention of Chemical Weapons (OPCW) has sorted chemicals into three classifications or "schedules."[11] Under the treaty, China is required to disclose annual production levels for the three schedules of chemicals, unless the amounts are very small (less than one ton for certain chemicals in Schedule 2; less than 30 tons for certain chemicals in Schedule 3). China was also required to declare the existence of current or past chemical weapon production facilities. Although the United States makes public vast amounts of information about national defense, such declarations are likely to be seen as an inherent problem for a government

and culture with a history of secrecy and ambiguity even about nonsensitive issues. In China the instinct for ambiguity has been reinforced by a system of compartmentalized information that makes any transparency measure, even one that includes many fewer items than the CWC, extremely difficult to execute. Often it is not clear whether the Chinese are incapable of disclosing information or simply prefer not to disclose it. Naturally, when the benefits involved are proven to have sufficient value to China, especially in the context of trade negotiations, the PRC has agreed to disclose information that had previously been withheld. However, the declarations called for in the CWC are also logistically difficult to carry out given the size of China's chemical industry. The task has been complicated by the major reorganizations of the Chinese bureaucracy, especially in March 1998, the constant threat that state-owned enterprises will be put out of business, and the decentralization of authority over state-owned as well as collective or private chemical companies. In addition to the bureaucratic problems involved in making the necessary declarations, Chinese government officials expressed concern that industrial declarations and the challenge inspections called for by the treaty would create opportunities for industrial espionage by foreign firms.

Indeed, opposition to the CWC on these grounds was not limited to China. As of February 2000, 49 signatories to the treaty had still not ratified it. Two years after entry into force, there were still more than 30 countries that had not submitted the initial declarations required. The United States was a vocal supporter of the CWC, and the U.S. chemical industry ultimately supported the ratification of the CWC, Yet a number of different constituencies within the U.S. voiced opposition to it, and the battle for ratification in the Senate was protracted. Continuing debate about the treaty is evident in the restrictions attached to the United States in implementing legislation and in the time it took for the United States to fully implement the legislation and submit declarations as required, which did not happen until May 2000.[12]

Export controls

The export control requirements of the CWC posed additional challenges, similar to those posed by the declaration requirements. Prior to the CWC, China did not have defined export control procedures for chemicals or technology that could be used to make CW. In the light of China's large and decentralized industry, simply educating Chinese chemical companies about the provisions of the CWC was a major job.[13] Effective enforcement and imposition of penalties for violations was certain to be quite difficult both politically and logistically. Furthermore, the stakes in the CWC were higher than those in other regimes. Since the CWC has specific verification procedures, China's failure to control exports could trigger a legitimate international inspection to which the Chinese would have no choice but to agree.

Although China established a national implementation organization dedicated to CWC enforcement, the Chinese formally oppose the continued existence of the Australia Group, an informal organization of CWC (and BWC) signatories who agree to adhere to even stricter standards of export controls than those spelled out in the conventions themselves. The Australia Group has no formal enforcement or verification structure but relies instead on consultation and information exchange. China's opposition to the Australia Group reflects long-standing concerns of the NAM that export cartels make it difficult for developing countries to import the technology they need in order to modernize. Moreover, the Australia Group chairman implied in a speech in 1992 that the group's measures would cease to exist after the treaty entered into force.[14] Finally, the Chinese oppose the Australia Group on the grounds is that its existence creates a split among signatories of the CWC, with different countries adhering to different rules, which, according to Ambassador Sha, "causes confusion and affects the normal international trade of chemicals… To rectify this situation, there are only two ways…namely, to dissolve the Australia Group or amend the CWC to bring it in line with the requirements of the Australia Group. Either way, there must be a single standard rather than two."[15]

Removal of old weapons

A provision of the treaty that has particular significance for China, but not for other states parties, is the requirement to destroy abandoned chemical weapons. Before agreeing to sign the CWC, China insisted that the text include a clause that required the abandoning state to remove the abandoned weapons. China had argued for the inclusion of this language throughout the negotiations, and according to U.S. government officials, would not have signed the treaty without it. The only known case of a state that acknowledges abandoned chemical weapons is Japan, who used both biological and chemical weapons in China during World War II.[16] Thus Japan would be the country most affected by China's clause on abandoned weapons, and the Japanese initially resisted it, since they would be saddled not only with the technical requirements of the job but the financial burden as well. In the end, however, they agreed to it as the price of getting China to sign the CWC. The CWC does not specify how abandoned weapons should be destroyed, only that the destruction must begin one year after ratification and end within ten years. China and Japan are expected to negotiate a bilateral arrangement for destruction, after which the OPCW will inspect the locations of the abandoned weapons to insure that everything has been destroyed.

To China insuring the removal of the old weapons was a major benefit of joining the CWC. Removal or destruction would not only solve long-term environmental, health, and, to some degree, economic problems, it would also give China an opportunity to determine and publicize the full extent of Japanese use of CW, thereby putting further pressure on Japan to apologize for its World War II "atrocities." Throughout the 1980s and 1990s, Japan failed to respond fully to

Chinese requests for a full-scale apology. Since the conclusion of the CWC, the Chinese have emphasized not only the use of CW during the war but also the continuing illness and death of Chinese citizens caused by the existence of the abandoned weapons. In 1996, two different groups of Chinese citizens filed suit in Japanese courts demanding financial compensation for accumulated damages to themselves as well as deceased family members.

Removal and destruction of the weapons poses considerable problems for the Japanese government which, unlike the U.S. government, has no experience in doing the same with its own stockpile. The project will be expensive, and China is likely to retain overall supervision and control, while holding Japan responsible for all the costs and for meeting OPCW standards of destruction. Some destruction methods, including incineration, which is the one most widely used, leave a residue of the original substance, and the OPCW has not yet determined what level of residue is acceptable. Furthermore, the treaty stipulates that Japan consult with China regarding the safety of the population as well as the protection of the environment before proceeding with the actual destruction.

Even before the treaty was negotiated, Chinese scientists were trying to determine the number and location of all the abandoned weapons. The official Chinese evaluation was presented to the Conference on Disarmament in a 1992 working paper. Subsequent to that paper, Chinese and Japanese teams of experts have surveyed many of the affected areas and conducted technical analyses to determine the content of the shells. Disagreement persists about the number of weapons. As recently as 1980, Japan had refused to admit that the Imperial Army had used any CW in China during the war, and it is likely that the Japanese government attempted to conceal any evidence of CW towards the end of the war.

The Japanese government established a Coordination Council for the Destruction of Advanced Conventional Weapons (ACW) and began to set aside the funds necessary to complete the project in 1996. By the time the treaty entered into force in 1997, the two countries had been holding consultations on this question for close to four years. A number of Japanese study teams have visited sites in China where there are abandoned weapons. During the early years of these consultations, the two sides had different estimates of the number of weapons. In 1999, the Japanese maintained that the number was approximately 679,000. This included mortars, projectiles, and bombs containing blister gas, mustard gas, and a number of other agents. Many of the abandoned munitions were buried in underground pits and, after 50 years, the shells were badly corroded. The Chinese estimate of the number of weapons was closer to two million.

In May 1999, Japanese and Chinese government representatives agreed on the text of a memorandum that included details of the cleanup. The draft memorandum of understanding (MOU) was not made public. However, a Japanese official implied that the agreement covered removal of 700,000 weapons. Under the terms of the treaty, Japan has the responsibility of insuring that the old weapons are removed; the cost was estimated in 1999 to be U.S.$1.67 billion. According to a Japanese newspaper account of the MOU, Japan agreed to pay these costs, China

agreed to give Japan access to the sites, and both sides agreed that the technology for the destruction and cleanup would have to be imported from a third country.[17] Candidate destruction methods include incineration, catalytic extraction processing, disassembling, and cryofracture.[18] Although the deadline for removing the weapons is 2007, the two countries can negotiate an extension if necessary.

The military cost of China's accession

It is also worth examining the degree to which China's accession to the CWC also entailed a military cost. Like the other signatories, China renounced the option to use chemical weapons in the event of a military conflict.[19] China has no known history of using these weapons; in fact, Chinese citizens were victims rather than perpetrators of chemical warfare during World War II. Very little is known about how China might have planned to use chemical weapons in warfare. Openly available Chinese journal articles and conference papers do not speculate on CW deployments since the Chinese government has always denied that China possesses any such weapons.[20] Chinese military planners, like military planners elsewhere, would have to consider several disadvantages to the actual use of these weapons, including the large quantities required and the potential contamination of areas the attacker might have to occupy. The effectiveness of the weapons would depend on the nature of the terrain involved, on the weather, and on the defensive measures of the target forces.

Thus it is likely that the use of CW by China has been seen as a remote contingency. In some respects, therefore, by acceding to the CWC China was forfeiting a choice that was of marginal utility, rather than a viable alternative. However, the natural inclination of any military establishment is to allow for the worst possible contingency and to leave open all options to preserve flexibility in the event of a crisis. Moreover, in any conflict serious enough to contemplate the use of chemical weapons, it is likely that China (or any sovereign state) would invoke the supreme national interest clause attached to most treaties that permits states to withdraw when their security is materially threatened.

Chinese compliance with the CWC

An accurate judgment as to whether or not China has complied with the CWC to date depends on the evidence examined. As with other treaties, much of it is classified. Since entry into force in 1997, no state has called for a formal OPCW challenge inspection, so no country has been found to have legally violated the CWC. Since signing and ratifying the treaty, China has expressed some reservations about its implementation in developing countries and about potential violations of sovereignty that could result from challenge inspections.[21] Yet concern about implementation is not tantamount to violation.

Compliance with this treaty has several different dimensions. The first concerns declarations. A number of countries have been in legal violation of the CWC at various times simply because they have not filed the appropriate paperwork, not for illegal production or transfer. However, China made its declarations to the OPCW within the timeframe specified by the CWC and no one has formally challenged the content of these declarations.

A second important dimension is possession of prohibited facilities or chemicals in amounts that exceed what the CWC permits. Although no one has directly accused China of either since entry into force of the CWC, the history is less clear. China's OPCW declarations surprised many observers in their inclusion of former CW production sites.[22] China had many times denied possessing any chemical weapons stockpile or offensive weapons, beginning in 1989 when a Chinese official asserted: "China neither possesses nor produces chemical weapons. China has all along attached great importance to and taken an active part in the negotiations on the chemical weapons convention in Geneva."[23] In 1995, China's White Paper on Arms Control and Disarmament included the following statement on chemical weapons: "China has stated that it has consistently advocated the complete prohibition and thorough destruction of chemical weapons. It does not produce or possess chemical weapons."[24] Such a statement is not consistent with the existence of CW production facilities. Chinese authorities reportedly maintained that the OPCW-declared sites are facilities that had formerly been used only for the production of chemicals that were to be used defensively.

According to the terms of the treaty, once a former CW production site has been declared, it must be closed down and inspected by OPCW to insure that it will not be reactivated (through the installation of seals, tags, or other devices). The OPCW has visited at least two of the declared Chinese former production sites, although their locations and contents have not been made public.[25] Information about which kinds of chemicals had been produced in these plants, or for what purpose, might be possible to discern once the inspection information is released by OPCW. Chinese statements acknowledge continuing research and development related to chemical defense as well as China's intention to expand and improve on that research. A professor at China's Antichemical Warfare command Engineering Institute wrote in 1997 that

> whoever is best prepared for warfare on chemical terms, having made the best defensive preparations against chemical weapons, will be best able to keep their enemies from using chemical weapons. As long as chemical weapons exist for even one day, we will have to pay attention to making good defensive preparations against a chemical weapons attack. We need to continue to improve the chemical defense facilities of our existing and future works, stressing their upkeep and management, so that they can be put to use in a timely way. [26]

As further evidence that this is an area of concern for the Chinese, the Institute for Chemical Defense of the Chinese Academy of Sciences has begun to engage in discussions about CW defense with foreign experts.[27] In this context, U.S. and other foreign government experts have indicated that Chinese officials involved in CWC implementation have inadvertently asked questions or revealed partial information suggesting that China did, in fact, have a binary chemical weapons program at one time. Former activity does not constitute a treaty violation as long as the relevant facilities and weapons are declared and inspected. It is known that currently China has a team of first-rate analytical chemists, and a Chinese laboratory was chosen as one of the sites that would be used for treaty verification.[28] However, this does not constitute proof that China has a CW program in violation of the CWC. It indicates the existence of the relevant capabilities.

The official U.S. Defense Department report on proliferation from 1997 stated that China has "an advanced chemical warfare program, including research and development, production, and weaponization capabilities… China's current inventory of chemical agents includes the full range of traditional agents, and China is conducting research into more advanced agents. It has a wide variety of delivery systems for chemical agents, including tube artillery, rockets, mortars, landmines, aerial bombs, sprayers, and SRBMs."[29] The report makes no specific reference to the CWC and the details in the report do not substantiate a charge that China is in formal violation of the treaty. Possession of toxic chemicals in small quantities is permitted, as is research on chemical defense. The treaty says nothing about possession of delivery systems and any number of CWC states parties have large inventories of delivery vehicles that could be used for chemical weapons. Nevertheless, U.S. official documents strongly imply that China is not in compliance with CWC obligations.

Another important aspect of compliance pertains to nonproliferation policy and export controls. The U.S. government has made specific allegations about Chinese chemical exports that could constitute violations of CWC commitments. The first accusations were made in 1993, well before the CWC had legally entered into force. The U.S. government accused China of shipping precursors for chemical weapons to Iran on the ship *Yin He,* and demanded to inspect the ship for evidence. The Chinese permitted an international inspection when the ship docked in Saudi Arabia several days later, and no chemicals were found.[30] Former U.S. government officials have speculated that U.S. intelligence reports that were the basis of the allegation contained details of illegal chemicals that were supposed to have part of the *Yin He* cargo, and that the inspection was fruitless because the containers intended for the ship were never actually loaded. The Chinese government has used this incident to point out the potential for unfair accusations and inspections, whereas the U.S. government has pointed to Chinese cooperation as an indication of the viability of CWC procedures.

Suspicion about Chinese chemical exports continued, although with less visibility than had been engendered by the *Yin He* affair.[31] A newspaper reported

in November 1996 that China had sold 400 tons of chemicals used to make nerve gas to Iran. Another report suggested that China had sold 2 tons of calcium hypochlorate (a chemical decontamination agent) to Iran earlier that same year.[32] In May 1997 the U.S. government imposed sanctions on five Chinese individuals and two Chinese companies in response to information that they had "knowingly and materially" contributed to Iran's chemical weapons program. The formal announcement did not list the specific chemicals or amounts, but stated that the U.S. government had clear evidence "that the companies and executives involved knew the intended use of the chemicals and forged documents to allow them to pass China's export controls."[33] The sanctions were relatively narrow in scope, and they were invoked only under the Arms Export Control Act (as amended by the Chemical and Biological Weapons Control and Warfare Elimination Act), not the more punitive Iran-Iraq Arms Nonproliferation Act. The reason for the distinction is the State Department determination of the timing of the sale[34], and in part because the equipment was controlled only by the Australia Group, and not specifically by the CWC itself. China and Iran both denied the charges. The Chinese companies involved, as well as the government, objected to the U.S. use of unilateral sanctions which, China said, had "no support in international law." Later in the year, the State Department expressed concern about Chinese chemical technology transfers to Iran. A U.S. newspaper published a report accusing China of selling Iran specialized glass-lined equipment that could be used to produce chemical weapons. At an October 1997 press conference, the State Department spokesman implied that there had been consultations between U.S. and Chinese officials on this matter when he said, "the company[35] involved is one that we are very concerned about, and we have now received additional assurances from the Chinese that the company's activities will be monitored much more closely and therefore, some of the concern that may have led some people to worry about this particular issue should be ameliorated." The State Department elected not to impose additional sanctions because the Chinese never delivered the raw materials necessary for the plant to become operational. A month later, a Defense Department report asserted that Chinese supply policies towards Iran would be a key determinant of whether or not Iran would be able to develop the capability to produce chemical weapons independent of foreign assistance.[36] In 1998 a British newspaper reported that China had sold Iran the chemical phosphorus pentsuphide in amounts larger than permitted under the CWC. Both China and Iran denied the charge, and the State Department elected not to impose sanctions. Reports of suspicious transfers continued to appear, however, and in June 2001 the newly installed Bush administration announced sanctions against the Jiangsu Yongli Chemicals and Technology Import and Export Corporation[37] for illegal chemical transfers to Iran.[38] The official notification of sanctions[39] did not provide details on specific chemicals or end users in Iran, but a State Department spokesperson referred to chemicals prohibited by a "multilateral regime," presumably the Australia Group, of which China is not a member.[40] A Chinese spokesperson at the embassy in Washington protested against the move, insisting that the United

States did not have the right to impose domestic laws on foreign organizations. The spokesperson said that the CWC "provides for normal trade and cooperation between nations in the chemical industrial field that signatories are required to guarantee and facilitate. What the Chinese company did falls into the category of normal trade in the chemical industrial field, and its activities do not in any way contradict the purposes and goals of the Convention"[41] The matter remained unresolved, however. Three additional Chinese companies[42] were sanctioned under the same provisions in January 2002, and a further eight companies were sanctioned in July 2002.[43]

Whatever the truth behind U.S. allegations of illegal[44] chemical exports, China has made efforts to comply with the treaty's export control requirements. In 1992 China's Ministry of Foreign Trade and Economic Cooperation (MOFTEC) published an export control law that included a list of ten dual-use chemicals for which special permission would be required prior to export. In 1993, the Chinese government established a national office for dealing with the OPCW[45] as well as a "leading group" of senior government officials who would lend their political weight to the implementation process, and the following year published a formal state council circular on chemical export controls. In the 1994 document, the MCI and the MOFTEC identified China National Chemicals Import and Export Corporation (SINOCHEM) and the Hao Hua Chemical Industry Corporation as the only two Chinese entities with the right to trade in proliferation-sensitive chemicals. In 1995 the State Council published a decree entitled *Administration of Chemicals Under Supervision and Control.* This decree identifies the four types of chemicals covered by the CWC,[46] as well as the PRC organizations responsible for licensing chemical exports, the establishment of an organization's right to trade in these chemicals, and punishments for chemical export control violations. The controls also apply to exports of manufacturing technology and specialized equipment.[47]

In 1996 Beijing issued by-laws aimed at further clarifying chemical export control procedures. The annex to these by-laws included, for the first time, a complete catalogue of chemicals subject to control as specified in the CWC schedules. The regulations were then further strengthened and clarified in March 1997, and then again in August 1997, with a new piece of legislation that established specific licensing procedures and called for exporters to obtain explicit approval to sell to nonsignatories of the CWC.[48] In 1997 China also established a national office to support the implementation of the CWC that was soon followed by the opening of provincial offices. Although these implementation offices conducted training for local chemical companies and bureaus, they also encountered resistance from the industry. The regulations were refined once more in 1998 when the Chinese government added ten dual-use chemicals not previously covered in the domestic legislation. The 1998 reform of the ministries under the State Council transferred responsibility for the chemical industry to the newly established State Administration of the Petroleum and Chemical Industry, and the national implementation office is now part of this new organization.

Finally, in October 2002, China issued a more refined set of regulations, as well as a list of chemicals and related equipment, intended to further clarify chemical export control policies. The 2002 document included detailed descriptions of licensing and registration procedures for chemical exports.[49]

Lessons of the CWC

The major challenge facing China in complying with the CWC is the enforcement of an export control system that is itself still evolving. In many respects, China has been more transparent about CWC implementation and CWC-related export controls than was the case for other nonproliferation regimes. Instead of simply giving blanket assurances, the Chinese government has revealed the procedures by which the chemical industry is to be controlled. Several different parts of the bureaucracy are involved, and some doubts remain about the ability of a small team of experts to control such a large industry. Nevertheless, Chinese progress to date is substantial.

China has received relatively little positive response from these efforts and the United States has continued to object to certain Chinese sales without issuing a charge within the context of the CWC.[50] This is primarily because the evidence regarding Chinese violations of the CWC falls short of the standards set by the CWC itself. U.S. government statements have not included the precise amounts of the items shipped and have not always indicated the names of the alleged Chinese exporters. From the information that has been released, it appears that a number of the suspect transfers would have constituted a violation, not of the CWC, but of the Australia Group. At least one transfer took place before the CWC entered into force. On balance, given the size of China's chemical industry, the suspect transfers have been relatively few, and the customers have been limited to one country, albeit a troublesome one from the perspective of U.S. foreign policy objectives. Overall, it is fair to say that China's record, while not perfect, is reasonable, given the challenges posed by the regime and the record of other participants.[51] If U.S. government statements alleging ongoing relationships between China and Iran's chemical warfare program are accurate, it remains unclear whether the Chinese government is acting deliberately to aid a state that the United States would like to contain, or whether the troublesome shipments are an unintended consequence of economic reform and decentralization. Chinese officials have said privately that they have difficulty controlling the activities of some exporters, and that information provided by the U.S. government is too vague to permit a thorough investigation. Although it is true that the U.S. government's complaints are limited to a few companies and a few shipments, compliance with U.S. demands might entail more than the Chinese government is willing to pay. It is at least possible that at a time when the central leadership in China faces a host of other immediate problems, the political capital required to rein in errant chemical exporters would be large in comparison with any potential payoff for complying. China has not faced any formal charges in the context of the CWC,

and if the shipments were to stop, it is unlikely that there would be any particular reward. (In fact, history suggests that the United States would continue to raise the bar.) From a strictly cost-benefit perspective, it is hard to see how "the game would be worth the candle," unless the Chinese believed that proliferation of chemical weapons posed a real and direct threat to their own national security. Chinese officials have said nothing to indicate that they share the level of concern about this issue that is voiced by U.S. policymakers and analysts. That is not to say, as some of China's critics would assert, that the Chinese want to undermine the intent of the CWC, or that they believe proliferation of CW to be a good thing. It is very likely that it is lower on their list of defense and security priorities than the United States would like it to be. This is a difference over policy preferences, not over international law or treaty compliance.

A further complication for U.S. diplomats is that it is only the United States that is applying pressure on China to stop the chemical shipments to Iran. The use of U.S. legislation[52] to control what the Chinese perceive to be their sovereign rights gives the Chinese an excellent opportunity to argue the principle rather than the substance and to introduce other purely bilateral issues into a debate about CW. In a 1999 speech, Ambassador Sha alluded to the unilateral nature of U.S. sanctions when he pointed out "the seemingly irresistible inclination of certain countries to impose their own standards or even their own domestic legislation onto other countries, thus giving rise to unnecessary international disputes." Sha went on to discuss the CWC specifically, summing up the general attitude of Chinese officials towards U.S. export control laws with tighter controls than those stipulated in international treaties:

> The relationship between the CWC and the Australia Group is a thorny issue. CWC [sic], a treaty which was concluded after extensive multilateral negotiations, and has as many as 121 states parties, contains in it clear provisions on the export of sensitive chemicals, accompanied with long schedules. We do not deny the right of any country to stipulate stricter export control requirements than that required by CWC, and establish small groups for that purpose. However, the existence of the Australia Group has resulted in discrepancies in the legal provisions of difference [sic] countries, which as created a de facto split legal system within the CWC states parties.[53]

The Chinese can also rely on the fact that there will be de facto limits on how far and how publicly the U.S. government is willing to push China on CWC compliance. The Congress has passed measures that would frustrate the ability of the OPCW to conduct challenge inspections in the United States. This opens the door for other countries to impose similar limitations; apparently not only China but also Russia, have already threatened to do so. Moreover, according to one report, U.S. personnel have refused to permit OPWC inspectors to use approved equipment in routine inspections at military facilities. In the words of one U.S. expert, "other nations will not stand idly by and allow the U.S. to create for itself

a less rigorous verification regime… U.S. rhetoric about unpunished cheating will sound rather empty."[54]

6
The Missile Technology Control Regime

Introduction

The acquisition of ballistic missiles by countries hostile to the United States has preoccupied and frustrated U.S. defense and security planners for several decades. Unlike offensive aircraft, for which relatively effective defense exists, ballistic missiles offer an aggressor a better opportunity to strike without being intercepted. This poses a potential long-term threat to the U.S. homeland and a more immediate threat to U.S. forces stationed in the Middle East and Asia. Furthermore, over the past two decades, technology has enhanced the accuracy of these missiles and reduced their cost. Global trading networks have reduced the time required for locating and shipping missiles and their components; advanced communications have made it easier to transmit technical information over long distances. In short, missile proliferation has increased in scope and in speed. The U.S. Commission to Assess the Ballistic Missile Threat to the United States concluded in 1998 that countries seeking to offset the projection of U.S. power would use these missiles in conjunction with WMD to provide a strategic counter to U.S. military capabilities.[1] The National Intelligence Council of the CIA reported in September 1999 that "the proliferation of medium range ballistic missiles…has created an immediate, serious, and growing threat to US forces, interests, and allies, and has significantly altered the strategic balances in the Middle East and Asia."[2] Other U.S. government reports contained similar conclusions, although differences existed over which countries would be most likely to use ballistic missiles, and over whether the threat constitutes a near-term reality as opposed to a medium-to long-term possibility. For these reasons, the United States has used unilateral as well as multilateral measures to stem the production and sale of ballistic missiles.

During the same period that concern about ballistic missile proliferation was building in the United States, China was increasing, in both quantity and quality, its capacity to produce ballistic as well as cruise missiles. This occurred during a period when Chinese defense-related companies were increasingly interested in exports to earn hard currency, and were also less amenable to central control than they had once been (although by no means completely independent). This put China and the United States on an almost inevitable collision course with respect

to this issue. The degree to which the collision resulted from misunderstanding and lack of communication, as opposed to a genuine disagreement about means and ends, has yet to be fully and thoughtfully explored. Missile proliferation is one area where China's failure to act in accordance with U.S. foreign policy preferences has been regularly misrepresented as a violation of international treaties or regimes. The purpose of this chapter is to document the record of this controversy and determine to what extent China's missile exports are a bilateral as opposed to an international policy issue.

What the MTCR is and is not

With the exception of the U.S.-Soviet bilateral arms control agreements (START I, START II and the INF treaty), there are no international regimes or treaties that are intended to control the domestic acquisition or deployment of ballistic missiles within a sovereign territory. Thus, the increase in China's domestic missile inventory is by definition outside the scope of any international regime. International efforts have instead focused on the sale of ballistic missiles (and missile-related technology) outside national borders. The only formal multilateral agreement in this area is the Missile Technology Control Regime (MTCR).

The MTCR is a multilateral suppliers cartel that was first discussed in 1983 and formally concluded in 1987.[3] Although this regime must be considered in any study of formal nonproliferation regimes, it is important to remember that it is not a legally binding treaty and has no enforcement or verification mechanisms. Membership is "by invitation" and is not open to all countries. The criteria for entry into the MTCR were discussed in private and only made public after those invited into the initial negotiations had achieved consensus.[4] Until 1997, the United States opposed membership for countries that refused to renounce any attempt at an offensive missile program and, by extension, at a civilian space program. Additional criteria included an effective export control system and a record of commitment to nonproliferation objectives. The membership rules as modified in 1997 called for an assessment as to whether or not the prospective member "would strengthen international non-proliferation efforts, demonstrate sustained and sustainable commitment to non-proliferation, has a legally based export control system that puts into effect MTCR Guidelines and procedures, and enforces such controls effectively"[5] as a consideration for new entrants into the regime. Formal members are referred to as "partners;" there are a number of quasi-members who have agreed to abide by the restraints of the regime without actually participating in any MTCR decision-making. These countries are referred to in the context of US law as "adherents." The distinction becomes relevant in the context of U.S. export control laws which permit certain types of exports to adherents even if they are not formal MTCR members.

Each member of the regime has agreed either to "exercise restraint" or to act based on a strong "presumption of denial" in the transfer of certain kinds of missiles and technologies. The first category, governed by a "presumption of

denial," includes complete systems: nuclear-capable missiles,[6] launch vehicles, as well as certain kinds of engines, firing mechanisms, control devices, and other important subsystems. This category includes many items essential to a civilian space program, since rockets for missile launching and rockets for launching satellites share many core technologies. The second category, governed by the "exercise of restraint" provision, includes propellants, materials, test equipment, and a wide range of other related technologies, some of which can be used in systems other than ballistic missiles. Category II items are defined with great precision (for example, "gravity meters [gravimeters], gravity gradiometers, and specially designed components therefore, designed or modified for airborne or marine use, and having a static or operational accuracy of 7 ~ 10–6 miser or better, with a time to steady-state registration of two minutes or less").[7] Controls on the first category are intended to be tighter than those on the second category, since Category I includes items that can cause the most near-term damage to the security environment. Members and partners are expected to operate under a "presumption of denial" of these items, regardless of the recipient.[8] Nevertheless, the regime itself leaves the partners and members to make final determinations of what sales are consistent with the spirit of the agreement. The only items whose sale is specifically prohibited by the MTCR are production equipment for ballistic missiles. The restraint and denial were originally intended to include MTCR "friendly" countries (members and partners) as well as potentially hostile countries that remained outside the regime. Not only are partners expected to refrain from transfers to non-MTCR adherents; they are not supposed to trade in the restricted items among themselves.

The MTCR has undergone several revisions since the initial rules were drafted and agreed to by the partners. Some of these changes have resulted from new technologies such as global positioning system; others are the result of the failure of the original MTCR to achieve its stated purpose. In 1993 MTCR partners agreed to several specific changes in the Technical Annex of the MTCR, as well as a change in the MTCR "guidelines" (text that precedes the equipment list). The Annex was extended to include complete rocket systems with a range of 300 km or more not already specified in Category I. Category I of the original Annex had specified only missiles (including space launch vehicles, sounding rocket systems, unmanned air vehicle systems such as cruise missiles, target drones, and reconnaissance drones) that were capable of a range that exceeded 300 km with a 500 kg payload. This left open the possibility of exporting systems with a smaller range but greater payload that had the same "inherent capability" as missiles that met the 300 km/500 kg standard. The Annex as revised in 1993 includes all delivery vehicles with a 300 km range, *regardless of pay-load.* The revised Annex also proscribes sale of relevant subsystems.[9] Members also agreed in 1993 to use Category I criteria (strong presumption of denial) in considering transfers of any items in the Annex, or of any missiles *whether or not in the Annex,* if the government judges, on the basis of all available, persuasive information that they are intended to be used for the delivery of WMD.[10] This shifted the focus of control

from the item itself to the end user and to the judgement as to whether or not that end user is in any way connected to an attempt to develop or deliver WMD. The 1993 revisions significantly increased the scope of the MTCR: that is, they expanded the number of sales that would be considered illegal under the terms and conditions of the MTCR.

In addition to the changes agreed to by MTCR partners in 1993, the United States enacted legislation that further enlarged the scope of the regime as it applies to U.S. exports. This is significant because it is only the United States who attempts to pressure non-MTCR members or partners to adhere to the constraints of the regime by using punitive sanctions. A number of U.S. laws enacted since 1987 define the sanctions, the circumstances under which they must be imposed, and the conditions under which they can be lifted.[11] These laws go well beyond internal enforcement of MTCR provisions, which would be limited to license requirements, and criminal penalties for U.S. companies that sell proscribed items. Although China was not mentioned in the legislation, some of the laws were drafted specifically to address Chinese missile proliferation.[12] Provisions of several different U.S. export laws also require sanctions on companies (referred to as "entities" since they are sometimes owned by a government) in foreign countries that violate MTCR export provisions, even if those countries never agreed to adhere to it in the first place[13]. The U.S. sanctions laws are not easy to access or understand.[14] U.S. legislation stipulates that a country that sells missiles or components listed in the MTCR annex, even if it is not an MTCR member, is subject to punitive sanctions consisting of U.S. refusal sell Category I or Category II items (depending on the offense) to the offending country.[15] In essence, the sanctions legislation stipulates that an "entity" accused of transferring missiles to a third party be denied the opportunity to import US missile-related technology. The offender is denied the same type of technology that the offender is itself accused of exporting. U.S. law makes an important distinction between sanctions for Category I versus Category II exports. A Category I violation requires stiffer penalties, extending well beyond an embargo of items listed in the MTCR annex, and stipulates an embargo (on the offending country) of all items governed by the U.S. Export Administration Act as well as the Arms Control Export Act. For countries with nonmarket economies, the sanction extends beyond the offending entity to all state-owned electronic, space, and military aircraft organizations. Yet another provision applies stiffer penalties if the government to which the entity is attached is considered by the United States to be a supporter of terrorism. Furthermore, U.S. law stipulates that MTCR controls apply to any item, regardless of whether or not it is listed in the MTCR annex, if the seller has reason to know that the ultimate destination is a missile program in a non-MTCR nation. This provision (referred to as a "catch-all" regulation) is close to the 1993 language agreed to by all MTCR members. However the MTCR partners only agreed to limit the sale of items connected to missiles capable of delivering WMD; U.S. law also calls for a proscription on *any missile-related sales to a non-MTCR member* (presumably regardless of whether or not the missile could be used for WMD).

Finally, certain MTCR sanctions deny the offending entity the right to export its goods to the U.S. market. These sanctions were intended for use when "the President determines that the export, transfer, or trade has substantially contributed to the design, development, or production of missiles in a country that is not an MTCR adherent."[16] The combination of an implied extraterritoriality and a "reason to know" standard reflect in part the growing frustration of the Congress with the inability of the MTCR to fulfill its initial objective. The U.S. legislation was intended to make the imposition of sanctions automatic as soon as there is a presidential finding of a violation, although the law does not stipulate what kind of evidence constitutes compelling proof that a transfer has occurred. In other words, the president has some legal room to maneuver before making a determination as to whether or not there has been an MTCR violation. As State Department spokesman James Foley explained at a press conference in 1999,

> an intelligence judgment is not in and of itself necessarily a sufficient basis for a sanctionability determination under U.S. law. It depends to a large extent on the nature of the evidence underlying the judgment and before the law can be triggered the entire various elements of the missile sanctions law must be satisfied. We have traditionally required a high standard of evidence in making sanctions determination given the potentially serious consequences and implications.[17]

The legislation also defines circumstances under which the president can lift the sanctions or decide not to impose them. If there are compelling national security interests, sanctions can be avoided. They can also be avoided if an MTCR member authorized the offending transfer. Finally, the law allows the president to delay imposition of sanctions against countries if those sanctions are thought to jeopardize an intelligence operation or an ongoing criminal investigation.

The fact that the list of technologies to be restricted under the MTCR includes so much more than finished missile systems has resulted in several widely held misperceptions. The sale of items on the "MTCR list" is not the same as the sale of a ballistic missile; a country might be permitted to buy space launch vehicles or sophisticated computers and be denied missile systems or highly sophisticated engines.

MTCR members rely on their own resources to detect violations and punish violators. The MTCR Guidelines and Annex say nothing about how to respond to noncompliance, either nationally or multilaterally. Governments accused of departing from MTCR rules can plead indeterminate language regarding obligation, national constraints on capacity to enforce implementation, and changing economic circumstances. Although extremely specific regarding the characteristics and tolerances of each item listed in the equipment annex, that same degree of precision creates loop-holes for items that fall just short of the specifications listed. At the same time, the MTCR guidelines remain silent on common principles, norms, rules, and procedures of consequence. In order for the

MTCR to be effective, members must have a common understanding of what constitutes a violation and a shared understanding of how to respond to that violation. Coordination is achieved through multilateral meetings where members discuss licensing decisions.[18, 19, 20]

Controlling the spread of missile technology is considerably more difficult than controlling the spread of nuclear weapons because the list of items that has to be controlled is so much longer, extending far beyond the missiles themselves to their many components. Unlike the assembled missile, components and related technology are easy to hide during shipment and uncrating. In addition, the list of missile components includes a long list of dual-use items that could, in theory, be used for other nonoffensive applications. Many of the systems that support commercial space launch vehicles, for example, are identical to those used in ballistic missiles. Since many developing countries are anxious to enter the space launch business, an expanding and inherently desirable market, any attempt at missile control will also constrain a country's ability to launch satellites or engage in space exploration. The MTCR member countries are therefore left to determine case-by-case how a given item in the MTCR Annex will be used.

