

BRIEFING PROLIFERATION ISSUES

FRIDAY, OCTOBER 12, 2001

U.S.-CHINA SECURITY REVIEW COMMISSION
Washington, DC.

The Commission met at 9:45 a.m., in Room 116, Dirksen Senate Office Building, Washington, D.C., C. Richard D'Amato (Chairman) and Stephen D. Bryen (Hearing Co-Chairman), presiding.

OPENING REMARKS OF CHAIRMAN C. RICHARD D'AMATO

Chairman D'AMATO. This is a closed hearing, not open for the public, but it's not classified, and we'll be transcribing it. We're going to have Commissioner Bryen chairing the hearing this morning on proliferation so I'm going to turn it over to him to introduce our witnesses. Go ahead, Commissioner Bryen.

PANEL I: CHINA'S PROLIFERATION BEHAVIOR—EXPERT VIEWS

OPENING REMARKS OF CO-CHAIRMAN STEPHEN D. BRYEN

Co-Chairman BRYEN. Good morning. The hearing is closed to the public this morning. We're making the full transcript and we intend that at the right moment, when we can assure the country can focus on this issue, to release the testimony to the public. It probably will be some months from now because of the current war that we're engaged in against the Taliban and against the Al Qaeda group.

Commissioner DREYER. Steve, could you speak a little louder? It's a very long table.

Co-Chairman BRYEN. It's a long table and the microphone's not on, I think. Is it on? Okay, good.

Chairman D'AMATO. Just speak more closely to the mike.

Co-Chairman BRYEN. All right. This morning, we're going to look at China's proliferation behavior and try and understand what the Chinese have been doing in this area. We have three distinguished witnesses: Dr. Kenneth Allen from the Center for Naval Analyses; Dr. Rodney Jones from Policy Architects International; and Ken Timmerman, who's a well-known author and has previously served on the staff in the House of Representatives for the House International Relations Committee. So I think we have very qualified witnesses.

I'd like to take the opening statements of each of the three witnesses first and then have us begin to ask questions. We have the balance of the morning available to us and I think it will be a very important and interesting session for us.

I have to say that I am personally deeply concerned about Chinese transfers of missile technology and other equipment, particularly to Middle Eastern nations. I can't say for sure that the United States will be engaged against Iraq or Iran or any of those countries, but should that happen, our forces will have to take into account missiles and missile technology that came from China, and that's an extremely worrisome issue.

So what we really want to do is to learn more about that, more about any unconventional weapons technology transfers, and those are probably not the only places, so I'm going to first ask Dr. Allen to begin, to give us his assessment of past behavior and also we should be looking at what we can do to influence and change future behavior. Dr. Allen?

STATEMENT OF KENNETH W. ALLEN, RESEARCH ANALYST, CENTER FOR NAVAL ANALYSES

Dr. ALLEN. Thank you very much. I'd like to begin by thanking members of the Commission for inviting me to discuss China's policies concerning WMD proliferation. I'd also like to emphasize that my comments are my own and do not necessarily reflect those of the Center for Naval Analyses.

Today, I will briefly address China's export control process, then cover some possible indications and warning concerning WMD proliferation. Although I do not have personal knowledge of China's WMD proliferation, I believe some generalizations can be made about the process based on my experiences as an Assistant Air Force Attaché in China from 1987 to 1989 and from research on the subject since then.

I would like to first briefly address China's export control process based on discussions I have had with China's officials who are involved in the process. It is my understanding that the Ministry of Foreign Affairs is responsible for formulating and monitoring an export control list. The list is basically organized by types of technology, contract value reporting requirements, and countries eligible to receive the technology. The regulations also stipulate who can authorize the export of items in each category.

The process was actually fairly simple prior to the early 1980s when the military was in charge of the defense industries and there were only a few foreign customers. As China's economy opened up and individual enterprises began marketing their goods and services, the international community encouraged Beijing to tighten its control process.

It is my opinion that China will continue to proliferate WMD officially and unofficially for political and economic reasons, regardless of what Beijing says about its nonproliferation stance. Therefore, we need to look for any and all indicators of this activity since some articles have indicated that the People's Liberation Army is involved in all WMD proliferation activities. I do not believe this is necessarily the case, especially since the mid-1980s when the defense industries were placed under the State Council as corporations rather than being under the military.

Two specific cases involving the sale of ballistic missiles abroad illustrate the separation between the PLA and the defense industries. First, the PRC has signed joint venture contracts with foreign

countries to develop weapons systems that are not necessarily intended for use by the PLA. The best example of this is the M Series or short-range ballistic missiles that China began developing for Iran in the early 1980s.

At that time, China had the technical expertise and facilities and was in search of hard currency, while Iran had the money but was not able to develop and produce new missiles. Although China has not sold complete M-11 missiles to Iran as it has with Pakistan, it has apparently provided Iran with the necessary technology for Tehran to continue with its ballistic missile program. Since these missiles were initially developed for export rather than for the PLA, the military had very little to say about the program's development, and I'd be glad to answer some specific questions about this difference between the two at the end.

It was not until after China began exporting the missile that the PLA became interested and purchased its first systems in the early 1990s, and those are the ones that are opposite of Taiwan today.

On the other hand, the General Staff Department's import-export arm, better known as Polytechnologies, is well known for its 1988 sale of DF-3 CSS-2 ballistic missiles from the PLA inventory to Saudi Arabia. The defense ministries had very little to say on this matter, since the missiles came from the PLA's active inventory.

There were several issues that coalesced in the CSS-2 sale. First, Saudi Arabia wanted to purchase an existing system. Second, China was able to receive much needed hard currency to supplement its official budget. Third, China saw the sale as a way of pulling Saudi Arabia away from its diplomatic recognition of the Republic of China on Taiwan. This goal was finally achieved when the PRC and Saudi Arabia established diplomatic relations in July 1990, shortly after the aftermath of Tiananmen. Fourth, the PLA's ongoing modernization program led to the availability of surplus missiles from its active inventory.

Although the two programs above were clearly approved by China's highest leaders, there are certain gray areas that may not require or desire high-level approval. The best case in point is the sale of 5,000 ring magnets to Pakistan sometime after 1994. The ring magnets, which can be used in gas centrifuges to enrich Uranium, were sold for \$70,000 by the China National Nuclear Corporation, a state-owned corporation. According to Beijing's account afterward, CNNC reportedly sold the ring magnets directly to the laboratory without receiving approval by higher authorities because the items were not covered by MOFA's export control list or the dollar value required for notification.

As China moves forward toward a full market economy and defense-related state-owned enterprises are required to sell more goods abroad in order to survive, it is my opinion that they will be tempted to circumvent the growing list of export regulations and sell restricted WMD technology and equipment secretly to other countries. The decentralization of economic decision-making to the factory level and increasing levels of technology available will further add to the enticement to sell their goods for hard currency.

Some of the other speakers before the Commission will address various macro-level indicators. What I would like to do is spend the

rest of my briefing talking about down, sort of in the weeds, the grunt level, at the micro level.

Determining which projects the Central Military Commission has decided to focus on provides one of the keys to analyzing which future weapons systems the PLA will receive and China will produce for export. Chinese open source material often identifies various projects as what we call focal points, which means that these projects receive the highest political support. This political support, in turn, equates to financial support. Meanwhile, projects not identified as focal points may continue, but they do not receive the same level of political or financial support.

Delegation visits provide one indicator of possible involvement between China and various countries. Initial, as well as ongoing, indicators for official government involvement in WMD activity includes exchanges by high-level officials as well as visits by officials from the nuclear industry, defense industries, and the military.

While China's official government media, Xinhua, may cover the existence of high-level visits, visits by lower-level officials will most likely not be covered. These types of visits may, however, be reported in local newspapers or in factory or ministry newsletters. Cross-referencing multiple sources often gives us a good indication of the people and organizations involved. Some of these local papers are now available on the Internet.

Although the negotiation process will be largely concluded in secrecy, one possible indicator is the unexplained absence or presence of certain key people for extended periods of time. As U.S. economic and scientific interaction with China increases, it should become easier to identify these people and to monitor their travel.

If negotiations are handled through the Chinese embassy abroad or the foreign embassy in Beijing, the permanent or temporary assignment of a new embassy official often provides an indication of ongoing long-term negotiations and contract implementation. In addition, many Chinese ministries have established branch offices of their import-export companies in foreign countries. These representatives are posted abroad to establish business links, facilitate contract negotiations, and to conduct follow-on support for existing contracts. The addition of these new representatives to their offices or an unusual number of visitors from China provide indicators of negotiations or completed contracts.

When the Chinese provide any type of major equipment abroad, they also provide training and follow-up support either in China or in the host country for that equipment. This training may be conducted for several years in some cases. Thus, the continuing presence of large numbers of proliferation in key cities or weapons-related areas is a valuable indicator of ongoing activity.

Each ministry or corporation has its own import-export company, as I mentioned, which is responsible for arranging the negotiations and monitoring the contract. These companies also arrange the transportation for components and full systems and use their warehouse and loading facilities along the route regardless of whether the goods are transported by road, rail, or sea. Because they generally use the same shipping companies, monitoring these facilities could provide indicators of deliveries.

The review of industry literature and information provided at international exhibitions and symposia may render clues to ongoing domestic and foreign programs. Chinese attendance at international symposia provides a good indication of China's interest in certain technologies. Chinese hosting of international exhibitions and symposia enables them to set the agenda and invite foreign scholars and scientists who have information tailored to China's needs and interests. Furthermore, hosting these exhibitions provides the most cost-effective means of obtaining information since the Chinese normally charge foreign companies high prices for exhibition space.

In summary, it is my opinion that the PRC, for political and economic reasons, is likely to continue as a WMD proliferator regardless of what international regimes Beijing has agreed to. Sales of WMD technology and equipment abroad will be done officially and unofficially involving the defense industry and the PLA. Although Beijing might not be able to provide everything proliferator companies are seeking, PRC companies, whether legally or illegally, might be willing to sell what they have available for the right price. Monitoring activities with specific countries where China could fulfill some or all of its WMD requirements could provide an indicator of at least the potential for China to become involved in WMD proliferation there.

And I would like to mention that everything that I've mentioned here today I've been involved with and have been able to monitor while I was in China, mostly to do with the Ministry of Aviation. But the concepts are the same, going from marketing to the procedure, who approves them, and then the transportation, the export, and everybody involved. So I do have some knowledge, at least in that area, that I think relates directly to the WMD issues.

Co-Chairman BRYEN. Great.

Dr. ALLEN. Thank you very much.

[The statement follows:]

PREPARED STATEMENT OF KENNETH W. ALLEN

The People's Republic of China (PRC) initiated its nuclear weapons program during the 1950s as a result of its political and military rivalry with the United States. Since then, the Chinese government has consistently used its nuclear weapons and ballistic missile technology as a political lever against the United States.¹ Although China has become a signatory to several international nonproliferation treaties, this paper contends that China will continue to proliferate nuclear weapons and missile technology in the future for political and economic reasons. Moreover, this essay cites key proliferation indicators and provides a methodology to recognize these indicators.

CHINA AS A DECLARED NONPROLIFERATOR

The PRC government has consistently stated that China's cooperation with other countries in the field of nuclear energy is exclusively for peaceful purposes. Since the 1970s, Beijing has concluded agreements with as many as fourteen countries on the peaceful use of nuclear energy.² In 1986, a Ministry of Foreign Affairs (MFA) spokesman stated, "The PRC does not advocate, encourage, or engage in nuclear proliferation, nor does China assist other countries in developing nuclear weap-

¹In this context, missiles include complete systems, technology, or components.

²"China Calls for Promoting Peaceful Nuclear Use," *Xinhua*, 24 April 1995. The article did not specify what the fourteen countries were.

ons.”³ A decade later, an MFA spokesman reiterated, “China, as a responsible state, has never transferred equipment or technology for producing nuclear weapons to any other country, nor will China do so in the future.”⁴ In August 2001, Minister of Defense Chi Haotian told U.S. Senator Joseph Biden, “On the issue of non-proliferation, China strictly observes international agreements and the commitments it has made, so the U.S. should not make random criticisms based on misleading information. China keeps its word.”⁵

In response to international concerns about the PRC’s proliferation of weapons of mass destruction (WMD) over the past decade, Beijing has become progressively involved in several international nonproliferation agreements and has promulgated various domestic export control regulations.⁶ These agreements include the following:

- 1984: Joined the International Atomic Energy Agency (IAEA);
- 1992: Acceded to the Nuclear Nonproliferation Treaty (NPT);
- 1993: Signed and ratified the Chemical Weapons Convention (CWC);
- 1994: Made statements on fissile material production;
- 1996: Made statement on making only safeguarded nuclear transfers;
- 1996: Signed Comprehensive Test Ban Treaty (CTBT);
- 1997: Joined Zangger Committee.⁷

During the late 1980s, China and the United States clashed over conventional missile proliferation, when Beijing began selling antiship missiles to Iran and DF-3/CSS-2 medium-range ballistic missiles to Saudi Arabia.⁸ By the early 1990s, the gap between the two nations widened as Beijing began providing DF-11/M-11 missiles and components to Pakistan.⁹

As tensions mounted in the Taiwan Strait in late 1995, Beijing issued its first *White Paper on Arms Control and Disarmament*. The 20-page paper, released during the negotiating end game of the Comprehensive Test Ban Treaty (CTBT) and while China was in the process of conducting nuclear tests, attempted to defuse concerns about a “China Threat” and accusations that Beijing was supplying WMD or related technologies to friendly neighbors (i.e., Pakistan and Iran). In July 1998, Beijing published its first defense white paper, *China’s National Defense*,¹⁰ which was followed up in October 2000 with the second iteration.¹¹ These reports summed up China’s commitment to conventional arms control by stating,¹²

China respects the right of every country to independent or collective self-defense and to acquisition of weapons for this purpose. China practices strict control of the transfer of conventional military equipment and related technologies, and observes the following principles: The export of weapons must help the recipient nation enhance its capability for legitimate self-defense; it must not impair peace, security and stability of the relevant region and the world as a whole; and it must not be used to interfere in the recipient state’s internal affairs. In October 1997, the Chinese government pub-

³ “China’s Cooperation with Other Countries in Nuclear Energy Exclusively for Peaceful Purposes, Says Spokesman,” *Xinhua*, 26 September 1986.

⁴ “Chinese Foreign Ministry Spokesman on China’s Nuclear Position,” *Xinhua*, 15 February 1996.

⁵ “NMD Development Unjustified: Chinese Defense Minister,” *Xinhua*, 8 August 2001.

⁶ “China Reiterates Policies On Control Over Nuclear Export,” *Xinhua*, 16 October 1997.

⁷ “China Against Proliferation Of Mass Destruction Weapons,” *Xinhua*, 14 October 1998.

⁸ The Vienna-based Zangger committee, founded in 1971 and consisting of thirty-three nuclear or nuclear-related export countries, is the first international organization formed on control over nuclear technology. The committee’s goal is to strengthen consultation and cooperation on issues of nuclear nonproliferation and export control under the principles of the NPT.

⁹ China shocked the world in 1988 by exporting 30–35 DF-3/CSS-2 missiles to Saudi Arabia in 1988. For the origins of the DF-3 sale see Lu Ning, *The Dynamics of Foreign-Policy Decision-making in China*, (Boulder, CO: Westview Press, 1997), p. 113–117; John W. Lewis, Hua Di, and Xue Litai, “Beijing’s Defense Establishment: Solving the Arms-Export Enigma,” *International Security*, Spring 1991.

¹⁰ Pravin K Sawhney, “Pakistan Scores Over India In Ballistic Missile Race,” *Jane’s Intelligence Review*, Vol. 12; No. 11, 1 November 2000.

¹¹ *China’s National Defense*, (Beijing: Information Office of the State Council of the People’s Republic of China, July 1998), 32–34. The 1998 defense white paper was not Beijing’s first attempt at military transparency. In 1985, the PLA began publishing the *Shijie Junshi Nianjian* [World Military Yearbook], which provided an overview of militaries around the world. The section on the PLA was only seventeen pages and provided almost no useful information. Each subsequent yearbook, published about every two years, has provided greater amounts of detail on matters like organization and training. The Academy of Military Science has also published journals with numerous papers on military trends and how they affect the PLA.

¹² “China’s National Defense in 2000,” *Xinhua*, 16 October 2000.

¹³ *China’s National Defense*, (Beijing: Information Office of the State Council of the People’s Republic of China, July 1998), 32–34.

lished the Regulations of the People's Republic of China on the Control of Military Products Export. China has been consistently responsible regarding the transfer of missiles. China is not a member state of the Missile Technology Control Regime (MTCR) and has not joined its formulation and revision, but the Chinese government promised to observe the guidelines and parameters of the MTCR in February 1992.¹³ In October 1994, China reaffirmed its promise. In line with the above policy, China has exercised strict and effective control over the export of missiles and related materials and has never done anything in violation of its commitments.

CHINA AS A WMD PROLIFERATOR

In spite of China's pronouncements denying WMD proliferation, the U.S. Central Intelligence Agency (CIA) reported in August 1996 that "China was the worst proliferator of equipment and technology associated with WMD."¹⁴ In 1998, the CIA reported:

China was continuing to take steps to strengthen its control over nuclear exports by promulgating new export control regulations covering the sale of dual-use nuclear equipment, as well as the export of equipment and materials associated exclusively with nuclear applications. China also pledged in late 1997 not to engage in any new nuclear cooperation with Iran and to complete work on two remaining nuclear projects—a small research reactor and a zirconium production facility—in a relatively short period of time. During early 1998, Chinese entities provided a variety of missile-related items and assistance to several countries of proliferation concern. Chinese entities also sought to supply Iran and Syria with CW-related chemicals. China has provided extensive support in the past to Pakistan's WMD programs, and some assistance continues.¹⁵

In February 2001, the CIA stated,¹⁶

The Chinese have continued to take a very narrow interpretation of their bilateral nonproliferation commitments with the United States. In the case of missile-related transfers, Beijing has repeatedly pledged not to sell MTCR Category I systems but has not recognized the regime's key technology annex. Chinese missile-related technical assistance to Pakistan continued to be substantial through June 2000. In addition, during the first six months of 2000, firms in China provided missile-related items, raw materials, and/or assistance to several other countries of proliferation concern—such as Iran, North Korea, and Libya. Chinese entities have provided extensive support in the past to Pakistan's safeguarded and unsafeguarded nuclear programs. In May 1996, Beijing pledged that it would not provide assistance to unsafeguarded nuclear facilities. We cannot rule out some continued contacts between Chinese entities and entities associated with Pakistan's nuclear weapons program. China's involvement with Pakistan will continue to be monitored closely.