Intelligence analysts differ over intentions, and intentions can be misrepresented for political reasons. The tension inherent in the desire to promote the growth of the space industry while restraining the spread of missile production capacity prompted a reevaluation of MTCR rules in 1993 after which the United States agreed to permit space-related transfers among MTCR member countries, as long as members continued to renounce offensive missile programs.[21] (This prohibition on offensive missile programs does not apply to nuclear weapon states.) Many in the U.S. government opposed this revision, arguing that it would result in a rapid proliferation of ballistic missiles.[22] The debate over this issue, contentious even at the beginning of the regime in 1987, remained divisive through the publication of the Cox Committee Report by the House of Representatives in the spring of 1999. The Cox report accused the Clinton administration of compromising U.S. national security, in part through overly permissive technology transfers (primarily through technical analyses rather than hardware) to China in the area of space launch vehicles.[23] The report alleged that these transfers contributed to the accuracy and overall quality of Chinese ballistic missiles.[24]

The initial composition and membership requirements of the regime also created fundamental contradictions. The countries that joined in 1987 were primarily those who already supported U.S. foreign policy objectives. Coordination among friends was helpful to insure that everyone implemented common standards and definitions, thereby avoiding unintentional transfers of missile-related technology. A number of friendly countries, including some NATO members, had been directly or indirectly contributing to missile proliferation perhaps without intending to. Technical discussions of what specific items needed to be controlled as well as comparisons of national export control systems were helpful in ending missile-related sales by, among other countries,

Italy, Germany, Switzerland, and Sweden. Nevertheless, key exporters of missile technology remained outside the MTCR.[25] In effect, the regime was targeted at both buyers and sellers of missile technology. The sellers included both members and nonmembers, whereas most buyers were nonmembers. Some buyers were also sellers. This structural asymmetry was one of many problems that limited the early effectiveness of the MTCR. It is true that in 1995 one of the most troublesome suppliers and an initial target of the regime, Russia, was permitted to join the MTCR. However, since then there have been numerous allegations of illegal Russian transfers.[26]

The shortcomings of the regime led to several attempts to expand and universalize the MTCR. The first of these was the Russian proposal for a Global Control System, first put forth at a G-8 summit in Cologne in 1999. The Russian system would incorporate certain features of the MTCR, but would also go well beyond the MTCR to significantly expand the membership and address incentives for missile proliferation, security assurances, and diplomatic and economic enforcement mechanisms. France proposed a set of missile transparency measures which the MTCR members approved in principle in September 2000.[27] The United Nations established a study group to examine "the issue of missiles in all its aspects" after a resolution put forth by Iran in 2000. This study group has a broad mandate which in theory includes the ballistic and cruise missiles now in the inventories of MTCR members.[28] Finally, in March 2002, 80 countries agreed on a draft of an international code of conduct against ballistic missile proliferation.[29] Although each of these initiatives has attempted to address some of the fundamental weaknesses of the MTCR, none has succeeded in changing its structure.

What is China's relationship to the MTCR?

China was not among the countries that originally negotiated the MTCR and was seen by many at the time as one of the reasons the MTCR was necessary. In the 1980s, the U.S. government voiced concern about the number and extent of Chinese ballistic missile sales to Middle Eastern countries. Newspapers reported that China was selling missiles to Iran, Syria, Egypt, and Saudi Arabia, all of whom could be considered a potential threat to Israel, a key US ally.[30] By definition, they were not qualified under the original rules to become a member. Nevertheless, the United States began a campaign to persuade China to adhere to MTCR restraints without also offering China formal membership in the regime (which would permit China to help make the rules). This policy highlights one of the troublesome features of the MTCR: the United States was demanding that China pay the cost of membership without receiving any benefit. This contrasts with other regimes, such as the NPT, where there is no "quasi-membership" status. In addition, the individuals in China who were in the best position to exercise restraint with respect to missile exports, namely senior officers of the PLA, were the very people with whom the U.S. government had cut off contact in the wake of the Tiananmen

incident. Officials from the Ministry of Foreign Affairs remained in contact with their U.S. counterparts, and did begin to grasp the high political cost of missile exports. Nevertheless, the Chinese defense establishment exercised (and does so to this day) a powerful influence on arms sales. In what would become a vicious cycle, missile and nuclear exports were used by critics of the U.S. government as a reason to insist that the United States impose more restrictions on United States-China military discussions. Administration officials and numerous China scholars, on the other hand, argued that sanctions would shut down communication and that it was only through a process of dialogue that the PRC would ultimately understand and accept U.S. views.[31]

An additional problem resulted from the fact that U.S. pressure on China to adhere to the MTCR came at a time when two countervailing trends were already evident within the Chinese system. First, China was starting to enjoy unprecedented levels of economic growth due to market-oriented reforms. These reforms included China's defense-related industries, which had begun to lose state subsidies and were under increasing pressure to earn money on the international market. Exports of weapon systems and other military goods, once tightly regulated, were now the purview of a growing number of trading companies, many owned by well-connected party members. The degree to which the central government attempted to control the activities of these companies remains a matter of intense debate, but the facts of their existence and their connection to senior party members is now widely recognized. It is unlikely that the companies themselves or the central leadership in Beijing realized the degree to which missile exports would be a sensitive political issue in the United States. According to one former U.S. diplomat, China's ambassador to the United States in the late 1980s dismissed U.S. concerns about missile and nuclear sales by saying, "that's just business; it doesn't have anything to do with our policy toward the United States."[32] At a time when Chinese foreign exchange reserves were modest, and China had a seemingly endless demand for foreign goods and technology, the motivation to earn hard currency was strong.

The second trend, perhaps also in response to economic forces, was the rapid expansion of Chinese missile production capacity. Despite an attempt at across the board modernization of the defense industry, it is only in the area of cruise and ballistic missile production that China has made significant and measurable progress. According to one U.S. Defense Department analyst, "Building upon a well established foundation of air launched, ground launched, and submarine launched antiship missile technology, China is creating a new generation of cruise missiles able to penetrate defenses and strike critical targets with precision and increased firepower… In addition to cruise missiles, CASC (China Aerospace Corporation) is making rapid advances in increasing the survivability and lethality of ballistic missiles."[33] Some foreign analysts have even speculated that certain classes of Chinese missile were in fact developed primarily for the export market, with the requirements of the PLA as only a secondary consideration. In sum, the

attempt to constrain Chinese missile sales came at a time when powerful forces within the country would make adherence to the regime difficult and costly.

The nature of China's MTCR commitments

Allegations that China had violated the MTCR are closely related to the question of whether or not China ever agreed to adhere to it to begin with. *The nature of China's commitment does not affect the justification under U.S. law for the imposition of sanctions by the United States,* but it is instructive in understanding Chinese willingness to constrain behavior in a sensitive area closely associated with national sovereignty. It also helps explain China's response to U.S. sanctions and to criticism of missile related technology.

In fact, the nature of China's commitment to the MTCR has been troublesome from the start. It has never been formal, legal, or binding in the terms usually described to define treaty obligations. Each statement by China has left room for interpretation. This is in part because the MTCR itself leaves room for judgment by employing phrases such as "strong presumption of denial" in describing member countries' export policies, rather than simply saying that all members will prohibit exports of a given item. (The exception is the export of production equipment, which is forbidden by the MTCR without exception.)

China's first "pledge" to adhere to the MTCR was a verbal statement made by Chinese Foreign Minister Qian Qichen to Secretary of State James Baker in November 1991. This followed the U.S. imposition of Category II sanctions on various Chinese entities earlier that year. The Chinese and U.S. versions of the November 1991 commitment differ in small but potentially important ways. Foreign ministry spokesman Wu Jianmin said on November 21, 1991: "China intends to observe the MTCR guidelines and parameters…but the condition is that the US side lifts the three measures or sanctions against China announced on the 19th of June."[34] Secretary Baker's announcement asserted that "the Chinese have told us that they intend to observe the MTCR guidelines and parameters. To us, this means that they will apply them to any exports of missiles and related technology. We understand that this applies to the M-9 and M-11 missiles."[35]

Baker says in his memoirs that the MTCR negotiations with China were extremely contentious:

> The language on MTCR provoked a spirited debate… The Chinese side kept trying to arrange loopholes. They insisted on striking specific references to Syria, Pakistan, and Iran, and also objected to language saying China "will observe" the MTCR guidelines, demanding that it be changed to "intends to observe." By arguing so forcefully for a less categorical pledge, it seemed as though Qian were tacitly acknowledging the possibility that some entity in China's defense community might cheat on this commitment.

Baker does not clarify whether China's "insistence" carried the day, or whether the final wording constituted an unqualified commitment to the regime. It is also likely that the United States and the Chinese disagreed at this meeting as to which missiles would be covered under the MTCR.[36] At the time of the 1991 sanctions, which were intended to punish China for exporting technology related to the M-11 missile, not for the export of the missile itself, there was disagreement as to whether the range and payload of the M-9 and M-11 placed those missiles within the scope of MTCR restrictions. This explains Baker's reference to a U.S. "understanding" that China's commitment applied to the M-11 and M-9.

Although Baker does not explicitly say so, it is possible that some areas of potential misunderstanding were even intentionally avoided in the interest of reaching an agreement. For example, the public record does not indicate that U.S. negotiators asked the Chinese to clarify how many missile or MTCR-covered sales were "in the pipeline," that is, contracted and paid for but not yet delivered. Would these be covered by China's commitment? Given the long-term relationship with Pakistan, described by the Chinese as "strategic," it is likely that a number of such deliveries would have been pending at the time of Baker's visit. Baker himself remarked "I suspected…the Chinese had signed lucrative contracts to deliver missiles to Pakistan. In all probability, several senior government and party officials or their families stood to gain from the performance of those contracts."[37] Did the Chinese government share Secretary Baker's understanding of China's commitment? The public record remains unclear on this point.

Even if China's interpretation of the MTCR were identical to that of the United States in 1991, the implication of the Foreign Ministry statement is that adherence will be contingent on the U.S. lifting of sanctions, despite Baker's insistence that "we decided to reject the Chinese demand to lift sanctions in exchange for an MTCR agreement."[38]

The November 1991 pledge was formalized in a written communication from Qian to Baker in February 1992. This letter is classified and various Freedom of Information Act requests for its release have been denied by the U.S. Department of State. Chinese officials have stated at academic meetings that the letter contains nothing secret, that it is simply a restatement of China's commitment to adhere to the parameters and principles of the MTCR.

In the spring of 1992, the United States did, in fact, lift the MTCR-related sanctions imposed on China the previous year. However, perhaps because of the "pipeline" ambiguity, the issue was not resolved. Reports of evidence of additional Chinese missile sales to Pakistan appeared in the press in 1993. Although this was widely interpreted as a "tit for tat" response to President Bush's announcement of upcoming F-16 sales to Taiwan, it is more likely that these sales had been negotiated for some time, and that the Taiwan announcement affected only the timing of the delivery.[39] At this time, China also withdrew from the newly established (and short-lived) Perm-5 talks on weapon sales to the Middle East. The United States once again imposed MTCR sanctions on China for transfer of

missile technology, despite persistent Chinese denials that they had either sold any missiles or violated any agreements.

The back and forth "he said, she said" discussion persisted for another year and a half, until October 1994. At that time the United States and China issued a "joint statement" in an attempt to put the issue to rest once and for all. In diplomatic language, a joint statement is less legally binding than a formal treaty or communiqué but is intended to express the shared high-level principles of the two governments. The Chinese Foreign Ministry did not make its own statement at the time, nor was there a Chinese version of the text issued. The October 1994 United States-China joint statement was issued by the U.S. government and said that China would refrain from future sales of "ground to ground missiles featuring the primary parameters of the Missile Technology Control Regime -that is, inherently capable of reaching a range of at least 300 km with a payload of at least 500 kg."[40] According to the joint statement, China made a commitment to a global ban on sales of these missiles, that went beyond that required by the letter of the MTCR (which calls for a "strong presumption of denial"). In agreeing to the "inherent capability" standard, China closed an important loophole that had left room for ambiguity in earlier commitments. Under previous agreements there was room for doubt as to whether certain Chinese missiles met MTCR parameters. Some Chinese systems fell slightly short of the exact range specified by the MTCR but exceeded the payload limit. Others fell short in payload but exceeded the range parameter. The inherent capability standard constitutes a graph in which range and payload are traded off against each other; all systems that fall within the curve are legally controlled by the regime.

While this agreement closed some loopholes, it left others open. First, it never addressed the pipeline problem. China made no reference to previously negotiated sales of these missiles that had yet to be delivered. Second, the agreement did not make specific reference to missile components and technologies. Reference to missiles that meet "guidelines and parameters" suggests that Chinese officials could have had a more limited understanding of their commitment. The Chinese could have interpreted their pledge as nothing more than an agreement to stop selling the missiles themselves. The timing of the 1994 statement supports this argument, since there have been no allegations of Chinese sales of complete missiles since that time. Gordon Oehler, former director of the Nonproliferation Center at the CIA, pointed out in June 1998 in testimony before the Senate Foreign Relations Committee that, after 1992, China stopped transferring complete missiles and instead "concentrated on transferring production technologies and components."[41] By the time the range/payload issue had been clarified, it had ceased to be a relevant issue for Chinese exports. What should have been clarified in 1994 was China's commitment to stop exports of missile-related and dual-use items. Third, the 1994 statement did not address the 1993 multilateral expansion of the MTCR to include all items relevant to systems that could be used to deliver WMD (not just nuclear weapons). It is possible that this point was deliberately not raised in the interest of reaching an agreement, since it is doubtful the Chinese

government would have signed off on a regime in which evaluation of compliance depends on a potentially subjective judgment about the intent of the customer. Furthermore, although there are no publicly available notes or printed transcripts of the meeting at which Chinese and American officials discussed the MTCR in October 1994, one former U.S. government official who was present at the meeting recalls that the Chinese were distinctly uncomfortable with the commitment and that it was obvious they retained significant reservations about it.

Finally, the 1994 commitment was also contingent on the U.S. lifting sanctions, the implication being that if it failed to do so, or if it were to reimpose sanctions at a later date, China's commitment could be retracted. In fact, in 1993, China had threatened to abandon its commitment to the MTCR if the United States failed to lift the sanctions (which were originally imposed for MTCR violations!).

Between 1994 and 1998, China made numerous public and private statements about "studying" the MTCR and about working together with the United States to resolve regional tensions in which missile proliferation is a factor. However, none of these statements constitute a more binding commitment than what was said in either 1991 or 1994, both of which left room for doubt. In fact, in testimony before the Senate Intelligence Committee in June 1998, Gary Milhollin argued, "China interprets its promises in 1992 and 1994 so narrowly as to make them practically meaningless."[42]

Democratic and Republican presidents alike have tried to persuade China to make a more formal commitment to the MTCR, despite the fact that China's missile sales were one of the reasons the MTCR had originally come into existence. If the terms of the regime had been acceptable to China, the MTCR itself might not have been necessary in the first place. Nevertheless, this objective has been a constant in U.S. policy, reinforced by its success with the Russians, who agreed in 1995 to become an MTCR partner, and by the expansion of the regime to include 29 countries. In January 1998, a secret White House memo made public by the *Washington Times* presented a formula for Chinese MTCR membership.[43] The memo "proposed that the United States seek Chinese commitments to establish effective export controls relating to missiles, not to transfer technology and equipment covered by the MTCR to nonmembers, and to end all assistance to Iran's missile programs, including short-range missiles." China could become an MTCR member after agreeing to these provisions. The rationale put forth was that "MTCR membership would provide China with political prestige, the ability to shape future MTCR decisions, substantial protection from future U.S. missile sanctions and would expedite somewhat the consideration of MTCR-controlled U.S. exports to China." According to the terms of the proposed arrangement, China would also get a "blanket presidential waiver of Tiananmen Square sanctions to cover all future commercial satellite launches." China rejected this proposal, although whether the decision was made on merits or because of the sloppy diplomatic procedure remains open to debate.

In November 2000, under considerable U.S. pressure, Chinese officials went further than they had in previous statements towards clarifying their position on

missile sales in several important respects. In the 1994 agreement, both sides had acknowledged an English-language text, which was published by the State Department and not by China's Foreign Ministry. This time, instead of both sides agreeing to a joint statement, Chinese and American officials each issued a separate statement. First, they categorically stated that it was not China's intention to "assist in any way any country in the development of ballistic missiles that can be used to deliver nuclear weapons (i.e., missiles capable of delivering a payload of at least 500 kg to a distance of at least 300 km)." The statement also included a promise to issue a list of missile-related technology, including dual-use items that the Chinese government would use in enforcing export controls. Without specifically acknowledging the validity of MTCR restrictions, Chinese officials did state their intention to limit the sale of dual-use items as well as purely military items. In earlier statements, Chinese officials had only been willing to discuss the missiles themselves, not the related components and technologies. Finally, in the statement, Chinese officials set out the criteria that would be used in deciding whether or not to approve licenses for exports of missiles or related technology. The statement implied that China would use the practices of other countries in developing the control list and in making licensing decisions. Although the November 2000 statement fell short of a formal commitment, it did break new diplomatic ground. Moreover, these commitments were followed two years later by enactment of important new missile technology export controls. The "Regulations of the People's Republic of China on Export Control of Missiles and Missile-Related Items and Technologies Export Control List" are virtually identical to the restrictions imposed by the MTCR itself.[44] Moreover, they included for the first time a clause requiring companies to limit not only specific items on the accompanying control list but any item that whose ultimate use related to missile production. This comes much closer than previous Chinese regulations to the "catch-all" condition attached to most U.S. export control regulations. It remains uncertain why the Chinese are willing to enact domestic legislation with virtually the same language as that contained in the MTCR, and yet not join the organization formally.

U.S. allegations of Chinese MTCR violations and use of sanctions

If China's commitments to the MTCR have been conditional and ambiguous, the U.S. allegations that China has violated the MTCR have also at times appeared confused and inconsistent. In June 1991 the Bush administration determined that China had sold M-11 missile guidance systems to Pakistan in violation of the terms of the MTCR and imposed punitive sanctions on two Chinese companies, the China Great Wall Industry Corporation and the China Precision Machinery Import Export Corporation.[45] The punitive measures included a ban on cooperation with China in space launch activities and the denial of a sale of 20 high-speed computers which could potentially have been used to enhance Chinese missile accuracy. In

practice, satellite cooperation with China was already curtailed due to human rights sanctions imposed after the Tiananmen Square incident of 1989. Each launch of a U.S. satellite on a Chinese rocket had to be cleared with a presidential waiver of the Tiananmen sanctions. However, these waivers were issued quite frequently due to pressure from U.S. industry.[46] The Bush (Sr.) administration granted a total of three waivers covering nine satellite launches and the Clinton administration subsequently issued eight waivers covering 11 satellite launches.[47] Members of the Bush administration supported the industry position in arguing that the opportunity to launch U.S. satellites would be a carrot that could be used to gain Chinese compliance with MTCR terms.[48] The imposition of MTCR sanctions on top of Tiananmen sanctions reflected congressional opposition to the pattern of waivers and the use of incentives.

China objected to the sanctions and refuted the charges on which they were based, saying the reports were "groundless." A retired Pakistani army general acknowledged that China was shipping M-11s to Pakistan, according to several news accounts, but said the shipments were legal because the M-11 range and payload were below those limited by the MTCR.[49] The 1991 sanctions in all likelihood had little practical effect, since they were officially imposed in June and then lifted eight months later after receipt of the Qian-Baker letter.

In 1993, the United States again accused China of selling missile technology to Pakistan and again imposed MTCR trade sanctions. The 1993 State Department Notice spells out the exact provisions of the sanctions, which were identical to those imposed in 1991: denial of licenses for MTCR equipment or technology, and denial of U.S. government contracts relating to MTCR equipment or technology.[50] In practice, some of the items in the MTCR Annex would have been denied to Chinese entities in any event, either as a result of Tiananmen sanctions or on national security grounds, and it is unlikely that the U.S. government would have entered into a contract with Chinese entities relating to MTCR equipment in the first place. The difference between the 1991 and 1993 sanctions is found not in the terms but in the organizations at which the sanctions were targeted. The 1991 notice specified two Chinese companies and their subsidiaries (China Great Wall Industry Corporation and China Precision Machinery Import-Export Company). The 1993 notice stipulated 11 Chinese "entities," in part a reflection of the degree to which China's economy had expanded and the extent to which the U.S. government had increased its ability to track the Chinese organizations involved in missile production. Nevertheless, it remained true that the 11 companies would have been unlikely to trade in MTCR items with the United States even without the MTCR sanctions.

China and Pakistan categorically denied that any missiles had been sold, but the denials did not include any reference to the transfer of missile-related *technology*.[51] Once again, the actual evidence remains classified. The debate about which kind of sanction to impose ultimately turned on a loophole in the U.S. legislation. The U.S. laws are open to interpretation as to what standard of proof is required before sanctions must be imposed. Critics of the administration have

argued that according to the intent of the U.S. law, 1992 evidence of Chinese Category I MTCR violations was clear-cut, and that the Clinton administration lacked the political will to impose stiff sanctions at a time when U.S. companies were trying to make commercial headway in the rapidly expanding China market.[52] Beginning in 1991 and continuing through both Republican and Democratic administrations U.S. executive branch officials have acknowledged "troublesome" cooperation between China and Pakistan but contended in 1993 that evidence of this cooperation fell short of what would have been required for automatic imposition of Category I sanctions.[53] For security reasons, the United States has stopped short of publishing conclusive evidence of specific violations. It should also be noted that China's attitude towards the 1993 sanctions was confusing and based on a circular logic. In August 1993, after many Chinese denials of wrongdoing with respect to the MTCR, Vice Foreign Minister Liu Hoagie said to U.S. Ambassador Stapleton Roy: "Now that the U.S. side has resumed these sanctions, the Chinese government has been left with no alternatives but to reconsider its commitment to the MTCR."[54] In other words, China would retaliate against the sanctions by refusing to adhere to a regime that the United States already believed it to be violating. The 1993 sanctions were, in any event, lifted after China and the United States issued the joint MTCR statement of October 1994.

The joint statement did not, however, put to bed the question of evidence and standards within the United States. Several times since the 1994 "inherent capability" pledge by China, intelligence reports leaked to the press have charged that China continues to sell missile components, technology, and related expertise to Pakistan in clear violation of MTCR guidelines. Deputy Assistant Secretary of State Robert Einhorn said in 1996 that the missiles in Pakistan were a "work in progress," implying that they were not yet operational.[55] Arms Control and Disarmament Agency (ACDA) Director John Holum said in June 1995 that he was "concerned" about Chinese missile-related activity in Pakistan, but that the U.S. government had "not reached a determination. We don't have sufficient information. We have serious questions."[56]

At the same time that the Congress and executive branch were debating alleged Chinese sales to Pakistan, American newspapers were also publishing stories about Chinese nuclear and missile sales to Iran. These sales also had the potential to trigger MTCR sanctions. In 1995 and 1996 several U.S. newspapers began to publish stories citing intelligence sources who said that China had sold Iran ballistic missile guidance systems, machine tools, gyroscopes, accelerometers, telemetry equipment, and x-ray systems for examining missile casings.[57] ACDA Director Holum said in 1996 that the administration would impose sanctions if the M-11 sale were confirmed.[58] A 1997 *Washington Times* report referred to classified evidence that China was actively assisting an Iranian effort to develop a short-range solid-propellant ballistic missile, and that Iranian engineers had visited China in order to observe the ground test for a rocket that would be used in the Iranian missile.[59] Deputy Assistant Secretary Einhorn testified before

Congress in 1997 that Chinese missile-related exports to Iran raised "serious questions about the nature of China's commitment to abide by the MTCR guidelines."[60] President Clinton did not make the formal determination of an MTCR violation that would have required Category I or Category II sanctions. Instead, the Clinton administration chose to apply bilateral pressure.

The result of this pressure was a temporary halt to missile-related cooperation with Iran as well as a private commitment by Chinese officials in November 1997 to refrain from sales of C801 and C802 antiship cruise missiles to Iran.[61] The cruise missiles had been of concern to the U.S. Defense Department, but State Department officials had downplayed their significance. Assistant Secretary Einhorn stated in 1997 that the transfers to date had not been "of a destabilizing number and type."[62] China's commitment was clarified in January 1998 when U.S. Secretary of Defense Cohen said that China's pledge included 801 and 802 missiles under contract for future delivery as well as related missile technology.[63] Although potentially covered by various U.S. laws, the 801 and 802 are not covered in Category I of the MTCR Annex because of their limited range. China's 1997 and 1998 promises with respect to Iran did not specifically address allegations that China had transferred MTCR-controlled items to Iran in 1994 and 1995 and had promised in 1996 to make further deliveries. The 1994–5 sales had reportedly consisted of machine tools and guidance equipment; the future sales were to include gyroscopes, accelerometers, and test equipment to help the Iranians build the Sahib 3 and Sahib 4 medium-range ballistic missiles.[64]

Press reports of Chinese missile technology transfers continued. One magazine reported that in 1999 China had been helping Pakistan build a missile plant by supplying specialty steel, guidance systems, and technical aid. Another reported that China was helping Pakistan build the two-stage solid-fuel Shaken II MRBM.[65] None of these appeared sufficient to justify the imposition of MTCR sanctions. In part because of growing frustration at alleged Chinese activity, in 1999 the intelligence community began to make public its own allegations of Chinese MTCR violations. The September 1999 CIA report on foreign ballistic missile threats to the United States stated that Pakistan had acquired M-11 missiles (the missiles themselves, not the components or technology) from China.[66] This was the first time that the U.S. government announced publicly that it had evidence that would trigger Category I MTCR sanctions.[67] The CIA report confirmed earlier testimony by former CIA official Gordon Oehler before the Senate Foreign Relations Committee in which he said that China delivered to Pakistan 34 M-11 missiles in 1992.[68] However, the State Department considered the intelligence community's finding only one factor in the sanctions decision. On November 14, 1999 State Department spokesman James Foley said

> We believe that the transfer of complete missiles to Pakistan could meet the requirements for triggering sanctions under US missile sanctions law It is important, though, to make a distinction between a judgment by the intelligence committee [sic], in other words an intelligence judgment, which

> obviously is important to informing policy…and the matter of legal determination as required under law In the M-11 case we have not reached a conclusion that the requirements for a category one finding of sanctionability have been met.

The 1999 debate was in fact a disagreement over whether the right kind of sanctions had been applied back in seven years earlier; the intelligence community argued that the Clinton administration should have at that time imposed Category I as well as Category II sanctions. It did not refer to recent transfers of complete missiles.

Thus, between 1994 and November 2000, the United States made no formal determination about Chinese missile sales to either Pakistan or Iran, and imposed no MTCR sanctions. At the same time, congressional (and to some degree public) pressure was growing to impose missile-related sanctions on China. The increase in attention occurred in the context of several developments. First, the increasingly tenuous security situation in Iran, Pakistan, and North Korea would have been further aggravated if any of those countries acquired Chinese missile exports. Second, China had been steadily increasing domestic ballistic missile production and deployment. Third, the publicity surrounding the Loral-Hughes episode in which American satellite companies were accused of transferring valuable missile technology to China in the course of helping the Chinese launch U.S. satellites. Neither the satellite assistance to China, nor the increase in Chinese missile production related directly to the MTCR; the Loral-Hughes incident, in fact, pertained to potential violation of U.S. law by a U.S. company.[69] Nevertheless, these developments together created a climate in which China was perceived to be guilty of MTCR violations and deserving of punitive sanctions. Other sources of pressure included the arrest of a Chinese-American Los Alamos scientist charged with passing nuclear secrets to the Chinese and the 1996 Chinese missile firings in response to the U.S. visit of Taiwan's president, Lee Tenghui. Perceived Chinese violations of other nonproliferation agreements also contributed to the impression that missile-related sanctions were in order.

The language of the biannual CIA report on WMD technology proliferation provides useful insights into the reluctance of the White House to make a formal determination that China was in violation of MTCR provisions. In June 1997, for example, the CIA report on weapons exports during the period July–December 1996 stated that "the Chinese provided a tremendous variety of assistance to both Iran's and Pakistan's ballistic missile programs."[70] The 1998 report, which covered all of 1997, simply stated that "Chinese entities provided a variety of missile related items and assistance to countries of proliferation concern." The 1999 report, which covered activity during the first half of 1998, used almost identical language.[71] In the August 2000 report, covering activity during the second half of 1999, the intelligence community assessment of China's behavior shifted again:

> The Chinese have taken a very narrow interpretation of their nonproliferation commitment and in the case of the MTCR do not accept the key annex. Chinese missile-related technical assistance to Pakistan increased during this reporting period. In addition, firms in China provided missile-related items, raw materials, and/or assistance to several countries of proliferation concern–such as Iran, North Korea, and Libya.

The reports issued since August 2000 have used similar language. This choice of words illustrates the degree to which Chinese commitments have been open to differing interpretations and expectations.[72]

In November 2000, as the Congress was preparing to consider permanent normal trading relations with the PRC, after China and the United States concluded another agreement on limiting sales of missile technology, the Clinton administration announced that it had sufficient evidence to impose Category I sanctions on China. After the Chinese Foreign Ministry issued a statement indicating that China would be publishing its own MTCR export control list, which would include dual-use items, the State Department announced that although the United States had evidence of Category I violations and was obligated by law to impose them, the sanctions would be waived immediately.[73] State Department spokesman Richard Boucher made it clear in a press conference that the effect of the sanctions would have been to prevent the United States from engaging in commercial space technology transfer with China, thus precluding the Chinese launch of U.S.-made satellites. According to Boucher,

> We decided several months ago not to begin negotiations on a new US-China space launch agreement to replace the 1995 agreement that expires next year, and not to conduct normal processing of export licenses for commercial space interactions until the sanctions process had concluded. Now that the sanctions process has been concluded…we've decided to resume discussions on the launch agreement and to resume the normal processing of commercial space licenses involving China.[74]

Boucher made a point of saying that the resumption of the licensing process did not guarantee, in and of itself, the approval of satellite exports, each of which would be considered on a case-by-case basis.

The commitment to publish an MTCR list in return for waiving MTCR sanctions was represented by the Clinton administration as a major step forward and by conservative critics as a dangerous U.S. concession. One analyst of Chinese nonproliferation policy said "This is the China's clearest and most complete statement on missile proliferation… If there are loop-holes, it's not evident."[75] Republican Representative Christopher Cox charged, on the other hand, that the administration had "traded a waiver of U.S. law for vague promises that might not be kept."[76] For their part, the Chinese condemned the sanctions that the United

States imposed in November 2000 on Pakistan and Iran. These sanctions, unlike the ones against China, were not immediately waived. In a press briefing the Chinese Foreign Ministry spokesman said that "the U.S. government in accordance with its own domestic laws imposes sanctions on others… It is the only one in the world that is doing so." He went on to say that "in recent years some parties concerned have spread rumors about so-called proliferation of missiles by China… This is totally unfounded and has the sole purpose of undermining the international image of China."[77]

The November 2000 United States-China "deal" on missile nonproliferation is open to differing interpretations. If China's 2000 commitment is interpreted in the context of where China was 10 or 20 years ago, and in the context of the internal costs connected to effective controls on missile and missile technology exports, it is clear that there has been progress. On the other hand, if one holds China to the same standard as the United States and NATO countries, and expects Chinese export policy to mirror that of the United States, it is true that the administration received nothing more than a promise with no real assurance that China would follow through on export control enforcement. From that perspective, the entire agreement was a loophole in that it made no provisions for verification or enforcement.

Lessons from the MTCR

Standards for measuring compliance

Whether or not China adhered to the MTCR, and whether or not sanctions were justified, depends very much on the eyes of the beholder. Assuming that U.S. claims about Chinese missile activities are accurate, other questions remain. What standard should be used to measure the legality or illegality of those activities? Should it be U.S. law? Should it be the MTCR Annex? Should it be the MTCR 1993 statement on WMD delivery means, which encompassed items not in the Annex? Should it be China's own commitments? If the standard were the U.S. law, many would claim that not only were sanctions justified, they weren't applied with the severity or frequency required by the law. If the standard were the MTCR Annex, and U.S. allegations are accurate, then China could be said to be in violation of the MTCR. But the MTCR itself says nothing about sanctions. If the standard for evaluation were China's own commitment to the MTCR, there is room for debate because of the ambiguity and conditional nature of Chinese statements on the subject. China's commitment to the MTCR makes no reference to sanctions, and China has tended to deny their legitimacy.

The cycle of charges, countercharges, and denials has resulted in the emergence of three different attitudes towards Chinese missile exports. First are the critics of both Democratic and Republican administrations over the past 12 years who believe that Chinese missile transfers constitute a serious threat to U.S. interests

and insist that China has never been sanctioned properly according to U.S. law. One critic said in 1998 that China was the "most serious proliferation threat in the world" and claimed that "the sanctions law is not being implemented as Congress intended and, in fact, is being circumvented."[78] Another critic commented after the November 2000 agreement with the Chinese on missile technology that "there is no reason to believe that China will be any more truthful in its promises on non-proliferation than it has been in the past." Representative Curt Weldon of Pennsylvania insisted that he had "documented 37 violations of existing arms control treaties by China and Russia. The administration imposed the required sanctions twice. The other 35 times with China and Russia the administration pretended the violation had not occurred or they said they did not have enough evidence."[79] These critics also argue that even when the administration did impose sanctions, those sanctions were narrowly targeted and then soon lifted. In November 2000 the sanctions were in fact lifted as soon as they were applied.

A second opinion group consists of the officials who are faced with the task of implementing U.S. non-proliferation policy while not destroying the chance to maintain a reasonable relationship with the Chinese on other fronts. This viewpoint is probably best expressed in the prepared statements of Robert Einhorn, a former State Department official who negotiated nonproliferation issues with China for many years. This group has usually agreed with critics of administration policy that China has transferred missiles and missile components to countries of concern to the United States. They do not dispute the facts. They do dispute what the United States can and should do to influence Chinese exports. Most argue that punitive sanctions will aggravate, rather than solve, the problem. Furthermore, they believe that through quiet diplomacy Chinese sales have been restrained, even if they have not been completely eliminated, and that a number of Chinese missile transfers that would have occurred without U.S. pressure have been prevented. Those who have to implement U.S. policy try to balance China's recent exports of missile technology against the progress that has been made on this issue over time. As Assistant Secretary Einhorn argued in testimony before the Congress in 1997,

> China has come a long way from the 1960s when its declaratory policy supported nuclear proliferation as a means of "breaking the hegemony of the superpowers." Since then, as China has gained stature and influence in world affairs and become a leading participant in such international forums as the UN Security Council and the Geneva Conference on Disarmament, it has increasingly come to appreciate that Chinese national security interests are not served by the spread of dangerous military capabilities…and that acceptance of international norms, is one of the attributes and responsibilities of great power status… We have found that persistent, frank engagement has begun to produce concrete progress.[80]

Other government officials acknowledge progress but recognize the limited ability of the United States to gain China's commitment to agreements that prevent all

undesired activity. Referring to China's missile sales to Pakistan, one government official commented in 1999, "the Chinese are proliferating on a consistent basis without technically breaking agreements with the United States."[81]

A third opinion group consists of Chinese government officials and many Chinese scholars and policy analysts. Their position differs sharply from that of either of the two U.S. opinion groups described above. The Chinese who speak or write on this subject either deny that China has transferred any missiles in violation of its commitments, or they remain silent on the factual basis of U.S. allegations. Thus there is a fundamental difference between the United States and China over the basic facts. Since the information on which U.S. allegations are based remains classified, the United States can continue to accuse and the Chinese can continue to deny with no prospect of reaching agreement.

In addition to differing beliefs about the facts of the case, the United States and China have different views over the degree to which U.S. laws should be used to sanction foreign companies or individuals. As one Chinese analyst wrote in 1998, the United States,

> in the interest of its security has introduced into its own national law sanctions to be applied against the nationals and companies of other sovereign states. That is, making missile export activities by other countries subject to US law. The application of "extraterritoriality" apparently goes against the UN's fundamental principles of consultation and noninterference in each other's internal affairs, and has been strongly criticized or resisted by many governments.[82]

Chinese critics of the MTCR also object to what they perceive as a U.S.-double standard under which the United States sells missile-related technology to governments of its choosing (Israel and Taiwan are the two most often mentioned) while not permitting China to do the same. Many Chinese analysts have wondered why China should restrain missile sales to Iran or Pakistan, which run counter to U.S. interests, when the United States continues to sell advanced aircraft to Taiwan, which runs counter to Chinese interests. The Chinese see negotiations on restraining weapon sales in the larger context of Sino-U.S. relations. As one Chinese scientist asserted in 1999, "MTCR is closely related to the overall environment of Sino-U.S. relations. The time China takes to study whether to join MTCR depends on the U.S. cooperation." Referring to the U.S. bombing of the Chinese Embassy in Belgrade, and the allegations that China had stolen U.S. nuclear secrets, this scientist continued, "It will not serve China's interest to further 'cooperate' with the United States as if nothing had happened in the above-mentioned gloomy atmosphere. And we cannot justify ourselves before the Chinese people. In short, only when the US seriously considers China's legitimate, reasonable political and security concerns, will it be able to help China continue with the study on MTCR."[83] The United States, on the other hand, sees proliferation as the larger concern and often defines the United States-China

relationship within the context of that one issue. Thus there is a gap between the two sides on the factual basis of China's adherence to MTCR terms and conditions, on the legitimacy of U.S. sanctions, and on overall context for any agreement on missile transfers between China and the United States.

Chinese motivations for missile transfers

Although it is impossible to know with certainty if all the allegations of missile transfers are accurate, it is nevertheless important to look at the underlying causes of Chinese missile exports. One lesson from the MTCR is that there might be several competing explanations for noncompliance. Each dictates a different policy response.

One possibility is that China never intended to abide fully by the letter and spirit of the MTCR. According to this line of reasoning, Chinese officials (with U.S. help) intentionally remained ambiguous on their commitment to key features of the MTCR. This has enabled China to avoid the censure that would result from refusing to have anything to do with the regime, while at the same time continuing a lucrative and strategically important relationship with Pakistan and Iran. It also gives China a point of leverage to be used in negotiations with the United States on other issues, such as Taiwan weapon sales. When accused of violating the terms of the regime, China can point to the inherent unfairness of the regime, in that it excludes aircraft used to deliver ballistic missiles. In other words, China continues to sell missiles because there is no legally or politically compelling reason not to. The legal commitment remains obscure, the sanctions for selling the missiles are bearable, and the security benefits that China would reap from restraining missile-related sales are at best elusive and unpersuasive. If this argument forms the basis for a U.S. response, it is critical to decide whether missile sales have inherent strategic value to China, in their own right, or whether they are primarily a lever to be used in United States-China relations. If the latter, the United States could conceivably be more effective in restraining Chinese exports by providing incentives in other areas of the bilateral relationship. If it is the former, the task becomes much more formidable, because Chinese transfers reflect an underlying strategic interest that contradicts the objectives of U.S. security policy and by definition, US influence would be more limited.

A second possibility is that the government in Beijing has made certain commitments in good faith, genuinely tried to stop the flow of missiles and related technology but failed to control the activities of defense trading companies run by highly placed military officers and party members. Governments often promise more than they can deliver in the interest of promoting other objectives. Although China is perceived by many to be a totalitarian government, the degree of central control over commercial companies varies widely. The government itself has acknowledged corruption to be a problem. Chinese defense trading companies are known to be operated by individuals with close ties to the PLA leadership and possibly the political leadership as well. The political cost of curtailing their

activities might simply be too great for a leadership that is also facing serious domestic problems.

A third possibility is that the leadership in Beijing lacks the technical and administrative skills and tools necessary to control missile-related exports, and fails to understand the range of dual-use and commercial items that are relevant to production of ballistic missiles. Stopping the sale of a particular missile is an uncomplicated, albeit difficult, matter. Relatively few factories in China make M-9 and M-11 missiles. However, allegations of illicit activities since 1992 all revolve around the transfer of components, software, and expertise. Chinese export controls are still evolving and are known to be weak in the area of engineering services, software, and other intangibles. Controlling such exports is never easy or simple. Even in the United States, where export control systems are well established, debates within the government persist over the most effective control procedures. It is also conceivable that the Chinese failed to devote the time and energy necessary to fully understand the requirements of the MTCR and the various associated U.S. laws and did not realize which sales would trigger U.S. sanctions. The fact that Chinese missile sales are less of a problem in 2003 than they were when the MTCR was established in 1987 lends some credence to this argument. Those who believe China to be a centrally controlled, top-down economic and administrative system naturally dismiss this argument out of hand, and insist that logistical arguments are a red herring.

Finally, it seems evident that the Chinese government does not perceive the dangers connected to ballistic missile proliferation in the same way as the U.S. government perceives the problem. China faces other threats that appear more immediate than missile proliferation. Although the Chinese do not argue that missile proliferation is a good thing, the two governments have different opinions as to which countries should be denied missiles and missile technology, about which measures are most likely to halt missile proliferation, and about which kinds of missile should be controlled. Chinese commitments to adhere to the terms of the MTCR, as understood in the United States, have appeared on occasion to have been extracted at gunpoint, and might therefore not represent what the Chinese believe to be in their own security interests.

Does US pressure work?

Chinese missile exports were a contentious issue in bilateral relations for over a decade. Yet they are less so today. Chinese "promises" with respect to the MTCR, although initially ambiguous, became less so over time. The 2002 regulations went a long way toward clarifying China's position. Chinese missile-related exports do appear to have been curtailed. It appears likely that in the mid-to late 1980s the Chinese underestimated how sensitive the United States would be to their missile exports, as well as the degree to which this issue would get in the way of progress on other bilateral questions. They now appear more understanding of U.S.

concerns and more able to restrain missile sales when the stakes are high enough.[84] This certainly suggests that pressure can be effective.[85] But only up to a point.

China clearly disagreed with the initial terms and conditions of the MTCR (the regime was designed in part to constrain Chinese behavior) and little has been done to change the MTCR in a way that would make it more appealing to China. There is no reason for Chinese officials to revise their key objections to the MTCR. Moreover, U.S. expectations as articulated in U.S. law go beyond the text of the MTCR, making it even less likely that Chinese behavior would ever be acceptable by U.S. standards. In addition, as long as other countries limit their activities to domestic enforcement of the MTCR and do not impose it elsewhere, the United States is alone in applying punitive measures on China for MTCR violations. This enables China to turn missile proliferation into a strictly bilateral issue and to link it to other purely bilateral issues (such as Taiwan).

7
The U.N. Register of Conventional Arms

The U.N. Register of Conventional Arms (ROCA) is a transparency measure rather than an arms control or nonproliferation agreement. It has been acknowledged by its founders to be a "modest measure." Nevertheless, given the immense obstacles that face any international attempt to address the problems created by the flow of conventional arms, even the establishment of the register constitutes progress upon which future efforts can build. Formally established in January 1992, the register is a mechanism in which General Assembly states participate by submitting information on their sales and purchases of seven types of military hardware (tanks, armored combat vehicles, large caliber artillery systems, combat aircraft, attack helicopters, warships, and missiles/missile launchers) during the course of the previous year.[1] Although states are "requested" to provide qualitative information, they are only "invited" to provide the background data that is often essential to understanding the statistics. The register has no associated verification procedures and no legal mechanisms for ensuring compliance, although several academic scholars have attempted to correlate submissions with other unclassified information, such as the tables published annually by the Stockholm International Peace Research Institute.

Since the register entered into operation in 1993, members have tried on several occasions to expand the scope of participation to include national inventories as well as transfers of weapons. Some members have voluntarily provided qualitative information to supplement the quantitative data.

China did not participate in the vote on the 1991 United Nations General Assembly resolution that created the register. However, Chinese representatives did participate in the Panel of Experts established in 1991 to provide recommendations on how to implement and expand the register. This panel met four times in 1992 to define the technical procedures and precise weapon categories that would be covered in the register and made several important clarifications. One was an expansion of the types of warship that would be reported; another was the decision to exclude ground-to-air missiles from the missile category. This exclusion was reportedly the result of China's participation in the panel. The logic of China's position is not immediately obvious, since missiles and missile launchers are reported together in the same category. Looking at an aggregate figure, a reader of the register has no way of knowing how many

of that total are missiles, much less what kind of missiles they are. Furthermore, in 1992 China was not thought to be contemplating the sale or purchase of surface-to-air missiles; in other words, Chinese representatives were fighting to protect a category of information in which there was likely to be relatively little activity.

China provided the required data on imports and exports for 1994, 1995, and 1996 but declined to provide qualitative information for any of those years (as did the United States). The numbers submitted by China were consistent with other information previously reported in trade journals and NGO publications and did not contain any glaring omissions or clear up any long-standing debates about Chinese weapons exports. For example, neither China nor Pakistan reported missile transfers between them for any of the three years in question. However Pakistan did report the import of missiles from China (quantitative data only) in 1998.

China's representative to the Governmental Group of Experts that has been trying to improve the effectiveness of the register has continuously opposed expansion of its scope. The Chinese have instead argued that the register needs to increase the number of participating countries before asking for more information. A statement by Chinese Disarmament Ambassador Sha Zukang in 1997 reflects China's official position on expansion of the register:

> Under current international conditions, it is impossible for any country to agree to and achieve absolute armament transparency or transparency in matters relating to armament. Further "achieving transparency for the sake of transparency" is out of the question… To some military powers and member nations of military groups, some degree of transparency will help to enhance mutual trust, even to the extent of displaying their military strength and promoting interests in their military trade. However, to other countries, it may jeopardize their national security. Therefore it is unrealistic and doomed to get nowhere to ask for the formation of measures in military transparency that are abstract or that seem unified and suitable for all countries. It is possible to formulate feasible measures of special purposes only within the framework of specific treaties on arms control and disarmament and in accordance with the different natures, characteristics, and needs of different treaties… It has been proven in practice in recent years that it is difficult to say whether the UN's registration of the transfer of conventional weapons alone is a successful system. According to the report of the UN Secretary General, 85 countries, or less than half of the UN members, participated in the registration in 1996.[2]

As of November 1998, China had refused to submit 1997 data and therefore had effectively withdrawn from participation in the register.[3] U.S. government and NGO officials said that the dispute arose over the reference in the register to Taiwan as a recipient of U.S. weapons. In 1996 as well as 1997 the United States included a footnote in its submission to the register which provided details of U.S.

weapons sales to Taiwan. China said nothing in 1996, but in 1997 refused to submit data for this reason. The United Nations attempted to remain aloof from the controversy by insisting that it had only reprinted exactly what the United States had sent. Chinese officials argued that the arms transfers from the United States to Taiwan do not constitute transfers between sovereign states and should be deleted from the register. Although the United States tried to indicate the special nature of sales to Taiwan by putting them in a footnote rather than in the body of the U.S. submission, no other state reports transfers to Taiwan. At least one scholar of the U.N. register believes that China's withdrawal from the regime will significantly undermine its effectiveness. He argues that "as both a permanent member of the U.N. Security Council and a major arms exporter, China's participation in the Register has been one of the transparency regime's key strengths… The only global co-operative transparency regime dealing with major conventional arms may thus be seriously weakened, without making any substantive contribution to promoting security."[4]

Opinion within the U.S. government differs as to whether or not the reference to Taiwan is the real reason for China's withdrawal, especially since the U.S. wording remained identical to that of previous years. Other motivations for Chinese withdrawal are speculative. Given the current structure of the register, Chinese participation entails few risks. Much of the information China submits is reported elsewhere in the public domain, although it is true that adding the official Chinese government seal to the data constitutes new information, and any disclosure, even of nonsensitive data, can be a political question in China. Still, the costs are marginal at best. The register does not entail any inspections or intrusive verification. Furthermore, the major weapon suppliers are all participants, and China runs some risk by not becoming a player.

The main danger for China is the possibility that the register will expand in scope and get progressively tighter and more restrictive: the "slippery slope" concept. What begins as a relatively benign and nonrestrictive regime could gradually increase its sphere of control. One NGO advocate pointed out that the register was a modest step that bore little relationship to the more ambitious measures that had been suggested. Nevertheless, over time the ROCA could be expanded to include exchanges of information among countries as to what is being transferred. It could expand to include imposition and enforcement of controls over such weapons flows. China's past record on this subject suggests future opposition to such developments. However, the Chinese realize that in some instances they need to be on the inside of an organization to order to halt the "slippery slope." This makes their 1998 withdrawal appear to be a calculated risk that others will "carry their water" for them and prevent a significant expansion in the scope of the ROCA.

8
The Convention on Conventional Weapons

Introduction to the CCW

The Convention on Conventional Weapons (CCW, also known as the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects) is one of a number of "laws of war." Strictly speaking, laws of war are not identical to arms control. The CCW is included here because, unlike many other laws of war, it pertains to specific weapon systems. Moreover, its protocols include provisions almost identical to those in arms control and nonproliferation agreements. The CCW was negotiated in Geneva in 1980 and entered into force in 1983.[1] Members who ratify the convention must choose to accept two of the convention's four protocols:

Protocol I Prohibiting the use of any weapon whose primary effect is to injure by fragments, which in the human body escape X-ray detection
Protocol II Prohibiting or restricting the use of land mines, booby traps and other devices including remotely or time-lapse controlled devices
Protocol III Prohibiting the use of incendiary weapons
Protocol IV Prohibiting the use of laser blinding weapons

Legally speaking, the CCW is not an arms control or nonproliferation treaty but an agreement that governs how wars will be conducted. However, some of the features of Protocol II in its revised form are beginning to make the CCW look like an arms control treaty. The CCW has no international verification or enforcement provisions connected to it and, until recently, it was a low-visibility area of arms control that received relatively little attention. The CCW has 74 parties (states that have ratified the convention and deposited instruments of ratification), as well as an additional 10 countries that have signed but not ratified. Progress at the CCW has been slow in comparison with other areas of arms control. In December 2001 at the Second Review Conference of the CCCW, members agreed to extend the scope of existing protocols to cover internal as well as external conflict. They also agreed to establish a Group of Governmental Experts to study the explosive remnants of war, such as cluster bombs.[2]

China both signed and ratified the convention along with Protocols I-III in 1982. In August 1998, the National People's Congress also ratified Protocol IV on laser blinding weapons, which had become effective on July 30 after ratification by 20 countries, as well as revisions to Protocol II. These revisions included a prohibition on the use of undetectable mines, restrictions on the use of nonselfdestructing land mines, and established technical specifications for limiting the duration of different types of antipersonnel land mines (APLs). It is worth noting that China's ratification of the Revised Protocol II preceded that of the United States, which did not occur until the summer of 1999. In most other arms control and nonproliferation treaties, China has waited for the United States to ratify first. In addition, China, like most of the signatories of the convention, has accepted all four protocols (the United States is among a handful that have only accepted Protocols I and II). The United States did not ratify Protocol IV and it remains relatively low on the political priority list.

Thus, this is a rare instance where China acted more quickly than the United States to sign up to the full extent of a formal arms control agreement.[3] Chinese support does not represent an arms control breakthrough, and the convention's scope might appear limited;[4] nevertheless, China's position on the CCW merits attention. Since there has been relatively little activity at the convention review conferences on Protocols I and III, this discussion will focus on the higher visibility issues of land mines (Protocol II) and laser blinding weapons (Protocol IV).

Land mines

China is known to be one of the world's largest producers of land mines. The current stockpile of antipersonnel mines is estimated to be 110 million.[5] The Chinese land mine industry was originally based on Soviet technology but has expanded to include indigenous Chinese designs. China's defense industry has found it easy and inexpensive to produce mines in large quantities and to export them around the world. Chineseproduced mines have been found in South Asia, the Middle East, and Africa. Chinese defense planners like those in any country with a modest defense budget and long land borders to defend, depend on the use of land mines for legitimate defense of sovereign territory. Thus, the acceptance of severe restrictions on the use of mines would have to be considered a significant sacrifice for the PLA; acceptance by China of even modest restrictions on land mines is worth recognizing simply because there is no other weapon that offers the same military advantages at a comparable cost.

The CCW land mine protocol

The original text of Protocol II required parties to the convention to agree

- not use mines against the civilian population
- place mines only on or direct mines at only military objectives

- avoid placement of mines which might be expected to cause incidental loss of civilian life or civilian damage
- refrain from using mines in populated areas unless specific conditions are met.

The protocol also placed restrictions on the use of remotely delivered mines.

Critics of the CCW and proponents of a comprehensive antipersonnel landmine (APL) ban have argued that the CCW protocol does not go far enough in eliminating the use of mines[6] because it draws a distinction between short-duration "smart" self-destructing mines, which are permitted under the CCW, and "dumb" mines which are either proscribed or only permitted under certain circumstances.[7] The CCW protocol represents a pragmatic approach because of its implicit acknowledgment that land mines cannot easily be replaced and are likely to be used even by countries who promise not to use them. According to this logic, if mines are going to be used anyway, it makes sense to permit short-duration mines that do not cause large numbers of postcombat civilian casualties. Proponents of the CCW also argue that a sweeping prohibition is likely to be violated, and that it is preferable to aim for a high level of compliance with a limited agreement than limited compliance with a sweeping agreement. A final criticism of the CCW is its failure to limit exports of all covered mines. The CCW protocol permits exports of short-duration self-destruct mines so that they can be used to replace 30-year persistent mines. It does ban the export of some, but not all, persistent APL.

At the 1996 Review Conference of the CCW, the parties revised Protocol II to include a requirement to convert mines to models with self-destruct and self-deactivation features. A country has the right at the time of ratification to claim a nine-year deferral for meeting 50 percent of this requirement. China claimed this deferral. The protocol revisions stipulated that the reliability for the self-destruction feature must be at least 90 percent and the reliability for the self-destruction and self-deactivation combined must be at least 99.9 percent. The revision also introduced a prohibition on the use or transfer of any nondetectable APL after January 1997. Although there had been discussion of a global ban on land mines prior to the conference, it was not pursued in the context of the CCW because of strong opposition by many of the parties. It is important to remember that the fundamental objective of the CCW protocol has always been to reduce postcombat civilian land mine casualties, not to eliminate land mines entirely.

At the beginning of the negotiations to revise Protocol II on land mines, China would not even discuss the concept of self-deactivation of mines, and held to the position that although a transition to short-duration mines was inherently desirable, each country should go about it in its own way, choosing among self-destruction, self-neutralization, and self-deactivation. China was under pressure during these talks from a growing coalition of Western countries (the former Soviet bloc countries and the nonaligned movement were not players) who wanted internationally imposed requirements for self-destructing self-deactivating mines, and finally accepted the idea in principle in late 1995. China then tried to expand the number of years permitted for the transition (first insisting on an indefinite

period, and then agreeing on 25 years) and decrease the required reliability rate for self-destruction. A compromise was reached on the nine-year transition period, but China insisted that the reliability be limited to 90 percent, whereas the Western coalition had been holding out for 95 percent reliability. In 1996 China also announced an export ban on land mines whose use is specifically prohibited by Protocol II and indicated it would also ban the export of nonself-destructing or self-deactivating, non remotely delivered mines. These mines are technically permitted under the protocol and are therefore legal exports. In this instance, China has therefore gone a bit beyond what is strictly required by the protocol.

The implications of the revised Protocol II for China include an economic and a military dimension. In view of the large numbers of land mines in China's inventory, the Chinese have to do more force alteration than any other country in order to be in compliance with the revised protocol. One mine affected by the CCW protocol is the Type 72A, of which China is believed to have 100 million, which is possibly more than the rest of the world's antipersonnel mines combined. Since these mines have less than 0.5 grams of iron, they are nondetectable by CCW standards (which call for 8 grams), and have to be brought up to standard within ten years. The modification can be accomplished by adding a washer, metallic tape, or metallic spray. This will be an expensive and cumbersome process for countries with very large numbers of mines. After 2007, nondetectable mines will be barred entirely from use.[8] The degree to which nondetectable mines are an asset in combat remains open to question. The United States decided that whatever utility these mines might have in combat is offset by the fact that the country who lays the mines might later send its own troops into the mined areas. Whether or not China makes the same calculation is not known.

Parties to the CCW met at a review conference in December 2001, at which they debated proposed restrictions on antivehicle mines. China objected to this restriction and it was not adopted.[9] The Group of Governmental Experts will also address anti-vehicle mines.

The parties agreed instead to establish a group of governmental experts (GGE) to review the issue prior to the Review Conference in late 2002.[10] Although the GGE met several times in 2002, it did reach consensus on any recommendations. At the Third Review Conference in December 2002 the mandate of the GGE was extended. The future agenda of the CCW discussions on Protocol II include increasing the required reliability percentage for self-destruct and self-deactivation features, discussion of measures to limit or ban the use of certain antitank mines, expansion of the existing (CCW) bans to encompass a prohibition on use in civil wars, and appropriate verification to support the protocol. Chinese officials have not yet made a formal statement about any of these proposals.

The Ottawa land mine ban and the CCW

In 1997, more than 90 countries participated in a conference known as the Ottawa Process and accepted the text of a treaty that would ban the use, production,

stockpiling, and transfer of all antipersonnel land mines. This treaty is now known as the Ottawa Convention, and it represents the first instance in which NGOs have taken control of the process and ignored the existing multilateral negotiating venues such as the Conference on Disarmament (CD). Eighty-nine Countries have ratified the Ottawa treaty and deposited instruments of ratification; another 47 have signed but not ratified. However, none of the major land mine-producing countries has signed the Ottawa treaty. Both China and the United States declined to sign, although the United States attended the meetings as an observer. Nevertheless, the success of Ottawa has, in some respects, increased the momentum for the CCW land mine protocol. This is in part because the major land mine "problem countries" who refuse to sign the Ottawa treaty are already members of the CCW and, in the wake of Ottawa, are fearful of an "Ottawa takeover" of the CCW process. Somewhat paradoxically, therefore, although the Ottawa Process had its origins in dissatisfaction with the CCW agenda, it has actually enlivened and strengthened the CCW process.

The pressure from certain segments of the public as well as large, broad-based NGOs to ban any production or use of APLs has gained remarkable momentum. However, unlike chemical weapons, mines have great military utility; in fact, in certain tactical situations there is no weapon that can replace them. This is one reason why not only China, but the United States as well as other countries, continues to oppose a global ban on APLs. Giving up the option to use them would undermine China's security in tangible ways and would likely be resisted by the PLA. Ambassador Sha reflected these concerns in his 1997 statement at the CD when he said: "In order to meet its legitimate territorial defense requirements, China cannot but reserve its legitimate right to use APLs on its own territories before alternative means are found. China can only accept an international APL agreement that fully accommodates its above mentioned security concerns."[11]

In addition, there are economic factors. Mines for both domestic and foreign customers are a staple of China's defense industry; that production is widely distributed among different factories would pose a significant enforcement challenge if China were ever to enter into an agreement to stop production of all land mines, rather than just those defined by the CCW. Thus there would be some risk to China if the Ottawa Process were to evolve into an international norm. Already, Ottawa appears to have affected Chinese (as well as others') attitudes on APLs. China, like the other major producers and exporters of mines (The United States, Russia, India, South Korea, North Korea), did not sign the Ottawa treaty. China did initiate a unilateral export ban on mines not compliant with the revised Protocol II of the CCW. The Chinese have also embarked on an ambitious program of mine clearing, especially along the Sino-Vietnamese border, and they are considering cash contributions to international mine clearing efforts. Whether China would have taken these steps without the Ottawa Process is not known, but it certainly created momentum to which China responded. Thus, China's position on the CCW protocols merits attention both on its own merit, and as it reflects Chinese attitudes about international institutions.

More importantly, China's position on the land mine ban will reflect its attitude toward the changing role of the CD. The fact that the Ottawa treaty materialized and gained momentum outside the CD and the CCW, along with the inability of the CD to reach consensus on any important questions since the completion of the CTBT, has called into question the viability of formal multilateral arms control institutions. Many have asked whether the CD has a role in the post-CTBT world, and there has been speculation that future arms control agreements will be negotiated outside this venue. The United States supported a 1998 proposal to appoint a special coordinator for landmines at the CD and supports the discussion of a land mine ban within the CD, at least in part because the CD includes most of the major weapon producers. For China, the risks of the Ottawa Process overtaking the formal negotiating bodies and becoming the norm are significant: a process dominated by NGOs rather than government representatives and experts demands more transparency from the negotiating parties, and eliminates many of the diplomatic tools that are used to create loopholes in contentious treaty negotiations. If China remains outside Ottawa and supports the CCW or the CD as the appropriate mechanism, there will be a limit to the impact of less formal negotiating venues. It will be easy for China to promote the "safer" land mine negotiating bodies (the ones that are less likely to impose Ottawa-type provisions because they operate based on consensus) as long as the United States does the same. China did not support the CD proposal for a special coordinator, but did not block it. Thus China's position on the relative merits of the different negotiating venues remains ambiguous. Ambassador Sha pointed out in a 1997 speech that the Ottawa Process lacks the universality that is "crucial for any truly effective international agreement." He also remarked, "We certainly respect the sovereign decisions of those states participating in the Ottawa Process. I wish them good luck. In my statement I only expressed doubt that the Ottawa Process might have an effect on the role of the CD as the single multilateral negotiation body in the disarmament area… Of course, if there is no negative effect whatsoever, my delegation would then be able to say 'Long live the CD.' [12]

Within the CCW, China's role also assumed a tactical significance prior to U.S. ratification. The possibility existed that countries who supported the Ottawa treaty would attempt to take over the CCW and radically restructure the agenda with the goal of making the CCW land mine protocol identical with the Ottawa treaty. Russia and the United States could both be expected to block such a movement; in the summer of 1998, neither had ratified the protocol. It is possible therefore that China's main reason for ratifying the revised Protocol II had little to do with its commitment to the goals of the CCW and rested instead on the assumption that the other key nonparties to the Ottawa treaty would remain outside the CCW debate at the next review conference. When the Chinese NPC ratified the revised Protocol II in the summer of 1998, it was with the knowledge that the United States and Russia would attend the next review conference as observers who could not vote. There would be only one determined, but minor, voting member (Finland) who opposed the Ottawa formula at the 1999 CCW Review Conference. China

might therefore have seen itself as the swing vote to block CCW agreement on a much more restrictive land mine protocol.

Laser blinding weapons

Protocol IV of the CCW on laser blinding weapons was considered an important "first" in international humanitarian law, because it contains a blanket prohibition on both the use and the transfer of a weapon. It too has a limited scope. It only restricts the use of laser weapons whose specific purpose is blinding, or the use of lasers with the specific intent of blinding the enemy. Lasers have many military applications, such as range finding, and blinding can occur accidentally during the use of many military instruments as well as commercial off-the-shelf lasers. It could be argued that when combatants are unintentionally blinded by enemy lasers, there would be no way to tell if the blinding resulted from direct intent, or whether it occurred accidentally as the enemy was trying to incapacitate an optical system. Verifying such an agreement could therefore depend on subjective judgments rather than technical evidence.

Laser blinding weapons have not been the focus of international NGOs and humanitarian organizations to nearly the same extent as APLs, and have remained a low visibility item within the CD. Like mines, laser weapons are a relatively low-cost, low-technology item that Chinese industry could easily produce and export in large quantity. Indeed, in 1995 the Chinese weapons export company known as NORINCO marketed a laser blinding system (called the Portable Laser Disturber or the Laser Interference Device) at one defense trade show in Manila and then another in Abu Dhabi.[13] Other countries, including the United States, have also manufactured and marketed a system with these capabilities, although China is the only country to have marketed a laser weapon for this application at an international trade show. Most laser blinding weapons have other uses and were not designed solely for the purpose of blinding the enemy. For China, the potential economic cost of implementing more restrictive measures with verification procedures, should one ever be negotiated, could be high. Lasers have long been a "pocket of excellence" in Chinese technology, and the capability to make laser weapons could be widely distributed among many factories and companies. Perhaps for these reasons, prior to 1995 China had wanted to restrict the scope of the CCW to the first three protocols. However, the Chinese delegation to the CCW announced his country's willingness to negotiate Protocol IV on laser weapons at the review conference in September of that year. This was followed by the NPC ratification of the protocol in November 1998. The reasons for China's reversal are not yet clear. This decision, like the one on land mines, broke with China's previous pattern of waiting for the United States to first ratify and deposit an instrument of accession for an international arms control treaty before itself ratifying. It is possible that, as in the land mine case, China ratified solely to make sure that the Chinese representative would attend the CCW review conference as

a voting member and thereby be able to block consensus on more restrictive modifications to the protocol.

As mentioned above, the CCW has no international verification system, does not require declarations or other transparency measures, and does not provide for on-site inspections or other monitoring procedures. Thus, China's acceptance of the protocols entailed relatively few costs compared with other regimes and offers the potential for symbolic gains. Indeed, when explaining the protocols to the National People's Congress, Vice Minister of Foreign Affairs Zhang Deguang, rather than demonstrating how the CCW would improve China's security, pointed out that ratification would "help safeguard China's image in world peace, and accord with the demands of the country's diplomacy."[14] He also pointed out that the protocols did not conflict with existing Chinese law.

9
China's participation in less formal regimes

Introduction

The emphasis in this study on legally negotiated treaties makes it possible to compare China's activities against objective standards. In a field where political passions run high and facts are often difficult to come by, the ability to draw heavily on empirical data is inherently appealing. Nevertheless, a focus only on legal regimes excludes consideration of other events that measure China's commitment to international security norms in a less scientific but perhaps still significant way. Chinese support for international norms as opposed to formal regimes merits greater attention in the future. Chinese negotiators have played an active role in international negotiations to establish nuclear-free weapon zones, to promote nuclear safety, to limit proliferation of small arms and light weapons, to prevent warfare in outer space, to effect Iraqi disarmament, and to resolve the North Korean nuclear problem. Several are examined here in the context of a particular crisis. Together they tell an interesting and not entirely consistent story about Chinese support for some of the values embodied in formal arms control and nonproliferation treaties.

China's support for these efforts lends them a legitimacy they would not otherwise have, particularly in the eyes of developing or nonaligned countries. In some instances, China's decision to join represented an important political shift; in others, it merely reaffirmed existing Chinese positions. Although today these agreements make few practical demands on China, their restrictions and requirements could change over time.

Multilateral nonproliferation and security regimes

Nuclear-free weapon zones

China has signed three regional nuclear-free zone treaties: Rarotongo (covering the South Pacific, which China signed in 1987), Tlateloco (covering Latin America, which China signed in 1972), and Pelindaba (covering Africa, which

China signed in 1996). Most nuclear-free zone treaties have one set of provisions for countries in the covered territories, and separate protocols available for signature by the nuclear weapon states. Most do not have detailed provisions for verification above and beyond existing IAEA requirements, and these apply only to countries in the region. Although the treaties are not identical, the main constraint they impose on the nuclear weapon states is the establishment of a zone where they are prohibited from using, stationing, or testing nuclear weapons. The nuclearfree zone is a security concept that other regions can usefully adopt to build confidence; each zone is an incremental step towards the reduction, if not ultimate elimination, of nuclear weapons. For this reason, China's support is a significant contribution. However, China would in any event have been unlikely to use or test nuclear weapons in any of these regions. Signing the treaty did not therefore constitute a meaningful constraint on Chinese military options, nor did it limit exports, or increase Chinese transparency.

China has initially declined to sign the relevant protocols of the Bangkok treaty which would preclude the use of nuclear weapons in Southeast Asia. China has declared its support in principle for nuclear-weapon-free zones, and specifically for a zone in Southeast Asia.[1] China's stated objection to signing the relevant protocols of the Bangkok treaty is based on the fact that the treaty covers an area of the South China Sea in which there are disputed territories. An Associated Press report stated that China had agreed in 1999 to sign the treaty, but this report came from a Malaysian source and was never confirmed.[2] If China does in fact sign the Bangkok treaty, the protocols could be understood as limiting activities in what the Chinese claim to be their sovereign territory. The Chinese have also pointed out that Southeast Asian countries do not require assurance about Chinese nonuse of nuclear weapons, since China has a no-first-use policy, and no Southeast Asian countries possess nuclear weapons. Several of the ASEAN countries do, however, have bilateral security ties with nuclear weapon states, so it is at least conceivable that there could be scenarios (unlikely ones) in which China would not be bound by a no-first-use pledge.

Chinese signature of the treaty of Bangkok would go a long way toward reassuring China's neighbors. However, as long as China's objection rests on the South China Sea territorial dispute, that reassurance will not be forthcoming in the immediate future. It should be noted that the United States has also declined to sign the Bangkok treaty because of concerns about its geographic coverage and the degree to which it would affect passage of U.S. ships.[3]

Nuclear safety

China has signed three international agreements involving the conduct of civilian nuclear power facilities. None could be classified as arms control or nonproliferation *per se,* but each represents China's commitment to being a responsible nuclear power. The Convention on Nuclear Safety, signed by China in 1995, entails a commitment to work with other member states to achieve

common standards for the safe operation of nuclear power plants. To date, the convention has no sanctions, inspections, or other verification beyond existing IAEA commitments.[4] It is possible that this will change in the future, although progress has been slow to date. Indeed, this is a regime from which China has a great deal to gain and very little to lose, given the role of nuclear power in China's future.

In 1989 China joined the Convention on the Physical Protection of Nuclear Material.[5] This regime establishes procedures for safe transport of nuclear material across international boundaries, and Chinese adherence to these requirements is reinforced by domestic legislation passed in 1994. Although possibly relevant sometime in the future, at the present time China does not export nuclear material. Chinese participation lends credibility to the regime, however.

China has also signed the Convention on the Early Notification of a Nuclear Accident. This requires early disclosure of the details of nuclear power accidents. Although China has had to close down its Daya Bay reactor several times due to operating problems, there have been no known accidents.

Outer space

China signed the Outer Space Treaty in 1983. This regime prohibits the stationing of WMD in outer space, an option that is not only not technically feasible for China, but also one that has not been pursued by countries with advanced space programs. The treaty contains no verification provisions. Indeed, this is an area where China would like to see arms control move more quickly. The United Nations Committee on the Peaceful Uses of Outer Space has made relatively little headway since its inception in 1959.[6] Its activities are limited to information exchange and the promotion of international space cooperation in commercial areas, rather than the limitation of military activities. The Chinese have said that space exploration should be a purely peaceful endeavor and that space assets should not be used for any military purpose whatsoever. On several occasions since 1984, China has presented draft resolutions to the United Nations General Assembly that would prevent an arms race in outer space. In 1998, China's ambassador to the CD called for the establishment of an *ad hoc* CD committee to address further restrictions on military activities in space, with China's main interest being the limitation of the further advance of space-based missile defense.[7] In fact, China has made the establishment of a an *ad hoc* committee on the Prevention of an Arms Race in Outer Space (PAROS) a precondition to Chinese agreement to an agenda at the CD, and more specifically to any discussion of the Fissile Material Cutoff Treaty, which is a U.S. priority. Prior to the U.S. decision to abandon the AMB treaty, Chinese officials mentioned the possibility of an international (antiballistic missile (ABM)) treaty as a possible first step toward control of weapons in outer space. As U.S. plans to pursue missile defense technology picked up speed, Chinese demands for an *ad hoc* committee became more intense.[8] This is an area of arms control where China has been proactive,

rather than reactive. However, it is at least plausible that China's position is in large measure a reaction to U.S. missile defense plans rather than a genuine interest in establishing a new arms control regime to address outer weapons in space. Even if China is sincere about wanting to establish such a regime, international agreement will be very slow to materialize given the wide disparity in space capabilities between advanced and developing countries, and given the large commercial interest in minimal regulation of space activity.

Because an effective treaty to prevent the militarization of space would include restrictions which, if they were ever to be implemented, would not constrain Chinese military options and would limit those of more advanced countries, it is a treaty China can be expected to champion. China has also signed the Seabed Treaty and the Antarctic Treaty that prohibit stationing of nuclear weapons in those locations.

Small arms and light weapons

Regulating the transfer of conventional low-technology weapons remains the most contentious, some would say impossible, item on the global arms control agenda. Light arms, small arms, and ammunition are not regulated by any international laws and are used by every state to maintain internal order. The most easily available types include assault rifles, hand grenades, rocket launchers, land mines, and explosives. They are inexpensive and easy to obtain, and widely distributed within and across countries. National production is not reported in the United Nations Register of Conventional Arms or elsewhere, and the existence of these items can only be accomplished on-site through the use of metal detectors. Most national means of verification are irrelevant. Increasingly these weapons are falling into the hands of criminals, terrorists, irregular militia, and armed bands who use them indiscriminately in ways that undermine regional stability.[9]

The United Nations began a sustained effort to track the flow of small and light arms in the early 1990s.[10] Other attempts to address the issue include a series of intergovernmental meetings (hosted most recently by Norway and Belgium), as well as NGO initiatives and various activities of the World Bank and the OECD. The United Nations General Assembly in 1995 adopted a resolution calling for a report on small arms transfers that exacerbate conflict. The resolution led to the establishment of a Panel of Governmental Experts on Small Arms which submitted a report to the secretary general in 1997. The report included 23 recommendations, only one of which (a study on ammunition) was approved in the General Assembly resolution that accepted the report. Multilateral efforts have been based on the assumption that transparency and accurate reporting are necessary first steps that must precede any proposals for international control over these weapons. One small achievement was the agreement in July 1998 by representatives from 30 countries to a moratorium on production, export, and import of light weapons in West Africa.[11] However, a global treaty that bans illegal transfers of light arms

has not even been seriously debated in formal disarmament channels, and work proceeds, according to one expert "at a snail's pace."

The inability of the United Nations and other established disarmament mechanisms to address conventional weapons proliferation lends support to the academics and NGOs who advocate an "Ottawa-style" approach. In a 1997 Canadian-sponsored meeting, international experts discussed how to use the lessons of the Ottawa global land mine ban to control the flow of small arms and light weapons. The same humanitarian concerns that fueled the land mine campaign pertain to light weapons, and the possibility that momentum will build is very real.

China remained aloof from all international efforts to address the flow of light weapons and small arms until 1998, when a Chinese representative joined the United Nations Panel of Experts. Whether the Chinese government was more interested in making sure that the United Nations does not go too far in this area, or in preventing an Ottawa-style campaign by supporting a more traditional format for negotiation, remains open to question.

In May 2001 member states completed negotiations on the Protocol Against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition (or Firearms Protocol) to the United Nations Convention Against Trans National Organized Crime. It appears that China held up agreement at these negotiations for some time, although the exact issues in contention are not clear.[12] The protocol is intended to establish standards that will help control exports. It addresses record keeping, information exchange, and marking of firearms. China signed this protocol in December 2002 but has not yet ratified it.

In July 2001 the 170 countries who attended the first United Nations conference on small arms endorsed a "Programme of Action to Prevent, Combat, and Eradicate the Illicit Trade in Small Arms and Light Weapons in all its Aspects." Delegates to the conference agreed that countries have an obligation to make sure that arms manufacturers put identifying marks on weapons to help detect smuggled items. The conference document also called on governments to pass laws that would regulate small arms brokers and insure government control over the weapons trade.

Several Latin American and African countries wanted the final conference document to include a prohibition on weapon sales by nonstate actors. China and the United States opposed this measure and, because the United Nations operates by consensus, were able to keep it out of the final document.[13] China has made rhetorical statements of support for the U.N. process, but noted the need to "take account of national sovereignty."[14] Although the meeting had symbolic significance, it had no specific implications for China and it did not pose any restrictions or requirements on the Chinese government. It did demonstrate the degree to which China and the United States, for domestic reasons, sometimes unexpectedly find themselves on the same side of a nonproliferation argument.