¹³The MTCR group was originally established in 1987 with nine member nations. There are currently twenty-nine countries, including Argentina, Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Russia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. The MTCR has two primary restraint categories. Category I items have the greatest restraints. These items include complete rocket systems (including ballistic missiles, space launch vehicles, and sounding rockets) and unmanned air vehicle systems (including cruise missile systems, target and reconnaissance drones) with capabilities exceeding a range of 300 kilometers and a 500 kilogram payload threshold; production facilities for such systems; and major sub-systems including rocket stages, re-entry vehicles, rocket engines, guidance systems, and warhead mechanisms. Category II items include complete rocket systems (including ballistic missile systems, space launch vehicles, and sounding rockets) and unmanned air vehicle systems (including cruise missile systems, target drones and reconnaissance drones) not covered in Item I, capable of a maximum range equal to, or greater than, 300 kilometers. Also included are a wide range of equipment, material and technologies, most of which have uses other than for missiles capable of delivering WMD.

¹⁴Paul Mann, "China Alleged Top Trafficker in Mass Destruction Weapons," *Aviation Week and Space Technology*, Vol. 147, No. 5, 42.

¹⁵"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," Director of Central Intelligence Nonproliferation Center, Internet. <http://www.cia.gov/cia/publications/bian/bian.html#china>.

¹⁶The CIA's newest version of the biannual unclassified report on global proliferation activities, covering the period from 1 Jan to 30 June 2000. http://www.cia.gov/cia/publications/bian/bian_feb_2001.htm.

For purposes of this paper, the author makes the assumption that China will continue to proliferate WMD as a matter of official policy, regardless of what international agreements have been signed. In addition, certain organizations will attempt to circumvent the government's policies and export regulations by providing WMD technology and equipment to proliferating countries.

Since the early 1980s, China has tried secretly to provide nuclear technology and/or missiles to several countries, including Pakistan, Iran, Syria, Algeria, North Korea, and Saudi Arabia.¹⁷ China's relationship with Iran also includes alleged cooperation on chemical weapons. The following paragraphs describe several driving factors within China's foreign, domestic, and economic policies for this proliferation activity.

Foreign Policy Considerations

The assumption is made that China will continue to support its long-standing relations with Pakistan and Iran by providing WMD technology and equipment for existing programs, as well as for new programs in the future. For example, an August 1999 *Reuters* article states, "China has signed an \$11 million deal to improve Iran's anti-ship missiles, raising questions about its 1998 vow not to supply Tehran with cruise missiles or related technology."¹⁸

The PRC's relations with the Republic of China (ROC) on Taiwan have also been a factor in China's WMD proliferation. During the 1980s, the PRC's competition with the ROC for diplomatic recognition with several key states, such as South Africa, Saudi Arabia, and Israel, probably contributed to Beijing's calculations concerning its proliferation activity. Today, however, the ROC does not have diplomatic relations with any states of similar stature where the PRC could use WMD proliferation as an enticement to switch recognition.¹⁹

Unenforceable Compliance

While the Chinese government still officially sanctions some proliferation with countries like Pakistan and Iran, it does have and will continue to have problems implementing and monitoring compliance from certain suppliers. The best case in point is the sale of 5,000 ring magnets to the A.Q. Khan Research Laboratory in Kahuta, Pakistan, sometime after 1994. The ring magnets, which can be used in gas centrifuges to enrich uranium, were sold for \$70,000 by the China National Nuclear Corporation (CNNC), a state-owned corporation. CNNC reportedly sold the ring magnets directly to the laboratory without receiving approval by higher authorities because the items were not covered by the Ministry of Foreign Affairs (MFA) export control list or the dollar value required for notification. In addition, although China and Pakistan were members of the International Atomic Energy Agency (IAEA), the laboratory was not an IAEA safeguarded facility.²⁰

As China moves further toward a full market economy and defense-related state-owned enterprises (SOE) are required to sell more goods abroad in order to survive, they will be tempted to circumvent the growing list of export regulations and sell restricted WMD technology and equipment secretly to other countries. The decentralization of economic decision-making to the factory level and increasing levels of technology available will further add to the enticement to sell their goods for hard currency.

INDICATORS OF WMD PROLIFERATION

There are various macro-level indicators that can provide clues to China's proliferation of WMD. These indicators include political relations with various countries, particularly the United States and India, and economic factors. China's relations with the United States can be viewed as a barometer of Beijing's WMD relations with other countries. Therefore, when Sino-U.S. relations are on a downward trend, Beijing is more likely to circumvent prior agreements as a means of leverage

¹⁷ See *China and Weapons of Mass Destruction: Implications for the United States*, Conference Report, 5 November 1999. Conference sponsored by the National Intelligence Council and the Federal Research Division.

¹⁸ "China Set to Upgrade Iran Missiles," *Reuters*, 19 August 1999.

¹⁹ According to the 2000 Republic of China yearbook, Taipei has diplomatic relations with the following 30 countries: Belize, Costa Rica, Dominica, Dominican Republic, El Salvador, Grenada, Guatemala, Haiti, Honduras, Nicaragua, Panama, Paraguay, Sao Tome e Principe, St. Vincent and the Grenadines, St. Christopher and Nevis, Burkina Faso, Chad, Gambia, Liberia, Macedonia, Malawi, Marshall Islands, Nauru, Senegal, Solomon Island, Swaziland, Tuvalu, and the Vatican. However, Taiwan has "trade offices" in many countries around the world similar to the Taipei Economic and Cultural Representative's Office (TECRO) present in the United States.

²⁰ Shirley A. Kan, *Chinese Proliferation of Weapons of Mass Destruction: Current Policy Issues*, CRS Report for Congress, IB92056, 23 March 1998.

with Washington. At the same time, loosening of economic controls on individual organizations which must sell goods to survive provides greater opportunities for these organizations to become involved in unauthorized sales of WMD goods and services.

Sino-Iranian Cooperation

The PRC's relations with Iran provide a good example of how China's foreign, domestic, and economic policies combine to promote WMD proliferation. Initial relations in the early 1980s were based on economic factors, whereby Iran was willing to provide hard currency for technology, weapon systems, and the research and development conducted in China for new weapons systems to meet Iranian specifications. Since then, China's need for imported oil has been a factor in their relations. Relations were also important domestically for China, as Beijing reportedly sought assurance from Tehran for Iran's non-interference with Xinjiang's restive Muslim population. As United States' arms sales to Taiwan became more contentious during the 1990s, Beijing has consistently tried to link its arms sales to Tehran with Washington's arms sales to Taipei.

The PRC often signs joint venture contracts with foreign countries for weapon systems that are not necessarily intended for use within the People's Liberation Army (PLA). With the Iran-Iraq war providing a potential arms market, China began developing tactical missiles, such as the M-9 and M-11, for export in 1984 with the hope that the PLA would become interested in the program later.²¹ At that time, China had the technical expertise and facilities and was in search of hard currency, while Iran had the money but was not able to develop and produce new missiles. Although China has not sold complete M-11 missile systems to Iran, as it has with Pakistan, it has apparently provided Iran with the necessary technology for Tehran to continue with its own ballistic missile program.²² Although these economic and military relationships were good for Beijing and Tehran, they conflicted with Washington's national security interests in the Gulf region. The United States alleges that the M-11 exceeds the MTCR guidelines. While China has denied the reports and has verbally agreed to abide by the MTCR guidelines, Beijing has not become a signatory to the agreement and allegedly continues to provide Pakistan with M-11 components.

During the 1990s, Washington's pressure on China and Iran to cease their energy cooperation actually worked to strengthen the relationship between Beijing and Tehran. Although U.S. companies had already been barred from importing Iranian oil since 1987, the United States conducted a campaign during 1995 that focused on disrupting Iran's energy sector further by banning American companies from purchasing oil for resale to third parties. Washington also put pressure on other countries, such as Japan and Azerbaijan, to cease economic cooperation on Iranian energy projects. This pressure, which came at the same time President Clinton authorized Taiwan's President Lee Teng-hui to visit his alma mater at Cornell, provided a backdrop for Beijing to increase its energy cooperation with Tehran. Whereas China needed to import greater amounts of oil, Iran needed Chinese nuclear energy technology for civilian and military uses.²³ Moreover, the PRC government has consistently tried to justify its military equipment sales to Iran by citing the United States' military sales to Taiwan. Therefore, for all of these reasons, China and Iran's independent relations with the United States, as well as complementary energy requirements, will continue to provide a good indicator of the continuing cooperation between Beijing and Tehran on WMD proliferation.

²¹ Shirley A. Kan, *Chinese Proliferation of Weapons of Mass Destruction: Background and Analysis*, CRS Report for Congress, 96-767 F, 13 September 1996. The Chinese have also developed other systems, such as the 8610/M-7 (CSS-8) SRBM, solely for export. The 8610 is a HQ-2 surface-to-air missile that the PRC modified for Iran. Shirley A. Kan and Robert D. Shuey, *China: Ballistic and Cruise Missiles*, CRS Report for Congress, 97-391 F, 27 May 1998. The 8610 refers to the date the program began—October 1986. This is a common practice in China for designating various weapons systems. Since this missile was developed for export, China has openly provided information about its capabilities. Other examples include the K-8 trainer aircraft and FC-1 fighter joint ventures between China and Pakistan. These aircraft programs were developed for the Pakistan Air Force, not the PLA Air Force, with the hope that the PLA would become interested in the program and purchase some of the aircraft at a later date.

²² Given the similarities of various ballistic missile systems available in China, North Korea, Iran, and Pakistan, it is clearly apparent that the ballistic missile community in those countries have at least bilateral working relationships with each other on these programs.

²³ Dr. Andrew Rathmell, "Iran's Liquid Lifeline," *Jane's Intelligence Review*, 1 September 1995.

China's Five-Year Plan

China's five-year plans provide the framework for the PRC's official political and economic policies.²⁴ A careful review of these plans gives valuable clues about China's priorities in several areas, including military spending, research and development (R&D), and weapons acquisitions. For example, the ninth five-year plan (1996–2000) laid out several areas where China could cooperate with foreign countries in conventional weapons and WMD. Each plan also gives guidance for economic growth, whereby companies and ministries must meet certain growth targets.

Beginning in the 1990s, the five-year plans have encouraged defense companies to develop military technologies for the PLA through joint ventures with foreign investors and to boost attempts to develop new weapons. Due to attempts to revitalize the defense-related SOE system and the PLA's R&D and procurement system, the Communist Party Central Committee's Military Commission (CMC) has again restructured the entire PLA's weapons acquisition structure. The plan calls for concentrating on only a few key projects but also calls for an increase in spending on overall civilian science R&D from less than one percent of the gross domestic product to three percent. The defense science and technology establishment will benefit from this added funding because its appropriations come from the civilian science budget rather than the defense budget.²⁵

Determining which projects the CMC has decided to focus on provides one of the keys to analyzing which future weapon systems the PLA will receive and China will produce for export. Chinese open source material often identifies various projects as focal points (*zhong dian zhi yi*), which means that these projects receive the highest political support. This political support, in turn, equates to financial support. Meanwhile, projects not identified as focal points may continue, but they do not receive the same level of political or financial support.

The PLA's Economic Situation

Besides monitoring the five-year plans and defense industry economic indicators, the PLA's economic situation provides valuable clues as to military involvement in WMD proliferation abroad. The military began commercial activities in 1985, following directives issued by the CMC and State Council, mainly as an expression of Deng Xiaoping's economic reform drive. At the movement's peak in the early 1990s, there were an estimated 20,000 PLA-affiliated businesses.²⁶ One of the driving forces was the PLA's need to supplement its budget. As a result, several large companies, the most notable being the General Staff Department's Poly Technologies, emerged as valuable import and export arms of the PLA. Some of these companies became involved in purchasing foreign military equipment and for selling surplus PLA equipment abroad.²⁷

Poly Technologies is best known for its 1988 sale of DF-3/CSS-2 ballistic missiles from the PLA inventory to Saudi Arabia. There were several issues that coalesced in the CSS-2 sale. First, Saudi Arabia actively sought out China's support. Second, like Iran, Saudi Arabia was able to pay China with much-needed hard currency. Third, China saw the sale as a way of pulling Saudi Arabia away from its diplomatic recognition of the Republic of China on Taiwan. This goal was finally achieved when the PRC and Saudi Arabia established diplomatic relations in July 1990. Fourth, the PLA's ongoing modernization program led to the availability of the surplus missiles from its active inventory. Finally, the PLA was actively seeking ways to accrue much-needed additional money to supplement its official budget. The entire program was sanctioned by Jiang Zemin, who was Chairman of the CMC, as well as Secretary General of the Party, and President of the PRC.

The 1988 situation may be replayed over the next few years, following Jiang Zemin's 1998 ruling that the PLA must divest itself of its non-agriculture and indus-

²⁴The 1st Five-Year Plan (1953–1957) effectively served as the blueprint for industrialization. The 2nd through the 5th plans (1958–1980) were all interrupted by political upheavals and had little influence. As a result of Deng Xiaoping's guidance for opening China's economy, all of the plans since the 6th, that began in 1980, have provided the necessary policy guidance for China's economic and military development. Source: Robert L. Worden, Andrea Matles Savada, and Ronald E. Dolan, editors, *China: A Country Study: 1988*, Washington, D.C.: Library of Congress, Foreign Research Division, 1988, p. 240.

²⁵"Post-2000 Delays to China's Arms Goals," *Jane's Defence Weekly*, 21 January 1998.

²⁶"China Moves to End PLA's Commercial Interests," *Jane's Defence Weekly*, 23 September 1998.

²⁷During the late 1980s, aviation ministry personnel cited instances where the PLA would circumvent the spirit of the law by purchasing a new piece of equipment from a factory and then have this "surplus" equipment delivered directly to an overseas customer. See James Mulvenon, *Soldiers of Fortune: The Rise and Fall of the Chinese Military-Business Complex, 1978–1998*, Armonk, New York; London, England: M.E. Sharpe, 2001.

trial production companies. Although the State Council has reportedly increased the PLA's annual budget, the PLA might seek ways to supplement this budget with further WMD sales abroad—either officially or unofficially.

High-level Exchanges

Delegation visits provides one indicator of possible involvement between China and various countries. Initial, as well as on-going, indicators for official government involvement in WMD activity include exchanges by high-level officials, as well as visits by officials from the nuclear industry, defense industries, and military. While China's official government media (*Xinhua*) may cover the existence of high-level visits, visits by lower-level officials will most likely not be covered. These types of visits may, however, be reported in local newspapers or in factory or ministry newsletters. Cross-referencing multiple sources often gives a good indication of the people and organizations involved. Some of these local papers are now available on the internet.

Another indicator of official activities involves the use of military aircraft to transport Chinese delegations abroad or foreign delegations around China. When transporting Chinese delegations abroad, these aircraft will most likely make stops in various locations around China, in order to pick up or drop off passengers. Once negotiations have begun in earnest, these flights may become routine.

Absence/Presence of Key Officials

Although the negotiation process will be largely concluded in secrecy, one possible indicator is the unexplained absence or presence of certain key people for extended periods of time. Key people include ministers, vice ministers, factory managers, military procurement officers, scientists, import/export company representatives, and interpreters.

If negotiations are handled through the Chinese Embassy abroad or the foreign embassy in Beijing, the permanent or temporary assignment of a new embassy official often provides an indication of ongoing, long-term negotiations and contract implementation. If the PLA is involved, the PLA may assign military representatives from the appropriate organization, such as the newly-established General Equipment Department, to the defense attach office. These officers will not participate in normal military attach functions, but will be responsible for the military sales or assistance program. This was the case when the United States had four foreign military sales (FMS) programs with China during the 1980s. At that time, the Commission for Science, Technology, and Industry for National Defense (COSTIND) had uniformed military representatives assigned to the PRC Embassy in Washington.

Many Chinese ministries have established branch offices of their import/export companies in foreign countries. These representatives are posted abroad to establish business links, facilitate contract negotiations, and to conduct follow-on support for existing contracts. The addition of new representatives to these offices or an unusual number of visitors from China provide indicators of negotiations or completed contracts.

Equipment Support

When the Chinese provide any type of major equipment abroad, they also provide training and follow-up support either in China or in the host country for that equipment. This training may be conducted for several years in some cases. Thus, the continuing presence of large numbers of Chinese in key cities or weapons-related areas is a valuable indicator of on-going activity. Since the Chinese do not readily publish lists of key personnel or organizational structures, it is often difficult to know who the key personnel are. Therefore, it is important to compile organizational data as it becomes available, so that names can be cross-referenced later.

Monitoring Contract Implementation

Information gathered from reconnaissance satellites provides classic indicators of impending, ongoing, or previous sales or acquisition of WMD. These indicators include communications, electronic emissions, and photography of production facilities, deployment areas, and transportation hubs.

Each ministry or corporation has its own import/export company, which is responsible for arranging the negotiations and monitoring the contract. These companies also arrange the transportation for components and full systems, and use their warehouse and loading facilities along the route, regardless of whether the goods are transported by road, rail, or sea. Because they generally use the same shipping companies, monitoring these facilities could provide indicators of deliveries.

Monitoring of China's ground and sea transportation systems can also provide potential indicators of delivery activity. Since almost all of China's goods are moved by rail at one time or another within the country, unusual rail movements may pro-

vide important clues to the transfer of equipment. As China's economy grows, competition for cargo space is becoming more intense. The PLA must submit requirements through the proper military and railway ministry channels anywhere from three to twelve months in advance, depending on the situation. When hazardous cargos, such as munitions, are carried on trains, the amount of coordination and limitations increases exponentially. The cargo must be delivered immediately and is not allowed to remain in one spot for more than 24 hours. The shipping organization must notify public security organizations en route to ensure that there are no problems.²⁸ Occasionally, a local newspaper may carry an article describing the role the local police or other organizations played in the train's movement or shipping of the goods.

Even nonhazardous cargo oftentimes receives local media attention. For example, during 1988, the Ministry of Aviation's weekly newspaper described the transfer by road of a Y-8 transport aircraft from the production facility in northern Sichuan Province to the flight test center at Xian. The planning process took nearly a year and involved the police in every small town en route. Local newspapers may also carry similar articles covering activities at facilities involved in WMD.

The difficulty comes when nonhazardous cargo containing items such as weapons or nuclear components rather than entire systems are shipped by rail or sea on a non-urgent basis. There would most likely not be any specific indicators of this activity other than by monitoring the place of origin and destination.

International Exhibitions and Symposia

A review of industry literature and information provided at international exhibitions and symposia may render clues to ongoing domestic and foreign programs. Chinese attendance at international symposia provides a good indication of China's interest in certain technologies. Chinese hosting of international exhibitions and symposia enables them to set the agenda and invite foreign scholars and scientists who have information tailored to China's needs and interests. Furthermore, hosting these exhibitions provides the most cost-effective means of obtaining information, since the Chinese normally charge foreign companies high prices for exhibition space.

SUMMARY

In summary, it is the author's opinion that the PRC, for political and economic reasons, is likely to continue as a WMD proliferator regardless of what international regimes Beijing has agreed to. Sales of WMD technology and equipment abroad will be done officially and unofficially, involving the defense industry and the PLA. China is constantly seeking markets for its WMD technology and equipment. Although Beijing might not be able to provide everything these proliferator countries are seeking, PRC companies, whether legally or illegally, might be willing to sell what they have available for the right price. Monitoring activities with specific countries where China could fulfill some or all of their WMD requirements could provide an indicator of at least the potential for China to become involved in WMD proliferation there.

Co-Chairman BRYEN. Good. I think I'd like to hold the questions until we go through all the testimony, but you certainly have stimulated me to ask quite a number. I'm sure the others have been stimulated, as well.

Dr. Jones?

STATEMENT OF RODNEY W. JONES, PRESIDENT, POLICY ARCHITECTS INTERNATIONAL

Dr. JONES. Thank you very much. I appreciate the invitation and regard it as an honor to be able to provide you with a statement.

Just a word on my background. I've not been able to serve in China. I have served with the U.S. Government in the strategic arms negotiations, so I'm a nuclear focused person. Much of my professional career has revolved around proliferation, nuclear proliferation in particular, missiles as well. And I do have expertise on South Asia, the area of action and concern today. So my view

²⁸This information is based on interviews with Chinese personnel.

of China is not that of a deeply trained area expert but certainly one that pays a great deal of attention to its transactions with neighboring countries and also the strategic level of issues.

But I do want to deal with the macro level. It's really important in dealing with China, I believe, to look at how much things have improved. I take Dr. Allen's point that there is a major acquisition kind of effort that China's been engaged in for the last 25 years. Not surprisingly, it is taking advantage of the market system that it is now part of and it is acquisitive. Acquisitive doesn't necessarily mean that it is focused on proliferation.

Companies are going to be problems in terms of their behavior and I think the real issue is the degree to which the government gets control of that. It's really a pattern that we've had to work at in our own system and I'd just like to comment on the things that I think have changed over time in that respect.

I think we really have to bear in mind how China was basically a revolutionary power, one that has been moving over the years into a kind of a moderate focus. A great deal changed in 1975 and the character of China today is not what it was under its previous leadership and we need to work on strengthening its changed character. That obviously doesn't mean we don't have serious problems. China's a tough customer. But I think we ought to work on the trend, which has been to integrate it into the international system.

From the standpoint of proliferation, which is what I'll concentrate on—my testimony goes a little bit beyond that in terms of broader geopolitical relationships, but in terms of proliferation, what I would emphasize is the learning curve that China has been on and the key milestones that had to take place for it to get there.

The first was its joining the IAEA in 1984. Until China joined the IAEA, there really wasn't much intercourse with the rest of the international community on what mattered in the nuclear area from the standpoint of external transactions. Congress, together with various administrations, has played a very major role over time using the incentive or the carrot of the peaceful nuclear cooperation agreement, which was finally approved in 1997, to bring China along on a nonproliferation course in the nuclear area in particular.

The next step that really mattered because it put binding legal strictures into place on China which had not been there before—by its joining the Nuclear Nonproliferation Treaty. This took place in 1992. Until that time, China had no obligation not to assist other states with nuclear weapons activities, at least no legal obligations. So I think we have to bear that in mind in looking at the past history.

And then what we have to look at is whether since 1992 with respect to nuclear activities China's behavior has been much better, largely in conformance with that treaty, or not, and I go through a number of things to suggest that it's been a learning curve in coming into conformity with that treaty, but that in large part, China's behavior has come into conformity with the treaty.

The key steps along that way had to do with definitional things, the degree to which China could assist countries with nuclear activities, including peaceful nuclear activities that might be ambiguous and that might involve dual-use technology and so on and so

forth. The step that Dr. Allen mentioned a moment ago about the ring magnets' transfer to the A. Q. Khan Research Laboratory in Kahuta was a key development. It led to a good deal of U.S. attention at the time and the effect of it was in 1996 for China to pledge, and this is a very important pledge, not to assist states with transactions in unsafeguarded nuclear facilities. In Pakistan and India, a large number of the nuclear facilities are unsafeguarded. And with that step, I think you'll find that as far as technology, physical equipment, or nuclear materials are concerned, China has been in large part in conformity since 1996.

Another key step which was under our pressure and not really required by legal agreements, but nonetheless China has done, is basically to separate itself from continuing peaceful nuclear cooperation with Iran in a major way. There were two residual agreements, one having to do with a zirconium cladding manufacturing facility and one with a research reactor. But basically, China jettisoned the money-earning options of building nuclear power plants in Iran, a very major step, it seems to me.

The key development in 1997 and 1998 that led to the U.S. Congress being able to approve a nuclear cooperation agreement with China was the formation of clear export control regulations in the Chinese decision-making system. Mr. Allen has mentioned that in a very fine-grained way. But the key from the standpoint of nuclear export controls was to develop licensing procedures, to develop decision-making mechanisms focusing on who was in charge, the State Council, and giving basically the Ministry of Foreign Affairs a key role in screening exports from China.

And two steps in 1997, in September-October, China joined the Zangger Committee of the IAEA, which brought China under the export regulations of the "trigger list," and in 1998, in the middle of the year, China accepted also and introduced into its export controls already published dual-use controls, as well.

Actually, it's interesting that the only thing that's left to do in a major way with China on the nuclear nonproliferation side is winning China's acceptance of the full-scope safeguards provision that the nuclear suppliers group in general adheres to, with the exception of Russia and its relationship with India. The full-scope safeguards requirement basically would oblige China not to have any nuclear exports, really, with either India or Pakistan. It has nuclear exports with both. In India, it's been a major supplier of heavy water. And, of course, with Pakistan, it has a substantial peaceful nuclear cooperation agreement, having built a power reactor at Chashma, which has come on-line very recently.

The only thing left is the full-scope safeguards issue, and that would make a very significant change. But it isn't obliged under the NPT to have that. That's really a product of cooperation among the nuclear suppliers group and the Zangger Committee under the IAEA. So I think we ought to look at where the cup is half full or more than half full, not just at where things are neglected.

Now, on the nuclear side, I think the ratings are pretty good. I ought to also mention, of course, that China has been very supportive of the nuclear test ban treaty, something that we're, in a sense, now ourselves moving away from, interestingly enough. It has also been a very supportive partner in the preliminary negotia-

tions for the fissile material control treaty and has, as far as we can tell, ceased to produce fissile material for nuclear weapons in its own system. Not that it couldn't start up again. Obviously, it could. And this isn't to say that it doesn't have a large amount of fissile material. It certainly does, probably enough for 5,000 nuclear weapons. But nonetheless, in terms of the expectations that go along with these types of instruments, it's been moving in that direction.

Co-Chairman BRYEN. That's huge, isn't it?

Dr. JONES. I'm sorry?

Co-Chairman BRYEN. Five thousand would be huge, isn't it, compared to what they have?

Dr. JONES. Yes. It's based on very ordinary estimates by researchers, such as at the Natural Resources Defense Council, a number of people there published a book on U.K. and France and China.

Co-Chairman BRYEN. I don't want to start asking questions, but it just confuses me—

Dr. JONES. Right.

Co-Chairman BRYEN. —because they have something like 50 nuclear missiles and then they have the capability of 5,000. Quite a contrast.

Dr. JONES. The amount of fissile material in China is very large.

Co-Chairman BRYEN. Massive, yes.

Dr. JONES. It certainly is, so I don't want to downplay that at all. The point is that in terms of fissile material control treaty negotiations, eventually, it's conceivable that a lot of that could be put under control.

On the missile side, the story is somewhat different and here, I would note that the basic course of action that the United States has pursued over the last 20 years—actually 15 years or so since the negotiation of the missile control—MTCR—missile technology control regime, which, of course, is not a treaty-based instrument but is rather a series of cooperative undertakings among the countries that join it, we have been seeking to get China to do two things.

One is eventually to join it, but the other in the interim is to adhere to its provisions, which are both areas of presumption and denial with respect to the sale of missile systems and also the same thing as it applies to missile technologies and production capabilities specified in various annexes and lists there. I am sure the Commission is actually fairly familiar with that.

The real question is whether China has moved into conformity with that. It clearly was not in conformity with that with respect to sales of missile capabilities to Iran and to Pakistan, also to Saudi Arabia in the earlier years, and also prospective sales to Syria. And certainly, there was originally some relationship with Iraq and at one point with Libya, as well, and perhaps even with Egypt.

The question is what's taken place in the 1990s, and there, there's basically been a continuing ratcheting up of the areas in which China adheres to controls. It's moved away from sales of complete ballistic the missiles. It dropped a sale to Syria, even though Syria had partly paid for missiles. In the case of Iran, the

question is which kinds of missiles and we find that China has basically dropped its support of ballistic missile export activities with Iran, but not necessarily stopped support for cruise missiles, such as anti-ship cruise missiles.

There's one other area where it's supplied production technology and Iran is now basically self-sufficient and that's with the 150-kilometer, I think it's designated a CSS-8, but in any case, the 150-kilometer, very short-range ballistic missile. Not trivial, not unimportant, but very different from the technologies that the MTCR controls.

With respect to Pakistan, where the focus has been under a microscope over the years, the reporting suggests that China did, in fact, supply M-11 missiles, the 280 to 300-kilometer surface-to-surface ballistic missiles under agreements that go back to the late 1980s and did so around 1992 and, of course, denied that it had done so, and there's been a process of focus on that, I think very rightly so.

But the question now is whether that's continuing, whether there are other missiles going to Pakistan from China, and I think the next step that was looked at was technology assistance. That is not the missiles, not full-up missiles, but actually supplying various components for other missiles and perhaps production technology. I think the record suggests it's fairly clear that China did supply a factory, in effect, that is, the equipment and the information required to produce M-11 class missiles.

Co-Chairman BRYEN. To——

Dr. JONES. To Pakistan.

Co-Chairman BRYEN. When?

Dr. JONES. Probably in the mid-1990s, with that coming into play around 1996, 1997. I could, you know, go back and give you further detail, if necessary.

Co-Chairman BRYEN. We're short on time, so——

Dr. JONES. So the issue today is how far China has come with respect to MTCR obligations. I believe that it has done a lot of past proliferation there, but basically pulled back to a large extent in the 1990s and now adheres in some fashion to the MTCR with a gradual convergence taking place on the definitions and the annexes under it.

In the year 2000, in November, China agreed to another pledge, which was not to assist other states with ballistic missiles that were capable of delivering nuclear weapons. Now, that's a general pledge. It's in line with the MTCR expectations. Let's see how that actually plays out.

But as far as I've been able to tell, there are not continuing exports of anything like concrete technology to Pakistan today, and as I mentioned, with Iran, it's been scaled back. Other countries, it's no longer taking place.

Well, that are the focus. I did have some comments on chemical weapons. I'll simply leave that for the record in my testimony and mention the areas in which I think policy should focus.

First, given China's improvement over time in nonproliferation, I think it's important to do no harm. We should not be careless in how we apply sanctions. I think it's fair game to apply sanctions to companies whose connection with the regime may be somewhat

loose or unclear and uncoordinated. But I think that we ought to be careful about sanctions with China in the sense that we need to work on eliciting further progress and we don't want to push them into a kind of backsliding. I think the reason that's a danger really has to do with the issues of Taiwan.

Secondly, areas that I think we need attention to have to do with the consistency of U.S. nonproliferation commitments. One of the things I mentioned earlier is no one's hands are clean in this area, and what's happening right now is very interesting.

Since 1998 and the nuclear tests in South Asia, both the Clinton and Bush administrations have looked for ways to promote some kind of strategic cooperation with India and now looking for ways to enlist Pakistan's help in anti-terrorism, which is, of course, well intentioned. But the issues that have to do with whether you make accommodation in the nonproliferation areas are very serious, and if you do, then you have to be looking at China's concern about a nuclear India and what that means for it on the horizon.

I'll just tick off the other areas. They are readable in the statement. I think engagement has been an appropriate framework. It has largely worked. It's a hard course and it has to be continued.

Measures on Taiwan: we ought to be careful about this. We ought to understand that it's not unnatural that China produced some sort of linkage between our arms transfers, including Aegis systems and perhaps F-15 aircraft to China. If—

Co-Chairman BRYEN. Taiwan.

Dr. JONES. I'm sorry, to Taiwan. Correct. That, from China's standpoint, really is very strategically difficult.

[The statement follows:]

PREPARED STATEMENT OF RODNEY W. JONES¹

Preliminary

It is an honor and privilege for me to appear before the Commission to talk about China's role in global proliferation problems, and I thank you for this opportunity.

In addition to my prepared remarks for today, may I request that my chapter on China in *Tracking Nuclear Proliferation*, done in mid-1998 at the Carnegie Endowment, be attached as part of my submission for the record—if that is permissible. That chapter records how far China has traveled towards nonproliferation objectives over the last two decades.

Before addressing the written questions about China, I'd like to take a few moments to share my perspective on how China has evolved since the 1970s and what I believe our longer term security interests with China involve. Evaluating proliferation behavior requires context.

China Yesterday and Today

It is easy to paint a very dark picture of China and much of that has been highlighted in the media over the last few years. In fact, since the Tienanmen Square crackdown in 1989, it is not altogether an exaggeration to say that China has been climbing out of our doghouse. Beijing today is very much under the microscope.

Since 1989, we've had the 1996 U.S. naval showdown over China's missile posturing across the Taiwan strait, the Loral satellite launch controversy and more recent Cox Committee findings—suggesting Chinese espionage of advanced U.S. nuclear warhead information and missile guidance technology. We've had the far-reaching emotional flap in China over our accidental bombing of their embassy in Belgrade, and the PLA air force collision with our surveillance airplane that had to make a forced landing in Hainan. Reports suggest that China managed to seduce Russia (or vice versa) to sell advanced conventional arms and sensitive technology,

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possibly including engineering information on how to deploy MIRV payloads on ICBMs. Internal political change in Taiwan with hints about two independent Chinas has greatly heated the atmosphere.

And China remains a one-party communist dictatorship, suppresses nascent opposition parties, stifles any politically significant religious minorities, and robs Buddhist Tibet of political and cultural autonomy.

But against that legitimately troubling backdrop, we ought to remind ourselves that China has proved over the last twenty years to be a much more moderate actor than the revolutionary power we fought directly during the Korean War, and contended with during the early stages of the Cold War. We should not forget how far China has come towards a constructive role in international affairs, politically, economically, and legally in the last two decades.

China, for one thing, has not engaged in the export of international terrorism, certainly not since Deng Hsiao Peng took control. China gives no aid or cover to global terrorist organizations that do harm to the West. Its behavior does not resemble North Korea's politically, in domestic or foreign affairs, nor display the temperament of any of the classical rogue states. And it is hardly a failing state in any sense of the word. China is not likely to disintegrate or succumb to civil war.

China took no geopolitical advantage of the Soviet Union when it disintegrated, nor did it attempt to exploit the chronic weaknesses of the newly independent Central Asian states. Instead, China worked with Russia and the Central Asian states to adjust and legally codify borders in areas that had long been disputed. That was not what we would have expected to see in the 19th century or even before World War Two. That is behavior more akin to what optimists mean when they use the term "a new international order."

In the big picture, China opened up after 1975 to international trade and has gradually given substantial freedom to profit-making entrepreneurs to operate internally, in agriculture as well as manufacture and commerce. It has a long way to go, of course, because China's sprawling public sector industries represent an enormous mortgage on China's economy, and most are not capable of reforming themselves. Growing wealth is also very unevenly distributed within China.

In contrast to the great lurches and privations of the Maoist period, however, China's post-revolutionary leadership has managed to grow average domestic individual incomes to a level of at least \$1000/year, and that is not counting Hong Kong. China has been part of the larger East Asian economic miracle. It is employing and feeding a vast population. It is in our interest to see this progress continue. China's taking on new WTO obligations is a key step forward in opening China's economy to the stimulus of liberalizing forces.

China displays a predilection for stability. At least since the Viet Nam war, China has not pursued a pattern of destabilizing policies towards Japan, Korea, or Southeast Asia. Quite the opposite. Furthermore, for more than two decades it has generally steered clear of confrontation with any big player in the region. Except, that is, for the United States, due to our special connection with Taiwan. But that exception proves the rule. Apart from Taiwan, China's principal self-assertion to the south has been in the South China Sea. That is over access to energy resources—an entirely legitimate concern, if pursued without use of force.

Are there risks for the future as China's economy grows and its military capabilities evolve? Of course, and China almost certainly will continue to be a tough partner in negotiations. But if a strong China operates increasingly within a public international order of open trade and diplomatic adjustment of security issues, as has been the positive trend of the last 20 years, those risks, I believe, will be manageable. The alternatives that could lead us to revert to a China-containment policy are less palatable and would be very costly. That is something we would do if we are forced to, but not something to be wished for when better choices are available.

My analysis of China's behavior on proliferation and non-proliferation matters fits this general perspective, and is conditioned also by awareness that no one's hands are entirely clean in the areas of proliferation and nonproliferation.

Nonproliferation Learning Curve

Our approach to China since the Nixon, Ford and Carter administrations has been to draw it in to the international legal and political commitments that underpin the nonproliferation regimes—nuclear, missile, chemical, and biological. China was altogether outside those regimes in 1975, but has come a long way since then.