Control of fissile material (FM)

The end of superpower competition between Russia and the United States and the dramatic strategic reductions that followed drew attention to the large amounts of excess fissile material in the world. A 1999 report estimated that at least four-fifths of the fissile material stock previously dedicated to military purposes was no longer needed. The amount of excess material has probably increased since then.[15] Yet agreement on the framework for a treaty that would end production of more fissile material has been elusive. The CD agreed to a mandate to address the issue in March 1995, but this initial consensus papered over serious disagreement over whether existing nuclear material would be included in an FMCT verification program. The CD was unable to obtain consensus to establish an *ad hoc* committee on fissile material cutoff later that year. The need for a treaty became more convincing after the Indian and Pakistani nuclear tests of 1998, but the CD remained deadlocked four years later. Chinese policy is at least partly responsible for this deadlock.[16]

China had opposed the idea of an FMCT in the early 1990s but changed course and expressed support for the proposed regime in 1994 in a joint United States-China statement. However in 1999 China began to link further discussion of the FMCT at the CD to agreement on an *ad hoc* committee to discuss PAROS. The connection to U.S. missile defense plans was evident. The United States had agreed to PAROS discussions at the CD until 1994, but then itself changed course and remains opposed to discussion of PAROS. Chinese demands for PAROS discussions are not the only stumbling block. The Group of 21, composed of nonaligned nations, has made agreement on FMCT discussions contingent on progress in nuclear disarmament, to which neither China nor the United States agrees. Nevertheless, the Chinese White Paper on National Defense issued in 2000 stated that "China supports the early conclusion of the Convention on Banning the Production of Fissile Materials for Nuclear Weapons or Other Nuclear Explosive Devices (FMCT)". For this purpose, the foreign ministers of China and the United States issued a joint statement in October 1994, saying that the two countries would make joint efforts to promote an early conclusion of a multilateral, nondiscriminatory and effectively verifiable FMCT. In April 1997, China and four other nuclear weapon states–the United States, Russia, Britain and France–issued a statement, reiterating their stand for concluding, through negotiation, an FMCT as soon as possible on the basis of the mandate contained in the Shannon Report. The language on FMCT in China's 2002 White Paper is more general but conveys the same content.[17]

China reportedly stopped uranium enrichment for military production in 1987 and plutonium production in 1991.[18] China's stockpile of highly enriched uranium is estimated at 20 tons; the supply of plutonium is believed to be 4 tons.[19] This stockpile would enable China to increase its supply of nuclear warheads by a factor of one to three, depending on assumptions about how the material would be used in different types of warheads. For comparative purposes, the U.S. stockpile is

100 tons of plutonium and 635 tons of uranium, and the Russian stockpiles slightly higher. A cutoff treaty would impose minimal costs on China, given the large disparity in existing stockpiles between China and the larger nuclear powers. Chinese support, or lack thereof, will have primarily symbolic costs and benefits. Nevertheless, proposals for an intrusive verification regime will certainly raise concerns in China about perceived violations of sovereignty, and China (like the United States) is likely to remain opposed to inclusion of existing stocks in the scope of the treaty.

Multilateral strategic reductions

China has expressed approval for U.S.-Russian reductions in strategic nuclear weapons but has not made a commitment to serious negotiation of reductions that would include Chinese forces. In fact, given the stalemate over a disarmament agenda at the CD, no viable mechanism exists for beginning such talks, and the other P-5 members might not be in a position to support them. In principle, Chinese officials have said that they will be willing to discuss Chinese strategic reductions after the United States and Russia have made dramatic reductions. In the 1980s China said that this meant a 50 percent reduction, not realizing that such a target would in fact be achieved in bilateral negotiations in the near future.[20] Once it became clear that the United States and Russia could attain 50 percent reductions and possibly negotiate even lower levels, China's position changed to a requirement for reductions by the United States and Russia to levels approaching those of the smaller nuclear weapon states (France, the United Kingdom, China).[21] China attributes the change in position to the potential threat posed to Chinese missiles by U.S. and Russian missile defense systems. In addition, Chinese officials have linked other conditions to negotiations on strategic reductions. These include a P-5 no-first-use convention and a commitment by Russia and the United States to stop development of missile defenses.

Chinese responses to proliferation crises

The past decade has seen three arms control and nonproliferation crises outside the established regimes: the failure to completely disarm Iraq after the Gulf War, the testing of nuclear weapons by two non-NPT members, and the withdrawal of North Korea from the NPT. The history of these events offers perspectives on Chinese attitudes towards international regimes that cannot be seen by examining participation in formal regimes. Each of these deserves a thorough case study to validate the assertions made here in only a preliminary way.

Iraqi disarmament

The United Nations' effort, through the United Nations Special Commission (UNSCOM) and then the United Nations Monitoring, Verification and Inspection

Commission (UNMOVIC), to disarm Iraq as a condition of the Gulf War cease-fire is an atypical event in arms control history. UNSCOM tried to use inspections and other monitoring mechanisms in Iraq to disarm a nation under exceptionally difficult circumstances. Iraqi resistance to UNSCOM activities was answered by United Nations Security Council resolutions and U.S. unilateral military action. However, none of these responses were strong enough to bring about full compliance and in 1998 the inspectors were forced out of the country altogether. The brief return of UNMOVIC inspectors in 2002 likewise failed to force Iraq to disarm. From the initial days of UNSCOM, China walked a fine line regarding the forced disarmament of Iraq and on the use of challenge inspections there. The Chinese government criticized UNSCOM and UNMOVIC without ever directly expressing support for Iraq's resistance to UNSCOM. Chinese diplomats regularly used the threat of a Security Council veto to water down resolutions against Iraq and then abstained when the measure came to a vote. When the United States was on the brink of another war with Iraq in January 1998 over Iraqi refusal to allow UNSCOM inspectors into the presidential palaces, China urged restraint on all sides and then agreed to participate in the negotiated solution to the crisis. This solution, which turned out to be only temporary, consisted of a technical panel to review all the available data about Iraq's WMD. This did not appear to many to be a major concession on China's part. Nevertheless, the decision to join the panel constituted a departure for the Chinese because they had previously attempted to avoid being in a position where they would be called on to pass judgment on the Iraqis–reflected in their consistent record of abstention in most Security Council resolutions on Iraq. Shortly thereafter, China also agreed for the first time to send inspectors to UNSCOM. This, too, might not be a dramatic move from a U.S. perspective, but it still set an important precedent for Chinese policy and entailed a certain risk. According to Chinese officials, the PRC government was reluctant to become involved and only did so after an urgent appeal from Baghdad. In the months that followed the departure of the UNSCOM inspectors, Chinese statements on Iraq condemned by increasing measure the use of force to gain Iraqi compliance, especially after the U.S. air strikes in early December 1998.[22] For two years, China consistently supported Security Council reexamination of the sanctions against Iraq without actually saying that the sanctions should be lifted. This statement by the Foreign Ministry spokesperson is representative of China's position through 2001: "The humanitarian situation in Iraq is extremely serious and China hopes to see an early solution of sanctions against Iraq in order to ease the tremendous difficulties confronting the Iraqi people… China believes that Iraq should fully and thoroughly implement the U.N. resolutions on Iraq while the international community should eventually consider the lifting of sanctions against Iraq in the light of Iraq's implementation of these resolutions."[23] The Chinese position at that time was in opposition to that of the United States, but not inconsistent with the policy of many European countries and other U.S. allies.

China's record is open to differing explanations, not mutually exclusive. One is that the Chinese have geopolitical as well as economic interests in the Middle

East and cannot afford to put the promotion of international arms control regimes above those interests. Another explanation is that China wants to stop short of endorsing events which reinforce the position of the United States as the sole superpower. A U.S. use of force to compel Iraq to comply with inspections or, as actually happened, to overthrow Saddam Hussein's government, is exactly the type of event that symbolizes to China the unipolarity—and undesirability—of U.S. power. A third possibility is that the Chinese genuinely supported UNSCOM's original objectives but disagreed with disarmament by force. Although China has not been a strong supporter of U.S. policy towards Iraq, the Chinese never vetoed U.S.-sponsored resolutions on Iraq, and in November 2002 even voted in favor of Resolution 1441, which applied further pressure on the Iraqi government to comply with international inspectors. It is also worth remembering that China did not have to fear isolation in criticizing U.S. policy on Iraq as it did in the 1990s; others opposed U.S. policy at least as strongly as China did. Understanding the degree to which of these explanations is relevant must await a more careful examination of the evidence and perhaps more candid revelations by Chinese officials.

North Korea

For over a decade, North Korea has appeared to outsiders to be on the verge of collapse. Sealed off from the outside world, and with a weak economy, run by an authoritarian government whose hold on power has been widely perceived to be tenuous, North Korea's nuclear weapons program poses a thorny security challenge for the United States as well as North Korea's neighbors. Neither confrontation nor engagement can be counted on to work; both entail significant risks—ranging from the possibility that the regime will grow stronger and more intransigent, to the possibility that it will implode, or that a major war will ensue. The Agreed Framework of 1994 appeared to resolve the immediate crisis, but in fact it only postponed the requirement to face up to the reality of a North Korean nuclear weapon. This became clear when North Korea announced it had begun reprocessing spent fuel in the spring of 2003.

China initially maintained a dubious balance in its policy on North Korea, trapped between a desire to be part of the P-5 big power nuclear nonproliferation "club" and an unwillingness to openly criticize a former ally who could (intentionally or otherwise) cause problems for the government in Beijing. In the early 1990s, China did switch the terms of trade with North Korea from barter to cash as an attempt to force the latter to implement market-oriented economic reforms. This resulted in additional hardship for North Koreans, but not sufficient pressure either to break the regime nor to persuade the North Korean government to open up its economic system. When it first threatened to withdraw from the NPT in 1993, the IAEA, of which China is a member, wanted to insist on intrusive inspections, and the United States proposed to back the IAEA by threatening to use force in the event of North Korean noncompliance. The possession of nuclear

weapons by an unpredictable regime was only one concern, albeit the most immediate. Many observers believed at the time that North Korean withdrawal from the NPT would lead to the unraveling of the entire treaty, which could be the beginning of a slippery slope that would end in the demise of all international nonproliferation regimes.[24]

China did not share this view, and refused to apply any additional pressure, despite numerous direct appeals from the U.S. government, and intelligence briefings intended to demonstrate to Chinese officials the extent of North Korea's program and, by extension, the threat to China, if such a program were allowed to continue.[25] Between the inception of the crisis and its negotiated solution in 1994, whenever the Security Council debated resolutions condemning North Korea, or moved closer to a consideration of economic sanctions on the North, China used the threat of a veto (as in the Iraq case) to tone down the language of the resolution, and then abstained when it was voted on.[26] Chinese abstentions were seen by some as a measure of China's willingness to cooperate, and by others as considerably less than what is required from a responsible member of the international community. Chinese officials made it clear that if the Security Council voted to impose economic sanctions, China would not feel constrained by them. Economic sanctions would have required political will, the ability either to coerce or co-opt regional power centers that were exercising more and more power, as well as a bureaucratic system to implement export controls. Chinese President Jiang Zemin summed up the Chinese position on the use of sanctions to solve the North Korean nuclear problem in an interview with a Japanese television commentator in 1994:

> In solving the problem, the ultimate objectives should be to safeguard peace and stability on the peninsula and to achieve denuclearization there. As long as we do not deviate from these two basic objectives, there is always the possibility of finding a correct way to solve the problem, no matter what temporary difficulties might arise. We should see that the door to negotiations has not yet been closed… China does not approve of sanctions. This is because sanctions do not help to solve the problem. On the contrary, they will escalate the situation and have consequences which none of the parties are eager to see. I believe that only dialogue and consultations are the effective way solve the problem, as well as the fundamental way out.[27]

A Council on Foreign Relations report on North Korea concluded that "Beijing's subtle and low-key approach in regard to North Korea renders estimation of its role difficult… China at present appears to play a facilitating role…and appears to have little desire to see nuclear weapons or a robust ballistic missile capability in North Korea… China has pursued roughly parallel policies with the United States towards North Korea but has sought to avoid the appearance of active cooperation."[28] Privately, many Chinese officials and scholars said that they did not believe North Korea had a nuclear weapon.

It is certainly possible that behind-the-scenes discussions between China and North Korea played a role in averting a more serious crisis in 1994. Taken at face value, the modest moves that China made in 1993, including cancellation of several diplomatic visits and a temporary closing of the border, cannot be seen as the kind of pressure that would have brought about a significant change in North Korean policy.

Following the negotiation of the 1994 Framework Agreement, China participated in the four party (China, The United States, North Korea, South Korea) diplomatic talks mandated by the Framework Agreement, although initially refused to do so. However, it didn't participate in a way that put pressure on North Korea to accept international norms (nor did any of the other parties at the talks). On the contrary, Chinese officials expressed the fear that such talks would be futile until the United States offered North Korea diplomatic recognition and agreed to legalize a status that rests only on an armistice agreement rather than a formal peace treaty. The four parties last met in 1999. Their mandate is to discuss the future security architecture of the region, not to address compliance with nonproliferation regimes. There does not appear to be strong support within any of the four countries to resume the discussion.[29]

The Chinese offered various explanations for their reluctance to apply additional pressure on North Korea. First, they consistently discounted U.S. intelligence on the extent of North Korea's nuclear capability, and even dismissed U.S. claims that in October 1998 North Korea tested a new medium-range missile. Prior to 2002, Chinese officials and analysts insisted that U.S. threat assessments existed for the sole purpose of justifying a missile defense program that China opposes. In an apparent contradiction, China at the same time denied possessing any in-depth knowledge of North Korean capabilities (in which case, how did they know that U.S. intelligence was inaccurate?) as well as any ability to influence the course of events there. Chinese officials insisted that additional pressure on North Korea would only precipitate a regional, if not a global, crisis, and one that would have direct and severe consequences for China. An influx of refugees across the border into northern China would complicate an already difficult political environment and test China's limited capacity to cope with humanitarian disasters. The opposition to military confrontation was not a uniquely Chinese position, however. Many in the United States and Japan also promoted dialogue and cooperative security rather than more coercive measures.[30] To many observers, China's reluctance to act decisively in this crisis indicates lukewarm support for international nonproliferation regimes and values. [31] It can also be read as reflecting a difference of opinion between the United States and China as to how to achieve nonproliferation objectives. Even skeptical observers agree that China does not want to see North Korea acquire nuclear weapons, and the Chinese have reiterated this concept in public and in private for over a decade. What the 1993 crisis revealed was a considerable gap separating on the one hand, a desire to prevent North Korea from acquiring a nuclear weapon and, on the other, a

willingness to take proactive, possibly risky, steps to make sure that they would not do so.

When it became clear to the international community in 2003 that North Korea had made substantial progress towards development of a nuclear weapon, China became actively involved in diplomatic efforts to resolve the crisis. Although the Chinese had insisted for years that the United States deal with North Korea in a bilateral setting, that position began to soften as the very real dangers associated with a North Korean weapon became increasingly clear. In the summer of 2003 China hosted trilateral talks on the nuclear crisis. Whether Beijing can in fact prevail upon the North Korean government to reverse course remains to be seen.

South Asian nuclear weapons

The third example is China's response to the testing of nuclear weapons by India and Pakistan in May 1998. As discussed in Chapter 3, China was not legally bound to take any specific actions in response to the test, and had never agreed that it would respond if a country tested nuclear weapons. (This contrasts with the United States, where there is a law stipulating that the United States has the "right" to resume testing if other countries do.) Moreover, the CTBT had not entered into force, and neither Pakistan nor India were signatories. The details of China's response are presented in Chapter 3. To summarize, China made strong rhetorical statements, but did not respond diplomatically, militarily, politically, or economically to the tests. Chinese-Indian relations were already cool, and there is probably not much China could have done that would have had an effect on Indian attitudes about nuclear weapons. Indeed, it is possible that a strong reaction by China, especially a military response, would have only strengthened Indian resolve to acquire a nuclear arsenal. China does have political and economic leverage it can use with Pakistan, and informal reports suggest that China encouraged Pakistan to exercise restraint after India's test, but they did not impose sanctions or other punitive policies after the test was a *fait accompli.* While not supporting Pakistan's test, China did not condemn it in the same language used to depict the Indian test, expressing regret about Pakistan's decision rather than outrage. This was in part because of the close bilateral ties, and in part because Pakistan's test was understood to have been provoked by India. This made it more excusable not only to China but to other countries as well.

China chaired a special session of the P-5 dedicated to the South Asian tests in June 1998. The result was a consensus document condemning both Pakistan and India in equal measure, and calling on the P-5 to use diplomatic and political tools to bring the two countries into international nonproliferation regimes, especially the CTBT, the NPT, and the fissile material cutoff treaty. The statement did not recommend sanctions or other punitive measures, and it therefore placed no significant demands on China. However, the fact that the Chinese chaired the session and successfully negotiated a consensus document is evidence of their diplomatic skill as well as their willingness to play a more visible role in defending,

albeit rhetorically, international norms. Ten years earlier, China would not have been able either to chair the session or agree to language that treated India and Pakistan evenhandedly. The fact remains that the efforts of the P-5 have not resulted in significant Indian or Pakistani commitments, but the cause for this probably has less to do with China's actions than with domestic problems in South Asia and the discrimination inherent in the NPT to which both countries have always objected.

In each of the three crises examined here, China could have exercised more influence. In North Korea and Pakistan, the Chinese retain considerable leverage that they have not used, but China's failure to act more decisively does not mean that its government does not support international nonproliferation goals. Each of these crises required actions that would have competed with other compelling Chinese foreign policy objectives. The United States and most other industrialized countries that express support for nonproliferation objectives also make trade-offs and apply standards selectively when other priorities compete.[32]

10
China's arms control bureaucracy

Introduction

Any treaty as complex as the CTBT or the CWC by definition requires the attention and expertise embedded in many different parts of government. This is true for developed as well as developing countries, for authoritarian regimes as well as democratic ones. Each treaty involves technical, economic, military, foreign trade, industrial, foreign policy, and logistical considerations, all represented by different agencies. Negotiation of treaties engages certain departments, and implementation and enforcement of treaties involves others. Understanding how the different treaty-related responsibilities are shared within the bureaucracy in China is critical for several reasons. First, accurate information about the bureaucracy is a prerequisite to a constructive dialogue with the right Chinese counterpart for any given issue. Second, knowledge of the bureaucracy provides the context for responding to Chinese treaty violations. Legitimate questions often arise over whether violations result from intent, that is, from genuine resistance to a treaty on its merits, or from competing bureaucratic interests and inefficient bureaucratic procedures. A deeper understanding of how the bureaucracy works will enable better problem resolution when there are differences between China and other countries over treaty implementation or treaty violations.

The focus of this chapter is on the role of the major actors in the Chinese bureaucracy in key arms control activities, especially treaty negotiation, implementation, and, to a lesser extent, policy research. The Center for Nonproliferation Studies of the Monterey Institute of International Studies maintains an online description of the major bureaucratic actors who formulate and implement arms control and nonproliferation policy in China.[1] They include the Ministry of Foreign Affairs Arms Control Department, the PLA General Armaments Department (PLA GAD), the Commission for Science, Technology and Industry for National Defense (COSTIND), the PLA General Staff Department (PLA GSD), the State Council Legal Office, the CNNC, the Ministry of Chemical Industry, the China National Nuclear Safety Administration, China Customs General Administration (CGA), and the Ministry of Foreign Trade and

Economic Cooperation (MOFTEC). This chapter is organized around the activities in which these organizations are involved.

General observations on the institutions and the people

The emergence of a Chinese arms control "community" is a phenomenon of only the last 20 years. Since arms control is a multidisciplinary, multiagency issue, the changing structure of the arms control community provides a unique perspective on the departments and ministries to which Chinese arms control experts belong. The number of individuals in China who are full time arms control professionals has probably tripled or quadrupled since China joined the NPT in 1992. In previous decades, a Chinese arms control expert was likely to be an analyst who read about arms control in the United States and the Soviet Union—probably someone who had little hands-on experience. Today, China is active in formulating, negotiating, and implementing arms control regimes. This will require an increase in the number of full-time professionals and a different approach to training and career development. The Center for Nonproliferation Studies of the Monterey Institute of International Studies has been offering arms control education for the past ten years and has been instrumental in recognizing, and beginning to fill, this gap. Not surprisingly, there appears to be an age divide between the senior people in the field, many of whom are 60 and older, and the next generation, many of whom are 40 or under. The generation in the middle (the Cultural Revolution generation), with a few exceptions, is missing.

Like the rest of the Chinese government, the arms control bureaucracy is organized vertically, and horizontal communication across these entrenched vertical lines is difficult and sometimes risky for those who try it. Interaction with foreigners—exchanges, conferences, joint research and publication can force this horizontal integration, and improvements in China's infrastructure have begun to eliminate the mechanical obstacles to effective communication.

Much of what is presented in this chapter has been surmised, assumed, and inferred after over six years of contact with a large number of Chinese organizations and officials, as well as their non-Chinese counterparts. Many in China were hesitant to speak on the record. Even non-Chinese diplomats, some of whom provided extremely valuable insights, declined to speak for attribution about the inner workings of the Chinese bureaucracy. The chapter has been organized into three broad activity areas: negotiation, implementation, and policy research. The Chinese bureaucratic players most active in each area are introduced briefly.

Negotiation

Treaty negotiation involves at least five separate elements of the bureaucracy: the senior political leadership, the academic and policy research organizations, the Ministry of Foreign Affairs (MOFA), the military, and the defense industries. It

is well known that important arms control decisions are referred to the highest level of the Chinese government, most likely to the Central Military Commission. Very little is understood about deliberations at this level. A number of policy and technical research institutes and university departments also play a role in the process, primarily by providing advice and analysis. Typically they take no public position during negotiations. Thus, it is extremely difficult to do more than speculate about the impact they ultimately have on how China's negotiating positions evolve. Scholars at Chinese think tanks have analyzed China's participation in arms control and nonproliferation regimes once the negotiations have been concluded, but much of what they write concerns policies of countries other than China. For this reason it would be misleading to identify individual research organizations as advocates of any specific points of view. Their role is too obscure.

The Ministry of Foreign Affairs and the military, however, play more visible roles. The formal articulation of China's position on any given issue is the responsibility of the Ministry of Foreign Affairs Arms Control Department, whose director general, Sha Zukang, served as China's ambassador to the CD from 1995 to 1997.[2] He is a distinguished diplomat who enjoys a reputation as an excellent negotiator. He never fails to impress on foreigners the degree to which he has made himself unpopular within China by promoting Chinese participation in arms control regimes opposed by the rest of the bureaucracy. To what degree Sha has actually formulated policy and sold it to other agencies remains a matter of speculation. Sha was appointed China's ambassador to the United Nations in Geneva in 2001, at which time Liu Jieyi was appointed the new director general. The Arms Control Department is quite new; until 1997 it existed as a component of the ministry's International Conferences Department. Most of the Arms Control Department's professionals are quite young and do not have a background in either national security policy or international trade, the two disciplines that have most immediate relevance. It stands to reason, therefore, that at least on certain treaties, the ministry must go outside its doors to gain an understanding of what a particular regime will mean for China. Where they are likely to go depends in large measure on the regime in question: scientists in the Chinese Academy of Engineering Physics certainly were a factor on Chinese participation in the CTBT; military officers in the General Staff Department most likely expressed an opinion on ratification of the protocols in the Convention on Conventional Weapons as well as the Chemical Weapons Convention.

The degree to which MOFA personnel depend on outside experts is evident in the fact that in many negotiations MOFA personnel work side by side with representatives from the COSTIND (prior to 1998) or departments of the PLA. This is not unique to China, however; other countries also send military representatives to support CD negotiators. (One senior Chinese army officer suggested in an informal conversation in 1993 that the military officers from all the countries at the CD, left to their own devices without their respective foreign ministries, would have gotten along much better and concluded negotiations in

half the time.) It is less clear whether MOFA gains the views and support of other, non-military parts (such as customs or the Ministry of Foreign Trade and Economic Cooperation) of the bureaucracy before a treaty is actually signed. Managers and engineers in Chinese companies affected by export control requirements have complained that they were not consulted at all during the treaty negotiation process. It appears that during the negotiation stage, China's main preoccupation has been with the treaty's effect on China's military and security apparatus. This emphasis implies a tendency to overlook and perhaps underestimate the considerable administrative, financial, technical, and logistical burden attached to the implementation of arms control and nonproliferation regimes.

China has typically responded to existing international initiatives rather than putting new ones on the table, and one has the impression that MOFA personnel are overextended, barely able to keep up with China's rapid increase in involvement in arms control regimes. In early 1998, at a time when most departments and agencies were taking a 25–40 percent cut in personnel, Ambassador Sha's department was expanding. However, in 2000, the department still had fewer than 50 people. If Chinese leaders decide to become more proactive, they will require additional staff and expertise.

The MOFA Arms Control Department is the organization best known to non-Chinese. Yet the true extent of its influence is evident not in formal statements or even informal remarks, but in the results of its work. Between 1988 and 1998 China entered into eight different arms control or nonproliferation regimes that imposed significant, tangible costs. In each instance, the main burden of implementation fell not to MOFA, but to the other departments that had to live with the resulting restrictions or implement the actual provisions of the treaty.

For each of these treaties or agreements, the main payoff for China was an intangible: gain in prestige, avoidance of censure, avoidance of trade sanctions, and an ability to shape the future course of the regime. These are the types of benefit that would be well understood by the Foreign Ministry but probably less compelling to other parts of the bureaucracy. Participation in these treaties has offered only marginal access to new information and technology that would not have been available through other channels. The security benefits of the regimes appear to have been perceived with skepticism by the military establishment. One exception is the Chemical Weapons Convention (CWC), which did enhance China's security by making a chemical attack on China less likely. For the most part, China's military officers appear to perceive sovereignty and arms control as a zero-sum game in which more of one by necessity equals less of the other. Therefore, the arguments available to support China's membership in these regimes were not easy to defend. Most involved intangible benefits: image, prestige, gravitas, and avoidance of isolation or censure. Under these circumstances, what other organization within the bureaucracy, besides the Foreign Ministry, would have advocated participation in all of these regimes?

For these reasons, it seems as though MOFA has been inordinately successful at making its point of view prevail in the face of considerable opposition from powerful bureaucratic actors. It is possible to guess, but not to know, what the leadership was able to "horse trade" in order to gain the cooperation of the other departments needed to implement the treaties advocated by Ambassador Sha's department. For example, Chinese scholars have speculated that the Chinese nuclear weapons laboratories were compensated for the CTBT by an allocation of additional funds for a stockpile stewardship program modeled after that of the United States (reportedly provided to U.S. nuclear weapons labs for the same reason). MOFA could also have attempted to understate the costs of joining the regimes, although this would have been complicated when MOFA staff were themselves dependent on technical support from the military and the defense industries. Perhaps MOFA's success in promoting such intangible benefits is an indication of its growing prominence in Chinese calculations. Alternatively, it points to MOFA's raw bureaucratic power on the rise.

The military establishment, meaning both the uniformed PLA and the defense industries, is an important actor in the negotiation of any arms control or nonproliferation treaty in China. This is true for two reasons. First, they have to live with the results. Second, they are often the only ones who have the detailed and technical knowledge necessary to protect China's interests during the negotiations. Although very few military officials have spoken about the merits of specific arms control arrangements while negotiations were in process, it stands to reason that China's military establishment, like that of many other countries, would have opposed any regime that limited military options. Several Chinese scholars have suggested that the PLA supported Chinese accession to the NPT, a regime that has no significant military implications, because it legitimized China's possession of nuclear weapons and enabled China to enter the P-5 nuclear club. No evidence is available to support this, however, and many of the security benefits offered by the other regimes are ones that China probably would have realized without joining the regime. The military reportedly opposed China's accession to both the CTBT and the CWC. It is possible that the weapons laboratories received extra funding as compensation for the constraints imposed by an end to nuclear testing. Moreover, the arguments for signing the CTBT were strengthened after the 1996 missiles tests and subsequent dispatch of U.S. carriers to the waters near Taiwan when it behooved China to move closer to the community of nations. Likewise, the decision to sign the CWC (probably made in 1992) followed an ambitious post-Tiananmen diplomatic offensive aimed at improving China's image as a responsible international player.

Nondefense industries can also be affected by China's entry into a regime. Very little is known about the role of industry in formulating Chinese nonproliferation policy positions. There is no evidence that the chemical industry, for example, expressed an opinion about China's membership in the CWC. However, it is unlikely that it was a supporter. Likewise, the companies that make missiles and

related technology probably opposed any Chinese commitment to curtail missile exports.

Treaty implementation

Each regime discussed in this study has specific requirements for implementation, but in general they call for four types of activity: export control, verification, reporting of information, and restrictions on testing or deployment of systems.

Export control

Export control is by far the most demanding aspect of China's international arms control commitments, both politically and administratively. Many different organizations have the authority to conduct foreign trade, and although China appears to some to be a tightly controlled country, in fact, provincial and municipal level entrepreneurs have been able to hide a variety of economic activities from the central government. Information, even when it is being reported by state owned enterprises, is not always complete or accurate. This does not mean it is impossible to establish effective control. The Ministry of Finance, for example, has been able to insure that exports and imports are taxed according to regulations, and China never exceeds textile export quotas despite the huge volume of overseas textile shipments. Export controls for reasons of national security pose a different set of problems, however, and many specifics about the Chinese process remain obscure.

Export control of missiles, delivery vehicles and other conventional weapons

Although China has made no formal commitment to limit or refrain from sales of conventional weapons or delivery vehicles, the PRC government has made several informal "promises" of that nature. In fact, Chinese exports of advanced conventional weapons and delivery vehicles that could be used for WMD remain significant areas of contention between the United States and China. For obvious reasons, a key player in the restraint of weapons exports is the defense industry: that is, the factories and research institutes that actually produce the weapons. These factories are supervised directly by the state corporations (formerly the industrial ministries) under which they operate and by the PLA General Armament Department (formerly known as the Equipment Bureau of the General Staff Department). The new, post-1998 COSTIND also appears to have some role in managing these factories, although a less prominent one than in the past. Engineers and managers in companies that produce weapon systems have complained that they are often caught by surprise when the central government agrees to call off weapon sales. Officials of the China Academy of Launch Vehicle Technology, for example, argued in 1998 that they should be reimbursed for the $100 million loss resulting from a decision that they would refrain from shipping C801 and

C802 cruise missiles to Iran. This suggests that the factories and companies are handed down decisions for implementation but not consulted in advance about the possible impact of those decisions.

An equally significant player is the collection of "middlemen" companies that sells Chinese weapons to foreign customers. These include NORINCO (China Northern Industries Corporation, and the original import-export company that represented the ministry responsible for production of conventional weapons), the China Precision Machinery Import-Export Company, Xingxing, Polytechnologies, and probably a dozen others. The middlemen, often well connected to political leaders through marriage or patronage, maintain relationships with numerous factories, paying the factories for the weapons and adding a margin for their own services to arrive at an export price. Each middlemen company is sponsored by a different part of the military or industrial bureaucracy to which it presumably turns over some of its profits. In the 1980s and early 1990s, many foreign observers (as well as several Chinese) argued that China's weapons export companies operated independently of central control, either because the political leaders did not understand the degree to which missile sales would cause problems in United States-China relations, or because the individuals run-ning the companies themselves had informal power and could override or ignore decisions made by the leadership.[3]

China's military export decree of 1997 stipulated that all weapons exports require approval from the State Administrative Committee on Military Products Trade. Although this committee was abolished in 1998, it is likely that the General Armaments Department or the post-1998 COSTIND now performs a similar function. Only certain companies are authorized to export weapons. For sensitive items, such as missiles, it is very likely that the Central Military Commission plays a key role in weapons export decisions. The publication of rules for exporting conventional weapons suggests that the political leadership now realizes that these sales require careful monitoring and control. The 2002 regulations (and accompanying control list) to govern the export of missiles and related technology have implications for a potentially large number of Chinese factories. Complete missile systems are produced by no more than a few identifiable units within China Aerospace Corporation. Relevant dual use items would include specialized metals, machine tools, avionics, computers, and microelectronic components, to name only a few. Therefore the 2002 regulations affect the activities of a much larger number of factories and pose a more daunting bureaucratic challenge for the Chinese government. It would be logical to expect the same kind of tension that exists in Western countries between the desire for increased commercial activity in areas that relate to the national technical infrastructure and the need to restrict sales for reasons of national security. Thus far, such tension is not perceptible. This issue requires further consideration if China decides to become a legal member of the MTCR, which controls not just missiles, but components, raw materials, and dual-use items.

Export control of WMD

China has made commitments by virtue of participation in the Nuclear Nonproliferation Treaty as well as the CWC and BWC to refrain from exports of WMD. Export of WMD (nuclear, chemical, or biological weapons) is forbidden in China. Therefore there are no procedures for license applications for these items. Details of how China enforces the prohibition on WMD exports remain obscure.

Export control of dual-use chemical and nuclear products

MOFTEC is ultimately responsible for formally issuing export licenses for sensitive, nonmilitary items, specifically nuclear and chemical products that could be used for multiple purposes. MOFTEC's Export Control Department has no more than ten people in it; it is subordinate to the ministry's Science and Technology Division.[4] Unlike the Arms Control Department of the Foreign Ministry, MOFTEC departments have suffered from serious personnel cuts. Whether MOFTEC's authority is real, or whether it simply puts the final stamp of approval on license applications that have already been vetted elsewhere depends on the item being exported.

MOFTEC coordinates export control activities with the CGA, a national regulatory agency for items going in and out of the more than 300 open ports of entry to China. According to a senior customs official, its branches have direct computer connections with Beijing, but as yet no network among the ports. CGA reports directly to the State Council, independent of other administrative districts. CGA agents have a full range of responsibilities: from collecting statistics and applying tariffs to catching smugglers. Article 18 of the Customs Law grants the CGA specific authority related to export controls: agents are supposed to inspect all outbound cargoes. If they cannot 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. MOFTEC and Customs reportedly have a shared database to track shipments that require a license. The CGA is probably the most important agency in China for insuring that export controls are effectively enforced. However strict the regulations on paper, they depend entirely on CGA implementation at the working level.

CHEMICALS

China's signature and ratification of the CWC made a chemical export control system imperative, since the treaty prohibits some types of chemical exports, dictates that some types of chemicals can be sold only under certain conditions in certain quantities, and permits completely free and open trade in others. The key player in insuring compliance is the National CWC Implementation Office, whose

administration is managed by the State Petroleum and Chemical Industry Administration, the successor to the Ministries of the Chemical Industry and the Petroleum Industry. The CWC Implementation Office has ten people and is responsible for signing chemical export licenses when required by the CWC. It has been receiving an increasing number of license applications as familiarity with CWC provisions has grown during the last decade.

According to Chinese official documents, only two companies are authorized to trade in chemicals that are subject to CWC limitations (China National Chemicals Import and Export Corporation, known as SINOCHEM and Hao Hua Corporation), although foreign observers suspect that the number of potential exporters is in fact extremely large, given the size of China's chemical industry. To help coordinate chemical export controls, the National Office has opened an office in every province and works closely with municipal and provincial governments, as well as with the Chinese Chemical Industry Association, to train professionals in the chemical industry about the treaty's provisions. The industry has also established a trade group called the China Controlled Chemical Industry Association. China established a "leading group" for control of sensitive chemical exports in 1993. The State Petroleum and Chemical Industry Bureau as well as the National CWC Implementation Office have now subsumed its work. Prior to 1998 COSTIND was involved in CWC export controls where they affected the defense industry, and the PLA has at least one representative working in the National Implementation Office. Finally, the Customs Administration has been an important player in stopping illegal chemical shipments before they leave China.

NUCLEAR POWER TECHNOLOGY

China has done a great deal to clarify its export controls for equipment and materials related to civilian nuclear power by issuing regulations and standardizing control lists, but the role of different parts of the Chinese bureaucracy in the enforcement of these controls is not always clear. The companies whose activities are controlled are all related to (probably subsidiaries of) the CNNC. This complex reportedly employs 300,000 people in 50 institutes, corporations, and offices. If one of the companies wants to export equipment, the license application is first sent to the China Atomic Energy Agency (CAEA), once part of the China National Nuclear Corporation, but now apparently a freestanding regulatory agency under COSTIND that is responsible not only for nuclear export controls but also for all matters involving the IAEA. The separation of CAEA from the nuclear power laboratories and factories is a significant change because it separates the regulatory "fox" (CAEA) from the production "hen house" (companies of the CNNC) and makes it easier to insure regulation without conflict of interest. If nuclear material (enriched uranium) is involved in the sale, COSTIND approval is required. For certain sales, the General Armaments Department of the PLA is involved. MOFA could also play a role, depending on the end user. Ultimately MOFTEC must approve the license application. Only two or three companies are authorized to

trade in nuclear power or nuclear dual-use items, and MOFTEC apparently receives fewer than 50 license applications per year.

Verification

China has signed two arms control treaties that require participation in verification activities: the CWC and the CTBT. CWC verification involves inspection of former chemical weapon production facilities and of selected companies or laboratories producing CWC-controlled substances. The main organizations affected are the chemical companies themselves, in addition to certain military installations as well as research and development laboratories. As of October 2002, the Organization for the Prevention of Chemical Weapons had conducted a total of 55 inspections in China.

Unlike the CWC, the CTBT calls on China to establish monitoring stations that report data automatically to a central office in Vienna. Because there are four types of sensors or monitors, different agencies participate in establishing and maintaining them. The seismic stations are managed by the Institute for Geophysics under the State Bureau of Seismology. Chinese seismologists from this institute participated indirectly in CTBT negotiations by attending meetings of the Group of Seismic Experts, established in Geneva in 1993 to discuss technical aspects of CTBT verification. MOFA was probably dependent on the technical expertise offered by this and other institutes during the CTBT negotiations. The institute also manages the direct satellite downlink for the information transmitted from the central treaty verification office in Vienna to all member states. Seismologists there study the seismic data; other, nonseismic (hydro-acoustic, infrasound, and radionuclide) data are transmitted to other units, presumably the Northwest Institute of Nuclear Technology, a part of the Chinese Academy of Engineering Physics. Very little information is available about China's CTBT monitoring stations other than their locations.