China has come furthest in the nuclear and chemical nonproliferation areas where its interests and our interests converge most closely, and where the legal instruments are treaties. It has taken major positive steps in the missile nonproliferation area as well, but has not come quite as far there. The legal instruments in that field are not treaties. (The verification aspects of the biological area are still in negoti-

ating flux, internationally, and I'll leave that aside.) China's nonproliferation progress is far from complete, but we should not miss the forest when we are looking at the trees.

As I see it, China's progress in nonproliferation has been based on two primary incentives. One is a long view if not an altogether enlightened view of its own security and economic interests. The second is that China places considerable value on international respectability. Neither of these factors counted for much in China during its long Maoist period of post-revolutionary turmoil and of relative international isolation.

China has been on a long learning curve since 1975, when it turned decisively away from its former international isolation. In the nonproliferation area, a key theme in its progress has been the gradual acceptance of diplomatic commitments and institutionalization of export control practices. Foreign affairs professionals who interacted with international institutions and absorbed their expectations led this change. Not surprisingly, military and industrial entities, and factions in the central decision-making bodies of the communist party and of the state, have pursued parochial interests, so that Chinese export practices did not necessarily adhere to its earliest nonproliferation undertakings.

But I stress the learning curve. It was not possible for Chinese officials to fully understand or "take ownership" of the substance of international standards for their own nuclear export behavior until China joined the IAEA in 1984. China's IAEA membership was a key watershed in making it feasible for U.S. administrations and the Congress to devise incentives for Chinese acceptance of international standards in peaceful nuclear cooperation. It was only in 1992 that China acceded to the obligations of the NPT, which prohibit assistance to non-nuclear weapon states with nuclear weapons and require that IAEA safeguards be applied to nuclear exports. These watersheds in China's foreign policy evolution are not that far back.

Consolidating Nuclear Nonproliferation Commitments

Since joining the NPT in 1992, China's nuclear export practices have tightened up considerably. A big step forward under U.S. sanctions pressure related to dual-use equipment, in this case "ring magnets," when China pledged in May 1996 not to provide assistance to "unsafeguarded" nuclear facilities. China took more comprehensive steps in September-October 1997 by enacting and publishing formal export control regulations, which correspond closely to those of the Nuclear Suppliers Group (NSG). China then joined the IAEA's Zangger Committee, and accepted its export control trigger list. In June 1998, China further upgraded its nuclear export control regulations for control of dual-use technology. The key remaining difference between China's policy and NSG requirements today that China has not agreed to is to make its nuclear cooperation contingent on the application of "full-scope" IAEA safeguards. Also in 1997, China basically dropped all significant nuclear cooperation with Iran, simply because this was urged by the U.S., not because it was required by China's treaty or nuclear export obligations.

As best I can tell, no cases have been brought forward on the public record since 1997 that charge China with exporting nuclear materials or equipment in violation of its NPT obligations, or deviating from its 1997-98 nuclear export control regulations. Its civilian nuclear cooperation agreements with other states—including Pakistan, India, and Algeria—appear to conform to all international standards, except that of fullscope safeguards.

Our latest official reports to Congress focus on the risk that interaction between Chinese and Pakistani personnel in nuclear facilities may contribute to Pakistan's accumulation of nuclear weapons expertise. This is not a matter to be overlooked, but the residual risk of proliferation through personnel interaction is marginal by comparison with unregulated trade in nuclear materials and equipment.

Uneven Status of Missile Undertakings

The missile nonproliferation area has been a much tougher nut to crack. Our diplomatic strategy with China has been to seek its adherence to the MTCR guidelines, beginning in the late 1980s, after those non-treaty guidelines were first published. China had transferred CSS-2 intermediate-range ballistic missiles to Saudi Arabia in 1988 and was marketing a variety of anti-ship cruise missiles, such as the Silk-worm, to Iran. These understandably grabbed U.S. attention.

China resisted adhering to the MTCR guidelines then, and to this day declines to become a full partner in the MTCR arrangements. But China has moved forward incrementally, with several public pledges, to adhere to the basic 1987 MTCR guidelines. It is true that China insists on its own interpretation of the language in those guidelines and does not necessarily accept the listing of each component in the Annexes or the amendments to the guidelines made in 1993.

Satisfying procurement agreements from the 1980s, China reportedly delivered some 34 complete M-11 short-range ballistic missiles to Pakistan in 1992. China also held the position that M-11 missiles were not MTCR-class. But China agreed in late 1992 not to sell complete MTCR-class missiles thereafter, and may have decided in that context to consider M-11 missiles as a restricted item. Sales of M-11 missiles to Iran and Syria were cancelled even though, in Syria's case, it had prepaid part of the bill. As far as I know, since that time China has not transferred complete M-11 or M-9 missiles to any country.

But China evidently continued to provide ballistic missile components or technologies and related production information to Iran for short-range CSS-8 battle-field missiles and anti-ship cruise missiles, and to Pakistan for M-11 type missile technologies. Nevertheless, under continued discussion with the U.S., in November 2000, China pledged not to assist states to develop MTCR-class ballistic missiles, which would preclude China continuing to transfer production technology for MTCR-class missiles, presumably including M-11 and M-9 type missiles.

In the meantime, however, Pakistan apparently has been able to develop sufficient capability to produce solid-fuel, short-range ballistic missiles itself, and Iran reportedly has obtained significant assistance in the same field from Russia for its Shahab program.

Chemical Weapons

In the early 1990s, Chinese chemical exports were a source of serious concern. Evidently a large number of smaller Chinese companies became active in marketing chemicals to Iran and Syria. After attention was focused on certain chemical export transactions, China again moved step by step into conformity with international expectations by signing the Chemical Weapons Convention (CWC) in 1993, and it subsequently ratified the CWC. In 1995 and 1997, China promulgated export control regulations, with licensing and approval procedures for specified precursor chemicals, and began implementing them.

China had difficulties with the compliance of companies that previously were unaccustomed to getting export approvals. Both China and India, however, exported unsafe chemicals to Iran between 1996 and 1998. Both had to upgrade their regulations and work harder to ensure internal industrial compliance. The dual-use problems of chemical feedstocks that can be used for legitimate agricultural chemicals and plastic goods but that also may be converted into chemical weapons or their precursors is a difficult area for many countries to come to grips with, not China alone. The evidence is that China is endeavoring to comply with its CWC obligations.

Nonproliferation Bottom Line

In short, the secular trend in China towards enforcing its own nonproliferation undertakings has been overwhelmingly favorable. If you look at the wide range of countries to which China formerly sold nuclear equipment or materials in the 1970s and 1980s (including countries in Latin America, Africa, the Middle East, and Southwest Asia, as well as North Korea) and compare them with the recipients that remain today, it becomes clear that China's contribution to nuclear proliferation has narrowed drastically to a small handful of countries, and mainly to dual-use areas of technology. It has adopted export control laws that meet recognized international standards in the nuclear and chemical weapon areas, reducing the scope for misbehavior primarily to implementation. Differences remain in policy and obligation in the missile export area, but those differences have shrunk drastically too.

China's Strategy and Motivations

One of the written questions relates to motivations. I would offer a few brief points on this question, bearing in mind that Chinese motivations for pursuing proliferation-sensitive activities earlier need to be compared with the restrictions China operated under at the time. The goalposts have been moved more than once.

A large part of the explanation for China's sensitive nuclear, missile and chemical exports in the 1970s and 1980s was its interest in commercial and foreign exchange earnings. These grew in importance after 1975, as China opened up to international trade. China's export competitiveness was greater in items of strategic trade than other commodities, particularly where Western countries lost ground, as in Iran after the fall of the Shah, and in such niche items as ballistic and cruise missiles, which Western states declined to sell to problem countries.

A second factor of high importance for China's "strategic trade," especially nuclear and missile exports, was cultivating favor in energy-producing countries in the Gulf and Middle East. This factor will increase in importance over time, as China becomes more dependent on energy imports. This is one of China's strategic concerns for the future.

The third factor has been maintaining stability on China's periphery. China's military cooperation with Pakistan, for example, has been important to China in several ways. During the Cold War, Pakistan was a buffer against further Soviet expansion to the south, that is, to China's rear. Pakistan was an important intermediary for China in opening up rapprochement with the United States. As a moderate Islamic country, Pakistan was also a listening post and a friend willing to put a good face on Chinese diplomatic openings in the Middle East. Insofar as India had great power and nuclear ambitions and was an unwanted distraction to China, investing modestly in India's local rival strengthened Pakistan's capacity to act as a natural counterweight. Each of these interests in Pakistan fit China's perspective on stability in neighboring regions.

Fourth, and rising in importance today, China's proliferation capability engages the concern of the United States and most Western countries and presumably generates diplomatic leverage. China can and does link these concerns to its own opposition to major U.S. arms transfers to Taiwan. This Taiwan linkage is more to China's missile export activities than to its nuclear cooperation policies. Linkage is not evident in the chemical area. It is clear, however, that China is as intensely opposed to transfers of sophisticated fighter aircraft and AEGIS ships to Taiwan as we are to missile proliferation in problem countries.

A fifth factor should be mentioned in light of the present U.S. interest in ballistic missile defense. We now all know that China is vocally opposed to U.S. deployment of strategic and regional ballistic missile defenses. Its twin concerns are that U.S. missile defenses of the homeland will impair the credibility of China's strategic nuclear deterrent, and regional missile defenses may encourage Taiwanese independence aspirations. China's linking proliferation acts deliberately to these concerns is not China's most obvious choice—alternative and more easily justified courses of action are open to China—but linkage is a risk.

Policy Implications

Do no harm.—Since China has institutionalized the implementation of its nonproliferation obligations and commitments through published export control regulations, a case can be made that it is more important today to consolidate China's progress and to dissuade China from backsliding than to insist on immediate closure of all remaining loopholes. To put it another way, persuasive measures steadily applied are more likely to be productive than punitive sanctions on China in eliciting further progress. Sanctions against specific Chinese trading firms for future acts of illicit behavior would still be warranted when the evidence is clear.

Consistency of U.S. nonproliferation commitments.—Recent U.S. policy shifts that court India as a favored strategic partner despite its 1998 nuclear weapon tests and induction of nuclear weapons evidently is regarded by China as an expedient softening of America's own commitments to nuclear nonproliferation. Should China conclude that this also damages Chinese security interests and strategic stability in Asia, it may reevaluate the value of its own nonproliferation undertakings and adopt a lower standard. The U.S. would be wise to think through the ramifications and tradeoffs before it moves irrevocably down such a path.

Engagement—stay the course.—China's direct incentives for adherence to nonproliferation undertakings are the general security and stability benefits that stem from widespread adherence to nonproliferation regimes, and the international standing China gains from meeting its own commitments. But China's overall gains from ordinary political and economic exchange may be crucial in offsetting the short term sacrifices that can and do result from strictly observing nonproliferation undertakings. Engagement principles remain the proper overall framework to pursue China's comprehensive adherence to nonproliferation standards and the broader range of U.S. interests.

Measures on Taiwan.—Peacefully resolving the future status of Taiwan will continue to test Chinese patience and U.S. political and diplomatic skills. The strategic sensitivity in Beijing of the contemplated transfer of advanced U.S. arms to Taiwan should not be underestimated. China's implicit linkage of this matter with proliferation is not something we can agree with and is inappropriate in any case, but neither should we dismiss the depth of Chinese concern or be surprised by linked behavior.

Regional security cooperation.—Steady support for and creative enlargement of the functions of APEC in matters of regional security may provide new incentives for China and working relationships with Chinese officials that could, in turn, strengthen China's confidence in nonproliferation commitments and China's perceived benefits from compliance.

Energy assurances.—As China modernizes and per capita consumption increases, assurance of energy supply will assume an increasing strategic importance in China.

While the market and maintenance of international security are the critical underpinnings for assured energy supply, this is an area in which proactive great power cooperation could yield benefits that make the management of nonproliferation undertakings easier.

Co-Chairman BRYEN. Well, we have run out of time.
Mr. Timmerman is next.
Please Proceed.

STATEMENT OF KENNETH R. TIMMERMAN, AUTHOR, "THE SELLING OF AMERICA"

Mr. TIMMERMAN. Thank you. I'm Ken Timmerman. I thank you for the opportunity to come here. What a terrific panel. I'm impressed by your brainpower, your experience, and I hope that I'll be able to contribute something to the recommendations that you will make towards policy. I also hope to give you an aspect of this problem of China's threat to U.S. national security that you're not getting from some of the other testimony.

I'm referring to China's ability, proven over the past decade, to acquire advanced military technologies for its weapons programs right here in the United States, through espionage, sleeper networks, and legal purchases condoned and even encouraged by a failed U.S. export control system.

I've been investigating this here in the United States since I was a Congressional staffer for Tom Lantos in 1993. After leaving the Hill, in July 1994, I reported that U.S. Customs officials were investigating Chinese government companies that were attempting to purchase defense production equipment being sold at auction from U.S. plants that were shut down at the end of the Cold War.

My investigations were widely criticized by Clinton administration officials at the time, who called them alarmist and factually incorrect. But the facts I reported were borne out in great detail by the United States Department of Justice, which convicted McDonnell Douglas in October of 1999 on the same charges that I had raised five years earlier and levied a substantial fine on the company.

My reporting was borne out again in May 2001, when TAL Industries—T-A-L Industries, a PRC government-owned corporation whose very existence was unknown to the public until my initial investigation, entered a plea of *nolo contendere* to a felony charge for its involvement in these transfers. The equipment sold to Communist China in these deals came from the B-1 bomber plant in Columbus, Ohio, and appears to have been destined to produce combat aircraft for the PLA air force.

Now, my background is as an investigative reporter. I've worked in the Middle East and Europe since 1984. I did a book in 1989 in French, wrote in French, published in France on Soviet high-tech espionage. My specialty has been going after the networks, how the transfers occur, how the bad guys get good stuff from good places.

I did a second book on Iraq, on the Iraqi arms industry called *The Death Lobby: How the West Armed Iraq*, which was based on extensive interviews with the heads of Iraqi missile, nuclear, and chemical programs in Iraq. I was the only person who had ever talked to them before the U.N. inspections that began in 1991. My book was called the bible by Ambassador Rolf Exeus, who was the

head of UNSCOM, and he gave it to his inspectors when they went in in the beginning process. Obviously, they learned an awful lot more than I could possibly know at that point.

My investigations began, and I think this is an important point so you understand where I'm coming from, with dozens of factory visits in Europe and the Middle East looking at weapons factories, looking at machine tools, controllers, manufacturing processes, where I got a layman's appreciation of the tools needed to build a rudimentary arms industry in the third world. Some of the machine tools I photographed on factory floors in Germany I later saw myself with my own eyes in Iraq.

My message to you this morning is very simple. We must never underestimate our adversaries. We often make mistakes, at times innocently, at times not, by assuming that the engineers and planners in countries such as Iraq, Iran, or Communist China are not as smart as we are.

Again and again, I heard administration officials over the past six to eight years argue that the technologies the Chinese were seeking to acquire from us from our decommissioned weapons plants were old technologies and, therefore, they didn't pose a threat. These officials apparently believed that the Chinese and other proliferators of the world will design their missiles and bombs to American standards and will turn up their noses at anything but state-of-the-art technology. But remember, the first U.S. nuclear weapons were designed using rudimentary punch-card computers and were built on machine tools which are now 60 years old. Even old technologies in the hands of a determined proliferator can create deadly weapons.

Clearly, the way that we control these technologies in the West is flawed. The Clinton administration made a fundamental error, in my view, by deciding to eliminate COCOM. European COCOM officials I had worked with for four years before the decision was announced in the spring of 1993 called me when I was working in Congress and they asked me what virus has swept Washington to propagate such folly? They were complaining to me, a staffer on the Hill, about what was going on.

The administration claimed that we were abandoning COCOM because the Europeans were in the process of sabotaging it. Nothing can be further from the truth. The record should now be clear that the Clinton administration abolished COCOM to pave the way for billions of dollars of supercomputer, satellite, rocket technology, and telecommunication sales to commercial companies operated by the Chinese military or the Chinese State Council. This is not a political statement, it is a statement of fact.

Let me share with you a few anecdotes to illustrate the gravity of the problem I believe we are facing and how difficult your task will be to prescribe remedies.

GPS—in 1998, I came across documents from TAL Industries in El Monte, California, showing the Chinese government controlled front company—that this Chinese controlled front company was preparing to export military-grade GPS systems by air freight back to CATIC in China. I shared this information with the appropriate U.S. authorities before exploiting it as a journalist. I was told by

the Department of Commerce that they were no longer able to control GPS exports because of changes in U.S. regulation.

My contacts knew full well that the supplier of this particular system in the U.S. had developed state-of-the-art GPS systems for the U.S. military. But because GPS had been decontrolled, the U.S. agencies they worked for could do nothing to stop these exports. Similar systems are now being used by the PRC to enhance the accuracy of their ballistic and cruise missiles.

And by the way, this extensive decontrol had a tremendous demoralizing effect on our people out there in the field from the Office of Export Enforcement or the U.S. Customs Service who were trying to block these sales, and they would say to me again and again, how do you want us to go after these things when we know the prosecutors are never going to make a case? And when you see a supercomputer export which is even declared illegal and found to be illegal, you find that the exporter gets fined \$50,000, which is what happened.

During one of my investigations in California, I personally visited around 150 Chinese front companies, many of them no more than signs on closet offices, that came alive to support a particular clandestine deal. I've appended to my written testimony a printout of just one such network, which includes freight forwarders, brokers, import-export agencies, et cetera. There are about 40 companies here, and I will be happy to share it with you. Those are all run by CATIC. Now, these were companies that I found out on the ground the U.S. Commerce Department—

Co-Chairman BRYEN. CATIC is the Chinese—

Mr. TIMMERMAN. The Chinese Aerospace Technology Import-Export Company, controlled now by the—I believe by the State Council, but Ken will correct me.

One of these front companies, one of these front companies had been operating for two years, undetected, directly above the CIA liaison office to the aerospace industry in California. Shall I repeat that? For two years, without being detected, a Chinese government controlled front company working with the military was directly overhead the CIA's liaison office that was there to work black projects with the aerospace industry in a part of Los Angeles that I'm not going to name, okay? This is how serious the problem is that we've got.