Future arms control treaties, such as a treaty on fissile material cutoff, will require more attention to verification. Several different organizations are conducting relevant research, specifically the Institute of Applied Physics and Computational Mathematics, and the Northwest Institute of Nuclear Technology.

Declarations

The CWC and the United Nations Register of Conventional Arms (ROCA) both require China to provide data according to standardized templates. The newly established Chemical and Petroleum Administration, together with the PLA, are jointly responsible for declarations to the OPCW in The Hague. Accuracy in these declarations is critical because inaccurate data, whether or not the error is intentional, can result in a challenge inspection. China's National Implementation Office has primary responsibility for reporting the data but other organizations that play a role include the State Economic and Trade Commission, the State

Administration for Industry and Commerce, as well as MOFERT. None of China's data has been challenged.

Data for the U.N. ROCA has presumably been provided by the General Staff Department of the PLA or COSTIND, or both. The U.N. ROCA has no verification system, however, and therefore accuracy is less critical. Very little is known about exactly who is responsible for the ROCA submissions, or about how the data are collected.

Restrictions on testing and use of weapons

China has not signed many treaties that proscribe the use or testing of certain weapons. The two relevant treaties are either quite straightforward as to their proscribed activities (CTBT), or quite detailed (Protocol II of CCW). They do not leave much room for the types of misunderstanding attached to the requirements to control exports or report data. Responsibility for implementing these restrictions falls to PLA operational units, primarily the General Staff Department, and to the nuclear weapons research and development laboratories supervised by COSTIND. Both the BWC and the CWC proscribe testing of offensive systems and permit tests of defensive weapons. How China distinguishes between them, and what kinds of guidance have been passed on to the Institute for Chemical Defense, for example, is not known.

Arms control research

Foreign arms control analysts first learned of Chinese arms control research in the early 1990s. However research had been ongoing for over a decade prior to then. In fact, the Chinese decisions in 1988 to join the IAEA and in 1991 to join the NPT were both preceded by substantial research and internal policy debate. Most of this research has yet to be made public, as internal policy debates on national security remain sensitive topics in China, but the Chinese scholars and analysts have referred to its existence. The earliest policy reversals, including the decision to join the NPT, involved the military and the nuclear weapons research community. For this reason, arms control organizations connected to COSTIND (especially the Chinese Academy of Engineering Physics and the Institute of Applied Physics and Computational Mathematics) and the PLA have traditionally been the home for most of China's arms control expertise.[5] Other institutions that conduct arms control related research can be found in universities, in the party, in the Academy of Social Sciences, in ministries of the State Council, and in provincial or municipal governments. Very few are dedicated solely to arms control. Typically arms control is a department or small group within an international studies or international security research institute.

The role of the more academic and social science institutions is to conduct research on the effect of different regimes or treaties on China's security interests.

The more technically oriented research institutes also conduct research relevant to treaty implementation.

Chinese arms control scholars and analysts generate few journal articles if their output is compared to that of counterparts in the United States or Europe. Much of what they write is for an internal audience and is not released publicly. When they do write for journals, they most often write about the arms control policies or programs of countries other than China. It is therefore very difficult to attach a particular viewpoint about an arms control treaty to a given individual or even a given institution in China. Over time the amount of scholarly writing is certain to grow.

Like other parts of China's bureaucracy, the arms control research community is fragmented and "stovepiped." Arms control scholars from different organizations in China used to meet each other only when foreigners visited China. Now there is more horizontal communication across different parts of the bureaucracy.

Foreign influence on China's arms control bureaucracy

In the early 1990s U.S. and international arms control NGOs began to establish exchange programs with various Chinese arms control institutions. This occurred in parallel with formal government-to-government discussions, although the formal channel played a role primarily when there was a specific point of contention. Many in China's next generation of arms control experts have benefited from extensive contact with foreign counterparts. Of the American NGOs, the National Academy of Sciences, the Natural Resources Defense Council, and the Union of Concerned Scientists, the Center for Nonproliferation Studies at the Monterey Institute of International Studies, to name only a few, have been conducting joint research and exchanges with Chinese scientists for well over a decade. They have established close professional, and in some cases, personal ties to Chinese professionals. Scholars from China have visited their institutions in the United States, in some cases for several years at a time, and there has been time to establish a level of comfort that does not happen in the course of a several weeks of treaty negotiations. The "lab-to-lab" exchanges which took place from the mid-1980s until 1998 between Chinese nuclear weapon scientists and representatives from the three U.S. nuclear labs were a middle category in between formal government exchanges and NGO exchanges. Because the U.S. government has focused on China's arms control policies sporadically, and often in a politically charged environment, it is the NGOs and universities that have maintained continuous and close relationships with the emerging Chinese arms control community, including not only officials from the Foreign Ministry, but scholars from academies, universities, and think tanks. This is also partially due to the fact that nonofficial ties are considerably easier to sustain when bilateral political disagreements (over Taiwan, human rights, or trade) cast a shadow over formal government-to-government interactions. Until recently, the

sharing of information between the NGOs that are active in China and the formal U.S. government arms control agencies has been informal and episodic. This is understandable, given the fast pace of the executive branch of government, although it is regrettable, as each has something to teach the other.

The fact that many Chinese arms control experts have learned both about arms control and about the U.S. arms control policy through the eyes of U.S. arms control NGOs might, over time, influence the nature of governmentto-government interactions. Arms control NGOs are not just analytical organizations: they are advocates, sometimes advocates of more ambitious arms control agendas than those of the U.S. government. In this respect, when it comes to certain issues—no-first-use being a good example—the Chinese and the NGOs are on the same side, both applying pressure on the executive branch. This does not always obtain, of course; on the land mine ban, both the Chinese and U.S. governments opposed the position of the NGOs. During the Clinton administration, the gap between NGO positions and those of the government narrowed considerably, and a number of arms control NGO officers have assumed high level political jobs. However, the arms control NGOs do not represent the entire spectrum of U.S. opinion on security issues. Anecdotal evidence suggests that the arms control scholars who have studied in the United States have significantly changed their thinking. In many instances the change was not due to exposure to U.S. attitudes *per se,* but rather to the free flow of information. The Monterey Institute of International Studies' Center For Nonproliferation Studies (CNS), for example, has close ties with the Ministry of Foreign Affairs as well as numerous think tanks and universities. Scholars from China who visit the CNS acquire education and valuable information—in some cases, information about China—which they cannot get at home.

11
Regime costs and benefits

Introduction

This chapter sets forth a framework for understanding how Chinese officials and scholars might weigh the different costs and benefits inherent in membership in the seven regimes selected for study. Its purpose is to suggest, based on the history to date, how China might respond to future arms control and nonproliferation initiatives, such as modifications to existing regimes or the development of entirely new institutions. One difficulty is that the arms control and nonproliferation regimes differ in their structure and their provisions. No agreed taxonomy exists to integrate subject matter united by important themes but distributed among a large number of specialized, often technical, topics. Perhaps for this reason, arms control and nonproliferation scholars have tended to specialize in individual treaties, and very few have addressed the totality of a given country's arms control policies. A costs-versus-benefits approach is only the first step towards the establishment of a comparative framework.

The seven regimes included in this chapter are those in which China has agreed to incur a cost of some kind: financial, logistic, symbolic, political, or military. Table 11.1 is an attempt to aggregate the costs inherent in the seven regimes as defined by the language of the regimes themselves. It summarizes specifically what China has agreed to do. Cost here is defined in a Chinese context. Providing data to the U.N. Register of Conventional Arms might not, for example, be seen as a significant cost by the United States, but from a Chinese perspective, any release of hard data about weapons or security is sensitive and a potential liability to the official who supports it.

Each regime brings with it intangible as well as concrete benefits to its members. Table 11.2 is an attempt to summarize these benefits and describe how they might be evaluated *from a Chinese perspective.* Proponents in the United States might believe that China's security would be enhanced by membership in the MTCR, for example, but there is little evidence that anyone in China perceives a direct security benefit. Although no attempt has been made to assign a numerical value to the costs and benefits, the qualitative balance sheet by itself suggests some important conclusions.

Table 11.1 Chinese commitments and inherent costs

Regime (date of Chinese accession) →	*ROCA ('93)*	*CCW ('82)*	*CWC ('97)*	*CTBT ('96)*	*NPT ('92)*	*BWC ('84)*	MTCR*
Cost ↓							
Provide data	•		•	•	•	•	
Limit exports			•		•	•	•
Prevent exports		•	•		•		•
Refrain from testing			•	•		•	
Refrain from use		•	•			•	
Make legal commitment		•	•	•	•	•	
Make verifiable commitment			•	•	•		•
Submit to inspections or verification			•	•	•		
Provide warning before withdrawal		• 1 year	• 90 days	• 6 months	• 3 months	• 3 months	
Set up monitoring stations				•			

*MTCR column refers to Chinese promises to the United States on missile proliferation, not to the terms of the regime.

Table 11.2 Chinese commitments and inherent benefits.

Regime (date of Chinese accession)→	*ROCA ('93)*	*CCW ('82}*	*CWC ('97)*	*CTBT ('96)*	*NPT ('92)*	*BWC ('84)*	*MTCR**
Benefit ↓							
Enhanced security			•	•	•	•	
Economic or financial gain							
Avoidance of censure				•	•	•	
Access to new technology				•	•	•	
Access to new information	•			•			
Ability to shape regime	•	•	•	•	•	•	
Prestige	•	•	•	•	•	•	•

***MTCR** column refers to existing Chinese promises to the United States on missile proliferation, not to the terms of the regime.

Costs and commitments

Provision of data

Transparency in and of itself is rarely seen as effective arms control. Yet it remains a key component of international security regimes in the post Cold War world. Cooperative security rests at least in part on the notion that as potential adversaries gain more knowledge of respective intentions and capabilities, they increase mutual trust, reduce the likelihood of miscalculation and unintentional hostility, and diminish the chance of war between them. The Chinese have been slow to accept this idea. Despite the degree to which China has opened its doors to the outside world, it remains a closed society. Information that might be relevant to national defense or internal security, which is precisely the type of information that is relevant to the implementation of arms control and nonproliferation regimes, is still tightly protected for three reasons. First, cultural and historical factors, common to many Asian societies, run counter to the free dissemination of information. Second, an unrestricted flow of information about China's military would most likely reveal, in addition to small "pockets of excellence," areas in which the Chinese gap with the West would be a source of national embarrassment. Third, the Chinese argue that transparency is much easier for militarily powerful states than for weak ones.

China's ambiguity, particularly about the size and disposition of nuclear forces, is a potential strength that complicates the planning of potential adversaries. This same ambiguity has also resulted in the potential by other countries to overestimate Chinese military capabilities and the emergence in the 1990s of the "China threat." This theory is at least in part a result of incomplete and ambiguous information which enables observers to speculate on worst case scenarios. Although Chinese officials and scholars decry the China threat theory, they do not accept that the reason for it is a lack of information, and instead attribute it to hostile political motives. For this reason, despite a very genuine desire to convince the outside world of its relatively meager military strength and peaceful inclinations, the Chinese government has not made public the type of information that many advanced countries provide annually in defense white papers. The data provided in the International Institute for Strategic Studies publication *The Military Balance,* for example, would be classified if it were published in China, and suggestions that a special issue of the London-based *China Quarterly* on the Chinese military be translated were rejected on the grounds that the journal would have only a restricted circulation.

A series of "transparency talks" between U.S. and Chinese military officials was criticized by those involved as well as outsiders for imbalance and for perpetuation of "one-way transparency." This is a process by which the United States continues to share more and more information with China in the hope that Chinese counterparts will eventually reciprocate, while the Chinese continue to play for time, revealing only small morsels of information. Casual conversation

with almost any U.S. analyst of Chinese affairs would reveal many other examples of China's unwillingness to provide officially what many foreigners already know from open publications in other countries.

The three factors, culture, face, and strategy, reinforce each other so that it is not always clear which one is responsible. The notion that a Chinese translation of a document which is available to many English speaking Chinese should be classified confuses scholars and analysts from open societies. This notion nonetheless reflects the degree to which secrecy is seen as an integral component in the protection of China's sovereignty and security. It also leads to a fundamental Chinese mistrust of any information that is freely given. When visiting Chinese arms control libraries and research centers in 1993–8 the absence of easily available information from the U.S. government on this subject was noticeable. One Chinese expert suggested that the reason is that Chinese scholars and analysts place relatively little value on information published by the U.S. government–the assumption is that if it is easily available, it must be unreliable. In a more fundamental way, of course, the resistance to transparency implies that future arms control and nonproliferation regimes that depend for their success on China providing previously undisclosed data will encounter serious roadblocks.

Of the regimes China has joined thus far, only the United Nations Register of Conventional Arms requires provision of information that will later be open to the general public. China was among the first countries to send in data each year (until 1998) and China's submissions to the register for the years 1994–6 appeared to most observers to be accurate. China's willingness to submit the information, even though much of it had already been reported elsewhere, constituted a significant step forward. However, Chinese negotiators have argued against expansion of the information reported in the register and were successful in excluding surface-to-air missiles from the systems that are reported. Moreover, as discussed above, the register is not a legal commitment and China can withdraw at any time without jeopardizing access to information provided by other countries or sacrificing its influence on the future course of the register.

Several other regimes demand disclosure of data that is then made available to a restricted audience. China's membership in the IAEA includes a requirement to notify the agency of transfers of nuclear power technology, for example. China also provided the IAEA with a list of all its civilian nuclear facilities from which the IAEA was then able to select several for routine inspection. Whether the disclosure represents an increase in Chinese transparency cannot be known because the IAEA keeps the information confidential. The new IAEA reforms call for additional data sharing by member countries; China supported these changes in IAEA procedures, although the information provided by all members will remain confidential. China also makes declarations required by the Biological Weapons Convention. These are kept confidential by the United Nations.

The most significant transparency measures undertaken by China over the past decade are also perhaps the least publicized. In autumn 1997 China, as required under the CWC, submitted its complete declarations to the OPCW in The Hague.

The provision of declarations to the OPCW is not by any means an indicator of a country's willingness to be transparent. The United States, for example, was slow to provide the industrial declarations required by the CWC due to the absence of regulations that would control the collection and transmission of the information, and inability to decide which parts of the bureaucracy will have primary responsibility. That particular delay did not necessarily indicate a desire to avoid transparency. China's CWC declaration included industrial activities that had previously been well known, estimates of chemical weapons abandoned on Chinese soil by the Japanese during World War II, and also, for the first time, information about former CW production facilities. As mentioned previously, prior to 1997 China had denied all charges of possession of chemical weapons, and Chinese officials still maintain that the facilities they did declare had been used only for defensive weapons. In practice it is not easy (and sometimes impossible) to distinguish between defensive and offensive chemicals.

News of China's declaration began to appear towards the end of 1997, although the Foreign Ministry did not acknowledge it until late 1998, and even then only in the context of an "off the record" meeting. The OPCW has inspected the former Chinese sites to confirm that they are indeed inactive, and all details of the declaration and the visit remain confidential. It is possible that the OPCW will one day in the future make parts of the declarations public, although this would have to be agreed on by the states parties. Even if the data remains classified, it is significant that China provided sensitive information which contained apparent contradictions with previous assertions. It indicates that China takes the verification regime seriously, and probably also represents a judgment that limited transparency in CWC declarations is preferable to the risk of a challenge inspection.

China has also issued White Papers on defense and on arms control policies as a first step to be responsive to Western demands for more disclosure. These papers are not part of any formal regime, and they offer little by way of new information beyond what had been previously available. Chinese officials insist that they do not oppose transparency in the context of a negotiated agreement, but that they do not believe in transparency for its own sake.

Prevention and limitation of exports

Five of the regimes discussed thus far call on China to control sales of weapons or associated technologies; these are also the regimes that have been the source of disagreement between China and other countries, most notably the United States. Virtually all the allegations of misconduct emanate from the United States and rely on classified information. This leads to endless back and forth debates between the United States and China, with charges and countercharges; in the end, neither side is able to establish a persuasive argument based on objective fact. A balanced and comprehensive evaluation of the degree to which China has lived up to export control commitments is therefore out of reach. It is possible, however,

to document the items whose export China has agreed to restrict or prevent, and discuss in general terms the procedures put in place by the Chinese government for export control. The details can be found in earlier chapters on the individual regimes; this section provides an analysis of the Chinese system as a whole.

As one Chinese author has pointed out, before the economic reforms of the 1980s China had extremely effective export control, because the central government approved all exports and restricted foreign trade activity to a few licensed companies.[1] When political and economic centralization was unquestioned and inflexible, exports of certain types of weapon systems could be assumed to be a deliberate statement of the Chinese government. No one questioned whether or not Beijing had the ability to control sales of weapons or technology to foreign customers. Despite the tendency to think of effective export control as a feature of Western democracies, in practice, authoritarian regimes have a much easier time controlling exports. In any event, China made few nonproliferation commitments between the early 1950s and mid-1980s. At precisely the time that China began to make explicit or implied commitments to control exports, Beijing had begun to decentralize the industries whose exports needed to be controlled, and had considerably liberalized the foreign trade regime to allow for a freer flow of both exports and imports. Thus the political commitments made by the leadership were, in a sense, running counter to structural economic reforms. Decentralization of the economy and the foreign trade bureaucracy, a process about which a great deal has been written, was not an all or nothing proposition, and authority has shifted back and forth between Beijing and the provinces. It differs depending on the industry, the region, and the personalities involved. This in turn led to confusion about Chinese intent. If China was violating nonproliferation commitments, did the leadership intend those violations? Did the leadership know about the violations and deliberately turn a blind eye? Or did the leadership try to control exports and fail because of the need to reserve power and authority for more weighty issues? Chinese scholars and officials do not speak publicly about this question, because they deny its premise and refuse to acknowledge that there have been any illicit sales. Off the record, they have suggested that all three have been true at different times and for different exports.

Five of the regimes identified above call for complete prevention of some kinds of exports and restriction of other types. A blanket export ban is much easier to implement as it leaves little room for disagreement. The Nuclear Nonproliferation Treaty, for example, bans outright the transfer of nuclear weapons, of highly enriched uranium, and of nuclear weapons components to non-NPT states. The MTCR includes a blanket prohibition on the sale of production facilities for Category I missiles. Likewise, obligations under the BWC and CWC include complete bans on sales of certain items. China has also committed to an export ban covering certain types of antipersonnel mines. However, virtually all of China's export control commitments also entail restraint or selective prevention.

This makes it easier for the United States to overinterpret China's commitment and for Chinese officials to defend "gray area" transfers.

The first step in export control is a clarification of which items will be restricted. For many years China resisted this step and emphasized instead the principles underlying export controls. For example, Chinese Foreign Ministry officials have explained that China's military exports should be "conducive to the enhancement of the legitimate self defensive capability of the recipient country…they should not jeopardize the peace, security, and stability of the regions and the world as a whole, and they should not be used for the interference in the internal affairs of a recipient country."[2] These principles leave a great deal of room for interpretation, however, and it is only recently that China has begun to explain what types of restriction they imply with more precision. For certain treaties, this is very straightforward. The CWC, for example, lists prohibited exports in a way that is not subject to misinterpretation. The interpretation of China's commitment under the NPT, on the other hand, turns on the phrase "will not help…in any way." At the same time, the treaty specifically permits, indeed encourages, transfers for nuclear energy. The 1996 ring magnet case is only one example of a transfer that accusers could point to as evidence of Chinese NPT violations and defenders of China could point to as legally permissible—or at least not specifically prohibited. China did not publicly clarify its interpretation upon signing the NPT and, prior to 1996, the United States received no specific assurances from China as to what their commitment really entailed. The 1996 commitment by China to sell only to safeguarded facilities in Pakistan actually went further than what is generally understood by the NPT. China committed to stop all exports, whether or not they were related to nuclear technology, to any and all unsafeguarded facilities in Pakistan, whereas the NPT only committed them to do so for nuclear transfers. At the same time, the 1996 commitment was silent about Chinese nuclear sales to other countries with both safeguarded and unsafeguarded facilities, such as Iran. U.S. pressure on China to stop all nuclear transfers to Iran is a demand that China go beyond the letter of what is required by the NPT, and reflects U.S. foreign policy objectives as much as a legal commitment to the NPT. Certain types of nuclear transfers to Iran are in fact legal under the NPT, although not desired by the United States.

The MTCR presents comparable challenges. In this regime, the items to be controlled are spelled out in great detail, but their number is vast and they are widely distributed among a range of different industries. For the countries with a well-established export control bureaucracy, the MTCR simply added a new level of control. For China, however, no such bureaucracy has ever existed. In each category of technology there are items which, if they meet certain criteria are subject to MTCR controls, and if they don't are permitted for export. Even within the United States, fierce debates emerge over whether or not a particular item should be subject to MTCR controls. Furthermore, for certain types of exports, the MTCR specifies only that countries will exercise "particular restraint" and "presumption of denial," leaving the door open to permit exports when it is in the

national interest. Even more important from China's perspective is a 1993 revision to the MTCR annex to include any missile or production facility used to make a missile which could deliver WMD. This expands the number of items for which denial should be presumed, and also shifts the basis of defining controlled items. Rather than specifying the missiles *per se,* the 1993 revisions control technology based on an understanding of the intent of the user. Thus, even if one assumes China's commitment to the MTCR to be legal and binding, confusion reigns as to which exports China has actually promised either to prevent or control.

This type of confusion is the reason for the emergence of supplier cartels such as the Nuclear Suppliers Group and the Australia Group to clarify the terminology of export control. The MTCR was also designed to make it possible for members to standardize export controls, although because of the range of technologies relevant to ballistic missiles, discrepancies persist, even among countries with similar foreign policy goals. Clarification and convergence of export control lists without shared foreign policy goals is usually elusive, however. Moreover, the net effect of clarification is usually more restrictions and fewer options. Thus it is no surprise that China has resisted joining these groups, with the exception of the Zangger Committee which China joined in 1997 and then only because of considerable pressure from the United States. In fact, China objects to export control cartels on general principles. Ambassador Sha expressed his country's views at an international meeting in 1998 when he said:

> The discriminatory export control groups established by a small number of countries based on their monopoly of technology can not be genuinely effective in nonproliferation. These discriminatory efforts can only deepen animosity among countries and are likely to be abused by some countries for selfish ends. Therefore, these export control groups should be either modified or abolished altogether and replaced by global groups arrangements conducted on the basis of universal participation."[3]

In short, one source of tension in securing Chinese commitments to regimes that require control over exports is the vague language used to define what exactly will be controlled, and the use of different standards for different countries.

U.S. officials have worked hard to persuade Chinese counterparts that clarifying export control procedures will help reduce misunderstandings, especially if Chinese control lists can be made consistent with those of other countries. While Chinese officials insisted in the early 1990s that all sensitive exports were tightly controlled, they were unable to provide any specific details of the exact procedures or the control lists. As allegations of illicit missile, chemical, and nuclear sales increased, Chinese officials simply repeated blanket denials. It even reached the point in 1996 when a Foreign Ministry spokesperson denied that China had ever exported any nuclear equipment to Pakistan, despite the fact China had had for years an IAEAsupervised agreement to sell Pakistan technology for civilian nuclear power reactors, and China's own news agency had published information

about these transfers. What the official no doubt meant to say was that China had not transferred nuclear *weapons-related* technology. Over time, the absence of specifics in these denials undermined Chinese credibility in asserting that their export control system was adequate to support international commitments. This was one key reason for China to join the Zangger Committee: by agreeing to Zangger rules, China accepted the use of established terminology to define prohibited nuclear exports. China also agreed to control nuclear dual-use items specifically referred to in the NSG control list (without actually joining the NSG), a further clarification of what had been unofficial or unpublished policy.

Some of China's international commitments were codified in the form of domestic regulations referred to as "State Decrees." Four decrees promulgated between 1995 and 1998 are relevant to the arms control and nonproliferation regimes discussed here. These decrees are administered in the context of China's overall foreign trade law, published originally in 1950 and then substantially revised in 1992. The foreign trade law stipulates which companies within China have the authority to conduct foreign trade, and establishes the framework for central government control over certain "sensitive" exports. Two decrees pertain to nuclear technology, one to chemicals, and one to military exports. The regulations for nuclear and chemical products, already discussed in more detail in the chapters on nuclear and chemical arms control agreements, contain many specifics, refer to internationally accepted control lists, and have done a great deal to increase credibility. Furthermore, certain violations of the foreign trade law and the various export control regulations carry criminal or administrative penalties. Prior to the publication of these documents China had relied primarily on administrative guidance or unpublished rules. A related problem is the absence of established procedures for controlling software and services that relate to conventional military systems or WMD. Although services could theoretically be captured in the regulations on military exports, China's foreign trade activity has been dominated by the export and import of products and large integrated systems; the Customs Authority therefore has little experience in controlling software and "know-how." This is especially relevant to accusations that China has violated MTCR commitments, based on evidence that since 1992 China has transferred technology rather than complete missile systems.

China's recently publicized legal documents provide a useful data set because rules and control lists can be systematically compared against those of other countries. The University of Georgia's Center for International Trade and Security (CITS) publishes yearly reports that evaluate export control systems for their compatibility with emerging international standards. CITS ratings, based on a standard set of interview questions, evaluate each country's export control training, customs authority operations, verification, "catch-all controls," as well as four other factors to arrive at a weighted score. China's rating in these reports increased in 1998 to a score of 63.15 percent, and again in 2001 to 64 percent. This increase reflects the degree to which China's willingness to clarify commitments and specify procedures to be used are a step forward.[4] Nevertheless,

there are areas where Chinese procedures as stated diverge from the implied standard of the CITS framework.

One example, China's policy towards "catch-all" controls, is also illustrative of the gap between U.S. expectations and actual performance. "Catch-all" refers to a clause in a regulation designed to capture exports that meet certain criteria but that are not specifically identified in any control lists. During the Bush (Sr.) administration, for example, the Commerce Department launched an "Enhanced Proliferation Control Initiative" intended to require a license for the export of any dangerous export that the supplier knows, has reason to suspect, or is informed by the government, may be destined for an illicit end use or end user. The criteria used to establish control are not the characteristics of the item to be exported, but the intent and capability of the recipient. The U.S. government objective of prohibiting all nuclear sales to Iran, despite the fact that Iran is a signatory of the NPT, a full scope safeguard state, and a member of the IAEA, is an example of a catch-all constraint. The denial is based on a U.S. intelligence assessment of Iran's intent and capability to build a nuclear weapon.

Catch-all constraints pose certain practical problems. The term "has reason to suspect" obviously takes in a broad range of contingencies, since recipient organizations are usually commercial companies that only disclose information on a piecemeal basis. A single data point can often give rise to suspicion without larger context. This makes judgments about what is and what is not a legal export extremely contentious, even within the United States, much less when the United States attempts to export this standard. As concerns about the effectiveness of existing nonproliferation regimes continue to grow, however, the United States relies more and more on catch-all constraints, and has enjoyed some success in promoting the concept with other governments. Until 2002, China opposed the use of catch-all constraints in multilateral or international nonproliferation regimes and resisted judgments about export control performance that are based on unilaterally derived standards. Recent Chinese export control documents have included a catch-all clause. However, there remains a significant difference between U.S. and Chinese law in this respect. In the United States, it is the exporter who has the responsibility of knowing whether or not an item could contribute to a dangerous capability and then applies for a license, regardless of whether the item appears on a control list. In China it appears to be up to the government to find out about exports of potentially dangerous items not on the list and then deny the permission for those exports.[5]

The new legal documents, even those that conform in substance to international standards, do not in and of themselves constitute either proof of Chinese intent, or a guarantee that all commitments will be honored. The more thorny analytical question, deliberately avoided by the CITS methodology, is the degree to which the emerging Chinese system is enforced. It is widely accepted, for example, that Russia has some of the world's strictest environmental regulations as well as one of the world's worst records for environmental disasters. Regulations on paper mean little without public education and enforcement. One criterion commonly

assumed to be central to effective enforcement is the existence of formal laws. Foreign critics of the Chinese system have pointed to the absence of formal laws governing export controls. Instead, China has a combination of State Decrees, Regulations, and Control Lists. Given the minimal role of Chinese law in resolving disputes and implementing policy, however, it is not clear that formal laws are necessary or advisable. Chinese officials have observed that the National People's Congress is making new laws at a much greater rate than the courts can enforce them, and the record for enforcing judgments meted out in Chinese civil courts is appallingly low. Rather than laws *per se,* what is required is a greater degree of permanence, reliability, and predictability.

Admittedly, China is in a catch-22 situation in establishing a good enforcement record. The most persuasive proof of an effective system is a record of violations that have been detected, but this in turn suggests a larger pattern of enforcement problems. Chinese officials refuse to discuss any violations and maintain that they have a perfect compliance record with all their export control laws. Given the massive bureaucratic reorganizations and the large number of companies in China that are permitted to export controlled items, these blanket statements are often received with skepticism by foreign experts. U.S. government experts generally agree that China has made some progress in controlling nuclear sales but also express concern about continuing missile-related transfers.

Thus the record to date suggests that prevention and limitation of exports will continue to be a challenge for the Chinese bureaucracy. Chinese companies have powerful incentives to export, and the central government has real and legitimate problems in enforcing newly established regulations, especially at a time of changing U.S. expectations as defined by catch-all constraints. Some of the Chinese exports about which there is most concern (knowledge, software, and services) do not appear on any Chinese control lists, although the introduction of the catch-all concept in China's missile and nuclear export regulations is a positive sign Finally, future success will depend on the degree to which China perceives a control regime to be genuinely international as opposed to a unilateral use of U.S. pressure to achieve its foreign policy objectives.

Refraining from testing

China has agreed to stop all tests of nuclear weapons as well as tests of offensive chemical or biological weapons, and laser blinding weapons as defined in the CCW. Prohibitions on testing are significant restrictions because they limit to some degree a country's ability to improve the accuracy, design, efficiency, lethality, or size of a weapon. This limitation can sometimes be overcome, but usually at a significant cost. Testing bans do not prevent proliferation, but they can slow it down.

Of the four test bans to which China has committed itself, the nuclear testing prohibition is clearly different from the other three. As discussed earlier, a nuclear test ban entailed costs for China because it closed off potentially important

technical and strategic options. The bans on tests for chemical, biological, and laser blinding weapons, however, all occurred in the context of China's renunciation of the use of those weapons. The likelihood is that none of the three were critical to Chinese war-fighting plans. The chief sacrifice was the military's loss of an option, always unpleasant for military planners no matter how remote the chance that the option would ever be exercised. The sacrifice is mitigated to some extent by the fact that the option is not completely lost; virtually all arms control treaties have provisions for withdrawal if it involves "supreme national interest." If, however, China reversed course and withdrew from the regime in order to exercise a military option, the military might have to use untested systems. Test bans therefore derive their significance from the item for which testing is prohibited.

Refraining from use

Of the regimes discussed above, only three commit China to limits on the use of certain weapons. The weapons in question are biological weapons, chemical weapons, and laser blinding weapons. China also agreed in the context of the CCW to a prohibition on the use of certain mines, and to the use of any antipersonnel mine only in specific circumstances defined in the Convention's amended Protocol II. The prohibitions on the use of biological, chemical, and laser blinding weapons all represent minimal sacrifice for the Chinese military in most contingencies they are likely to face in the immediate future. Although more options might always seem desirable to military planners, these are relatively easy options to forego.

Making legal commitments

Five of the regimes discussed entail formal legal commitments. The United Nations Arms Register and Panel on Small Arms and the MTCR are nonlegal or quasi-legal mechanisms, whereas the BWC, CWC, NPT, CTBT, and CCW are all treaties. Legality *per se* does not appear to increase Chinese participation or compliance, since there have been allegations of Chinese violations of formal legal as well as quasi-legal regimes.

China's entry into a formal legal treaty requires its ratification by the legislature, the National People's Congress. Although the final decisions of this body are summarized in Chinese press reports, its deliberations and debates are not open to the public. Thus it is not known whether or not any of the relevant ratification decisions (CWC, CTBT, NPT) made by the NPC entailed a full-scale hearing comparable to those that are conducted in the U.S. Senate or other national legislatures, with testimony of experts and protracted debate. Foreign observers of Chinese politics agree that the NPC is expanding beyond its traditional "rubber stamp" role. However, it appears unlikely that the NPC would ever reverse a decision about a treaty made by the party and military leadership. There have been significant delays between announcements by the government that China would

sign a treaty and the formal ratification by NPC: for example with the CWC, which China signed in 1993 but did not ratify until 1997. However, this is probably because China, like other countries, was waiting for the U.S. ratification before proceeding with its own, and not because the NPC was seriously debating China's commitment to the regime. The domestic political process for China's entry into an international legal regime is a topic that requires much more in-depth investigation. Even without a body of empirical data, however, it is safe to say that a legal regime is a more binding commitment than a nonlegal or quasi-legal one. Legality does not guarantee perfect adherence, nor does it eliminate China's ability to walk away from a treaty, but it increases the cost for a violation or withdrawal.

Making verifiable commitments

Verification of treaty commitments has posed a series of challenges for Chinese negotiators as well as for those responsible for treaty implementation in various parts of the government. Before arriving at a decision about an international regime, Chinese officials have to calculate the degree to which adherence to that commitment could be verified, even if the treaty itself has no formal verification regime attached to it. For example, the MTCR has no formal verification system attached to it, yet China's commitment to stop exports of M-9 and M-11 missiles can be verified by U.S. satellites and other intelligence sources. Likewise, the NPT does not have a formal verification system that regularly exposes illegal nuclear transfers. Yet these transactions are nevertheless discovered and publicized, recently thanks more to investigations by NGOs and research organizations than government intelligence departments. Violations of the BWC, on the other hand, are much harder to detect for both technical and political reasons. In theory, with enough technology, time, and money, adherence to any of China's commitments could be verified. However, for some treaties the cost would not be worth the end result. One example is China's ratification of the land mine protocol in the CCW that includes a ban on transfers of certain types of mines. Informed observers are skeptical that Chinese suppliers are complying with this ban, yet it is unlikely that any organization or government would invest the necessary time or funds required to document suspicious activities.

This calculation requires astute political judgment as well as an understanding of the available technologies to support verification. When China first became active in the CD and other international arms control initiatives, Chinese knowledge of verification techniques was considerably less sophisticated than it is today. As awareness has increased, so has China's sense that technically advanced countries can use their intelligence capabilities to expose Chinese activities, whereas China has no way to respond in kind. Although China can deny allegations of illicit activities rhetorically, Chinese government officials cannot refute U.S. satellite imagery with data of their own, nor can they threaten to expose potentially embarrassing U.S. activities by way of retaliation. Also, China has

been protected by ambiguities in most arms export commitments over whether preexisting sales have been included. This makes it possible, in some instances, to claim that U.S. intelligence data refers to items transferred to fulfill sales contracts that were signed prior to any promise to refrain from those sales. Still, disclosures create diplomatic problems and public embarrassment. Today, Chinese decisions are much more likely to be informed by the risks that a violation would be disclosed. Naturally, these concerns can always be outweighed by larger political issues. For example, the Foreign Ministry reportedly opposed the 1998 promise made to U.S. Secretary of Defense William Cohen that China would refrain from selling C801 and C802 antiship cruise missiles to Iran. However, China's defense minister Chi Haotian made the pledge despite the Foreign Ministry's objection. In the future it seems reasonable to expect increased caution by the Foreign Ministry about commitments that could backfire in the event that violations are uncovered. These promises can be costly to China unless offset by tangible benefits.

Submitting to inspection or other international verification

China has agreed to two formal regimes that would permit intrusive, on-site inspections of Chinese factories, government departments, or research laboratories. Effective verification has eluded most international arms control and nonproliferation agreements for technical, diplomatic, and political reasons. The regime established as part of the CWC was perceived as a milestone because of its effectiveness, and the CTBT inspection regime draws extensively on the CWC format. Agreement to "anytime, anywhere" inspections under the CWC was a significant concession for many countries, not only China. Even in the United States, a country with two decades of experience in on-site verification of arms control treaties with the Russians, ratification of the CWC occurred only after months of heated debate about the risks of on-site inspection to U.S. commercial and military secrets. At the time that China signed the CWC, China had minimal experience with onsite or challenge inspections and an inclination to oppose any international attempt to reveal information not already public. China's opposition to international inspection regimes is evident in the commercial as well as the military arena: Chinese officials have been reluctant to cooperate with postshipment verification checks required by U.S. law as a condition of sale for supercomputers and other high-technology equipment. China has also been slow to comply with inspections required by international commercial agreements.[6] China has experience with two types of international inspection: those conducted by IAEA and those conducted by the OPCW. The IAEA has a limited budget for implementation of safeguards and only rarely inspects facilities in countries that are declared nuclear powers under the NPT. Furthermore, the IAEA does not reveal the specifics of its inspections; the annual report of the organization does not even list the countries in which it has completed inspections. China has three facilities which are under IAEA safeguards and therefore theoretically available

for IAEA inspections, but it is not known if the IAEA has visited these sites. Unlike the type of challenge inspections called for in the CWC and the CTBT, routine IAEA inspections are announced in advance. They are not intended to disclose clandestine or illicit activities but rather to build confidence and promote transparency about nuclear activities.

China has also participated in OPCW inspections, required by the treaty to verify the contents of China's declarations on industrial production and on former chemical weapon production sites. The OPCW has not revealed any details of these inspections other than to say that they were completed successfully. China participated in one other international inspection that is relevant to CWC implementation. Although it took place before the treaty had entered into force, Chinese officials frequently refer to the 1993 Yin He incident (described in Chapter 5) as proof that China goes beyond what is legally required to comply with international nonproliferation regimes. Since the CWC entered into force in 1997, there have been no challenge inspections.

On-site inspections pose genuine political and security problems for China's government. At worst, a challenge inspection might mean exposure of conclusive proof of a Chinese treaty violation, proof that would be much more difficult to deny than U.S. intelligence reports. An inspection could also mean revealing the backward state of Chinese factories or laboratories, and result in national embarrassment. Above and beyond the real risks associated with any given inspection, intrusive inspections are increasingly seen as essential to future arms control and nonproliferation agreements.

China's hesitations about on-site or challenge inspections is evident in an ambiguous policy towards the intrusive inspections in Iraq and North Korea in 1993. By the time of the 1993 North Korean NPT crisis, China had been a member of the IAEA for some time, and Chinese inspectors had participated in routine inspections. At the end of the Gulf War, China joined UNSCOM, but did not provide any inspectors. When asked in 1993 about the challenge inspections in Iraq that had been mandated by the Gulf War cease fire agreement, an official from the Foreign Ministry said that Chinese inspectors would not participate in challenge inspections, either in Iraq or in North Korea. He explained that if other countries supported these inspections, China would not block them, but the Chinese government would not endorse them by providing inspectors. Although the official did not say so, he implied that providing inspections was tantamount to a statement of principle that these challenge inspections were legitimate, in which case they could one day be conducted on Chinese soil. In February 1998, however, in a policy shift that went unnoticed throughout most of the world, China modified its position on Iraq and sent three inspectors to join the UNSCOM team in Baghdad. Informal conversations with Chinese Foreign Ministry officials in March 1998 suggested that China made this decision reluctantly, as the result of a direct appeal from the Iraqi government. UNSCOM officials speculated at the time that Iraq was desperate to avoid an inspection crisis and was trying not to gain participation by China *per se*, but to gain participation from any country that

would dilute the influence of U.S. and Australian inspectors. The underlying assumption behind Iraq's appeal was that Chinese inspectors would be more likely to take political direction from Beijing and overlook technical evidence of violations, whereas U.S. and Australian inspectors have a history of ignoring policy guidance and revealing suspicious Iraqi activities. China's move was not widely publicized, although it was reported by China's official news agency. The IAEA has not conducted any challenge inspections in North Korea since the negotiation of the Framework Agreement in 1993, so China has avoided a situation in Korea comparable to the one it faced in Iraq.

It is true that both the North Korean and Iraqi crises are the result of unique circumstances and should not be seen as the routine operations anticipated by the CTBT or CWC. China's attitude towards these situations cannot be seen as equivalent to their support for nonproliferation regimes in general. Yet in both instances China has condemned the use of military power or military coercion in support of the disarmament to which both countries had legally committed themselves. In both instances, the United States and some coalition partners have been willing to use or threaten to use force to legitimize an international inspection regime. China has not been willing to go nearly as far. One possible conclusion is that despite China's rhetorical support for nonproliferation regimes, China and the United States differ substantially on the price that should be paid to insure the success of intrusive inspections. It is also possible that China's commitment to nonproliferation, either as a good in and of itself or as a foreign policy objective that serves China's interest, is frequently offset by countervailing political realities. This forces China into a corner. Support for an international inspection regime in 1993 could have precipitated a political crisis in North Korea which would have had very real consequences for China. Likewise, participation in UNSCOM inspections in Iraq could have forced China to offend Iraq by indirectly supporting the continuation of economic sanctions.

On-site inspections constitute the most invasive and confrontational form of arms control and nonproliferation verification, but they are not the only forms of verification. The U.S.-Soviet/U.S.-Russian requirement to verify bilateral arms reduction agreements resulted in the development of other, less intrusive verification techniques and in the application of technologies that minimize the intrusiveness of on-site inspections while preserving their integrity. Tags and seals with electronic signatures can be installed on sensitive equipment, for example, and then monitored in a remote location. Many different sensors can be used to measure the presence of gases or toxic substances in the atmosphere or water. Shrouds can be used to hide sensitive equipment from foreign inspectors.

In CWC and CTBT negotiations, verification experts observed that the Chinese delegation was slow to issue working papers and promote technical solutions. The result was that China was in a responsive and not a proactive position. This is primarily because China had not been a party to any treaty that called for scientific verification, and Chinese scientists had therefore had minimal hands-on experience with the relevant technologies. Their experience to date consists of

preparations for implementing the CTBT. However, Chinese arms control scholars are beginning to pay more attention to the verification technologies used in U.S.-Russian arms control, particularly those that might relate to warhead dismantlement or monitoring of nuclear stockpiles. Chinese participation in future arms reduction treaties will depend at least in part on their confidence in the associated verification. Moreover, Chinese Foreign Ministry officials want to make sure that they don't get trapped into accepting verification systems that unnecessarily compromise Chinese sovereignty without the chance to influence those systems. Observers of the CTBT negotiation have remarked that China was slow to get involved in the technical details of verification, waiting until it was clear that a treaty was inevitable before tabling working papers and expressing an opinion on key issues. By staying on the periphery, China lost the chance to shape the agenda, although it remains unclear whether or not an attempt to use its influence would have met with success. Perhaps this is why Chinese Foreign Ministry officials began in 1998 to comment on the increase in the number of ongoing verification activities and their cost to all the parties involved, possibly signaling their view that the pace of new arms control agreements should be slowed. Finally, it is important to remember that despite deep seated reservations about international verification, China appears much more inclined toward an international regime than a bilateral one. The concept of a level playing field, a regime in which all players are judged by internationally accepted standards, remains critical for securing Chinese participation.

Five of the regimes discussed here require members to provide warning or notification before withdrawal. The practical implications of a notification requirement are not known; the only test case is North Korea's withdrawal from the NPT. Chinese official statements on various treaty texts as they were being negotiated did not address this requirement specifically. The primary impact of the notification requirement is to marginally increase the cost of withdrawal. In the one test case to date, notification was critical in preventing a complete withdrawal.

Setting up monitoring stations

The CTBT is the only international arms control regime that requires China to set up monitoring stations. Between the date of treaty signature and the official entry into force, the information from the stations is regarded as being donated by member countries; after entry into force, the CTBT organization in Vienna will own the equipment. The total cost of the verification system is prorated according to the formula used for U.N. dues. Although China has been criticized for its slow progress in establishing these facilities, the treaty has not legally entered into force, and many other countries have not yet prepared their stations. China's willingness to set up stations that will be internationally owned should be seen as an important symbolic step forward rather than a breakthrough or a major concession. It does not necessarily represent a direct challenge to Chinese sovereignty, but it could

be politically sensitive and therefore represents something of a risk. Perhaps for this reason, the activities of the stations have not been well publicized within China, although their existence is well known to those in the arms control community.

Benefits derived from the regimes

Enhanced security

U.S.-Soviet arms control agreements related directly to the security needs of the two countries and were underpinned by a belief that continuing the arms race would be destructive to both sides. Many differences persisted over how, and when, arms reduction should be implemented, and both governments had internal critics, but a fundamental linkage between arms control and national security had been firmly established by the early 1990s. China, however, is not involved in a bilateral or even multilateral arms race. In fact, China's international security environment is one of unprecedented peace and stability. The danger of excessive arms acquisition is something Chinese analysts have read about, not a lesson that Chinese leaders have learned first hand. On the contrary, Chinese history is replete with lessons of the dangers of being under-not overarmed. Thus, for China, the security benefits of most of the regimes discussed here cannot be compared to those inherent in the START I, START II, INF, and CFE treaties for the United States and the Soviet Union. Arms control and nonproliferation regimes might be seen from a Chinese perspective as helpful in preserving a status quo in which China is outgunned by stronger powers. Chinese leaders surely prefer restrictions on U.S. and Russian nuclear tests to unfettered advances in the sophistication of U.S. and Russian warheads. They would prefer an effective NPT that controls the nuclear ambitions of Iraq, North Korea, and other states, to an ineffective NPT regime, or an absence of any global nuclear nonproliferation regime. Unbridled proliferation of either conventional arms or WMD over time could wreak havoc with Chinese plans for continued economic growth. But arms control and nonproliferation regimes do not constitute a remedy for an imminent danger or a near term military threat—because China faces no imminent danger.

Moreover, because a number of these agreements were negotiated without China's involvement and have not depended entirely on Chinese participation, China would reap the same security benefits whether inside or outside the regime. Security benefits constitute an incentive to join only when the regime depends on China for its viability. This is certainly not true of the BWC, the NPT, the U.N. ROCA, and the MTCR. It applies perhaps slightly less to the BWC, CWC, CTBT, and CCW, all of which would probably be somewhat less effective if China had not played a role in them.

Thus, although the ways in which China has improved its security situation by joining the arms control club are impossible to quantify precisely, they may probably be perceived as incremental rather than fundamental.

Economic or financial gain

No concrete economic benefits are attached to membership in the regimes discussed here. In fact, several of them entail financial costs. Indirectly, China's membership in good standing in the international club reinforces its desirability as a trading partner, which carries economic benefits. However, many of these benefits might well have been available even without formal Chinese membership. The Congress has attempted to link Chinese proliferation of missiles or WMD with potential suspension of China's NTR status. To the extent that the Congress views membership in formal arms control regimes as a guarantee against proliferation, membership helps insure the continuation of China's trade status. Yet President Clinton decided to exclude proliferation from congressional consideration of China's NTR renewal (although the Congress could make a political decision to reestablish the link). No empirical evidence exists to support even a rough estimate of how China's membership in international arms control regime has contributed to the growth in Chinese foreign trade, in foreign investment, or in annual GDP increase. Other than the removal of Japanese economic sanctions following China's signature of the CTBT, no direct or measurable economic consequences followed signature or ratification of any particular treaty. China's sustained economic growth in the 1980s and 1990s occurred at the same time that China was joining the security regimes discussed here (as well as a number of regimes excluded from this study), yet the primary reason for good economic performance is much more likely to be found by examining macroeconomic and fiscal policies. Participation in arms control and nonproliferation regimes affected the overall environment that made Chinese economic growth possible, but cannot be seen as a direct cause of it.

Avoidance of censure

As mentioned above, China was able to end the economic sanctions imposed by Japan in 1994 after signing the CTBT. This is the only clear-cut instance in which joining a regime in and of itself led to a lessening of criticism. If Chinese leaders expected that joining arms control regimes would exempt them from criticism by the United States, they must have been disappointed. Until the 1997 and 1998 summit meeting and presidential visit, China did not avoid U.S. censure by joining these regimes but simply created higher U.S. expectations. Rather than acknowledging that China had done the right thing, it has been the policy of the United States to continually raise the bar and demand more. China's decision to join the NPT, for example, was virtually ignored by the Bush (Sr.) White House, which was consumed by the acrimonious debate over missile sales. Later the

United States, rather than acknowledging progress to date, pressured China to adopt full-scope safeguards as a condition of supply and to stop all nuclear sales to Iran and Pakistan. China's decisions to sign the CTBT and CWC were received in much the same manner, and then followed by demands that China go beyond the legal requirements of the regime. U.S. policy makers had sound and valid reasons for continuing to push China on this issue. Moreover, their efforts could be argued to have paid off. Nevertheless, continual criticism without formal acknowledgment of progress removes what could be a valuable incentive for China to cooperate.

A more contentious question is whether or not the desire to avoid censure is a significant motivator for China to comply with regimes it has already joined. The United States is alone in attempting to use economic sanctions as well as rhetorical criticism to bring about Chinese compliance with global regimes. This poses a serious analytical problem in that China's response might be purely a function of the bilateral relationship, and not relevant to Chinese attitudes towards global arms control and nonproliferation regimes. Still, it is worth asking, has a desire to avoid U.S. sanctions modified Chinese policies? The two case studies in which economic sanctions were used are missile exports (where China had made only a quasi-legal commitment to an only quasi-legal regime) and nuclear exports (where the relevant treaty leaves wide room for interpretation of legal behavior). In both instances the sanctions were highly targeted, and it is therefore unlikely that China's economic or technological progress was seriously affected. The motivation for China to avoid sanctions or to have them lifted as soon as possible had more to do with saving face than recovering from economic loss. With respect to missiles, a wide spectrum of current and former U.S. government officials from both Republican and Democratic administrations, including some who are supportive of expanding United States-China relations, seemed in late 1998 to agree that, despite U.S. sanctions, the flow of missile technology from China to Pakistan continued. All agree that sanctions have raised the sensitivity of China's leaders to the potential cost of missile exports. Some argue that the flow is less than what it might have been had there been no sanctions; others argue that the net effect of sanctions is to force the transfers into channels that cannot be detected by U.S. intelligence or cannot be proved to be a legal violation. With respect to sanctions for nuclear proliferation, China does appear to have restrained (but not eliminated) nuclear transfers that the United States considers to be destabilizing. It appears that for China it is at least as important to avoid international isolation as it is to avoid bilateral censure. Chinese leaders do not appear to worry about being one of only a handful of countries to oppose a regime if others in the handful are P-5 members. This enabled them to stay outside the Ottawa treaty, for example, which was also opposed by Russia and the United States, but not outside the CTBT or the CWC. Had China remained outside the CTBT, even if China had de facto stopped testing and formally entered a moratorium, a Chinese refusal to join would have been a focal point. The kind of criticism to which China would have been subjected can be extrapolated from the anti-French protest in the first half of 1996. China had

apparently feared a similar exposure if it stayed outside the CWC, although the cost would have been significantly less because of the relative importance of nuclear disarmament as opposed to chemical disarmament. It is instructive that in the process leading up to the Ottawa treaty, pro-Ottawa countries and NGOs neglected China, despite the fact that Chinese mines are a large part of the global mine problem. There were so many other opponents to Ottawa, China was not in the spotlight. The fear of the spotlight on a more isolated China the next time around was perhaps one reason why, in the aftermath of the Ottawa treaty, China ratified the revised Protocol II of the CWC. A desire to avoid international isolation should not be seen as a mechanism that that can always be used to insure Chinese cooperation, however, for several reasons. First, it is too hard to use. International consensus, not to mention P-5 consensus, is often impossible to attain. It is rare that the Chinese are truly alone in their objections to a particular regime. Second, the prospects for success in any given effort are impossible to predict. In the meantime, the political capital required even to try to achieve a consensus might preclude other important policy objectives.

Access to new technology

The regimes discussed in this study do not offer any clear-cut cases where Chinese membership *per se* resulted in access to technology not otherwise available. However, access to technology helped set the context for Chinese membership in a number of instances. One example is the gradual lifting of restrictions that govern the sale of U.S. dual-use technology to China. This relaxation was tied to many factors, including the speed of technological change, the end of the Cold War, the degree to which equipment comparable to the item restricted by U.S. law would be easily available in other markets, and China's willingness to accommodate U.S. interests with respect to human rights and trade issues. China's membership in international arms control regimes, and Chinese compliance with those regimes, was also one factor, but in all probability dual-use technology restrictions would have been relaxed anyway for more compelling reasons. After the fact, critics on both the right and the left of the U.S. political spectrum claimed that proliferation had not been considered seriously enough when making these decisions and that the restrictions should not have been modified.

A second and more specific example has to do with the sale of U.S. nuclear technology to China. Nuclear trade is restricted by U.S. law to those countries with whom the Senate has ratified a bilateral nuclear agreement. Ratification, in turn, depends on a certification that the country in question is not a nuclear proliferator. The prospect that the Senate would accept such a certification, or at least fail to object to one, was sufficient inducement for China to publicize and substantially strengthen nuclear export control regulations, join the Zangger Committee, and adopt internationally accepted export control terminology for nuclear dual use exports. It was also a factor in China's May 1996 clarification of its NPT commitments. However, the viability of using a technology "carrot" to

gain Chinese cooperation is not guaranteed to bring positive results. China has yet to reap any of the technological rewards implied by the bilateral nuclear agreement which, after all, does not guarantee China access to technology but merely removes an outright ban on such sales. Each nuclear license has to be reviewed case by case. Moreover, China's willingness to make concessions on these issues came about in a bilateral, and not a multilateral, context.

Disagreements between the United States and China on other, nonnuclear, issues could derail the flow of nuclear technology. Finally, it is not entirely clear that access to technology was in fact the goal sought by China even though it was the carrot offered by the United States. Russia, France, and other European suppliers are a viable alternative to U.S. nuclear power technology, one that China used while the U.S. embargo was in effect. No U.S. nuclear sales to China have been consummated since the agreement came into effect. It is possible that China's goal was not the acquisition of technology as much as the elimination of a restriction that closed off Chinese options and, more importantly, appeared to single China out as a pariah. It is also possible that China's acquisition of technology is improved by having U.S. bidders participate in the market, even if China selects a European vendor, because the added competition forces the European companies to sweeten their offerings–or lower their prices.

Participation in international verification regimes offers Chinese scientists access to technologies and applications that might not be otherwise available. This is true primarily for the IAEA and the verification regime associated with the CTBT. It is unlikely, however, that access to technology *per se* would have been a significant factor in Chinese decision making on these or other treaties. International verification systems exclude equipment that would be denied by any member state for reasons of national security, and the degree to which China can benefit from these activities is dependent on internal, rather than international, funding. The satellite verification that China was arguing for in the CTBT negotiations would have been a very real incentive. However, the notion of sharing this technology was not acceptable to the countries that possess it. Technology is limited in its power to motivate primarily because the kinds of technology that are likely to be an effective incentive for the Chinese are not those to which the United States will agree to provide access.

Access to new information

Participation in international arms control regimes offers China the chance to gain information about the activities of other countries that can inform Chinese foreign as well as domestic policy. Formal exchange of information occurs in the context of verification regimes; the content of informal exchanges can only be captured in anecdotes. In both instances, what is debatable is how valuable the information is, and much of it is available without joining the regime. Data collected by the OPCW during the course of inspections and declarations is only available to member states; the Chinese would not be able to see it if they had not signed and

ratified the CWC. Yet much of it is either irrelevant to Chinese security policy or available through other sources. CTBT verification data is potentially quite useful to China, although scientists at the Institute for Geophysics reported that they were unable to effectively use the satellite downlink from Vienna because of incompatible software. CTBT data are only available to member states. Information collected by the IAEA during routine and challenge inspections is available only to member states, and the value of this information depends to a great degree on how China views the threat of nuclear proliferation. If Chinese officials genuinely see a security threat in nuclear accounting irregularities, then a seat at the IAEA table is quite valuable. However, much of the information would be available through other sources. For example, during the North Korean nuclear crisis, U.S. intelligence officials briefed the Chinese on indicators of a North Korean nuclear weapon program. These briefings might well have taken place even if China had been outside both the IAEA and the NPT. The logic underlying them was China's perceived influence over Pyongyang's decisions, not China's membership in a given regime.

Data submitted to the U.N. ROCA is in the public domain. BWC states share information among themselves, although its value and reliability are open to question. The CCW, the MTCR, the United Nations Panel on Small Arms include no verification systems or formal exchange of information that would significantly benefit China.

Ability to shape regime

China's influence on international institutions will be a subject for empirical inquiry well into the next century. All international security regimes suffer from an inherent trade-off between the strength of the provisions and the number of members; every new member brings additional demands. As a nation aspiring to be a great power, China can be assumed to want to meld institutions to reflect particular interests and values. Exercising influence requires experience and skill, however, as well as a thorough understanding of the individual regimes, each one of which has its own culture and language. Given China's relatively recent entry into formal arms control and nonproliferation regimes, its influence has been significant. In the decades ahead it can be expected to grow. The regimes examined here provide four instances where China held out for certain provisions, with no support from other countries, and achieved the stated goal. The first example is the CWC, in which China insisted on a clause that made Japan responsible for cleaning up the abandoned chemical weapons from World War II. The second is the CTBT, in which China was the one country that insisted that 30 votes on the Executive Council be the prerequisite for an on-site inspection. The third is the U.N. ROCA in which China insisted that the missile category exclude surface-to-air missiles. The fourth is the revision to Protocol II of the CWC in which China insisted that the required reliability for detectable mines be set at 90 percent rather than 95 percent. Each of these provisions made it more difficult to reach agreement

among the negotiating parties, but none of them seriously undermined the value of the treaty. Two of the four could even be dismissed as symbolic rather than substantial. Yet, the success of Chinese officials in using their influence has given them reason to be confident about using their weight again in the future.

Prestige

The ability to enhance China's international image is the least tangible and yet perhaps among the most significant of the benefits China enjoys from joining international arms control regimes. It is the flip side of avoiding international isolation, and is the one benefit that is attached in some measure to every regime without exception. It offers a powerful incentive. The difficulty is that prestige is a subjective, changeable, and value-laden concept that varies with the eye of the beholder. In the eyes of the United States or Europe, China's prestige would be enhanced by the adoption of democracy, political pluralism, open markets, and other liberal institutions; this view of prestige clearly is not shared by Chinese leaders. Chinese officials do not openly discuss their concept of China's ideal image, and tend to be more adept at describing the image China does not want than the one to which it aspires. They appear to perceive prestige in a great power context. In other words, the prestige that they value is the status attached to activities or policies that can only be executed by nations in the P-5, the G-8, or other exclusive clubs. There is a certain irony in the notion that arms control and nonproliferation have always been "big power" activities, because only big powers have arms to control or not proliferate. China is a potential member of the club only in so far as it has technology and weapons that are worth controlling.

A balance sheet

A precise quantitative measurement of what China has gained or lost through participation in the regimes selected for study will remain elusive. Nevertheless, themes emerge from a qualitative assessment that can be helpful in anticipating Chinese responses to arms control initiatives in the future.

First, the benefits to China of belonging (or adhering) to these regimes are intangible, subject to interpretation, and elusive. There remains a considerable gap between the value placed on benefits of regime membership by the United States and its allies and the value attached to them by Chinese leaders. In fact, the only benefit that is attached to all of the regimes is enhanced international prestige. The economic benefits are unpersuasive because they would probably have accrued regardless; the security benefits are contentious; access to new technology and information are positive but marginal features of these regimes. Avoidance of censure is difficult to measure, as it depends on an assessment of what might have happened otherwise, and is in any case a weak incentive over time, even if it is effective in isolated cases. The ability to shape the regime has been a powerful

motivation to secure a seat at the table, but has not always resulted in concrete benefits.

Second, despite the absence of compelling tangible benefits, China has been willing to bear substantial costs. This does not mean that any of the regimes is a guarantee of future Chinese policies; it does mean that China has accepted an increased price for certain military options, technology transfers, and weapon development decisions. In the case of the CTBT and the CWC, China might have to pay the increased price of intrusive verification even if its behavior remains compliant with the treaty. Here again, there is a large gap between what is considered a cost for the United States and its allies and what constitutes a cost in China.

Third, if these two propositions are defensible, that is if China is willing to pay substantial costs for marginal benefits, at least two competing explanations can be offered. It is possible that Chinese leaders perceive the inevitability of international arms control and nonproliferation agreements as an enduring feature of the post-Cold War world. Given this inevitability, regardless of the cost-benefit ratio, Chinese interests can best be defended by having a seat at the decision-making table. According to this logic, many of the costs would be incurred regardless of China's status in a given regime (and in fact China has been accused of violating regimes it has not joined), in which case it makes more sense to try to limit the scope of the regimes, and to take advantage of the benefits that exist, even if they are marginal or not completely persuasive, than to remain on the outside looking in. A second possibility is that there is a minority within the leadership that is effectively articulating a new approach to international security. It is possible that there is a group of foreign policy experts who genuinely believe that China's participation in these regimes enhances security and brings other intangible benefits. Fourth, it should be possible to design compelling incentives which have greater appeal to China's sense of costs and benefits. Given the existing balance, the question is not why China is a reluctant player in this game, but why the Chinese play at all.

12
Conclusions

Americans are often perplexed at China's approach to international security affairs. An excerpt from a recent report about China and arms control issued by the Council on Foreign Relations, for example, concludes that "We spent a fair amount of time trying to understand China's arms control perspectives. We concluded that it is far easier to understand the various interests guiding China's arms control policies than it is to agree about whether China has an arms control strategy—and if so, what it is."[1] Yet if China's participation in international organizations and norms is separated from China's willingness to accede to U.S. policy preferences, patterns begin to emerge and some of the haze begins to clear. In fact, the specific cases and issues addressed in this study reveal at least as much coherence and consistency in Chinese arms control strategy as in that of Russia, the United States, or France.

In international arms control and nonproliferation agreements, details matter. Although some data points remain out of reach, openly available information about China's participation in international arms control regimes in the past 20 years does support conclusions that make Chinese arms control strategy understandable, which is not the same thing as likeable.

What recent history reveals

First, China will go a long distance to avoid international isolation. Arms control and nonproliferation measures that have universal acceptance elsewhere will find Chinese acceptance, even if it means China has to endure significant costs and see relatively few concrete benefits. Second, the degree of Chinese compliance with, or support for, an arms control or nonproliferation regime is directly related to the regime's universal acceptance. The less universal, the lower the level of Chinese receptivity. Global regimes are preferable to small multilateral regimes, but any multilateral regime is preferable to bilaterally imposed nonproliferation measures enshrined in U.S. domestic law. The Chinese are quite adept at distinguishing international law from U.S. law and policy, even if the United States regularly blurs this line. Third, many of the existing regimes do not relate directly to China's immediate security concerns, and it is not surprising that the Chinese are often reluctant or indifferent players in these regimes. The arms control agenda has been

shaped by the United States, Russia, and the underdeveloped countries. In part because of deliberate Chinese choices, China's interests have been at most a peripheral consideration. Fourth, this means that although China might join a regime or sign a treaty, it is unlikely that the Chinese will take extraordinary measures (such as the use of military force to enable an inspection of a suspected nuclear site) to protect the existing regimes.

China's desire to be a status quo player and avoid international isolation

Every time since 1990 that China has faced the possibility of being isolated at the U.N. Security Council, at the Conference on Disarmament—the Chinese have joined with the community of nations to agree on, sign and, in some cases, ratify major arms control and nonproliferation accords. The CTBT and the CWC are illustrative cases. China's decision to join the NPT in 1991 is especially germane because China just narrowly escaped isolation as the only Security Council member who was not also an NPT member (France joined just months before China). Other examples include the Biological Weapons Convention, the Register of Conventional Arms, the near universal condemnation of nuclear testing in Pakistan and India, the Convention on Conventional Weapons, and the U.N. campaign to address the problem of illegal small arms and light weapons transfers. Despite reports to the contrary, the Chinese have a decent record of living up to their commitments *as defined by these international accords.* The Chinese have not withdrawn from any treaties. They have not violated them in a way that has resulted in widespread censure. They have not used their influence during the negotiation process to significantly dilute provisions of the treaty. They have not precipitated crises or challenge inspections. Very few countries have a perfect scorecard and questions remain about some Chinese technology transfers, but, overall, China's record has been acceptable to the international community. This conclusion obtains regardless of whether or not the Chinese had a role in formulating the treaty (they had nothing to do with the NPT), regardless of whether or not the Chinese agree with all the terms of the agreement (they retain reservations about the BWC), and regardless of whether the terms of the treaty are general and ambiguous (such as those of the NPT) or concrete and specific (such as those of the CTBT). This is not to say that China has acted *in accordance with U.S. interests,* or with political commitments made to U.S. government officials, but China has, by any objective standards, lived up to its *international* commitments.

China is willing to accept unpleasant conditions in order to reenforce its membership in the world community. Among the regimes China has joined are several that entail real, although perhaps not measurable, costs. The Chinese leadership was willing to incur costs and take risks in the 1980s and 1990s that would have been inconceivable in earlier periods in the interest of insuring China's position as a status quo country. China has joined agreements that will curtail

exports, limit military options, require disclosure of previously secret information, and subject Chinese facilities to inspections by international teams. Many involve at least the perception that Chinese sovereignty is being violated. Although the costs of treaty compliance were discussed in detail in Chapter 11, it is worth underscoring a few of them here. Adherence to the CTBT, for example, effectively limits China's ability to make substantial technical improvements in nuclear warhead technology. This does not mean that the Chinese will not modernize their nuclear forces. However compliance with the CTBT imposes considerable technical and financial costs on the modernization process. Implementation of the CWC entails making declarations, developing export control legislation, and running the risk of an intrusive on-site inspection with little advance warning. Sending statistics to the United Nations Register of Conventional Weapons entails providing specific information on topics that have traditionally been closely held by the Chinese government, even if they are not altogether accurate or even useful to China's potential enemies.

Especially convincing evidence of China's desire to be inside the international tent can be found in the number of verification regimes with which the Chinese government has agreed to comply. The PRC government runs a risk in agreeing to procedures that involve potential violations of Chinese sovereignty or revelation of sensitive information. Chinese officials express a preference for minimally intrusive verification and as little transparency as possible. In both the CTBT and CWC negotiations, other countries with more experience were able to frame the debate on verification and China had to adopt a reactive posture. Beijing was able to alter the course of the negotiations on on-site inspections in the CWC negotiations, but, overall, China was forced to accept verification procedures that run counter to deeply held beliefs about secrecy and national security. Having signed the CWC and the CTBT, the Chinese government is devoting more time and energy to verification technologies and procedures. Now that effective and even intrusive verification have become the ideal for which all regimes will strive, and now that Chinese scientists and officials have had some experience in the details that are involved, China is beginning to express concern about the cost and the logistical demands of implementing a large number of verification systems at the same time. Whether they fear the financial burden, the general trend towards more openness, or the potential for humiliation, is not clear. Chinese officials still perceive the injustice in some of the verification regimes. They cite, for example, the fact that technologically advanced countries can use data from NTM to demand an on-site inspection in the context of the CTBT verification system, and others cannot. If the costs associated with verification get too high to bear, China could attempt to block new regimes that include the potential for intrusive inspections. To date, they have been willing to run the risk, but they are likely to hold out for what they consider to be fair and even-handed provisions.

Conversely, the concrete benefits that flow to China from joining and complying with most arms control regimes are few in comparison with the costs the regimes entail. China receives no direct economic benefit from being a member of the

nonproliferation club, marginal access to new technology, and relatively little information that would not be available elsewhere. The symbolic rewards have been paltry. Despite the priority attached to arms control and nonproliferation by the U.S. government, particularly in the Clinton administration, the United States neglected to formally acknowledge Chinese signature of the CTBT, CWC, or NPT. Whether this was an oversight or a deliberate decision cannot be determined. Nevertheless, the message sent to the Chinese by the U.S. failure to formally acknowledge treaty accession was that the United States prefers to criticize than to acknowledge progress, and that the political benefits to China of joining a regime are at best marginal. From the Chinese perspective, the consequence of signing one regime is a U.S. demand to sign up to an even more restrictive regime in the future.

Moreover, failure to publicly acknowledge Chinese entry into a regime forfeits an opportunity to up the ante and thereby increases the cost to China of noncompliance or withdrawal. This is particularly critical in the case of the CTBT, especially in light of subsequent U.S. refusal to consider its ratification. The irony is that U.S. executive branch officials have regularly cited China's progress in arms control and nonproliferation in testimony on Capitol Hill in an attempt to forestall punitive action towards China by the Congress. However, this praise has only rarely been translated into formal diplomatic language directed at the Chinese themselves. U.S. officials have emphasized in bilateral discussions with the Chinese the degree to which nonproliferation is in China's security interest. Yet the tangible security benefits for China, if they exist, are long term and not immediately compelling. The fact that China has signed an international arms control or nonproliferation treaty is not an iron-clad guarantee that China will fully implement it or adhere to it in perpetuity. All treaties have exemption clauses when supreme national interest requires it; many lack verification, and no verification system is perfect. It is always possible that attitudes will change, but the costs for the Chinese of pulling out or flouting the rules have gone up considerably now that they are members.

The implications of this conclusion are straightforward: those who want to see China exercise restraint should gain broad consensus in the international community that everyone else will exercise similar restraint. This is no doubt troublesome for those who want to see rapid progress. International accords take years to negotiate, and much time is spent bracketing and unbracketing text. The work requires infinite attention to detail, the process is excruciatingly slow, and everyone sacrifices in the process. The result is often a watered down version of the original goal. Yet this outcome is often better than no outcome.

An alternative approach is to rally world opinion in condemnation of Chinese policies to the point where they are no longer productive. In many instances the most powerful incentive for China to belong to or adhere to a regime is not to achieve a positive result, but to avoid broad-based condemnation. However, the size and the promise of the China market will make it difficult to achieve world condemnation for weapons proliferation unless Chinese exports are tied to a

particularly heinous act of aggression or terror. In a few rare instances, China will support a regime it finds objectionable for the sole purpose of precluding a regime it finds even more objectionable. This is a very plausible explanation for China's ratification of the revised Convention on Conventional Weapons protocol on land mines, whose only real benefit is that it might be helpful in fending off pressure to join the more restrictive Ottawa Treaty. In short, however difficult it is to achieve, international consensus is a proven and predictable way to ensure Chinese membership. It could provide a powerful force for change.

Universality and Chinese acceptance

The less universal a regime, the less likely China is to fully embrace and implement it. The Chinese do not perceive bilateral political promises to be as binding as international treaty commitments, and they do not feel the same type of pressure to join small export control cartels that they do to join global or multilateral agreements. Chinese officials regularly point out the difference between subjective unilateral standards and objective, internationally agreed-upon rules. Virtually all the areas in which the United States has disagreed with China on proliferation involve a mechanism that is less than universal, or an agreement to which China has only an ambiguous relationship (the MTCR, for example, is both).

Examples of unilateral standards include those inherent in the Enhanced Proliferation Control Initiative (that determines legality of an export based on the intention of the end user) and the U.S. demand that China stop nuclear sales to Iran. Not only is China reluctant to comply with nonproliferation demands that fall outside the scope of negotiated regimes; these demands are the source of resentment, and perceived as tools that stronger powers use to coerce weaker ones. The fact that the United States is often alone in imposing nonproliferation standards complicates the position of the leadership in China, which must avoid appearing "soft" on the United States, or undertaking any obligation that devalues Chinese sovereignty. A similar tension exists over the U.S. insistence on post shipment verification of high-technology exports to China. According to U.S. law, American embassy officials in Beijing are required to inspect Chinese end users —that is, customers—who buy certain types of American equipment to make sure that the technology has not been retransferred without authorization. This demand goes far beyond that of any existing international regime, and no other country makes this demand on China. Whereas the United States has not demanded that China conduct post-shipment verification on its own export customers, the conduct of these inspections in China by U.S. officials is seen as just one more instance of the United States throwing its weight around. Other examples include the many U.S. laws that provide a more precise interpretation of the NPT than is actually contained in the treaty itself and the U.S. laws that penalize foreign as well as U.S. companies and individuals for certain types of chemical exports.

China continues to oppose small export control cartels for many of the same reasons. The Chinese condemn the Australia Group, which has a more explicit

and demanding interpretation of CWC obligations than that stated in the actual treaty. China's position is that either all the states parties to the CWC should adopt the rules of the Australia Group, or the Australia Group should stop trying to impose its standards on others one at a time.

Where the United States wants to see China adhere to a standard that is higher than the international norm, there is likely to be backsliding on Chinese "promises." It is possible to push the Chinese towards stricter limits on a case-by-case basis, but public commitments come at a high price for the Chinese leader who makes them, and the durable progress will come when there is a global consensus. In the context of domestic American prospects, and the perpetual fear of appearing to be soft on China, bilateral Chinese commitments are perceived by the U.S. government and by arms control NGOS as a measurable achievement. In the attempt to secure a commitment, the challenges China will face in implementing it are easy to gloss over, if not ignore. When China first agreed to the terms of the MTCR, for example, the central leadership and the individuals responsible for executing that agreement might not have understood all of its implications. This produces a near-term policy victory but fails to address long-term differences and genuine obstacles that the central government in Beijing encounters in trying to control exports or implement verification regimes. The pressure to reach an agreement has resulted in language that is perhaps intentionally vague and open to different interpretations.

The main areas of disagreement between the United States and China on proliferation in fact all involve bilateral Chinese commitments that were initially ambiguous, imprecise, or qualified in some way. For example, China was slow to make a clear cut, unqualified commitment to adhere to the MTCR as the United States understands it. For over a decade Chinese commitments about missile exports and compliance with MTCR terms were vague and even contradictory. Some were linked to the removal of U.S. sanctions, implying that if sanctions were to be imposed again, the promise could be retracted. Commitments by Chinese leaders to refrain from missile sales (sales of items that are not even covered in the MTCR) to Iran, for example, were made in private settings, not in open and public declarations. Other bilateral commitments were announced only by the U.S., and never by the Chinese, government.

China's bilateral commitments on nuclear exports have also been vague or qualified. Although China was quite clear about its commitment to the NPT, the treaty itself is sparse. For this reason, the United States has developed a very precise legal understanding of what NPT compliance really means. Yet China has not fully acknowledged or accepted the U.S. interpretation. The United States has tried to insure Chinese compliance with its own understanding as embodied in the rules of the Nuclear Suppliers Group, which China continues to oppose, and a myriad of U.S. domestic legislation that addresses destabilizing nuclear exports. These examples contrast with Chinese obligations under the CTBT, for example, which leaves little room for interpretation and about which there has been little contention.