On the DF-31, I won't go into too much detail on the DF-31. I will give you some additional materials. Here's an article that I did for *Reader's Digest*, which I'll pass out to you, which explains the American technology content in China's latest ICBM solid fuel ICBM. We gave them multiple technologies, as a result sometimes of seemingly innocuous contracts.

On April 28, 1993, Motorola signed a contract with Great Wall Industries Corporation to launch 12 of its iridium satellites. As part of the contract, the Chinese agreed to develop a smart dispenser, allowing them to launch several satellites from a single rocket because the Chinese had not been able to build such a dispenser themselves.

I came across, as a journalist, a Chinese defector who had worked in the factory that actually was working on the DF-21 and a DF-31. I was able to verify this later on with U.S. intelligence

officials. Ultimately, this defector told me, it was Lockheed which produced the dispenser under this seemingly innocuous civilian contract approved by the Commerce Department, and now that dispenser sits atop the DF-31, dispensing multiple nuclear warheads.

In 1992, I proposed to the incoming Clinton administration a series of steps to reform the export control system by making it more attuned to the threats facing America from proliferators in the third world who took advantage of our liberal free market policies. Among other things, I suggested they take the control system away from the Commerce Department, which during the previous Bush administration had showed an inherent conflict of interest between its role as export promoter and its role as export inhibitor and controller. I suggested, and many others agreed, that it made more sense to put export controls under DOD since the main reason we were controlling these technologies was for national security.

With the veritable flood of advanced military goods that have gone out the door since 1994, I'm no longer sure we can reform the system. Irreparable damage has been done to our national security by giving the People's Republic of China access to technologies it would have taken them years to obtain elsewhere, if at all. And through China, these technologies have spread to Iraq, Iran, and a variety of rogue states and non-state groups.

You may recall not too long ago that the Pentagon waited to bomb before bombing one particular Iraqi communications site until the weekend so the Chinese technicians installing U.S. fiber optics repeaters would not get killed by U.S. bombs and create a diplomatic incident. This is, unfortunately, symptomatic of the type of deadly threats we have created through our mistaken policies.

One suggestion I proposed while still in Congress which has been partially implemented, I believe, and Bill Reinsch can comment on that, was that all shippers electronically file shippers' export declarations. We can go into this in detail, if you wish. It is a detail, but it's important because it gives our intelligence community an eye on what is actually going out to the door. It allows them to piece together a puzzle after the damage has been done so we can go onto the field militarily, if we have to, and confront that technology.

Finally, let me just close with this. There are only two ways, it seems to me, to ensure that our technology does not come back to bite us. Either refrain from selling it, or make sure we sell it only to our friends. Over the past eight years, we've done neither. Thank you.

[The statement follows:]

PREPARED STATEMENT OF KENNETH R. TIMMERMAN

I thank you for this opportunity to present testimony on an aspect of the proliferation and national security threat posed by Communist China that you may not hear from other witnesses.

I'm referring to China's ability, proven over the past decade, to acquire advanced military technologies for its weapons programs here in the United States through espionage, sleeper intelligence networks, and legal purchases condoned and even encouraged by a failed U.S. export control system.

I have been investigating Chinese high-technology procurement efforts in the United States since I was a Congressional staffer for Rep. Tom Lantos (D, CA) in 1993. Shortly after leaving the Hill, in July 1994, I reported that U.S. Customs officials were investigating Chinese government companies that were attempting to

purchase defense production equipment being sold at auction from U.S. plants shut down at the end of the Cold War. My investigations were widely criticized by Clinton administration officials at the time, who called them alarmist and factually incorrect. But the facts I reported were borne out in great detail by the United States Department of Justice, which convicted McDonnell Douglas in October 1999 on these charges and levied a substantial fine on the company. My reporting was borne out again in May 2001 when TAL Industries, Inc., a PRC government owned corporation whose very existence was unknown to the public until my initial investigation, entered a plea of *nolo contendere* to a felony charge for its involvement in these transfers. The equipment sold to Communist China in these deals came from the B-1 bomber plant in Columbus, Ohio and appears to have been destined to produce combat aircraft for the PLA Air Force.

I have been investigating illicit high-technology transfers and arms sales since 1984. I published a book in French on Soviet high-tech espionage and COCOM in 1989. Two years later, I published a book with Houghton Mifflin on Saddam Hussein's arms industries called *The Death Lobby: How the West Armed Iraq*. It was based on extensive interviews with the masterminds of Iraq's chemical, biological, and missile programs, individuals now well known in the West, and was called the "Bible" for United Nations arms inspectors by the head of that effort after the Gulf War, former Swedish diplomat Ambassador Rolf Ekeus. My investigation began with dozens of factory visits in the Middle East and Europe, where I learned about machine-tools, controllers and manufacturing processes, and got a layman's appreciation of the tools needed to build a rudimentary arms industry in the Third World. Some of the machine-tools I photographed on factory floors in Germany I later saw in person in Iraq.

My message to you this morning is simple: we must never underestimate our adversaries. We often make mistakes—at times innocently, at times not—by assuming that the engineers and planners in countries such as Iraq, Iran, or Communist China are not as smart as we are. Again and again, I heard administration officials argue that the technologies the Chinese were seeking to acquire from our decommissioned weapons plants were old technologies and therefore didn't pose a threat. These officials apparently believed that the Chinese and other proliferators of the world will design their missiles and bombs to American standards, and will turn up their noses at anything but state-of-the art technology. But remember: the first U.S. nuclear weapons were designed using rudimentary punch-card computers and built using 60-year old machine-tools. Even "old" technologies are good enough in the hands of a determined proliferator to create deadly weapons.

Clearly, the way we control technologies in the West is flawed. The Clinton administration made a fundamental error in my view by deciding to eliminate COCOM. European COCOM officials I had worked with for four years before the decision was announced in the spring of 1993 called me in Congress to ask me what virus had swept Washington to propagate such folly. The administration claimed they were abandoning COCOM because the Europeans were in the process of sabotaging it. Nothing can be further from the truth. The record should now be clear that the Clinton administration abolished COCOM to pave the way for billions of dollars of supercomputer, satellite, rocket technology, and telecommunications sales to commercial companies operated by the Chinese military or the Chinese State Council. This is not a political statement, but a statement of fact.

Let me share with you a few anecdotes to illustrate the gravity of the problem I believe we are facing, and how difficult your task will be to prescribe remedies.

GPS

In 1998, I came across documents from Tal Industries in El Monte, California, showing that this Chinese-government controlled front company had just exported a military-grade GPS system by air freight to CATIC in China.

As a patriot, I shared that information with the appropriate U.S. authorities, before I made use of these documents as a journalist. I was told by the Department of Commerce that they were no longer able to control GPS exports because of changes in U.S. regulations. My contacts knew full well that the supplier of this particular system developed state-of-the art GPS systems for the U.S. military. But because GPS had been decontrolled, the U.S. agencies they worked for could do nothing. Similar systems are now being used by the PRC to enhance the accuracy of their ballistic and cruise missiles.

Chinese Front Companies

During one of my investigations in California, I personally visited around 150 Chinese front companies, many of them no more than placards on closet offices that came alive to support a particular clandestine deal. I have appended to my written

testimony a print-out of just one such network, which includes freight forwarders, bankers, import-export agencies and insurance brokers used to support Chinese military procurement activities in this country.

Because the Chinese mastered the whole process, using companies and agents they controlled and communicating almost exclusively in Mandarin, neither the FBI, Customs, or OEE had much success in penetrating these networks. One of these companies operated undetected for more than two years directly above a CIA liaison office in the Los Angeles area. Clearly, we need more Mandarin-speaking agents, and a much active Customs operation to infiltrate and disrupt these procurement networks.

Missiles

China's latest ICBM, the DF-31, has been greatly enhanced and its timetable accelerated by an influx of U.S. technology. China never could have acquired this technology without the progressive decontrol of strategic technology under the previous administration.

As I investigated this particular story for *Reader's Digest* in 1998–1999, I found a clear pattern of U.S. high-tech exports to Communist China that had not occurred under previous administrations. In key areas, these sales had improved China's strategic weapons programs. Since 1994, the administration had approved the sale of:

- gas turbine engines which the Chinese sought to improve their cruise missiles,
- Global Positioning System (GPS) production gear, which they need to improve cruise missile and ballistic missile guidance systems,
- “hot section” technology to manufacture advanced military jet engines,
- supercomputers needed to miniaturize nuclear warheads and improve ballistic missile guidance;
- fiber optics production equipment and cryptography software, which have given the PLA a secure communications system, and
- advanced military machine tools.

Acquiring so much advanced production gear from the United States amounted to a stunning success for the PLA and their intelligence services and directly aided PLA weapons systems.¹

Sometimes, seemingly innocuous contracts can lead to extraordinary losses to U.S. security. For example, on April 28, 1993, Motorola signed a contract with China Great Wall Industries Corp., to launch twelve of its Iridium global communication satellites. As part of the contract the Chinese agreed to develop a “smart dispenser;” allowing them to launch several satellites from a single rocket. Earlier Chinese attempts to develop such a dispenser had failed.

According to a Chinese defector I interviewed, help from U.S. engineers changed all that by providing the specifications and technical assistance needed to produce the dispenser. Ultimately it was Lockheed which produced the dispenser, which now sits squarely atop the DF-31 carrying multiple nuclear warheads. Although these transfers were approved by the Department of Commerce, Lockheed was nevertheless fined \$13 million by the Justice Department in June 2000. As a footnote to illustrate just how bad things became during the Clinton years, this defector who worked at the premier solid rocket fuel development facility in Communist China was never interviewed by any U.S. intelligence service, despite several offers to share his information. Any mention of a “China threat” was considered taboo.

Remedies

In 1992, I proposed to the incoming Clinton administration a series of steps to reform the export control system, by making it more attuned to the threats facing America from proliferators in the Third World who took advantage of our liberal, free-market policies.

Among other things, I suggested that the control system be taken away from the Commerce Department, which exhibited an inherent conflict of interest during the first Bush administration between its role as export promoter and export inhibitor. I suggested—and others agreed—that it made more sense to put export controls under DoD control, since the main reason we controlled technology to begin with was to protect our national security.

With the veritable flood of advanced military goods that have gone out the door since 1994, I am no longer sure the system can be reformed at all. Irreparable damage to our national security has been done by giving the PRC access to technologies

¹For more detail, see Kenneth R. Timmerman, “Our Secrets on Sale,” *Reader's Digest*, December 1999. Additional articles on Chinese high-tech procurement in the U.S. are available electronically at www.timmerman2000.com.

it would have taken them years to obtain elsewhere, if at all. And through China, these technologies have spread to Iraq, Iran, and a variety of rogue states and non-state groups. You may recall not too long ago that the Pentagon waited before bombing one particular Iraqi communications site until the weekend, so the Chinese technicians installing U.S. fiber optics repeaters would not get killed by U.S. bombs. This is unfortunately symptomatic of the type of deadly threats we have created through mistaken policies.

One suggestion I proposed while still in Congress, which I believe has been partially implemented, was to require all shippers to electronically file Shipper's Export Declarations (SEDs), even for non-controlled goods. At the very least, and even in the absence of effective export control regulations or enforcement, this allows our intelligence agencies to make a preliminary assessment of the damage done to our security by pinpointing which technologies were shipped to particular foreign entities of concern. I urge you to follow up on this program to ensure it is being fully implemented.

Ultimately, there are only two ways to ensure that our technology does not come back to bite us: either refrain from selling it, or make sure we sell it only to our friends. Over the past eight years we have done neither.

PANEL I DISCUSSION AND QUESTIONS AND ANSWERS

Co-Chairman BRYEN. I thank the panel very much. I think we have lots of questions. I'm going to assign five minutes for members in the first round and the first one is Commissioner Reinsch.

Commissioner REINSCH. Thank you, Steve

First, a question for Mr. Allen, and this relates to something actually that Dr. Jones referred to. Do you think, accepting your belief about what the Chinese will continue to do with respect to proliferation, do you think that they'll continue that pattern of behavior even if the United States were to impose further sanctions?

Dr. ALLEN. Do you want me to answer this as we go?

Co-Chairman BRYEN. Yes. Why don't we do that.

Commissioner REINSCH. That's the only one for you, and then I'm going to turn to my friend Ken.

Commissioner DREYER. The other Ken.

Commissioner REINSCH. Yes.

Dr. ALLEN. My answer is just really based on gut feeling. I believe, as I noted in my statement, that China, regardless of what they agree to officially, will continue to proliferate, maybe not full systems, but the technology, and I think that's because the basic reason is that a lot of the factories are doing some of these things on their own, something they couldn't have done 15 years ago. They're making their own connections. The system is going this way. It used to be all vertical. Now, it's going more horizontal.

Commissioner REINSCH. Okay. Thank you. I appreciate that.

Let me turn to the other Ken, as you put it, Ken Timmerman. As the person responsible for many of the things that he's alluding to, you can imagine that I might have some questions, and I want to try to get some additional information on some of the specifics that you raised, Ken.

On the first one, a minor point. With respect to the McDonnell Douglas case, I don't think that the Department of Justice convicts anybody. I think they indicted somebody. The juries convict people, is that right?

Mr. TIMMERMAN. Yes, that's—of course.

Commissioner REINSCH. Okay. They indicted McDonnell Douglas in October 1999. As my—

Mr. TIMMERMAN. And the prosecutors waged a successful case, put a successful case in a court that convicted—

Commissioner REINSCH. Well, my recollection is that's not correct, that the litigation with respect to McDonnell Douglas is still in court. One of the indictments was tossed out. The rest are pending. The successful waging refers to the Chinese, who did plead guilty and were fined. McDonnell Douglas pleaded innocent and that case hasn't been resolved yet. Did something happen in the last week that I don't know about?

Mr. TIMMERMAN. Well, the indictment was handed down in October of 1999—

Commissioner REINSCH. The indictment was handed down—

Mr. TIMMERMAN. —and McDonnell Douglas has been defending itself in court. My personal view is that this was a political indictment and it was the Department of Justice went after McDonnell Douglas, which was obeying recommendations from the Department of Commerce that told them it was okay to sell this technology.

In my view, McDonnell Douglas should not have been indicted. We should have gone after the Chinese companies more vigorously, and frankly, we should never have allowed that technology to be exported in the first place. It was a control problem—

Commissioner REINSCH. Well, I think—

Mr. TIMMERMAN. —not a violation of regulations, which is the—

Commissioner REINSCH. I'm just trying to nail down some facts here. In fact, the Department of Justice indicted both the Chinese and the Americans. It didn't ignore the Chinese. The Chinese have pleaded guilty and been fined, as you stated. McDonnell Douglas has pleaded innocent and there's been no action yet—

Co-Chairman BRYEN. Well, just one word—

Commissioner REINSCH. —and I think we should be clear about that.

Co-Chairman BRYEN. —should be changed in the testimony, which says, which convicted McDonnell Douglas.

Commissioner REINSCH. Well, it's also the fact that—

Chairman D'AMATO. That's an important finding.

Co-Chairman BRYEN. I ask the word to be changed.

Commissioner REINSCH. The indictment also alleged that what McDonnell Douglas allegedly had done was to allow the products, either intentionally or not, depending on how you look at it, to be diverted. What—

Commissioner MULLOY. Were these grand jury indictments?

Commissioner REINSCH. Yes.

Commissioner MULLOY. Grand jury—

Commissioner REINSCH. They were grand jury indictments. Anyway, I just wanted the record to be clear on that.

Let me turn to your GPS—

Commissioner WALDRON. It's clear that the Chinese got the stuff.

Commissioner REINSCH. Well, yeah. Actually, they gave it back in the end. That's another part of the story. In fact, all of the diverted materials were recovered and placed back in the hands of American parties without them having been used, by the way. But

that has nothing to do with whether an illegal act occurred. The indictment is an important one regardless.

With respect to GPS, I wonder if you can give us a little more information. You said that the front company had exported the military-grade GPS system to CATIC. If it's a military-grade system, it would be on the ITAR, would it not, and be controlled by the Department of State?

Mr. TIMMERMAN. My recollection is what I was told by Commerce Department officials at that time was that that particular system was no longer on the ITAR and that they went back and they had to go check with the regulations. They said it's very complicated, the way that this has been written. Nobody really knows where this is controlled, how this is controlled. And, in fact, they couldn't give me a clear determination of where the system should be.

What they could tell me was that this was a system which had military use. That, they could tell me clearly. What they could not tell me clearly was what the regulatory—what regulation it might fall under because of the changes in GPS regulations.

Commissioner REINSCH. Well, sure. I guess I'm—this is probably semantics. Lots of things have military use. As you point out later on, computers have military use. If it was military grade, it would be on the ITAR. So what you're saying really is that it was a civilian product that had military use.

Mr. TIMMERMAN. Well, no, that's not my understanding. My understanding was that it was a system which had direct military use. If it may have had a civilian use or not, I don't know.

Commissioner REINSCH. Well, let me ask you this. From an intelligence and control perspective, would you rather have the Chinese using the American GPS system or would you rather have them create one of their own?

Mr. TIMMERMAN. Well, I think that's a flippant question and I think the serious question is whether we want to seriously control our technologies and our security, and I think in this case what's happened, and the point I was trying to make in my testimony is that through the decontrol of a wide variety of technologies, and it's not just GPS, it's gas turbine engines, it's all kinds of materials, and you certainly can cite chapter and verse on that, Bill, even much better than I can. Through these decontrols, we allowed the Chinese to gain access to technologies which were not easily accessible elsewhere and which other countries were not prepared to sell them.

I can relate to you experiences I've had, conversations I had with French government officials who were complaining—French government officials, did you hear that, who were complaining about U.S. sales to Communist China and they say we're helping them to—

Chairman D'AMATO. Shameless.

Mr. TIMMERMAN. Yes. French government officials—

Chairman D'AMATO. Shameless.

Mr. TIMMERMAN. —complaining about our sales to Communist China that helped them to improve the naval systems, the propulsion systems on their warships. They said, how can you possibly do that? What are you thinking? And that was the reaction of many European officials that I spoke to during the 1990s when I relate

to them some of these instances about the decontrol that was going on.

Commissioner REINSCH. Well, the cynic in me would say that the reason they were complaining is because they didn't get the market, not because they oppose it on principle, but—

Co-Chairman BRYEN. Mr. Reinsch, could we get you back in a second round?