The lessons of experience are clear. China shuns most multilateral arms control regimes that are in any way discriminatory or exclusive. Bilateral political commitments by China to the United States, even if they relate to formal international treaties, are often vague and open to interpretation. Moreover, they are inherently short term and subject to retraction because they invariably become hostage to other events in the relationship. The U.S. government has often extracted nonproliferation commitments from China under pressure (particularly in the area of nuclear and missile sales), offering China little in the way of positive incentives to comply. As long as the United States continues to impose on China standards more stringent than those widely agreed on by the international community, friction is likely to continue. Reasons for applying bilateral pressure on China are compelling. It is the only practical approach for achieving short-term results when international treaties cannot keep up with technology and new proliferation challenges. Behind the scenes meetings between U.S. diplomats and Chinese government officials have on occasion resulted in the cancellation of specific sales. These consultations have also raised the awareness in China of the negative consequences that can result from missile sales. Moreover, the position of the U.S. government that the existing international regimes are insufficient to really contain proliferation of WMD and that stronger medicine is required, is reasonable and logical; but it is hardly surprising that after making a commitment under pressure to take stronger medicine, the Chinese later feel free to reinterpret that commitment based on U.S. policy decisions on human rights, trade, or Taiwan. This is not the case with international legal commitments on nonproliferation.

China's arms control negotiation style

The arms control history of the past 20 years also reveals lessons about how China negotiates. Chinese diplomats have made an art form out of taking the moral high ground. China's no-first-use pledge is only one example, but it is one that effectively blocked progress on a range of issues for close to a decade. In negotiations on everything from strategic reductions to regional confidence building measures, the Chinese pointed with pride to their own NFU declaration and implied that China's security would depend on others following suit. The fact that this demand, primarily political and symbolic, was a steady drumbeat in China's arms control policy for so long underscores the difference in style between China and the United States on these issues. In 2000 China appeared to begin backing away from no-first-use as a precondition for concessions on other arms control issues. Perhaps this is because by 2001 it was clear that Chinese officials had another, potentially more compelling, way to take the moral high ground: the United States began to walk away from the very same regimes that China had been pressured to sign and ratify. What China would actually do if the other P-5 members or even the United States alone agreed to a no-first-use treaty remains open to question. In the meantime, the demand for a no-first-use pledge provided useful diplomatic ammunition.

Treaty commitments versus policy preferences

China's proliferation report card remains obscured both by the degree to which the evidence remains classified and the politicized context in which China's critics have made accusations of "irresponsible" transfers. Yet the record becomes much more clear if Chinese compliance with binding international commitments is distinguished from Chinese compliance with U.S. law or policy preferences. The Chinese are quite sensitive to this distinction, despite the fact that it is rarely made in the United States. It is useful to review the differences between the United States and China on proliferation from this perspective.

Perhaps the most contentious has been missile transfers. There appears to be little doubt that China has sold missiles or at least missile-related technology to Pakistan. The persistence of news reports to this effect makes it unlikely that the story was entirely invented, with no foundation in fact, although details about the exact content and timing of certain deliveries might have been inaccurately reported. Between 1980 and 1991 China also apparently sold missiles to Iran, Syria, the United Arab Emirates, Saudi Arabia, and other Middle Eastern countries. However, until 1991, China had made no commitments to refrain from those sales. Transfers prior to 1991 did not therefore constitute a violation of any regime, political commitment, or legal obligation, however undesirable they might have been from the perspective of U.S. foreign policy. In 1991 China made what was at best an ambiguous commitment to the terms of the MTCR without formally joining it. Since 1992, China's missile sales to the Middle East have dropped off. Chinese transfers to Pakistan since 1992 appear to have consisted primarily of missile technology—components, services, and production equipment. Although China clarified its missile export commitment in 1994, the clarification did not address sales of missile related technologies, only the characteristics of the missiles themselves. The technology sales therefore do not constitute a treaty violation in the legal sense, because the MTCR is not a treaty and the Chinese are not formal members. They certainly appear to be a violation of U.S. policy preferences and they might be a violation of Chinese political commitments. Since the Chinese did not, prior to 2002, clarify any distinctions they might have drawn between the transfer of complete missiles and the transfer of related technologies as specified in the Annex to the MTCR, it cannot be known what China's commitment really was.

The nuclear issue has likewise caused much concern. It is very likely that China did at one time provide Pakistan with nuclear technology and expertise that either directly or indirectly contributed to the acquisition of a nuclear weapons capability. The evidence remains classified, but the number of analysts and former government officials from different places on the ideological spectrum who have confirmed Chinese assistance is too great to dismiss it as a politically charged allegation. Charges that China has violated regime commitments—transfers that took place prior to 1992 ignore the fact that at that time China had made no formal commitment to refrain from such sales. Assuming the charges have some basis in

fact, they involve a difference in foreign policy objectives between the United States and China, more than a Chinese violation of a specific treaty commitment.

Since 1992, China's nuclear assistance to Pakistan appears to have been limited to civilian or dual use technology rather than items whose only use is the manufacture of nuclear weapons. Since China joined the NPT, the Chinese have attempted to establish a nuclear export control system in line with international practices. China's sale of ring magnets to Pakistan in 1995 did not constitute a violation of the NPT itself, but rather a violation of a U.S. legal interpretation of the NPT. Ultimately the U.S. government decided that the sanctions required by U.S. law could be avoided because the Chinese government had been unaware of the sale. Even if Beijing had known about the sale, and even if Beijing approved of or promoted the sale, China had not at the time signed a treaty or made a political commitment that specifically prohibited such a sale. It was only U.S. law and the rules established by the Nuclear Suppliers Group, to which China does not belong, that specifically prohibited the sale of ring magnets for Pakistani's reactors. The rules of the Zangger Group, which China subsequently joined but was not a member in 1995, did not specifically prohibit the sale, although ring magnets are on the Zangger "trigger list" which stipulates the nuclear and dual use items about which member states provide export information. In 1996 China made a promise to the United States to stop all exports to unsafeguarded nuclear plants in Pakistan. This is more than is required even under U.S. export control law, but intelligence reports cast doubt that China is in full compliance with this pledge. However there have been no formal charges.

China has also assisted Iran's nuclear program, which is declared to be a civilian program under IAEA safeguards, despite U.S. suspicions that Iran is secretly attempting to build a nuclear weapon. China maintains close business ties with Iranian companies, although the Chinese made a political commitment to restrict nuclear transfers to only a few preexisting arrangements, each of which involves a plant under IAEA safeguards. In fact, China claims that transfers since 1992 have all been conducted under IAEA safeguards. Some U.S. government officials and many arms control NGO experts oppose all nuclear sales to Iran. Iran's NPT status as a nonnuclear-weapon state has not been formally challenged by any other NPT member, and the IAEA has not reported any irregularities. The simple fact is that the United States does not view IAEA safeguards as adequate protection against the diversion of technology for use in a clandestine nuclear program and opposes all nuclear transfers to states that do not have full scope safeguards. Chinese nuclear sales to Iran fly in the face of U.S. policy preferences, but they do not constitute legal violations of treaty commitments.

Finally, the United States continues to impose sanctions on Chinese companies for questionable chemical exports. No evidence exists in the public domain to prove that China violated the CWC, and the United States has never made any allegations in the context of the CWC, which was established for the purpose of preventing these exports. Likewise the annual intelligence and State Department assessments of Chinese compliance with the BWC imply illegal Chinese activity,

but no other countries have joined the United States in these charges and they are often interpreted by China as an attempt to impose its will and its values on China.

Arms control and the "China threat"

The story of Chinese participation in arms control and nonproliferation regimes since 1985 implies a positive shift in Chinese policy away from Cold War notions of self reliance and toward increased cooperation with the international community on security matters. The years since 1985 have also, however, seen depictions of China as an emerging military power as well as discussion of a long-term "China threat," although few authors use the term in the same way it was used to describe the U.S.S.R. during the Cold War. If the Chinese have taken enormous strides forward, as this study contends, then why does suspicion persist? The answer is in part because existing regimes do not preclude many Chinese activities that are perceived as threatening. For example, within the context of existing agreements, China could now or in the future decide to raise spending on advanced conventional weapons, increase the size and sophistication of ballistic missiles, increase the number of nuclear warheads, build an aircraft carrier, use military threats to coerce other Asian countries, or purchase the technology to build advanced fighters and submarines. These are all options that are legal and permissible within existing regimes. China is not compelled even to document or acknowledge, much less curtail, any of these activities. Furthermore, the major global arms control agreements are unlikely to expand in a way that would encompass these activities. Much of what is perceived as threatening about Chinese behavior is specifically excluded from the existing regimes precisely because it is acknowledged to be within the legitimate rights of sovereign states to defend themselves.

What about China's interests?

The flip side of the coin is the notion that the existing regimes, while important from a global perspective, are tangential to rather than directly responsive to Chinese security concerns. They do not address China's demands for assurances and restraints on the part of other countries. Chinese officials raise at least four major issues that fall outside the scope of existing regimes: first, the absence of a no-first-use agreement by the P-5 powers; second, the absence (except for the ABM Treaty, which is about to be defunct) of any international restraint on ballistic missile defenses; third, the continued supply of advanced weapons to Taiwan; fourth, the potential for the remilitarization of Japan, including the possibility that Japan would acquire nuclear weapons. This is not a comprehensive list. China has raised other issues, such as prevention of war in outer space, that are either not addressed or inadequately addressed by existing treaties. However, these are the four that are most frequently linked, at least rhetorically, to Chinese participation in global arms control regimes. Each linkage deserves more thorough exploration

than is possible within the limited scope of this study since a deeper investigation can shed more light on the future relevance of arms control regimes to Chinese security policies.

No-first-use

China's demand for a no-first-use pledge is a steady drumbeat in the arms control and nonproliferation dialogue, despite the fact that such a pledge is unverifiable and can be changed at a moment's notice. The Chinese themselves made a no-first-use pledge after exploding an atomic device in 1964, and have repeatedly pressed for a United Nations-sponsored no-first-use treaty. At one time, China posited a no-first-use agreement as a precondition for signing the CTBT, and other linkages have been implied if not stated directly. Chinese officials have told their U.S. counterparts on certain occasions that China would be willing to make dramatic concessions if the United States would agree to a no-first-use commitment. It is impossible to know what faith China would actually place in a no-first-use commitment by the United States if one were made. It is reasonable to suppose that China might be skeptical of declaratory policies that cannot be proven or verified, just as the United States does not allow its security to depend entirely on the declaratory policies of other countries. Thus the no-first-use demand appears to involve symbolism more than national defense. Nevertheless, it could well be, as Chinese statements insist, inextricably tied to China's own perception of national security. Since the United States, under both conservative and liberal administrations, has consciously chosen not to abandon a policy of ambiguity with respect to first use in certain defined circumstances, China will be able to repeat this demand, thereby gaining the moral high ground, for many years to come.

Ballistic missile defenses

Despite acquisition of foreign weapons and related technology, Chinese armed forces remain poorly equipped by U.S., European, or Russian standards. In light of the large gap that separates Chinese military hardware from that of advanced countries, ballistic missiles (with and without nuclear warheads) have increased in significance for China in the past decade. This represents the one area where China's domestic defense industry has been able both to increase production quantitatively and to improve quality and sophistication. Thus, China has a lot to lose if the United States or Russia succeeds in developing effective missile defenses. At the theater level, the continued, steady deployment of conventional ballistic missiles in the military region opposite Taiwan is the only way China can currently use the threat of force to threaten Taiwan or, from the Chinese perspective, deter Taiwan. Taiwan's possession of effective missile defenses would deny China this capability. This concern underlies China's objection to the U.S. transfer of theater missile defense systems to either Japan or Taiwan. China also worries about the development of national missile defense. China's ICBMs

constitute the only potentially survivable nuclear forces; unlike the U.S. triad, China's nuclear weapons are essentially land-based. An effective national shield against incoming missiles would render China's deterrent meaningless. One U.S. defense analyst has speculated that if China's deterrent were neutralized, China might respond by deciding to use MIRVs on a significant scale or to considerably increase its inventory of nuclear warheads (in an attempt to overcome missile defenses with numbers).

To many in the U.S. defense and scientific communities, an effective national missile defense is a technical impossibility, and theater missile defense is little more than incremental improvements to existing ship and surface-to-air missiles. From this perspective, it is easy to dismiss Chinese concerns as either excessively naive, or as smokescreen for other issues.

Nevertheless, China genuinely perceives research, development, and deployment of these technologies as a direct security challenge, even (in the minds of some Chinese) as a threat targeted at the Chinese mainland. Whether this is a rational perception by U.S. standards is less important than the fact that it is very real in the minds of Chinese defense planners and scientists. Thus, Chinese officials regularly link continued U.S. deployments of theater missile defense (TMD) in Asia as well as research on a national missile defense, with China's willingness to participate in international arms control agreements. In September 1998, for example, a Chinese defense planner cited U.S. TMD policy as one of three considerations that would affect China's decision whether or not to join the Missile Technology Control Regime. Other Chinese officials have at times implied that China would even withdraw from existing regimes if the United States continues TMD deployments. Chinese analyses of U.S. TMD policy do not specify the trip wires, that is the types of hardware or capabilities, that would trigger a Chinese response, and requests for clarification only meet with general statements about the dangers of the current U.S. policy.[2] The United States has already deployed several systems that are the first step towards TMD, and China has not responded specifically to those deployments. China did not respond directly when the United States and Russia revised their understanding of the ABM Treaty to permit exploration of technologies that would contribute to missile defense, although the Chinese criticized this reinterpretation as a dangerous step backwards. China's response to the U.S. withdrawal from the ABM Treaty was solely rhetorical. Whatever the triggers might be, and the Chinese themselves might not know, Chinese suspicions appear to have little to do with specific weapon systems, and technical arguments fall on deaf ears. This is as much a political as a military or technical dispute.

Taiwan

Reunification of the PRC with Taiwan has long been understood to be a national objective, and one that has become more important over time. With the demographic changes that have taken place in Taiwan and the emergence of the

Independence Party as a force in Taiwanese politics, China has also begun to describe the possibility that Taiwan would declare its independence as a threat to Chinese security.[3] China has never proposed an international arms control or nonproliferation regime specifically aimed at preventing this possibility, but the Chinese have suggested that international regimes be modified to satisfy their concerns about Taiwan. For example, China has suggested that advanced aircraft be included in the MTCR. The rationale for this is that aircraft are just as effective a means of delivering ballistic missiles as are rockets, which are covered by the MTCR. If the regime is intended to prevent the use of ballistic missiles, in theory it should prevent their introduction by any means. It is also true that if aircraft were covered in the MTCR, China could be assured of limits on Taiwan's acquisition of advanced fighters, and China's request is motivated by that goal. The reason for excluding aircraft from the MTCR is that it is possible to defend against aircraft attacks, but much harder to do so against missile attacks. Chinese officials have also claimed that the U.S. sale of Patriot missiles to Taiwan constitutes a violation of the MTCR. Their attempts have been unsuccessful, primarily because Taiwan is a unique and a purely regional security problem; it is unlikely that any of the existing regimes can realistically be reconfigured to satisfy Chinese demands with respect to this issue.

Japanese rearmament

Despite a reasonably strong economic and trade relationship with Japan, Chinese scholars and analysts regularly express deep suspicions of Japan's potential military power. Whether this fear is only meaningful in China's defense planning because of the possibility that Japan would help defend Taiwan, or whether it exists on its own merits, is not clear. Chinese analysts point to the existence of some degree of Japanese sympathy for Taiwan, as well as Japan's advanced weapons technology and plutonium inventory, as evidence that China could be challenged by a military giant in its own backyard. This explains China's criticism of the United States after the 1997 clarification of the U.S. bilateral security treaty with Japan, although Chinese officials reluctantly admit that they do not, on the other hand, want the United States to abrogate or substantially weaken the security treaty. Whether China genuinely fears Japanese military power or whether this concern is another manifestation of the Taiwan problem, the existing security regimes (all of which Japan has joined) do not address the core issue. The fact that even the Japanese constitutional provision that prohibits projection of power or export of military technologies is unconvincing to China suggests that this is primarily a political problem.

The mismatch between the regimes and China's security issues

The possibility exists that over time China will be able to use its influence in a way that persuades international institutions to address Chinese security issues. Most treaties and agreements were conceived without much attention to Chinese concerns. However, it is also possible that the existing institutions are structurally incapable of addressing China's security problems. This means that China can be expected to take unilateral action, some of which might well be seen as threatening, particularly by China's neighbors.

One approach that has yet to be implemented is cooperative security. Cooperative security is an emerging and flexible concept, but as a rule it calls for dialogue, trust, transparency, and confidence building as a prerequisite, or possibly even a substitution, for legally negotiated restraints and verification systems. This option is viable in instances where there are no formal alliances or arms control agreements. The framework that might offer regional security—the ASEAN Regional Forum, in this case—is still too immature, however, to provide much reassurance either to China or to those who fear Chinese power.

Thus, China's new role in international arms control institutions should not be seen as an indication that these regimes are addressing China's own security needs. The most that can be said is that the existing regimes are not inconsistent with Chinese security objectives. U.S. diplomats and foreign policy analysts have emphasized the security benefits to China of a stable Korean peninsula, controls on proliferation to countries without full scope nuclear safeguards, and a reduction of missile and nuclear sales to the Middle East. The Chinese acknowledge that these goals serve China's interests, *but they only serve China's secondary interests.* Primary security concerns, such as the threat of an independent Taiwan or a separatist movement in Tibet are outside their scope. Whether the existing structure can be modified to accommodate China's front burner security concerns is an open question. Chinese diplomats have worked hard to influence the course of treaty negotiations and have enjoyed some success, particularly in the CTBT, CWC, and U.N. ROCA. Their diplomatic skills and negotiating position continue to gain strength. Without any alliances, and with an international security order that does not answer China's most pressing security interests, it would not be surprising to see the Chinese put forward their own proposals for new arms control regimes that relate more directly to their own interests.

Because of this asymmetry, China is unlikely to agree to, much less propose or support, confrontational solutions to international nonproliferation crises that threaten a regime. This is especially true if the approach involves the use of military force, the threat of military force, or the application of economic sanctions. By refusing to lend credibility to a confrontational approach in Iraq or North Korea, the Chinese have been able both to avoid offending countries with whom they have a historically good relationship, and at the same time preserve the right to object if China itself becomes the target of a confrontation. The Chinese

consistently oppose economic sanctions and have never used them unilaterally, regardless of the target country. The record of Chinese compliance with internationally mandated sanctions is unclear. There are no obvious violations in the case of Iraq, but in the future, it would be unwise to expect Chinese cooperation with economic sanctions without a truly global consensus, and it would be wise to anticipate that China will oppose the use of military force in the name of defending a nonproliferation regime.

Notes

1
Introduction

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2
Nuclear nonproliferation regimes: the Nuclear Nonproliferation Treaty and the International Atomic Energy Agency

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24. Kyodo News Service, "Debate on Nuclear Treaty Set," *FBIS Daily Report: China,* October 22, 1991, p. 14.
25. Former State Department official, telephone interview, September 1998.
26. China could not formally "ratify" the treaty or deposit an instrument of "ratification" because the treaty stipulates that states who join after 1968 can only "accede" to the treaty. Formally, they are not parties to the NPT. However, countries that "accede" to the treaty are legally bound by the same restrictions as the members, that is, the

original signatories. For this discussion, China will be referred to as a "member" of the NPT despite not being one of the original states to ratify the treaty.

27. Xinhua News Service, "Nuclear Cooperation Accord Signed With Pakistan," *FBIS Daily Report: China,* December 31, 1991, p. 11.
28. Referred to in 1999 as "normal trade status."
29. President Clinton formally "delinked" proliferation from the annual trade debate in 1993. This eliminated the requirement that he certify China's good behavior as a prerequisite for normal trading status. However, ever since the Republicans gained a majority in 1994, the Congress has used the June hearings on trade with China as a platform to raise proliferation concerns.
30. James A.Baker III, *The Politics of Diplomacy: Revolution, War and Peace,* New York: G.P.Putnam's Sons, 1995, p. 391.
31. Discussion between the author and nuclear scientists from the Chinese Academy of Engineering Physics, Beijing, 1993.
32. Richard W.X.Hu, "Nonproliferation Export Controls in China: policy evolution and statutory development." Paper presented at the Nonproliferation Export Control Regimes in the Asia Pacific Region, Waseda University, Tokyo, December 1997, p. 5.
33. *Arms Control Reporter,* CD-Rom Version, 1995, Section 602: Nuclear Nonproliferation Treaty.
34. Sha Zukang, "Chinese Statement at 1999 NPT Prepcom" <http://www.basicint.org/nuclear/prepcom99/99China_Statement.htm>(accessed August 2001).
35. The text of the treaty calls for the nuclear weapons states to "pursue negotiations in good faith on effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control."
36. Federation of American Scientists database, <http://www.fas.org/nuke/control/zangger/> (accessed July 2000).
37. International Atomic Energy Agency, *INFCIRC/539: Communication Received.*
38. International Atomic Energy Agency, *The IAEA Safeguards System: Ready for the 21st Century,* <http://www.iaea.org/worldatom/Press/Booklets/Safeguards2/intro.html> (accessed June 2003).
39. The Zangger Committee also established three conditions that members had to insist on before exporting nuclear items: IAEA safeguards, a promise of nonexplosive use, and a commitment to apply the previous two conditions in the event of a retransfer.
40. International Atomic Energy Agency, *The IAEA Safeguards System.*
41. International Atomic Energy Agency, *INFCIRC/53: Communication Received.*
42. Evidence is anecdotal on this point. Former American diplomats differ widely in their opinions. A search of Chinese legal journals from the period did not turn up any articles related to proliferation or export controls. At this point, of course, China's post-Mao legal system was still in its infancy.
43. At the time that the United States adopted a full scope safeguards requirement, more than 40 countries remained outside the NPT. These included Algeria, Brazil, France, Korea, and Spain, and Brazil were also non-NPT members. Thus the full scope safeguard requirement was much more restrictive, since it closed off nuclear trade with many more countries than it does today. Many have since acceded to the NPT and placed all their facilities under safeguards. By the time China joined the NPT in

1992, the number of non-NPT countries had dropped to about 20, many of which were not significant export markets for nuclear technologies.

44. *Energy Technology Transfer To China,* Washington, D.C., U.S. Congress, Office of Technology Assessment, 1985, pp. 31–44.
45. Bernard Gwertzman, "Cranston Assails United States-China Accord," *New York Times,* October 22, 1985, p. A1.
46. Wen Wei Po, "Editorial Views Results of PRC-U.S. Nuclear Pact," *FBIS Daily Report: China,* April 30, 1984, p. W5.
47. U.S. House of Representatives, "Hearing and Mark-up Before the Committee on Foreign Affairs," Ninety-Ninth Congress, First Session on HJ Res. 404, February 1985.
48. Jennifer Weeks, "Sino-U.S. nuclear cooperation at a crossroads," *Arms Control Today,* June–July 1997, <http://www.armscontrol.Org/act/l 997_06–07/weeks.asp> (accessed July 2003).
49. A thorough history of the Pakistani bomb effort up until 1989 can be found in United States Senate, "Pakistan's Dispossessed Bomb," *Congressional Record,* S15880, Vol. 135, no. 161, November 16, 1989.
50. Xinhua News Service, "Delegate Addresses IAEA Session in Vienna," *FBIS Daily Report: China* September 17, 1991, p. Al.
51. *Arms Control Reporter,* CD-Rom version, 1991, Section 453: Middle East.
52. *Arms Control Reporter,* CD-Rom version, 1995, Section 602: Nuclear Nonproliferation Treaty.
53. *Arms Control Reporter,* CD-Rom version, 1995, Section 602: Nuclear Nonproliferation Treaty.
54. Agence France Presse, "PRC Spokesman Denies Sales of Nuclear Technology to Pakistan," *FBIS Daily Report: China,* March 26, 1996, p. 2.
55. Vivien Pik-Kwan Chan, "PRC Nuclear Corporation Denies Proliferation with Pakistan," *South China Morning Post,* April 3, 1996, p. 9.
56. Center for Nonproliferation Studies, Database Entry: "China's 11 May 1996 Pledge Not to Provide Assistance to Unsafeguarded Nuclear Facilities," In *China Profiles Database,* Monterey, California, Monterey Institute of International Studies, <http://www.nti.org/db/china/Mayll.htm> (accessed July 2003).
57. *Arms Control Reporter,* CD-Rom Version, 1996, Section 602: Nuclear Nonproliferation Treaty, May 10.
58. The 1998 regulations included a statement that "MOFTEC, working with relevant State Council departments, may make an *ad hoc* decision of exercising control over the export of specific dual-purpose nuclear goods and correlated technologies not listed in the Control Inventory." This clause aims for the same effect as the U.S. catch-all clause that focuses on the destination and the end use of the item as the reason for denial of export (rather than the item itself). See the text of the regulation in the Center for Nonproliferation Studies Database, <http://www.nti.org/db/china/engdocs/nduregs.htm> (accessed July 2003).
59. *Arms Control Reporter,* CD-Rom Version, 1997, Section 602: Nuclear Nonproliferation Treaty.
60. Paul Leventhal, "Statement for the Record: The United States-China Nuclear Agreement," Washington, D.C.: Nuclear Control Institute, 1997, <http://www.nci.org/p/pll0797.htm> (accessed July 2003).

61. *Report of Proliferation-Related Acquisition in* 1997, Washington, D.C., Central Intelligence Agency, 1998, <http://www.cia.gov/cia/publications/acq1997.htm> (accessed April 2001).
62. *Adherence to and Compliance with Arms Control Treaties: 1996 Report to Congress,* Washington, D.C., U.S. Arms Control and Disarmament Agency: 1996, <http://www.state.gov/www/global/arms/reports/annual/comp97.html> (accessed June 2002).
63. General Agreement on Trade and Tariffs, the predecessor of the World Trade Organization.

3
The Comprehensive Test Ban Treaty

1. For the complete treaty text, see <http://www.ctbto.org/> (accessed July 2003).
2. Indirectly, by limiting China's ability to make qualitative improvements to its nuclear warheads.
3. For excellent background on the treaty negotiations, see articles between 1993 and 1996 in the online publication *Disarmament Diplomacy* at <http://www.acronym.org.uk/dd/index.htm> and *Acronym Reports* 1, 2, 3, 8, 9, and 10 at <http://www.acronym.org.uk/acrorep/index.htm> (accessed July 2002).
4. For details on the endgame of the negotiations, see Rebecca Johnson "The CTBT: A Special Report," in *Disarmament Diplomacy,* Issue 8, September 1996, <http://www.acronym.org.uk/dd/dd08/index.htm#T-0039> (accessed September 2002).
5. For a review of China's historical position on nuclear test bans, see Banning N. Garrett and Bonnie S. Glaser, "Chinese Perspectives on Nuclear Arms Control," *International Security,* vol. 20, no. 3, Winter 1995–96, pp 43–78.
6. For documentation of U.S. positions on the CTBT over time, see the chronology compiled by the Federation of American Scientists, <http://www.fas.org/nuke/control/ctbt/chron.htm> (accessed June 2002).
7. *Arms Control Reporter,* CD-Rom version, "Statement of the Government of the People's Republic of China on the Question of Nuclear Testing," 1993, Section 608: CTBT, October 5.
8. Robert S. Norris, "French and Chinese Nuclear Weapons Testing," *Security Dialogue,* vol. 27, no. 1, March 1996, pp. 39–54.
9. *Arms Control Reporter,* CD-Rom version, 1996, Section 608: CTBT, June 6.
10. Rebecca Johnson, "The CTBT."
11. Subcritical tests, on the other hand, do not release any nuclear yield and are permitted under the CTBT; the United States, Russia, and China perform these tests. Thanks to Stan Norris for educating this point.
12. Zou Yunhua, *China and the CTBT Negotiations,* Stanford University Center for International Security and Arms Control, December 1998, available at <http://cisac.stanford.edu> (accessed June 2002).
13. *Arms Control Reporter,* CD-Rom version, 1994, Section 608: CTBT, June 29.
14. See information on treaty verification at <http://www.fas.org/nuke/control/ctbt/index.html> (accessed July 2003).
15. *Arms Control Reporter,* CD-Rom version, 1994, Section 608: CTBT, August 8.
16. Zou Yunhua, *China and the CTBT.*

17. <http://www.nti.org/db/china/engdocs/sha0396.htm> (accessed July 2003). Sha's opinion was repeated by many other Chinese analysts and officials.
18. "Further Views on a Global EMP Monitoring System," Working Paper submitted by China to the Conference on Disarmament, September 5, 1995, CD/NTB/WP.267.
19. "The Question of Including Noble Gas Monitoring Capacity in the Atmospheric Radionuclide Monitoring Network," Working Paper submitted by China to the Conference on Disarmament, CD/NTB/w9.268, September 5, 1995.
20. *Arms Control Reporter,* CD-Rom version, 1996, Section 608: CTBT, May 14.
21. *Arms Control Reporter,* CD-Rom version, 1996, Section 608, June 9.
22. The antipathy to foreign inspections was not limited to the security realm. Various Chinese government agencies had by this time also registered opposition to international inspection agencies even when such inspections were specifically mandated by commercial contracts. Although this opposition might have resulted from bureaucratic turf wars (Chinese government agencies that were responsible for commercial inspections saw their role diminishing), it also probably reflects an unease with the very concept of foreign inspections. See Avi Ben Avraham, "Inspection Turf Wars," *China Business Review,* May–June 1993, pp. 48–51.
23. "China's Position on CTBT On-Site Inspection" Working Paper submitted to the Ad Hoc Committee on a Nuclear Test Ban, Conference on Disarmament, CD/NTB/WP.266, September 5, 1995, p. 2.
24. For a detailed discussion of China's position on many of the contentious issues in these negotiations, see Zou Yunhua, *China and the CTBT Negotiations,* Stanford University Center for International Security and Arms Control, December 1998, available at <http://cisac.stanford.edu> (accessed June 2003).
25. *Arms Control Reporter,* CD-Rom version, 1996, Section 608: CTBT, June 26, July 24 and August 9.
26. Rebecca Johnson, "The CTBT."
27. Darryl Kimball, "How the U.S. Senate Rejected CTBT Ratification," *Disarmament Diplomacy,* Issue 40, <http://www.acronym.org.uk/dd/dd40/40wrong.htm> (accessed June 2002).
28. See the CTBT homepage for a map showing all the monitoring stations: <http://www.ctbto.org>.
29. "Arms Control and Disarmament," *China Daily Online,* July 9, 2003, <http://www3.chinadaily.com.cn/en/doc/2003–07/09/content_244136.htm> (accessed July 2003).
30. Reuters News Service, May 13, 1998.
31. The Center for Nonproliferation Studies of Monterey Institute for International Studies has compiled all the Chinese public statements about the South Asian nuclear tests at <http://www.nti.org/db/china/nsascris.htm> (accessed July 2003).
32. *Arms Control Reporter,* CD-Rom version, Section 608: CTBT, May 30, 1998.
33. Monterey Institute of International Studies, China Profiles Database, <http://www.nti.org/db/china/nsascris.htm> (accessed June 2002).
34. Rebecca Johnson, "Spotlight on the CTBT: Report of the CTBT Article XIV Conference," *Disarmament Diplomacy,* Issue Number 40, October 1999, <http://www.acronym.org.uk/dd/dd40/40artxiv.htm> (accessed June 2002).
35. Rebecca Johnson, "The NPT Review Conference: A Delicate, Hard Won Compromise," *Disarmament Diplomacy,* Issue no. 46, May 2000, <http://www.acronym.org.uk/dd/dd46/46npt.htm> (accessed July 2002).

36. Chinese positions were in a different category from those of, for example, India, which demanded as a precondition for signing the CTBT that the treaty include a clause making entry into force conditional on an agreement about complete nuclear disarmament. India proposed specifically that "this Treaty shall enter into force only after all states parties have committed themselves to the attainment of the goal of total elimination of all nuclear weapons within a welldefined framework (of ten years)." According to one commentator, "the bracket around the ten year target date was intended to show that this was negotiable, but had the effect of causing the P-5 to suffer apoplexy." In other words, it was a nonstarter. Such a linkage with entry into force is opposed by almost everyone, and was seen to be India's holding position to insure more genuine negotiations on its preambular and review proposals.
37. Zou Yunhua's paper is the only source that credits the Chinese delegation with the development of the language on data screening later incorporated into the compromise drafted by Ralph Alewine, friend of the Chair of the IDC, and ultimately incorporated into the treaty, as a Chinese contribution. She says that "the data screening function was largely the result of efforts and contributions made by the Chinese delegation," and she refers to a Chinese "nonpaper" presented to a Working Group meeting in 1996. It is difficult to find any sources that confirm the compromise language as a uniquely Chinese contribution.
38. China also dropped an important entry-into-force requirement: namely, that CTBT signatories be members of the CD. This requirement meant that certain nuclear threshold states who maintained ideological objections to the CD, but whose participation was seen as a main object of the treaty, would never sign it.
39. Statement by Ambassador Sha to the Conference on Disarmament, CD/PV.717, September 15, 1995, pp. 2–8.
40. Sun Xiangli, *Implications of a Comprehensive Test Ban for China's Security Policy,* Stanford University Center for International Security and Arms Control, June 1997, p. 8.
41. Sun Xiangli, *Implications of a Comprehensive Test Ban,* pp. 8–9.
42. Just after the treaty was signed, the United States and China did resume arms control and nonproliferation discussions, but these consultations focused more on the issues that continued to divide the two governments than on China's progress to date. In his prepared statement at the conclusion of the talks, ACDA director John Holum almost made it sound as though China's role had been not notably different from that of other participants. Specifically, he said, "We find increasingly that China is a constructive partner on a number of our global arms control priorities, including, for example, most recently our collaboration in achieving a comprehensive ban on nuclear testing, which involved in the very endgame of the negotiations a number of compromises by China and a number of compromises by the United States and others." Given the number of objections to the treaty that China had dropped, these remarks are at best restrained. They also suggest that China was complying with U.S. demands rather than entering into a global norm, an unfortunate implication for Chinese officials who might well have been under pressure to defend their decisions regarding the CTBT.
43. The United States at least included in its statement both criticism of the test and praise for China's entry into a moratorium. A number of countries limited their response to condemnation. A good example is South Korea, which issued a statement saying it expressed "deep regret and disappointment."

44. Zou Yunhua, *China and the CTBT.*
45. The two papers that have been written on this subject by Chinese authors rely almost exclusively on non-Chinese documents. The fact that China maintains a high level of secrecy about a policy decision that ought to bring only accolades reflects the wide gap between standards of transparency in China and in the United States.

4
The Biological Weapons Convention

1. For the complete text of the protocol, see <http://www.brad.ac.uk/acad/sbtwc/keytext/genprot.htm> (accessed June 2002).
2. Center for Nonproliferation Studies, *Inventory of International Nonproliferation Organizations and Regimes,* Monterey, California: Monterey Institute of International Studies, 2000, p. 177.
3. In addition, many states attached reservations to the convention, making it little more than a no-first-use pledge. Thanks to Michael Moodie for pointing this out to me.
4. J. Christian Kessler, *Verifying Nonproliferation Treaties: Obligation, Process, and Sovereignty,* Washington, D.C., Institute for National Security Studies, pp. 51–2.
5. For the complete text of the convention, see <http://www.brad.ac.uk/acad/sbtwc/keytext/textcon.htm> (accessed June 2002).
6. "News Chronology: November 1996 through February 1997," *Chemical Weapon Convention Bulletin,* Issue 35, <http://www.fas.harvard.edu/~hsp/bulletin/cwcb35.pdf> (accessed June 2002).
7. "Biological and Toxic Weapons Convention Database: Ad Hoc Group Documents," <http://www.brad.ac.uk/acad/sbtwc/adhocgrp/bw-adhocgrp.htm> (accessed January 2002).
8. Federation of American Scientists Database, "BWC Protocol Under Negotiation," <http://www.fas.org/bwc/protocol.htm> (accessed January 2002).
9. U.S. Department of State," US Negotiator Testifies on Biological Weapons Convention," July 10, 2001, <http://ea.usa.or.th/mirror/usinfo.state.gov/topical/pol/arms/stories/01071101.htm> (accessed September 2001).
10. Graham S. Pearson, "The US Rejection of the Protocol at the Eleventh Hour Damages International Security Against Biological Weapons," *CBW Conventions Bulletin,* Issue 53,<http://www.fas.harvard.edu/~hsp/bulletin/cbwcb53.pdf> (accessed December 2002).
11. For the complete text of Mahley's statement, see the homepage of the U.S. Mission in Geneva <http://www3.itu.int/MISSIONS/U.S./press2001/0725mahley.htm> (accessed January 2002) Reporters' questions and answers can be found at <http://www3.itu.int/MISSIONS/U.S./press2001/0725mahleybriefing.htm> (accessed January 2002).
12. For more details on the events at the Fifth BWC Review Conference, see Federation of American Scientists Database, "Bioweapons Conference Fails" at <http://fas.org/bwc/news/verticpressrelease.htm> (accessed March 2002) and Jenni Rissanen, "Anger After the Ambush: Review Conference Suspended After US Asks for AHG's Termination" *BWC BWC Review Conference Bulletin,* December 9, 2001, <http://www.acronym.org.uk/bwc/revcon8.htm> (accessed July 2003).