Commissioner REINSCH. Yes, you may. Put me down for the second round, because I'm not done.

Co-Chairman BRYEN. I'm sure you're not. Commissioner Dreyer?

Commissioner DREYER. The first question is for Ken Allen. You mentioned that some of the missiles that were sold were taken out of the PLA's active inventory. To what extent do you think that that made a significant dent in the PLA's offensive capabilities, those sales?

Dr. ALLEN. The bottom line is that all the CSS-2s they have in inventory are supposed to be taken out by next year anyway and replaced by the DF-21s. So I think—

Commissioner DREYER. So the answer is, no, not to any significant extent?

Dr. ALLEN. No.

Commissioner DREYER. Thank you. The second question is for Ken Timmerman. By the way, I've read many of your articles over the years and really enjoyed them. And my question is, although it's reprehensible what the Clinton administration did in many ways, would this really have made any difference, and what about the argument I hear frequently that if we, the United States, don't sell them this, our "good friends," quote-unquote, the French or the Italians or whoever, will sell the same things, and at least this way we know exactly what they've got and we've got the hard cash and the French don't.

Mr. TIMMERMAN. Let me respond to that with two points. First, we had an export control system under COCOM—

Commissioner DREYER. Right.

Mr. TIMMERMAN. —that existed all during the Cold War, and the whole idea of that system was to coordinate the exports and so one country could not undercut another country by doing precisely what you've mentioned. It worked more or less well.

Commissioner DREYER. Toshe Konigsberg aside.

Mr. TIMMERMAN. There were always exceptions, but it worked more or less well. There was a—we would get together in Paris and discuss before the exports were made and agree before the exports were made whether that was going to be tolerated or not.

The Clinton administration dismantled that and dismantled it unilaterally, unilaterally. We basically imposed—

Commissioner REINSCH. That's factually incorrect.

Mr. TIMMERMAN. Well, you and I have a factual dispute, Bill, on this, and we've had this for many, many years, and I was there, too, and I had been in Europe four years earlier than that, than you had been, talking to those officials and talking to them on a daily basis, and we can disagree with the facts on this and I think we will not settle that disagreement here today.

Commissioner REINSCH. That's true.

Mr. TIMMERMAN. In terms of supercomputers and specific technology, there were no other manufacturers in the world who had developed the same capabilities that we had. Those—

Commissioner DREYER. So it was us or nobody?

Mr. TIMMERMAN. It was us or nobody. We had a supercomputer agreement, a bilateral agreement with Japan. The Japanese, to my knowledge, did not have anywhere near the capabilities that we had and that we were exporting to Communist China.

Bill can perhaps comment on how those negotiations went with Japan and whether we actually did clear things for the 600, 700, or 800 supercomputers, whether we actually did consult the Japanese. I don't know.

On fiber optics, we had technologies available which were not widely available elsewhere, although they did become so later on. Hot suction technology for jet engines, that was something that was an exclusive American capability which Communist China could not get from other sources. They did try to get small engines from Russia, but they were not of the same capability as ours.

So the bottom line is, they got things—

Commissioner LEWIS. For cruise missiles?

Mr. TIMMERMAN. For cruise missiles, yes. The bottom line is that they were able to buy things from the United States that were not available elsewhere, and the reason, and that's in my view, is one of the reasons why the Clinton administration got rid of COCOM, was to permit those sales to take place.

Commissioner DREYER. Is it revivable, in your opinion?

Commissioner LEWIS. What, COCOM?

Commissioner DREYER. Yes, or something like it.

Mr. TIMMERMAN. Well, I think, you know, we are living today in a different circumstance than we were on September 10 and European officials are looking towards new dangers which they were not so concerned about prior to September 11. I think there are possibilities for all kinds of cooperations today that were not available earlier. Whether it's specifically COCOM, I don't know, but I think the notion that countries, such as Iraq, Iran, rogue states, rotten states—another category—might misuse advance technologies, I think that's something that's now on the front burner and that Europeans and certainly the Japanese are concerned about.

Commissioner DREYER. Thank you.

Mr. TIMMERMAN. Thank you.

Co-Chairman BRYEN. Roger?

Commissioner ROBINSON. Thank you. This is primarily directed toward Mr. Allen and Ken Timmerman, but Dr. Jones, if you have views on it, I'd be interested, as well. I wanted to just get into a couple of specifics, Mr. Allen.

You mentioned Polytechnologies, and if I've got that correctly, that's probably the PLA's lead arms dealership, in effect, on the planet. And you've heard of the name Wang Jun, presumably. Wang Jun is chairman of Polytechnologies. He was a kind of poster child, if you will, of the campaign finance abuses. It was Polytechnologies that you might recall that was trying to sell 2,000 AK-47s to West Coast street gangs and their subsidiary in Georgia was apprehended in that regard in an FBI sting.

I was just curious if you know the relationship between Polytechnologies and China International Trust and Investment Corporation, which is likewise chaired by the same individual, Wang Jun, who in turn also chairs Continental Mariner. I don't know if you've heard of that firm, but this may be a question that's sufficiently detailed that you could get back to us on if you don't have a handle on it. Ken might be familiar with it.

But I'm just trying to get a sense of focusing in on CITIC because it's a \$27 billion company. It's a big operation, and whether it reports to the State Council or, for example, the General Staff Department of the Central Military Commission, as has been reported in some cases, or in general as part of their defense complex. Do you have anything, you or Ken Timmerman or Dr. Jones, on that connectivity?

Dr. ALLEN. I have not dealt with Polytechnologies personally. I know some background on it. Mostly, they had a small group that was air force that I dealt with and I'm more familiar with the air force people.

The little that I do know is I would say that CITIC and the GSD don't have a—they have probably an informal relationship, not a direct relation, except through Polytechnologies. You know, I mean, lines of chain of control and things like that.

Co-Chairman BRYEN. Is it a real company or is it a—

Dr. ALLEN. Which one?

Co-Chairman BRYEN. Polytechnologies.

Dr. ALLEN. Oh, yeah. It's a real company.

Co-Chairman BRYEN. I mean, does it manufacture things?

Dr. ALLEN. No. No.

Commissioner ROBINSON. It's a trading company and broker, but multi-billion dollar. Ken, do you know anything about CITIC?

Mr. TIMMERMAN. Well, very briefly, I mean, what we see—I've spent a lot of time looking at the corporate structures of all of those companies—

Co-Chairman BRYEN. CITIC or CATIC?

Commissioner ROBINSON. Well, I mentioned CITIC, China International Trust and Investment Corporation.

Mr. TIMMERMAN. And I had several friends—I was not able to make the trip myself, but I had several friends who went and pulled the corporate registries in Hong Kong on these. What you've got is a series of interlocking directorships—

Commissioner ROBINSON. Right.

Mr. TIMMERMAN. —and the same people, the princelings, appear on different companies. And you'll have princelings on one company, on the board of CITIC, and then you'll have them—you'll see them linked to Continental Mariner. And then you'll see that one of them will also have a little front company down in the Cayman Islands or in Bermuda or the Bahamas, and then they'll have another trading company in Canada. You have to watch the princelings. You have to actually watch the individuals more than the corporations. That, at least, was my experience when I was investigating these networks.

Commissioner ROBINSON. I see that Mr. Allen's agreeing with that. That's why I'm somewhat concerned about Wang Jun, that he is one such princeling that moves between these.

The reason I'm interested in this that you may be curious about is that China International Trust and Investment Corporation is \$800 million deep in the U.S. bond market today and is coming back to market soon. These are some of the—just another example of the connectivity between possible proliferation activities vis-a-vis Polytechnologies, which I think you'd agree has been in the proliferation business. The same chairman of that firm, the chairman of another company that's raising hundreds of millions of dollars from, I would argue, unwitting U.S. investors.

Co-Chairman BRYEN. Maybe somebody can answer this. In the sanction system that we have, if a company in China or let's say a chairman of the board or a president of the company, whatever, are involved what is clear proliferation activity, is there any action that we can take against them? Is there any law? Or maybe there needs to be one.

Commissioner ROBINSON. I can answer that.

Co-Chairman BRYEN. We keep talking about sanctioning China, but what about these guys who just keep doing the same thing over and over?

Commissioner ROBINSON. No. The answer is that there's no statute that covers the matter whatsoever. The capital markets were never contemplated in a proliferation scenario or any other national security scenario in the history of this country. I can tell you that with confidence.

Whether there needs to be new direction there, I would argue yes, clearly. In the case of Senator Fred Thompson, who has played no small role in the configuration and support for this Commission, he was alert to this and in the summer of last year offered up the China Nonproliferation Act, which had capital market sanctions against known proliferators and the automatic communication by the SEC in a disclosure context of communicating to all potential holders of securities of any suspected proliferator.

As many of you know, that got caught up in the PNTR debate at the time, and as a consequence, in trying to keep the bill clean, was not a successful piece of legislation. But you should know that it was the first time that there was an attempt to link the fund-raising activities of known proliferators in the U.S. cap markets.

Co-Chairman BRYEN. Well, we need to return to that.

Commissioner WALDRON. Could I just add something on this? One issue that has to be addressed that hasn't really been properly mentioned is just what is the nature of corporate structure in China, and I should say that on November 7 at the American Enterprise Institute, we're going to have a presentation by Professor John Langlois of Princeton who for many years ran J.P. Morgan's operations in East Asia and also by Dr. James J. Shinn, who's at the Council of Foreign Relations right now.

I have discussed this with them extensively and the point that they're going to make—it might be interesting even on that day for them perhaps to meet informally with some of the Commissioners—there's no such thing as independent corporate governance in China. In fact, the whole concept of "there is a Chinese government separate from the party" is very misleading. The government is kind of a cut-out.

But if you look at the way the Chinese corporations, even foreign invested corporations, are run, the boards of directors are named by the party. The chief executives are named by the party. And even the administrative personnel down several levels, for instance, so the vice chief of accounting in the Bank of China, these people are named by the party.

Now, it is convenient for us to imagine that what we're seeing in China is somehow the party letting go of its control of the economy, but that is not borne out by the facts of corporate structure. If anything, the party is increasing its control.

So it would be a great mistake for us to think that because these entities look a little bit like joint stock companies or whatever, that that is, in fact, what they are, and in fact, Professor Langlois suggests that we call them corporatized government entities having—in many cases, they have minority shareholders who are overwhelmingly Chinese citizens who are, in fact, being fleeced, but that's another issue.

But I think it's very, very important to understand that the party is in control, and therefore I'm a little bit suspicious even of Dr. Allen's explanation that companies get involved in rogue activities and so forth. The sort of interlocking directorate that Roger is talking about, this is not accidental, right? This is intentional. This is where the real control is. And the fact that it's not transparent should not lead us to imagine that it isn't there. We've got to find it.

So if they're proliferating on the one hand and raising money with the other hand, they understand exactly what they're doing. Thank you.

Co-Chairman BRYEN. The point I was trying to—the question I was asking was whether there's a way to go after individuals or companies, whether the company is—it doesn't matter to me too much who the ultimate owners are, who calls the shots, but—

Commissioner WALDRON. But the point is that there is only one owner and only one entity calls the shots.

Co-Chairman BRYEN. I think the point is that you want to try to make it hard for them to do business, and if you want to go after them in that way and isolate them, it'll be more difficult for them to raise \$800 million on the capital markets, do deals, bribe public officials, that sort of thing.

Commissioner Mulloy?

Commissioner MULLOY. My first question is for Dr. Jones. You state on page four of your prepared testimony that “although China has joined the IAEA and the NPT, it has not agreed to make its nuclear cooperation contingent on the application of full-scope IAEA safeguards.” What is the reason for not demanding that commercial cooperation include the full-scope safeguards, in your view?

Dr. JONES. Well, a two-fold answer. One is I think they want to keep maneuvering room, and that has commercial interests. I think the other thing is that they do make a distinction between treaty-based obligations and ones that are not. The full-scope safeguards is not a treaty-based obligation. It is a practice to which France and others came with difficulty in the late '80s and early '90s in the context of the nuclear suppliers group, and Russia also has had problems with this. But at least they're in technical conformity and

China has simply not subscribed to that. They want to keep some freedom of action, I think.

Commissioner MULLOY. And do you think that's mainly for commercial purposes or do you think that there is another rationale related to proliferation underneath that?

Dr. JONES. Well, there are always mixed motives, but I think the main thing that they might want to preserve this freedom of action for has been to be able to complete some deals or perhaps continue new deals with India and Pakistan, which are the two countries where this would apply.

Commissioner MULLOY. I see.

Dr. JONES. That is, if full-scope came in, they would not be able to do any continuing nuclear deals with either country.

Commissioner MULLOY. Do you agree with that, Dr. Allen? Are you familiar with that issue and do you agree with his assessment? Ken, do you have anything to add?

Mr. TIMMERMAN. Well, yes, they want to continue to do deals. I don't know of any nuclear deals between Communist China and India, but certainly with Pakistan and also with Iran and with Algeria. But—

Co-Chairman BRYEN. Heavy water, is it?

Dr. JONES. Heavy water and also the supply of enriched uranium. That picks up from the relationship the U.S. used to have with India for the Tarapur reactors.

Commissioner MULLOY. Let me quickly, now, Mr. Allen, on page three of your prepared testimony, and Commissioner Reinsch has already gone after this a little bit, you said you make the assumption that China will continue to proliferate weapons of mass destruction as a matter of official policy regardless of what international agreements are signed by the Chinese government. That's your assumption.

Dr. ALLEN. That's my assessment, yes.

Commissioner MULLOY. Now, do you other—what about you, Dr. Jones? Do you think that that assumption has—what do you think of that assumption that he's operating under?

Dr. JONES. Forgive me. I missed—

Commissioner MULLOY. All right. Well, let me read it again.

Dr. JONES. Yes.

Commissioner MULLOY. He states in his prepared testimony that he makes the assumption that China will continue to proliferate weapons of mass destruction as a matter of official policy regardless of what international agreements are signed, and by "are signed," I mean by the Chinese government, right?

Co-Chairman BRYEN. What page is this, Pat, you're reading?

Commissioner MULLOY. On page three. Do you agree with his assumption?

Dr. JONES. No.

Commissioner MULLOY. Why not?

Dr. JONES. Well, because I think there's been a continuing pattern of improvement in Chinese proliferation behavior—

Co-Chairman BRYEN. Externally. Externally.

Dr. JONES. Externally, yes.

Co-Chairman BRYEN. We didn't really define proliferation very well, so let's talk about external and internal.

Dr. JONES. Okay, fair enough. I mean, I understand from the thrust of a lot of the current discussion that what I read in the questions was Chinese external proliferation, not its appropriation of knowledge, information technology from the West.

Co-Chairman BRYEN. External.

Dr. JONES. And I would have come with different comments on that, though I'm not as well informed, certainly, as Ken on some of the company behavior. Externally, its behavior has improved considerably, so I would emphasize that.

As far as being a giant vacuum cleaner for information technology in the West through a whole variety of auspices, I think that's an entirely different issue. It's up to us to control that, and—

Commissioner MULLOY. Your view was on external proliferation, right?

Dr. ALLEN. They're talking about gathering. I'm talking about exporting.

Dr. JONES. I think on exporting, I simply disagree. I think their behavior has gotten considerably better. The one caveat in there is that they may link what we do with Taiwan to what they do that concerns us, whether with respect to Pakistan or someone else, so it's a linkage issue.

Commissioner WALDRON. That's different, though, than—you're saying that they would not be bound, and I think—let me just say at the outset, I think that Ken Allen is absolutely on the money on this and it seems to me that, Dr. Jones, that you're giving yourself a little wiggle room.

In other words, what you're saying is that if it's something that really concerns them, such as Taiwan, and they think that they can get some leverage over us by proliferating, even if that's in violation of treaties that they have carried out, they will do that in order to get the leverage with us. Do you think that that's a fair description of the way China operates?

Dr. JONES. Well, I think you could certainly put that gloss on it, but—

Commissioner WALDRON. Is that an agreement or a disagreement?

Dr. JONES. It's a partial agreement.

Commissioner WALDRON. In which part do you disagree?

Dr. JONES. It has to do with lumping together arrangements that are treaty-based and not treaty-based. With respect to the nuclear obligations now that is undertaken in the NPT and all the follow-on things with respect to nuclear export controls, I think it'll be relatively clean.

Commissioner WALDRON. But what we're concerned with are not the legal issues. What we're concerned with is whether, in fact, proliferation is taking place. In other words, are the bad guys getting the technical assistance that enables them then to acquire weapons of mass destruction?

Dr. JONES. In the nuclear area, no. In the chemical and missile area, it's different, and there, I would—

Commissioner WALDRON. Different meaning—

Dr. JONES. Yes, they're more permissive.

Commissioner WALDRON. They are because the bad guys are getting the stuff.

Dr. JONES. China has been less permissive over time, but it's an area that could reopen. The chemical area is ambiguous. The biological area hasn't yet been defined.

Mr. TIMMERMAN. Can I respond to this?

Co-Chairman BRYEN. Sure.

Mr. TIMMERMAN. Look, my experience is dealing with these networks on the ground and watching how the proliferators work. First of all, there's absolutely no respect whatsoever anywhere around the world for the IAEA in Vienna. This is a toothless tiger. It has never had any teeth. It has never put anybody in jail. It has never stopped a proliferating contract. It has never closed down a nuclear reactor or prohibited materials from being transported.

The Chinese see the treaty obligations that they sign up to as a fig leaf, as so many fig leaves to disguise their own activity in their own interest. They will proliferate and they will sign contracts in terms of what they see as their own national interest.

If they see it's in their interest not to do it because they might feel that a commitment that they have with the United States is more important than selling a uranium mill to Iran, they might stop it. But they're not going to stop it because of the commitment. They're going to stop it because they think it's in their national interest or because we make them pay a price for it. And I think what you need to look at is how to increase the price on Communist China to make them behave better.

Co-Chairman BRYEN. Thank you. Commissioner Lewis?

Commissioner LEWIS. I have a question for you, Mr. Allen, then a general question for everybody. You say that there's a disconnect between, or at least not a close connection between the PLA and the defense industry of China.

Dr. ALLEN. What I'm saying is that over the years, that relationship has changed. All the defense industries, all the research institutes until the early 1980s came under the Ministry of Defense and the Central Military Commission. Since then, there has been a change in that—

Commissioner LEWIS. Do you know the structure today?