13. Yan Zheng, "A New Field in the Soviet-US Arms Race," *FBIS Daily Report: China,* March 8, 1982, pp. Al–3.
14. Yan Zheng, "A New Field," p. 3.
15. Letter from Chinese Foreign Minister Wu Xueqian to U.S. Secretary of State George Shultz, regarding China's accession to the Biological Weapons Convention (excerpts), November 16, 1984, <http://www.nti.org/db/china/engdocs/bwcll84.htm> (accessed July 2003).
16. Xinhua News Service, "Spokesman on Joining Biological Weapons Convention.," *FBIS Daily Report: China,* September 20, 1984, p. K2.
17. Xinhua News Service, "PRC Accedes to Toxic Weapons Prohibition," *FBIS Daily Report: China,* November 21, 1984, p. A1.
18. *Arms Control Reporter,* CD-Rom version, 1993, Section 701: Biological Weapons Convention September 13 (accessed January 2002).
19. Three regional groups (whose origin can be found at the Conference on Disarmament) have formed at BWC meetings: the former Warsaw Pact nations, known as the Eastern European Group; the industrialized countries, known as the Western Group; and the traditionally nonaligned countries, known as the NAM. China, Brazil, and Mexico are members of the NAM Group.
20. Review Conference measures can only be adopted by consensus of all parties.
21. Chinese working papers can be found by accessing the following web pages: <http://www.brad.ac.uk/acad/sbtwc/2ndsesswp/doc27.pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/2ndsesswp/docl 8r1.pdf> 1 .pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/2ndsesswp/docl8.pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/ahg41wp/wp291.pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/ahg43wp/wp313.pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/ahg54wp/wp432add1.pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/ahg54wp/wp432.pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/ahg56wp/wp453.pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/ahg56wp/wp452.pdf> (accessed June 2002); <http://www.brad.ac.uk/acad/sbtwc/ahg56wp/wp451.pdf> (accessed June 2002).
22. Ambassador Sha made these remarks at the Carnegie Endowment for International Peace Annual Nonproliferation conference in January 1999. For the complete transcript, see <http://www.ceip.org/files/events/Conf99Sha.asp?> (accessed April 2002)
23. "News Chronology," *CBW Conventions Bulletin,* Issue 46 December 1999, p. 27.
24. For the complete text, see <http://www.brad.ac.uk/acad/sbtwc/ahg56wp/wp453.pdf> (accessed July 2002).
25. "Working Paper Submitted by China, Cuba, India, Indonesia, Iran (Islamic Republic of), Libyan Arab Jamahiriya, Mexico, Pakistan, and Sri Lanka," Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development, Production, and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, 23rd Session, April 23–May 11, 2001, WP 452, May 7, 2001, <http://www.brad.ac.uk/acad/sbtwc/ahg56wp/wp452.pdf> (accessed July 2003).
26. Statement by Ambassador Sha Zukang, head of the Chinese Delegation, at the 5th Review Conference of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin

Weapons and on Their Destruction, November 19, 2001, Geneva, <http://www.nti.org/db/china/engdocs/shall01.htm> (accessed June 2003).

27. U.S. Arms Control and Disarmament Agency, *Adherence to and Compliance with Arms Control Treaties: 1996 Report to Congress,* Washington, D.C., 1996, <http://www.state.gov/www/global/arms/reports/annual/comp.htmlWashington,DC> (accessed June 2002).
28. U.S. Arms Control and Disarmament Agency, *Adherence to and Compliance with Arms Control.*
29. U.S. Defense Department, *Proliferation: Threat and Response 1997,* Washington, D.C., 1997, <http://www.defenselink.mil/pubs/prolif97/toc.html> (accessed August 2002).
30. *Arms Control Reporter,* CD-Rom version, 1997, Section 701: Biological Weapons Convention, January 8.
31. William Broad and Judith Miller, "Soviet Defector Says China Had Accident at a Germ Plant," *New York Times,* April 5, 1999, p. A6.
32. Government of China, PRC Information Office of the State Council, *White Paper on China's National Defense in* 2002, December 9, 2002, < http://www.fas.org/nuke/guide/china/doctrine/natdef2002.html> (accessed August2003).
33. U.S. State Department, *US–China Joint Statement on Biological Weapons,* Washington, D.C., June 27, 1988, <https://usis.usemb.se/regional/ea/uschina/bioweps.htm> (accessed October 1998).
34. *Regulations of the People's Republic of China on Export Control of Dual Use Biological Agents and Related Equipment and Technology,* October 14, 2002, <http://www.nti.org/db/china/engdocs/bioregs_1002.htm> (accessed July 2003); *People's Republic of China Export Control of Dual Use Biological Agents and Related Equipment and Technologies Control List,* October 14, 2002, <http://www.nti.org/db/china/engdocs/biocontr_1002.htm> (accessed July 2003).
35. *House of Cards: The Importance of a Technically Sound BWC Monitoring Protocol,* Stimson Center Report #37, Washington, D.C., 2001, <http://www.stimson.org/cbw/pubs.cfm?ID=13> (accessed August 2002).
36. For background on China's biotechnology industry see, David Stipp, "China's Biotech Is Starting to Bloom," *Fortune,* September 2, 2002, online version <http://www.fortune.com/indexw.jhtml?channel=artcol.jhtml6cdoc_id=209074> (accessed June 2002).

5
The Chemical Weapons Convention

1. J. Christian Kessler, *Verifying Nonproliferation Treaties: Obligation, Process, and Sovereignty,* Washington, D.C., Institute for National Security Studies, 1995, pp. 75–7.
2. Eric Croddy, "China's Role in the Chemical and Biological Disarmament Regimes," Nonproliferation Review, Spring 2002, vol. 9, no. 1, p 32. See the working papers that China submitted to the CD on chemical weapons, including "Principled Position and Proposals on the Issue of Abandoned Chemical Weapons," CD/CW/WP.387, February 20, 1992; "Working Paper on the Definition and Criterion of 'Other Harmful Chemical,'" CD/CW/CTC/3, March 15, 1982; "Some Information on

Discovered Chemical Weapons Abandoned in China by a Foreign State," CD/CW/WP.384, February 18, 1992; "Destruction of Chemical Weapons," CD/CW/WP 114, July 4, 1985; see also various statements of China's ambassador for disarmament on chemical weapons in CD/PV.170, April 8, 1982, p. 29; CD/PV.192, February 8, 1983, p. 30; CD/PV.214, April 21, 1983, p. 22.

3. The United States had submitted the declarations relating to chemical weapons, but not those pertaining to industrial chemicals.
4. For full text of the white paper, see <http://www.chinadaily.com.cn/cndydb/2000/10/dl-6re~l.al7.html> (accessed September 2002). This statement was repeated verbatim in China's 2000 *White Paper on National Defense* which can be found at <http://www.fas.org/nuke/guide/china/doctrine/cnd0010/china-001016wp.htm> (accessed August 2002). The same statement can be found in the 2002 White Paper: Government of China, PRC Information Office of the State Council, *White Paper on China's National Defense in* 2002, December 9, 2002, <http://www.fas.org/nuke/guide/china/doctrine/natdef2002.html> (accessed August 2003).
5. The complete text can be found at <http//www.opcw.org/> (accessed September 2002).
6. Schedule 1 lists compounds that are primarily for use as weapons or precursors to weapons; these are the most heavily controlled. Schedule 2 includes chemicals that are key precursors to chemical weapons but also have significant commercial application. Schedule 3 chemicals are used in large quantities for nonprohibited purposes.
7. The treaty also requires states to offer assistance to any member who suffers a chemical attack and obliges states to cooperate in chemical activities for peaceful purposes.
8. Permitted purposes include industrial, agricultural and medical applications, research and development of protection and defense against CW, and domestic law enforcement and riot control. Lachrymator agents or herbicides, for example, are not banned as long as their production and retention are consistent with the goals of the CWC.
9. The details of these transfers must be declared to the OPCW.
10. If the recipient country is not a signatory to the CWC, there must be an end use certificate.
11. Schedule 1 includes chemicals that are used exclusively for chemical weapons, Schedule 2 includes most dual-use chemicals, and Schedule 3 includes chemicals that are widely used in commercial products.
12. U.S. opponents of the treaty focused not only on the disclosure requirements but also on the cost of implementing the treaty, on the possibility that the treaty could not be effectively verified or enforced, and on the effect that implementation of the CWC would have on the U.S. chemical deterrent. When Congress wrote the implementing legislation, it added three exemptions: the president can refuse an on-site inspection on grounds of national security; no samples collected during an inspection can leave the United States; and the United States will decrease the number of facilities that are required to make declarations and are therefore potential targets of OPCW inspections. See Amy Smithson, "US Implementation of the CWC," in Jonathan Tucker (ed), *The Chemical Weapons Convention: Implementation Challenges and Solutions,* Washington, D.C., Monterey Institute of International Studies Center for Non Proliferation Studies, April 2001, pp 23–31.

13. China's chemical industry represents approximately $80 billion of China's gross domestic product and is composed of over 10,000 factories, laboratories, and research institutes.
14. Steven Lundbo, 'Non-Proliferation: Expansion of Export Control Mechanisms', *Aussenpolitik,* November 1997, pp. 137–47, <http://projects.sipri.se/expcon/australia_group.htm> (accessed July 2003).
15. Ambassador Sha made this remark in a speech at the Carnegie Endowment for International Peace annual conference on Nonproliferation in 2000. It is important to recognize that he was on safe ground in making this suggestion, because it would be virtually impossible to gain consensus within the CWC for strengthening the rules to the standards of the Australia Group.
16. Maria Haug, "Historical Chemical Weapons Sites in the Asia-Pacific Region," Bonn, Germany, Bonn International Conversion Center, <http://bicc.unibonn.de/weapons/chemweap/asiapac/china.html> (accessed September 2002).
17. "News Chronology: May through July 1999," *CBW Conventions Bulletin,* Issue 45, September 1999, p. 18, <http://fas-www.harvard.edu/~hsp/bulletin/cbwcb45.pdf> (accessed July 2003).
18. Seigi Hinata, "ACW Destruction Project in China," Director General Cabinet Coordination Office for ACW, Japan, Japanese presentation at the Stimson Center, June 24, 1998; Deng Hongmei and Peter O'Meara Evans, "Social and Environmental Aspects of Abandoned Chemical Weapons in China," *The Nonproliferation Review,* vol. 4, no. 3 pp. 101–08.
19. The CWC has a clause that permits a state to withdraw when supreme national interest is at stake, but the price for doing so would be high.
20. The official White Paper on defense states that "China has consistently advocated the complete prohibition and thorough destruction of chemical weapons. It does not produce or possess chemical weapons."
21. Eric Croddy, "China's Role," p. 32.
22. Director General, Organization for the Prohibition of Chemical Weapons, *Overvieiv of Declarations Received and the Status of Completed and Ongoing Inspections,* OPCW EC-III/DG.4/Add. 2., 1997.
23. Xinhua News Service, "Zhang Zai on Chemical Weapons," *FBIS Special Memorandum,* December 18, 1989, p. 2.
24. White Paper, China: Arms Control and Disarmament Information Office of the State Council of the People's Republic of China, Beijing, November 1995, <http://www.nti.org/db/china/engdocs/whteppr.htm> (accessed July 2003).
25. Judy Aita, "New Chemical Weapons Agency Completes 80 Initial Inspections: Director Bustani Discusses Future Challenges," *Hill News,* October 17, 1997, <http://www.tmd02.saic.com:8080newhill> (accessed October 1997).
26. Wu Jianguo, "A Discussion of the Chemical Threat and Countermeasures Since the Chemical Weapons Convention Took Effect," *Beijing Zhongguo Junshi Kexue,* May 20, 1997, no. 2, pp. 135–7.
27. Until 1998, this institute was a "closed" facility and its personnel were not permitted to meet with foreigners.
28. During the CWC negotiations, technical experts from each country met to discuss the details of the treaty's implementation. Each year these experts participated in exercises referred to as the "round robin" in which they received an unidentified chemical sample. The experts competed to see who could arrive at the most accurate

identification of the sample. According to a U.S. expert, China won the competition regularly and the participating Chinese laboratory is the one that was chosen to support the CWC. See Xinhua Hong Kong News Service, "PLA Anti-Chemical Corps Improves Ability," *FBIS Daily Report: China,* December 28, 1997, p. 5. For information about the specific laboratory selected, see "Chinese Lab Listed for Inspection," *Xinhua News Service,* February 21, 1999.

29. U.S. Department of Defense, *Proliferation: Threat and Response,* Washington, D.C., 1997, <http://www.defenselink.mil/pubs/prolif97> (accessed July 2003); the 2001 threat and response report was silent on the question of China and chemical weapons.
30. Li Daoyu, "Foreign Policy and Arms Control: The View from China," *Arms Control Today,* December 1993, pp. 9–11.
31. Robert Einhorn's April 1997 testimony reflects the U.S. attitude: We… welcome China's adoption in December 1995 of its chemical export control regulation and the supplement to that regulation issued in March of this year. We are deeply concerned, however, by the discrepancy between these positive steps and substantial information available to us that various Chinese entities have transferred chemical precursors, chemical production equipment, and production technology to Iran, which we will expect them to use in their chemical weapons program, one of the most active in the world today. See <http://www.nti.org/db/china/engdocs/ein0497.htm> for the full text.
32. *Arms Control Reporter* CD-Rom version, 1996 Section 704: Chemical Weapons, November, 21.
33. The legal basis for the sanctions is the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991. See <http://www.nti.org/db/china/engdocs/ein0497.htm> (accessed May 2002) for the full text of the U.S. government statement at the time.
34. It was reported to have taken place before entry into force of the CWC.
35. The company being referred to is the Nanjing Chemical and Industrial Group, the same company that was the target of U.S. sanctions earlier in the year. See <http://secretary.state.gov/www/briefings/9710/971030db.html> for the full text of Rubin's statement.
36. U.S. Department of Defense, *Proliferation: Threat and Response.*
37. And its subsidiaries and successor organizations.
38. The specific legislation referred to was the Iran Nonproliferation Act of 2000 which can be found in its entirety at <http://www.nti.org/db/china/engdocs/iranact.htm> (accessed September 2002).
39. "Notices: Bureau of Nonproliferation; Imposition of Nonproliferation Measures Against a Chinese Entity, Including Ban on U.S. Government Procurements," *Federal Register,* vol. 66, no. 123, June 26, 2001, see <http://www.nti.org/db/china/engdocs/fedreg.pdf> (accessed June 2002).
40. <http://www.nti.org/db/china/sanclist.htm> see also Seth Brugger, "China Sanctioned for Chem, Bio Transfers to Iran," in *Arms Control Today,* March 2002, <http://www.armscontrol.org/act/2002_03/cbcchinamarch02.asp> (accessed July 2002).
41. "U.S. Sanctions of Chinese Company Unwarranted," Website of the Chinese Embassy, Washington D.C., June 30, 2001, see <http://www.china-embassy.org/eng/14178.html> (accessed June 2002).

42. One of which, QC Chen, was still under sanctions imposed in 1997 under a different law.
43. "Notices: Bureau of Nonproliferation; Imposition of Nonproliferation Measures Against Three Chinese Entities, Including a Ban on U.S. Government Procurements," *Federal Register,* vol. 67, no. 16, January 24, 2002; see <http://www.nti.org/db/china/engdocs/sancjan_02.htm> (accessed April 2002); Bill Gertz, "U.S. Penalizes 8 Chinese Firms," *The Washington Times,* online version July 19, 2002. The July 2002 sanctions announcement by the U.S. government did not make clear whether chemical or biological weapons had been exported.
44. Illegal only according to U.S. law; the United States has not challenged China in the context of the CWC.
45. The international organization established to enforce the CWC.
46. The three schedules identified earlier in this chapter, plus the category labeled "discrete organic chemicals." Thanks to Michael Moodie for correcting me on this.
47. See Richard Cupitt, "Assessing Chinese Nonproliferation Commitments: Developing Export Controls," unpublished paper, Center for International Trade and Security, University of Georgia, April 30, 2001.
48. Text of all the regulations can be found in the Center for Nonproliferation Studies China Database at <http://www.nti.org/db/china/cwcorg.htm> (accessed July 2003).
49. Center for Nonproliferation Studies, Database Entry, *Measures on Export Control of Certain Chemicals and Related Equipment and Technologies,* October 19, 2002, <http://www.nti.org/db/china/engdocs/chemregs_1002.htm> (accessed July 2003).
50. U.S. Department of Defense, *Proliferation: Threat and Response,* Washington, D.C., 2001, <http://www.nti.org/db/china/engdocs/dodpro01.pdf> (accessed July 2003).
51. China's alleged sale of calcium-hypochlorate in 1997 was reportedly supplemented by a Dutch sale of atropine sulphate (an antidote to nerve gas) injectors, as well as South Korean and Spanish sales of respirators.
52. In addition to the Chemical and Biological Weapons Control Act (an amendment to the Arms Export Administration Act), in 1992 the Congress also passed an Iran-Iraq Nonproliferation Act and in 2000 the Iran Nonproliferation Act.
53. Ambassador Sha made these remarks at the Carnegie Endowment for International Peace annual meeting on nonproliferation in January 1999; see <http://www.ceip.org/files/events/Conf99Sha.asp?p=8> (accessed July 2002).
54. Amy Smithson, "Prepared Statement Before the Senate Committee on Governmental Affairs," Subcommittee on International Security, Proliferation, and Federal Services," February 12, 2002; see <http://www. stimson.org/cbw/?SN=CB20020219314> (accessed June 2002).

6
The Missile Technology Control Regime

1. Members of the Commission to Assess the Ballistic Missile Threat. *Executive Summary of the Report of the Commission to Assess the Ballistic Missile Threat to the United States,* Washington, D.C., 1998.
2. Central Intelligence Agency, *Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015,* Washington, D.C., 1999, p. 5.

3. Center for International Security and Arms Control. *Assessing Ballistic Missile Proliferation and Its Control,* Stanford, California, 1991, p. 119.
4. These countries include Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.
5. Federation of American Scientists Database, *The Missile Technology Control Regime: An Information Paper,* November 1997, <http://www.fas.org/asmp/campaigns/missiles/1997_plenary_info.html> (accessed July 2001).
6. The MTCR originally defined a nuclear-capable missile as one that could deliver a 500 kg payload to a target at a distance of 300 km.
7. Both categories include related software, engineering, blueprints, design, and knowledge.
8. "MTCR Technology Annex," July 1, 1993, <http://www.fas.org/asmp/campaigns/missiles/techannex.htm> (accessed July 2002).
9. Rodney W. Jones, Mark G. McDonough with Toby F. Dalton and Gregory D. Koblentz. *Tracking Nuclear Proliferation: A Guide in Maps and Charts,* Washington, D.C., Carnegie Endowment for International Peace, 1998, p. 313.
10. The revision extending the MTCR to all missiles, regardless of range, capable of delivering WMD was never formally incorporated into the text of the MTCR or its Annex. The governments agreed to the change at the 1993 meeting but did not issue a formal joint statement about this specific revision; each national government made its own announcement. The language here is extracted from the U.S. statement.
11. These include the Arms Export Control Act, revisions to the Export Administration Act of 1979, the Iran-Iraq Arms Nonproliferation Act of 1992, Section 323 of the Foreign Relations Authorization Act for Fiscal Years 1992 and 1993, and the Iraq Sanctions Act (1992).
12. James Mann, *About Face: A History of America's Curious Relationship with China, From Nixon to Clinton,* New York, NY, Alfred A. Knopf, 1999, p. 243.
13. The U.S. implementing legislation for the MTCR extends to countries "that, pursuant to an international understanding to which the United States is a party, controls MTCR equipment or technology in accordance with the criteria and standards set for the in the MTCR." U.S. law has an expansive definition of the target of the sanctions. Originally, the Arms Export Control Act called for sanctions against a "person;" but included in that definition governments in those instances where no person could be identified.
14. The Congressional Research Service's "Nuclear, Biological, Chemical, and Missile Proliferation Sanctions: Selected Current Law," published by CRS November 25, 1997, discusses seven different laws that could be relevant to missile proliferation sanctions. The laws are not consolidated in one source and are frequently amended and updated.
15. United States Senate Committee on Government Affairs, *The Proliferation Primer: A Majority Report of the Subcommittee on International Security, Proliferation, and Federal Services,* Washington, D.C., 1998, p. 98.
16. "Arms Export Control Act (P.L. 90–629)–Chapter 7: Control of Missiles and Missile Equipment or Technology" <http://www.fas.org/asmp/campaigns/missiles/lawl03.html> (accessed August 2002).
17. U.S. Department of State, "Daily Press Briefing Tuesday, September 14, 1999" <http://secretary.state.gov/www/briefings/9909/990914db.html> (accessed April2001).

18. Wyn Q. Bowen, "U.S. Policy on Ballistic Missile Proliferation: The MTCR's First Decade," *The Nonproliferation Review,* vol, 5, no. 1, pp. 21–39.
19. Center for International Security and Arms Control, *Assessing Ballistic Missile Proliferation and Its Control,* Stanford, California, 1991, pp. 120–2.
20. Rodney W. Jones, *Tracking Nuclear Proliferation.* p. 313.
21. Richard Speier, "How Effective is the Missile Technology Control Regime?" *Proliferation Brief,* Carnegie Endowment for International Peace, Washington, D.C., April 7, 2001, <http://www.ceip.org/files/publications/ProliferationBrief407.asp?p=8> (accessed April 2001).
22. Rodney W. Jones, *Tracking Nuclear Proliferation,* p. 312.
23. Select Committee, United States House of Representatives, May 1999, "U.S. National Security and Military/Commercial Concerns with the People's Republic of China" <http://www.hillsource.house.gov/CoxReport/welcome.html.> (accessed May 2000).
24. The Cox Committee report addressed potential U.S. violations of the MTCR and not Chinese violations, since no evidence was presented that the Chinese retransferred any of the expertise they were alleged to have gained from the U.S. companies involved.
25. Wyn Q. Bowen, "U.S. Policy on Ballistic Missile Proliferation," p. 30.
26. Wyn Q. Bowen, "U.S. Policy on Ballistic Missile Proliferation," p. 32.
27. Alexander Pikayev, "The Global Control System" in *Missile Proliferation and Defenses: Problems and Prospects,* Monterey Occasional Paper No. 7, Center for Nonproliferation Studies, Monterey Institute of International Studies, June 2001, pp. 21–2.
28. United Nations General Assembly, *Missiles: Report of the Secretary General,* 56th Session, July 2001, <http://www.un.org/documents/ga/docs/56/a56136.pdf> (accessed July 2003).
29. The text of the agreement can be found on the Stockholm International Peace Research Institute homepage, <http://projects.sipri.se/expcon/mtcr01.htm>; see also United Nations General Assembly First Committee, "First Committee Report: Summary of Resolutions, *"Disarmament Diplomacy,* Issue 61, October-November 2001, <http://www.acronym.org.uk/dd/dd61/61 unapp.htm> (accessed July 2003).
30. See "U.S. Fears that China may Again Sell Missiles," *New York Times,* November 11, 1989, p. A14.
31. In fact, high-level U.S. administration contacts with the Chinese military had been suspended in 1989 due to the Tiananmen incident and were not resumed until the autumn of 1993. Thus, during the three years when the MTCR sanctions were imposed on China, there were no discussions with the very people in China who would most likely to have been promoting missile exports, either for ideological or business reasons.
32. Discussion with former U.S. State Department official, November 1998.
33. Mark A. Stokes, "China's Strategic Modernization: Implications for the United States," *China's Strategic Modernization: Implications for the United States,* Carlisle, Pennsylvania, Strategic Studies Institute, 1999, p. 229.
34. Xinhua News Agency, "Comments on Missile Control, GATT, Korea." *FBIS Daily Report: China,* November 21, 1991, p. 1.
35. Transcript of State Department transcript of Secretary of State James Baker's press conference in Beijing, November 17, 1991.

36. James Mann, *About Face: A History of America's Curious Relationship with China, from Nixon to Clinton,* New York, NY, Alfred A. Knopf, 1999, p. 252.
37. James A. Baker III, *The Politics of Diplomacy: Revolution, War and Peace,* New York, G.P. Putnam's Sons, 1995, p. 593.
38. James A. Baker III, *The Politics of Diplomacy,* p. 593.
39. Robert Ross, "China," *Economic Sanctions and American Diplomacy,* edited by Richard N. Haass, New York, Council on Foreign Relations, pp. 10–34.
40. "Joint United States People's Republic of China Statement on Missile Proliferation, *Arms Control Reporter,* CD-Rom version, 1994, Section 706: Missile Proliferation.
41. Testimony of Gordon Oehler before the Senate Governmental Affairs Committee," Washington, D.C., Federal News Services, January 15, 1992.
42. Testimony of Gary Milhollin before the Armed Services Committee of the U.S. Senate, July 19, 1998, <http://armed-services.senate.gov/statemnt/980709gm.htm> (accessed July 2003).
43. Editorial, "Selling Missiles to China." *Washington Times Weekly,* April 5, 1998.
44. Nuclear Threat Initiative database, <http://www.nti.org/db/china/excon.htm> (accessed July 2003); for the text of the regulations see <http://www.nti.org/db/china/engdocs/expreg_0802.htm>
45. "Imposition of Missile Proliferation Sanctions Against Chinese and Pakistani Entities," Federal Register, vol. 56, no. 137, July 17, 1991, p. 372–601.
46. Howard Diamond, "House Seeks to Limit Space Cooperation with China," *Arms Control Today,* May 1998, <http://www.armscontrol.org/ACT/may98/hdmy98.htm> (accessed July 2002).
47. "General Scowcroft on Chinese Satellite Launches," *Congressional Record,* June 9, 1998, p. E1063, <http://www.fas.org/spp/starwars/congress/1998/h980609-prc.htm> (accessed June 2003).
48. Joseph Cirincione, "The China Satellite Debate," *Proliferation Brief,* Carnegie Endowment for International Peace, June 23, 1998, vol. 1, no. 7, <http://www.ceip.org/files/Publications/ProliferationBriefl07.asp?p=8&:from=pubdate> (accessed June 2003).
49. *Arms Control Reporter,* CD-Rom version, 1992 Section 706: MTCR., (accessed January 2001).
50. U.S. Department of State, "Public Notice 1857: Imposition of Missile Proliferation Sanctions Against Entities in China and Pakistan." *Federal Register,* August 27, 1993, p. 45408.
51. *Arms Control Reporter,* CD-Rom version, 1993 Section 706: MTCR, August 25.
52. Testimony of Gary Milhollin, July 19, 1998.
53. *Arms Control Reporter,* CD-Rom version, 1993 Section 706: MTCR, August 25.
54. *Arms Control Reporter,* CD-Rom version, 1993 Section 706: MTCR, August 25.
55. *Arms Control Reporter,* CD-Rom version, 1996 Section 706: MTCR, June 21.
56. *Arms Control Reporter,* CD-Rom version, 1996 Section 706: MTCR, March 7.
57. R.Jeffrey Smith and David B.Ottoway, "Spy Photos Suggest Missile Trade: Pressure for Sanctions Builds Over Evidence Pakistan has M-11's" *Washington Post,* July 3 1995, p. Al; R.Jeffrey Smith, "Report Cites China-Pakistan Missile Plant Links" *Washington Post,* June 18, 1996, p. A19; R.Jeffrey Smith, "China Linked to Pakistani Missile Plant: Secret Project Could Renew Sanctions Issue," *Washington Post,* August 25, 1996, p. Al; Bill Gertz, "Pakistan Deploys Chinese Missiles" *Washington Times,* June 12, 1996, p. A14; Shirley Kan, *China's Proliferation of Weapons of*

Mass Destruction and Missiles: Current Policy Issues, CRS Issue Brief For Congress, Updated October 30, 2001, Order Code 1B92056, <http://www.fas.org/spp/starwars/crs/lB92056.pdf> (accessed June 2002).

58. *Arms Control Reporter,* CD-Rom version, 1996, Section 706: MTCR, March 7.
59. Bill Gertz, "China, N.Korea Send Experts to Hone Iran's Long Range Missiles," *Washington Times,* November 23, 1997, online version in archives at <http://www.washingtontimes.com> (accessed August 2002).
60. Testimony of Robert J.Einhorn: Engaging China on Nonproliferation before the Senate Governmental Affairs Committee International Security, Proliferation, and Federal Services Subcommittee, Washington, D.C., Federal News Service, April 10, 1997.
61. Nautilus Institute, "Cohen: United States-China Relations on 'Positive Track' ", in NAPNSET Daily Report, January 23, 1998, <http://www.nautilus.org/napsnet/dr/9801/JAN23.html.> (accessed February 2002).
62. Testimony of Robert J.Einhorn, April 10, 1997.
63. Shirley Kan, *China's Proliferation of Weapons of Mass Destruction and Missiles: Current Policy Issues,* CRS Issue Brief for Congress, updated October 30, 2001, Order Code 1B92056, <http://www.fas.org/spp/starwars/crs/lB92056.pdf> (accessed July 2002).
64. Shirley A.Kan, *China's Proliferation.*
65. Shirley A.Kan, *China's Proliferation.*
66. Central Intelligence Agency, *Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015,* Washington, D.C., 1999, p. 5.
67. The CIA report that covered proliferation activates for the second half of 1998 was never released to the public. A knowledgeable government official contends that it was not released precisely because of the allegations regarding Chinese missile sales.
68. Testimony of Gordon Oehler.
69. Satellites themselves are not on either of the MTCR technology control lists. However their export to China had been prohibited under human rights sanctions imposed in 1989 and approved only by exception.
70. Director of Central Intelligence, *The Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, JulyDecember* 1996, June 1997, p. 5.
71. The report that covered activity during the second half of 1998 was never released for publication due to a disagreement about China's missile exports. According to a former government official, the text included an unequivocal statement about Chinese transfers of missiles to Pakistan that would have required the administration to impose punitive sanctions.
72. Central Intelligence Agency, *Report of Proliferation-Related Acquisition in 1*997, Washington, D.C., 1998, <http://www.cia.gov/cia/publications/acql997.htm> (accessed April 2001); *Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions: 1 January through 30 June 1998,* Washington, D.C., 1999, <http://www.cia.gov/publications/bian/bian.htm> (accessed April 2001; *Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions: 1 January through 30 June 1999,* Washington, D.C., 2000, <http://www.cia.gov/cia/publications/bian/bian_feb_2000.html> (accessed April 2001); *Unclassified Report to Congress on*

the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions: 1 January through 30 June 2000, Washington, D.C., 2001, <http://www.cia.gov/publications/bian/bian_feb_2001.html> (accessed April 2001); *The Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions: July–December 1996,* Washington, D.C., 1997, <http://www.fas.org/irp/cia/product/wmd.htm> (accessed July 2003).

73. The text of the U.S. and Chinese statements can be found at <http://www.ceip.org/files/projects/npp/resources/PRCStatementll2100> (accessed July 2003).
74. The text of Boucher's press conference can be found at <http://www.usinfo.state.gov/topical/pol/arms/stories/00112102.htm> (accessed July 2002).
75. Philip Saunders of the Monterey Institute of International Studies was quoted by Fox News on November 22, 2000; see <http://www.foxnews.com/world/112200/china.sml> (accessed June 2002).
76. Cox was quoted in a November 22, *San Francisco Chronicle* article which can be found at <http://www.sfgate/com/cgi-bin/article.cgi?file=/chronicle/archive/2000/11/22/MN52960.DTL> (accessed August 2002).
77. Agence France Presse, "China Slams US Missile Sanctions Against Foreign Countries," *China Times Interactive,* November 24, 2000, see <http://www.chinatimes. com.tw/english/epolitic/89112313.htm> (accessed August 2002).
78. Testimony of Gary Milhollin, July 19, 1998.
79. David Ruppe, "A Parting Deal with China: Clinton Declares, Immediately Waives Ballistic Missile Sanctions," *ABC News Online,* November 22, 2000, <http://abcnews.go.com/sections/world/DailyNews/chinamissilepolicy_001122.html> (accessed July 2002).
80. Testimony of Robert J.Einhorn, April 10, 1997.
81. Bill Gertz, "China Still Shipping Arms Despite Pledges," *Washington Times,* April 15, 1999, p. 1.
82. Zhan Boke, "MTCR and US Missile Anti-Proliferation Policies," Paper prepared for the United States-China Conference on Arms Control, Disarmament, and Nonproliferation sponsored by the Center for Nonproliferation Studies of the Monterey Institute of International Studies, China Academy of Launch Vehicle Technology, Beijing, China, September 23, 1998.
83. Song Li, "Current Arms Control and Nonproliferation Issues in Sino-U.S. Relations." Paper Presented at the Second United States-China Conference on Arms Control, Disarmament, and Nonproliferation sponsored by the Center for International Studies of the Monterey Institute of International Studies, Monterey, California, April 29, 1999.
84. However, this is difficult to prove or document in any way.
85. The question remains whether the changes were short-term accommodation or long-term realignment of trade and security policies.

7
The U.N. Register of Conventional Arms

1. For background on the register, as well as the entries of the countries that participate, see the U.N. homepage <http://www.un.org/Depts/dda/CAB/register.htm>,

(accessed June 2002), and the State Department Fact Sheet about the Register <http://usinfo.state.gov/topical/pol/arms/02041703.htm> (accessed June 2002).
2. "Chinese Ambassador on Military Transparency," Xinhua Domestic Service, November 15, 1997.
3. For more information on China's refusal to submit data to the register, see Malcolm Chalmers and Owen Green, "The U.N. Register of Conventional Arms: A Progress Report." *Disarmament Diplomacy,* Issue No. 35. <http://www.acronym.org.uk/35armreg.htm> (accessed June 2002).
4. Chalmers and Green, "The UN Register?"

8
The Convention on Conventional Weapons

1. For the text of the convention, see <http://www.fas.org/nuke/control/ccw/> (accessed July 2002).
2. For the press release from the review conference, see <http://www.unog.ch/news2/documents/newsen/dc0152e.htm> (accessed September 2002).
3. This was in large measure because of disagreements within the United States having little to do with the CCW itself. Senator Patrick Leahy objected to a report prepared by the Senate Foreign Relations Committee which he saw as an attack against the Ottawa treaty and against Clinton's pledge that the United States would sign Ottawa by 2006 if "suitable alternatives" to APLs could be developed and deployed.
4. The Ottawa Convention, for example, is more restrictive because it prohibits use, but it covers fewer mines.
5. Mary Wareham, "Anti Personnel Landmine Stockpiles and Their Destruction: Fact Sheet," Relief Web, December 10, 1999, <http://www.reliefweb.int/w/rwb.nsf/0/d6e16e31a8b6a73dcl2568480037eff6?OpenDocument> (accessed August2003.
6. Holly Burkhalter, *Foreign Policy in Focus: The Mine Ban Treaty,* vol 5, no. 21, July 2000, <http://www.foreignpolicy-infocus.org/briefs/vol5/v5n21mines.html> (accessed June 2002).
7. *Human Rights Watch World Report* 2000; <http://www.hrw.org/hrw/wr2kl/arms/index.html#landmine>; see also statement by Stephen Goose, *International Campaign to Ban Landmines Statement to the First Conference of States Parties to Amended Protocol II of the Convention on Conventional Weapons,* Geneva, Switzerland, December 15, 1999; <http://www.icbl.org/statements/ccwstat.html> (accessed May 2002).
8. Use of nonselfdestructing and nonselfdeactivating mines is proscribed unless planted in monitored and perimeter-marked areas.
9. Wade Boese, "CCW Review Conference Adopts New Measure," *Arms Control Today,* January–February 2002, online version at <http://www.armscontrol.org/act/2002_01–02/ccwjanfeb02.asp> (accessed July 2002).
10. Wade Boese, "CCW Review Conference"
11. United Nations Press Release, *Disarmament Pace Accelerating Through Bold, Practical Increments, United States Tells First Committee,* October 14, 1997, GA/DIS/3081.

12. Statement by Ambassador Sha Zukang, 2000 Review Conference of the Parties in the Treaty on the Non-Proliferation of Nuclear Weapons, New York, April 8, 1997, <www.nti.org/db/china/engdocs/sha0497.htm> (accessed July 2003).
13. Inter Press Service, "Questions Over Use of Laser Weapons," July 30, 1998, <http://www.geocities.com/Area5 l/Stargate/5518/dodlaser.html> (accessed June 2002).
14. Xinhua News Service, "NPC to Pass Bill Prohibiting Land Mines," August 24, 1998.

9
Chinese participation in less formal and less defined regimes

1. See China's *White Paper on National Defense* at <http:/propl.org/propl/chwp.htm> (accessed June 2003).
2. "China to Sign Southeast Asia's Anti-Nuclear Treaty," Bangkok, *The Star,* Internet version July 28, 1999; *Napsnet Daily Report,* July 27, 1999, <http://www.nautilus.org/napsnet/dr/9907/JUL2 7/html#item11> (accessed July 2002).
3. See <http://www.state.gov/t/pm/rls/othr/rd/2000/12077.htm> and <www.state.gov/t/pm/rls/othr/rd/2001/6506.htm> (accessed June 2002), for the ASEAN ministers' statements about the treaty from 1999, 2000, and 2001. See Monterey Institute for International Affairs, Center for Nonproliferation Studies, *Inventory of International Nonproliferation Organizations and Regimes,* 2000 Edition, Monterey California, p 79 for background on the treaty and events up to 2000; see p 253 for documentation on participation in nuclear-free weapon zones. See <http://www.fas.org/nuke/control/seanwfz/text> (accessed September 2002) for the text of the treaty.
4. See Monterey Institute, *Inventory,* p. 63 for background on the convention.
5. See Monterey Institute, *Inventory,* p. 63 for background and p 215 for the date of China's accession.
6. See <http:/disarmament.un.org/TreatyStatus.nsf> (accessed July 2002) for a list of countries which have signed, as well as the treaty text. See Monterey Institute, *Inventory,* p. 55 for background on the treaty.
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