Dr. ALLEN. The general structure, yes. I'm very familiar with the aviation industry, more than the other ones. There—

Commissioner LEWIS. As the defense industry goes about their business of making weapons of mass destruction, whereas the PLA goes about their business of increasing the military, what's the chain of command in each of those lines?

Dr. ALLEN. Let me just pick a specific system. If the PLA wants a tank, a plane, a ship, there's about a six-step process they go through from development through all of this and they work hand-in-glove with the defense industry.

There are certain programs, and I'll give you a specific example, the K-8 trainer. Pakistan paid the Ministry of Aviation to design, develop, and produce a trainer. The PLA air force did not want it. Therefore, in the whole series of steps of this, the air force had no chop on this at all. They were on the outside looking in, and that is sort of the M-series of missiles, my understanding, beginning—

Commissioner LEWIS. But in the Chinese hierarchy, who approves the ability of the defense industry to go ahead with that if it's not the military?

Dr. ALLEN. My understanding is that it would be the defense ministry itself, whatever it is, aviation or shipbuilding, if it is a non-PLA facility, if it's a non-PLA—if it's for export.

Commissioner LEWIS. The reason I'm asking this—

Dr. ALLEN. I mean, there are splinter hairs here. I mean, that's the question.

Commissioner LEWIS. The reason I'm asking this is that several times we've been told that the Chinese government is not doing something but Chinese companies are doing something, and to me, that's a false—

Dr. ALLEN. That's correct. I mean, that's just what Arthur said. Every company is—it's a state company, but they're all—at the top, the state can—a small group of people that say yea or nay.

Mr. TIMMERMAN. The Central Military Commission.

Dr. ALLEN. But the distinction here is the Central Military Commission deals with military issues.

Commissioner LEWIS. I want to tie this now to economics. We are China's number one export market. We are largely—we're the largest market for Chinese exports and a significant factor in their GNP, for what they sell us. Would you link their ability to sell to us with our desire to have them do certain things militarily or in weapons of mass destruction?

Dr. ALLEN. I'd say there's a definite link in there, yes, at a macro level.

Mr. TIMMERMAN. Mr. Lewis, I think we have been incredibly short-sighted, and excuse the bluntness, stupid not to use the tools, the leverage that we possess with Communist China and other proliferators. You're absolutely correct in what you just said. We account for something like 35 percent—

Commissioner LEWIS. It's not massive two-way trade. They sell us 100 and we sell them 15.

Mr. TIMMERMAN. It's incredibly disproportionate—

Commissioner LEWIS. Yes.

Mr. TIMMERMAN. —incredibly disproportionate. We account for between, in a good year/bad year, between 25 and 35 percent of their entire export market. That gives us incredible leverage. We have never used it and we just go along. The Chinese slap us in the face and they do one more bad thing and we say, well, it's not so bad because we need that market.

Well, the Chinese market is a myth for American companies. It's been a myth for American companies despite all the liberalization of exports under the Clinton administration. Our companies still can't make these big high-technology sales. Our biggest goods, if you look at the chart, and you can get it from the Commerce Department or get it from the Bureau of Census, our biggest sales are skins and animal hides and textiles, raw textiles and things like that. It's outrageous.

Commissioner REINSCH. Wait a minute. I have that list right here and that's simply not so.

Mr. TIMMERMAN. Chemicals.

Commissioner REINSCH. Our biggest exports are transport equipment, electrical machinery, office machines, and then oil seeds and fruits.

Mr. TIMMERMAN. Oil seeds and fruits, I mean, you know, hides—

Commissioner REINSCH. Hides or skins are 19 out of 20.

Mr. TIMMERMAN. Well, three years ago, that was not the case, and maybe that is the fruit of your policies, Bill—

Commissioner REINSCH. That's not true, either. Three years ago, that wasn't true, either.

Mr. TIMMERMAN. Well, this is—

Co-Chairman BRYEN. We have other—

Mr. TIMMERMAN. But the point here is simply this. The point is that we have tremendous leverage with Communist China if we decide to use it, and if we decide to use it to a purpose, but we have to have a purpose.

Commissioner LEWIS. Dr. Jones, could you answer that question, also?

Dr. JONES. Yes. My focus here would be on using existing law and tinkering with it as need be to sanction companies. If some of the commentary here is correct, that there's really a series of princelings who collaborate to control the companies, then sanctioning the companies will be sanctioning the people who are making the decisions in China.

Commissioner LEWIS. Would you use our economic leverage, though, to try to change their behavior with the weapons of—

Dr. JONES. In effect, that's what that would do. The Arms Export Control Act and the other statutes that are on the books would control areas in terms of sanctions. Whether that would mean taking, you know, direct policy action to cut off exports of a broad kind, agriculture, machinery—

Commissioner LEWIS. No, I'm talking about exports from China to us.

Dr. JONES. Okay, putting in—I would want to look at it more. I just don't have a good answer for you.

Mr. TIMMERMAN. Could I make one very specific comment, is that we could—the very first thing that we could do is—and this was discussed a couple of years ago—is go after PLA-controlled companies. We could ban from business in the United States PLA companies engaged in proliferating activities, and I don't mean just ban them from acquiring our technology, ban them from doing business in the United States, period, across the board.

Dr. JONES. That's sanctions on companies. I would be in favor of looking at that very closely.

Co-Chairman BRYEN. Commissioner Wessel?

Commissioner WESSEL. Thank you. Let me turn to an area that we've spent most of our time on now, the nuclear side, and I think, Dr. Jones, you indicated that the Chinese have been relatively compliant recently on chemical bioterrorism. What are their proliferation activities over time? What have they spread out in the field, if you will, as this is clearly a rising concern here post-September 11 as to what the public might face, and other witnesses, as well?

Dr. JONES. Well, as best I have information in the biological area, I'm not aware of anything that you would look at you would

call or term propagation of things out there that would be used for biological warfare activities. Clearly, they have internal research and a program that could be defensive and potentially could be offensive. It's not an area of commercial activity that I'm aware of.

In the chemical area, they've had a burgeoning number of companies that have gone out there to sell things. They have joined the chemical weapons convention but they have had difficulty developing an export control system in that area that really conforms to our expectations through the Australia Group. So there have been violations and companies have been sanctioned. Some of them are still under sanctions today.

The sales that have been most egregious were to Iran, and, of course, Iran was engaged in war with Iraq and suffered chemical attack and probably responded eventually when it was able to. That was during the 1980s.

As far as selling chemicals, precursors, and other things that are chemical-weapons related or chemical-warfare related, I don't believe it's been that broad, but I could stand corrected. I'm simply aware of it in the case of Iran and possibly Iraq in the somewhat more distant past. I don't believe there's a tie of that kind with Pakistan.

Now, when we get to the nuclear area, if you go back to the 1980s, China was selling everywhere it could, and that included Latin America, Argentina, Brazil, and there were relationships that involved nuclear or nuclear related dual-use material, heavy water, things of that sort, and to South Africa, and, of course, to Libya, Algeria, and to Iraq, potentially Syria and certainly Iran, and, of course, North Korea.

Now the number of relationships which China has an active nuclear connection with have dropped down to three, four, or five. There's still a continuing relationship with Algeria, which is under much clearer focus and safeguards, which it wasn't originally. The activity with Latin America has disappeared. South Africa, of course, the relationship has changed. And within the Middle East, it appears that China has withdrawn from active nuclear cooperation with Iran and it doesn't seem to have any significant connections anywhere else that I'm aware of—

Co-Chairman BRYEN. Was it replaced by the Russians?

Dr. JONES. Yes, replaced by the Russians. It doesn't have a continuing relationship that's active that I'm aware of other than with Algeria, which is now under a microscope and is clearly under IAEA full-scope safeguards.

Commissioner WESSEL. The other witnesses, any comments in this area?

Mr. TIMMERMAN. Well, as far as nuclear cooperation with Iran is concerned, I would have to update my database on that. They certainly have had extensive—they have been in charge of prospecting for uranium in Iran for many, many years. The Chinese National Nuclear Corporation, I think is the name of it. Gary Milhollin can tell you more about that in a future panel. But there is, to my understanding, some ongoing nuclear cooperation still with Iran.

Commissioner WESSEL. Let me turn to another issue, if I could, based on a needs analysis. Do you believe our system of defining Chinese defense needs and, therefore, what they may be targeting

in our own market through espionage or other activities to try and gain access to those technologies is adequate?

Mr. TIMMERMAN. Do you want to take that from a military standpoint or—

Dr. JONES. Well, let me start off on a macro standpoint. This has been an area of concern of mine, but helpless to do anything about. I really have had mixed feelings—more than mixed feelings—about the dismantling of COCOM. We had to do something to change—it was basically a Cold War instrument—in the nature of broader policies which the Bush administration subscribed to that we no longer have, quote-unquote, “enemies” in the former Soviet Union or even in China.

But dismantling sensitive technology controls probably was done much too precipitously and too comprehensively, and I think that that is in part responsible for what we see in this sort of proliferation of what I’d call a vacuum cleaner approach to sucking things up from our domestic setting. We probably are long past the point where we should take a close look at that and see what we can do to be careful about our own interests and our own property and our own sensitive areas of control and classified technologies. We should do something about that.

That ought to be thorough. It ought to be done systematically. I don’t think it can be done precisely through the statutory framework of COCOM. I don’t think it can be revived completely that way. But there is a basis for simply saying that we don’t want our own system and we want, in cooperation with the West, to avoid the proliferation of dangerous technologies inadvertently. We should be looking at those things and looking for a way to control them.

Mr. TIMMERMAN. If I could make a suggestion, which is based on many of my discussions with people at DOD and at what used to be called DTSA, we have done no—the Defense Technology Security Administration—we have done no assessment of the military impact of the transfer of so-called dual-use technologies to Communist China, and I think this is an important gap in what we do.

There should be an assessment done on how particular technologies that are sold for commercial projects could have a military impact. A specific example, fiber optics. We now know that the Chinese—the Chinese have been buying billions of dollars of fiber optics, cable, and repeaters and systems and switches and you name it from us and from companies in Europe. We now learn from our intelligence people that Chinese military communications are no longer penetrable to us. In other words, they have now been able to use that so-called commercial fiber optics to disguise their—to improve their military communications. That’s a very clear example where we failed to assess the potential damage to our security from commercial sales and—

Chairman D’AMATO. Who did they buy it from?

Mr. TIMMERMAN. Well, they bought it from U.S. companies and they—I can find some of those and Bill can tell you some of them, but major U.S. companies and also from European companies.

Chairman D’AMATO. Steve, could you follow up on that point?

Commissioner MULLOY. Ken, on that issue, it seems to me that part of the problem is not just what you sell to China but what your companies invest in China and then make.

Mr. TIMMERMAN. Absolutely.

Commissioner MULLOY. Is that—

Mr. TIMMERMAN. Oh, absolutely. No, Pat, you're absolutely right. I mean, another example there is Rockwell. Rockwell built a GPS plant in Shanghai. I mean, you've got to be completely nuts, the person who approved that, to allow them to build a GPS plant in Shanghai, frankly.

Commissioner MULLOY. What do you think of that, Dr. Jones?

Dr. JONES. Well, I would make a general point that this area really needs to be thoroughly reexamined. There is a general problem and that is that some technologies become so prolific, you simply can't easily control them any longer. This is obvious in the semiconductor area. It may not be so obvious in the fiber-optics area for telecommunications networks, but it was a coming kind of thing.

I think we ought to be looking at all areas, however, in terms of what's still controllable, and in particular space.

Commissioner MULLOY. Thank you.

Co-Chairman BRYEN. Commissioner Waldron?

Commissioner WALDRON. Yes. I know we're over time, so I just want to first make an observation, which is that it's very important, as I said before, not to overestimate the role that, say, the Ministry of Foreign Affairs or the civilians play in China.

As I understand it, in the EP-3 incident, we found ourselves talking to the general staff and even the top political leadership were not particularly involved. Getting that plane back had a great deal to do with what China's current military authorities thought and very little to do with, say, what their very polished diplomats and so forth thought.

But what I wanted to raise is the issue really of intellectual property or training. I mean, we've been talking about transferring things, and I'd like all three of you to have a crack at this. Do we have any sense, first of all, of how many Chinese technicians having military knowledge or high-tech knowledge are working abroad, and if so, in what countries and on what projects, and do we have any sense of how many foreign students there are in institutes of, you know, nuclear engineering and aeronautics and all of this sort of stuff in China, and if so, what countries they're from and what they're studying?

Things like nuclear proliferation are very much—or weapons of mass destruction and so forth, this is very much a matter of knowledge. It's not simply that you stop boxes of objects that are going. If they are putting it into people's heads so that they know how to do it in a way that we can get a grip on that is something that should be of concern to us. So I'd appreciate what any of you three can say about that. Thank you.

Mr. TIMMERMAN. First of all, very briefly, in the United States, you know, our graduate schools are basically twice the size of what we need to accommodate the American population. Half of the students in any graduate science or technology program are foreign and most of them come from China, from Iran, Iraq, countries like

that. My own son is in that situation at the University of Maryland.

Point number one, the Iranians employ Chinese technicians in their military colleges. This is something that has been going on for the past five or six years. The Chinese acquire their knowledge here in the United States. They go back to China and then they get exported by their leaders through contracts with the Iranian government to teach ballistics, to teach nuclear physics, to teach a variety of weapons-specific skills at colleges and universities run by the Posteron [ph.], the Revolutionary Guards, which is now in charge of most of the arms industry in Iran. So it's a clear—you have a clear transfer. They get educated here in the United States, go back to China, get their political orders, and then go over to Iran and to other places to do bad things.

Dr. JONES. This is an area that needs to be looked into, and I don't have dogmatic recommendations, but it would seem to me that one ought to examine the relationship between a visa and the obligation to have some sort of monitoring of what a person does during the time they're in this country as a student. We have, I'm sure, constitutional and legal issues, but we ought to look into whether something like that couldn't be done.

Commissioner WALDRON. What about within China itself? I mean, there's plenty of brainpower in China. I mean, we import physicists from China and mathematicians from China. It's not the other way around. And what I'd like to know is do we have a sense in these advanced institutes of who the foreign colleagues, the foreign post-docs, the foreigners who are being trained, does anybody look at this? Do we have any idea about that?

Dr. JONES. I'm just guessing, but I think we probably don't have anyone doing that systematically.

Commissioner WESSEL. That's what I would—I would agree with you.

Co-Chairman BRYEN. Yes, not to mention at the government labs. We have the problem of Los Alamos, Sandia, which is a serious problem and I don't know that we have any grip on that problem.

Dr. JONES. The obvious political obstacle to that is the sensitivity of universities. They would weigh in very hard against really following scholars in terms of going back there and that sort of thing.

Commissioner WALDRON. You mean the Chinese would?

Dr. JONES. No, Americans. Americans would, as university—

Commissioner WALDRON. Oh, I know. I mean, I work in a university. But I just want to get back to this issue of, in China, are there institutes of higher education or defense research and stuff, and if so, are they training foreigners and in what sorts of areas, because that's how you really get a high-tech military capability is by having a cadre of first-rate physicists, engineers, chemists, and so forth.

Dr. JONES. You know, in impressionistic terms, I don't think they get a lot of students from other countries. I'm sure they get some. But they don't get a lot because most students from foreign countries want to go elsewhere. It's very hard to migrate in this sort of globalizing economy with Chinese as your main other language.

Co-Chairman BRYEN. Yeah. I think that language might be one of the—

Commissioner WESSEL. There are lots of foreign students in China. That is a fair point, I think.

Mr. TIMMERMAN. But Arthur, that's why I mentioned the contracts with other countries. So they send their talent overseas to do the training in those countries.

Dr. JONES. Yeah. We have them here, and just to add to this, both of my sons are in engineering, one at Northwestern and one also at the University of Maryland. The proportion of foreign students is 90 percent, 90 percent, in engineering programs, especially computer engineering and things of that sort.

Commissioner LEWIS. In graduate or even under-graduate?

Dr. JONES. Graduate, Ph.D. programs. Ph.D. programs. And—
Commissioner DREYER. I'll bet the faculty is mostly foreign, as well.

Dr. JONES. Actually, the faculty is very heavily foreign, as well. Those are facts, and very interesting. But one should add that the composition is very heavily Indian and Pakistani, as well.

Co-Chairman BRYEN. Commissioner Becker?

Commissioner BECKER. The previous round of questions and answers about sensitive technology and the exporting of that was very interesting and answered most of my questions, but I guess really what is left in my mind is these front companies that you had talked about, Mr. Timmerman. And I've heard in other panels and discussions that there are literally hundreds or possibly thousands of these front companies and I'm wondering to what extent these are being cataloged, run down, and how do they move this sensitive material that comes in their hands? Is this simply putting it in a box and mailing it? Is this covertly or is this something that they have to go through export license in order to move?

And second, I would just like maybe Dr. Jones and Dr. Allen's comments—I think I know yours already—about transferring the licensing and control of exports from Commerce to the Department of Defense and I would be interested in all three of your comments on that.

Mr. TIMMERMAN. Thank you, Mr. Becker. There was a Congressional requirement at some point in the mid-1980s, I think it was 1997 or 1998—that tasked the government with identifying the number of Chinese government-owned companies operating in the United States, front companies. And the Clinton administration came back and said, yes, we've done extensive research on this and we can identify 12, 12. Maybe it was 16. Twelve is my recollection, 12 Chinese government front companies.

Well, as I said, personally, me, a journalist, without access to classified intelligence, I knocked on the door of 150 of them myself and interviewed the people inside in one suburb of Los Angeles, in El Monte, California, just me.

When the Cox Commission started to have its hearings, and I spoke to people at the Cox Commission as well and I tried to encourage Mr. Cox to look into this in great detail, they finally—they were given briefings by the FBI where the FBI said, we believe that there are as many as 3,000—3,000 Chinese front companies operating in the United States.

Now, they do a variety of different things. They have banks. They need banks to finance the transactions. They have shipping companies to handle the shipping. They have freight forwarders to work on the actual mechanics of the shipping. They have airlines. They have travel agencies. They have import-export companies. They have marketing companies. They have sales companies for their own goods. They're selling non-ferrous metals into the United States.

All of these companies are staffed by Chinese nationals speaking Mandarin. When they pick up the telephone, they speak Mandarin to each other. We have—I believe the FBI had one Mandarin speaker in California tracking these companies, one. Now, this is a problem and makes it impenetrable to us. We don't have eyes and ears into these companies and we're not developing the assets in those companies to report on and help us develop sting operations and things like that.

Commissioner BECKER. Has there been anything identified, anything that people can put their hands on and point to that they've actually done that would equal or come close to equaling the Motorolas and the Lockheeds and this type of activities?

Mr. TIMMERMAN. You know, that's a very good question and I can't give you a straight answer to that because I don't know and I don't think any of us really know. I can give you a couple of examples, concrete examples of what they have done.

There was a company called Yuchai America. One of their tasks was to identify factories which are going to be auctioning off technology. They looked into that. CATIC was here to identify factories selling off technology. They were the ones that, through TAL Industries and others, that acquired the machine tools from McDonnell Douglas. That has been part of their task, to look for specific things that they could purchase and to gather intelligence.

Commissioner BECKER. I'm trying to see in my own mind or come to a conclusion to how this could be controlled in some way. These are Chinese nationals that own these businesses and front these?

Mr. TIMMERMAN. That's correct, yes. Yes. And they have entire—I'll tell you—oh, I forgot the lawyers. They've got the lawyers who will set up these companies, and they set up the companies for princelings back in Beijing. I interviewed a couple of the lawyers who did this. They said, oh, yeah, we don't even have to meet these guys. We do it all by phone or by fax. You know, they just send me their information. I go incorporate their company, and maybe they don't use it for another two years, and they'll use it—they'll activate it for a specific operation, for a specific transaction.

Co-Chairman BRYEN. The fact is, we don't have any counterintelligence—

Commissioner BECKER. Well, I guess what I'm wanting to know, does it make sense—is there some recommendation, is there something that we should be doing as a nation that would require some registering or some kind of notification to the Department of Defense on any Chinese national that would start a business of any kind?

Mr. TIMMERMAN. Well, the very first thing we should do is hire about two dozen Mandarin speakers for the FBI and the Customs

Service out in California, seriously. That's an immediate recommendation.

Commissioner DREYER. You have a job, David.

Mr. TIMMERMAN. The other thing that—

Commissioner BECKER. Well, and this leads to another thing. You mentioned you would support a ban. You would recommend the ban on the sale of any product in the United States that came out of a factory or entity that was controlled by the PLA.

Mr. TIMMERMAN. I would recommend banning those companies from doing any business with the United States, import or export.

Commissioner BECKER. Are those companies identifiable?

Mr. TIMMERMAN. Yes, they are.

Co-Chairman BRYEN. The *Wall Street Journal* identified them, I believe.

Mr. TIMMERMAN. And here's just one—as I say, here's one network.

Commissioner ROBINSON. And Jeff Fiedler did that very fine piece for the AFL-CIO some years ago and he had a whole book full of them.

Mr. TIMMERMAN. Absolutely.

Commissioner ROBINSON. When you talk about problematic, some of those representative offices or subsidiaries or affiliates are of militarily-relevant PLA companies, big ones, in Beijing that are involved in a number of things, including proliferation.

Commissioner BECKER. But the question that—

Mr. TIMMERMAN. And I take off my hat to Jeff Fieldler, and I didn't do this yet, but Jeff and the AFL-CIO have been a tremendous help to my own work in trying to identify these companies. They've done great work on the ground and they've been true patriots.

Commissioner BECKER. I've seen great lists of them myself. I don't know the accuracy of them or whether it's all-encompassing or whether some government entity in some way has identified these over the years or—

Co-Chairman BRYEN. The problem is, once you find out who they are, there's no plan to do anything about it.

Commissioner BECKER. The other question that I had for the panel entirely is how do you feel about the movement or transfer of the export licensing and control from the Commerce Department to the Department of Defense?

Dr. ALLEN. It's not something that I follow, to be honest with you.

Dr. JONES. I don't have conclusive feelings about this. I think it has to do with what you want to promote. If you want to promote care and attention to what might be migrating out of the United States that is of real national security significance to us, it's much better in the hands of the Department of Defense or a security agency. There might be other ways to organize that. If you're interested in promoting exports, which has been really sort of true since the—or the administration's concern since the end of the Cold War, then you put it in the hands of the Commerce Department.

I would be interested in seeing that looked at again. In fact, I take it it's in the hands of the State Department today, if not—

Co-Chairman BRYEN. No, no, it's still—

Commissioner BECKER. It's still the Department of Commerce.

Dr. JONES. But I think this other issue of registering companies in this country, we simply ought to have a much better data collection system. I'm not familiar with what our intelligence agencies actually provide us in the way of organized information about that, but we certainly should know. We should be aware, however, that whatever we do in wrapping up or banning companies, which might be called for, will have an effect on the Motorolas and the GEs and the American international groups and Companies like Boeing in China.

Commissioner BECKER. Well, the companies that legitimately do business in China that we've approved of, large multinationals headquartered in the United States, are under constant pressure from the Chinese government to continue to transfer technology and bring new technology in in order to stay in business there. Anyway, thank you very much.

Co-Chairman BRYEN. Thank you. Commissioner D'Amato?

Chairman D'AMATO. Thank you, Mr. Chairman. I just have a check-the-box kind of question, yes or no. This is an easy one. I want to know whether you think, on balance, each of you, whether the record, the historical record shows that U.S. policy and pressure has had substantial impact on Chinese proliferating behavior, yes or no, and if so, just real quickly, in what specific area?

Dr. ALLEN. I would say yes, that U.S. policy has definitely had an impact on it, and the international community as a whole. In my view, they will continue to try to circumvent some of these international regimes, but I believe they wouldn't even be there had it not been for the international pressure on them for the last 15 years.

Chairman D'AMATO. Dr. Jones?

Dr. JONES. I think I would say yes, as well, and much in a similar way, that China has greatly improved performance but they will look for ways wherever the system is weak or whenever our behavior is inconsistent, they will look for ways to exploit it. And as they go capitalist in one form or another, whether it's princelings and communists going capitalist, they will look for ways to make money in the system as it exists.

Mr. TIMMERMAN. I would take somewhat of a contrarian's view to that. I think the restrictions that we have tried to place on the Chinese have made them smarter and it has encouraged them to greater methods of going around, both our intelligence, our surveillance, and our commercial restrictions.

I was looking for the name of the ship that they—I seem to remember it as the Yin He—

Commissioner DREYER. Yin He.

Mr. TIMMERMAN. Okay, the ship that the U.S. believed was carrying Chinese chemical weapons or precursors for chemical weapons to Iran. We boarded the ship in Saudi Arabia, and guess what, it was a great international embarrassment because either the Chinese had dumped the chemicals at sea or they had fooled us. In other words, they had engaged in deception—

Commissioner DREYER. No, neither one. What they had done, the bill of lading was wrong and they got it on the next ship.

Mr. TIMMERMAN. Okay. So what you have is, I think, increasingly sophisticated deception. The Iraqis during the Gulf War had learned how to build decoys of tanks and missiles and various systems. We bombed a lot of wood, wooden structures. The Chinese will learn how to make either fake bills of lading or disguise a shipment as it's going onto a ship. They will go around us. They will use deception increasingly. That is my sense.

Again, I would just get back to the point that I made earlier in response to Arthur's question, is if they see a particular sale as in their national interest, they will do it. That's the bottom line.

Co-Chairman BRYEN. Just national interest or—

Mr. TIMMERMAN. Their national interest, or—

Commissioner WALDRON. Or it's the ruling group's interest. All of this stuff is not in the interest of—

Mr. TIMMERMAN. Thank you. In the—

Commissioner WALDRON. None of this stuff is in the interest of China as a country.

Mr. TIMMERMAN. Absolutely right. Absolutely—in the interest of the ruling—

Commissioner WALDRON. It's not even in the interest of the shareholders, the Chinese shareholders.

Chairman D'AMATO. Well, let me just—

Co-Chairman BRYEN. We have time for a second round.

Chairman D'AMATO. Let me just follow up, Mr. Timmerman, for a second on that. If we increase the price that the Chinese have to pay for their proliferating behavior, do you think that would have an impact on that behavior?

Mr. TIMMERMAN. Yes, I do, because they care about money and they care about our markets in particular.

Chairman D'AMATO. I don't mean money price, I mean whatever price it happens to be, whatever sanctions or denial of exports or denial of whatever it is.

Mr. TIMMERMAN. Yes, and we have not used those methods over the past six years. The number of times that the Clinton administration imposed sanctions and withdrew them, the first Bush administration did the same thing. We have never really used that tool, in my view, very effectively and we could do it much better.

Commissioner MULLOY. Just a comment. One of the problems that we've always done on sanctions is that we put export sanctions on rather than import sanctions on.

Mr. TIMMERMAN. That's right.

Commissioner MULLOY. And there are political reasons why that happens related to the committees which have jurisdiction over certain things. But that is a real problem. And, of course, then with imports, you get tied up with your WTO obligations and then I think you have to then look for the national security exemption—

Mr. TIMMERMAN. That's right.

Commissioner MULLOY. —in order to do that.

Mr. TIMMERMAN. I would concur with that evaluation.

Commissioner ROBINSON. And equally quickly, if there's a consensus, and I think there is, including Dr. Jones, and the fact that taking a new look, a very rigorous look with a higher price tag for these types of insidious and dangerous violations, would you in principle agree that we need to be creative in this regard, go out-

side of the trade portfolio, if necessary, because of the foreign availability, the loss of U.S. exports, jobs, possible retaliation against U.S. firms. There's a lot of baggage, you know, that goes into the trade portfolio and you know how successful we've been, and I say that tongue-in-cheek because we haven't been successful at all in using trade sanctions because of the collateral damage to U.S. interests.

Would you buy the idea of looking, taking a hard look at what I would argue, at least, and you might look into this, is our globally dominant position in the capital markets and the financial sphere as being a source of leverage on proliferation that's worthy of exploring? Could you comment on that?

Mr. TIMMERMAN. Well, I personally think that's a tremendous idea and I think all the points that you raised are very accurate. If we go after their source of financing, they don't have many other places that they could go easily, especially if we have raised the price here in the United States and we created a political onus on financing certain Chinese government entities.

Co-Chairman BRYEN. Okay. Commissioner Reinsch?

Commissioner ROBINSON. Dr. Jones and Mr. Allen, if you had any comment at all.

Dr. JONES. I would certainly concur with the importance of looking into that. I would want to educate myself before I came to any conclusions about what we could effectively do in that area, but it certainly is worthy of looking carefully at.

Commissioner ROBINSON. Thanks very much.

Co-Chairman BRYEN. Mr. Reinsch?

Commissioner REINSCH. Thank you again, Steve.

Just quickly on a couple more, in the interest of accuracy, Ken, tell us a little bit more about your comment that we'd sold hot section jet engine technology. Can you supply some specifics on that?

Mr. TIMMERMAN. Yeah, the Garrett engine case.

Commissioner REINSCH. I thought that was a thing about gas turbine engines where the Chinese sought to improve their cruise missiles. I thought that was the Garrett engine case.

Mr. TIMMERMAN. Well, and in the process of doing that, my understanding is that the entire technology was decontrolled.

Commissioner REINSCH. Oh.

Mr. TIMMERMAN. It was taken off the control list.

Commissioner REINSCH. Actually, I can say something about that.

Mr. TIMMERMAN. I wish you would. That would be very good.

Commissioner REINSCH. It's not true. That wasn't approved. I mean, it didn't happen, the technology. And there's not time to argue about the engines, although I take issue with you on the engines.

Co-Chairman BRYEN. Could we, just for the record, ask both Mr. Timmerman and Commissioner Reinsch, as well, to submit some information we can put into the record?

Mr. TIMMERMAN. On hot section?

Co-Chairman BRYEN. Yes.

Mr. TIMMERMAN. Sure. I can go back and check my files on that.

Commissioner REINSCH. The general reference to hot section technology refers to something else, not to the Garrett engine case—

Mr. TIMMERMAN. I'd be happy to go back and—

Commissioner REINSCH. —it's only one technology.

Mr. TIMMERMAN. Sure.

Commissioner REINSCH. In the hot section case, there not only were no approvals, there were no applications. It's sort of a cul-de-sac of policy.

Finally, one comment and a question. On Lockheed, I'd just comment again for the record, Lockheed was not fined \$30 million by the Justice Department. It was fined \$30 million by the State Department—

Mr. TIMMERMAN. Yes, correct, but—

Commissioner REINSCH. —and it was fined by the State Department for violating State Department licensing. It didn't have anything to do with the Commerce Department. The State Department said so when they brought the charges. So I think you have to get your facts straight on these things.

Finally, for all of you, Commissioner Wessel inspired in me when he was asking you to do sort of a tour of the world as far as assistance is concerned, would any of you like to comment on what proliferation or missile-related technology the Chinese may have acquired from the Israelis?

Chairman D'AMATO. Don't all speak at once.

Dr. ALLEN. I have no information on that.

Dr. JONES. I have no information on that, except that the one area that seems to me to be applicable is Israeli transfers to China that have been widely publicized is turbo fan engine technology and that is useful in cruise missiles.

Mr. TIMMERMAN. The Israelis have sold hundreds of millions of dollars of weaponry to the Communist Chinese with the approval of the United States Government for many, many years. It was a U.S.-sponsored activity.

I personally think it was a mistaken policy on our part to encourage the Israelis to develop this relationship, but it occurred during the Cold War. It began in 1985 and developed during the late 1980s and continued during the 1990s.

One case that I know about in great detail was the transfer of air-to-air missiles, but that's not ballistic missiles.

Co-Chairman BRYEN. Python.

Mr. TIMMERMAN. Yes, Python. But that's air-to-air missiles. Those are air force missiles. Those are not ballistic missiles.

Commissioner WALDRON. Could I just add, I think that I'm glad that Commissioner Reinsch raised this issue. It's very, very sensitive, but I know most of the people in Israel who are China specialists. Unless they've got a bunch of China specialists hiding out that I haven't met, which I doubt, given their small population, these guys are up to their ears in proliferation behavior. Yet whenever I ask them, they all tell me that, oh, no, I'm just a simple scholar, you know, et cetera, et cetera.

I think there are faulty rationales that Israel has for doing this. I think it's deeply harmful to Israel's self-interest and deeply harmful to American interests and I think it would be a very good thing

if we could shine a light on this, and as I think also with the case of Russia.

I think with Israel, we have tremendous leverage, although I understand that attempts to exercise it have not been successful in some cases. I have some information about that. But I think the Israeli tech transfers are a big problem. We ought to look at them.

But the biggest problem are the Russian tech transfers, and one Defense Department official in the Clinton administration said to me he thought, in fact, the biggest mistake perhaps of his entire tenure had been failure to focus on the Russian tech transfers. Now is not too soon to really try to hammer the Russians to stop their tech transfers, too.

Co-Chairman BRYEN. We're going to have another hearing on export controls in, what is it, January now?

Commissioner WALDRON. Yes. I'm very glad—

Co-Chairman BRYEN. —so that'll be a chance to get more deeply into this.

Commissioner Dreyer?

Commissioner DREYER. Yes, a really quick comment. There are ways around university concerns about what their foreign students are doing research on. Let me just tell you that we did this a couple of years ago with Taiwan when civil liberties were much more of a concern than they were post-September 11.

Chaz Freeman, because he was interested in this, discovered Taiwan scholars had come over, scientists, and one was working on nose cones and another one was working on thrust engines and so on, and for the same reason, universities are concerned about civil liberties but they are also loose sieves of information and graduate students love to talk about their research and they all know what each other is doing and all you need is someone—Ken, you won't do, you look too tidy. You need somebody with scruffy clothes and a beard to go and just hang around and you can find out what each one is doing, or you can require that on your visa application.

Co-Chairman BRYEN. Is that—

Commissioner DREYER. That's it.

Chairman D'AMATO. Could I just make one suggestion? I think that what Commissioner Waldron says is very, very important on the Israeli side, and having been one who worked for many, many years in this matter in the U.S. Congress, I would like to appoint Commissioner Waldron to lead a group to build a coalition in the Congress around this particular issue. It'd be the toughest assignment he's ever assumed, but I think it would be appropriate.

[Laughter.]

Co-Chairman BRYEN. I don't think he's going to volunteer.

Commissioner WALDRON. No, I think we could do—we should talk about this at lunch, but, I mean, there are a lot of people who are concerned about this.

Co-Chairman BRYEN. Yes. Oh, absolutely, people in this administration and in the previous administration.

Commissioner WALDRON. I think, again, one of the issues has been this, what do you call it, the—

Co-Chairman BRYEN. Falcon.

Commissioner WALDRON. —the Falcon deal, which I think taught them at least the first lesson. It's not a free lunch.

Commissioner WESSEL. A quick comment, if I could get it from each of the panelists. We've been talking here today mostly about the traditional area of export controls and we've seen over the last years much of this move really into the joint ventures, the investment by U.S. companies in operations in China, Motorola with chip factories, et cetera. What would your views be on investment control approaches being coupled with our export control approach, understanding there may be questions about the underlying export controls? What would the panelists' views be on that?

Mr. TIMMERMAN. Well, I think that's a very good point and I'm glad that you raise it. You're talking now about the wholesale transfer of technology and of building manufacturing capabilities in Communist China and that's a very, very serious issue and it's one that's been, in my view, neglected over the past ten years. We have allowed U.S. companies to build factories. I am not fully versed in how the transfers of technology themselves were reviewed, so I can't tell you about that specifically.

Commissioner WESSEL. Yes. That's a different issue.

Mr. TIMMERMAN. But I think it's something that definitely needs to be looked at. I can give you one specific example that I did look into, which was Sun Microsystems. And forgive me, Bill, if I don't have the actual name of the chip on the tip of my tongue, but Sun Microsystems basically turned the architecture of their computer system about eight years ago into a nonprofit corporation and allowed anybody around the world to buy the architecture of the system for one dollar. Then what they did is that they sold them the chip so they could build the computers.

That allowed them to build chip factories overseas and basically ship anything that they wanted to without export controls to Communist China. Why? Because the Commerce Department did a foreign availability survey and they found out—when Sun Microsystems said, well, you can't have us control these chips because they're available all over the world. Look, you can even buy them from this manufacturer in the Philippines or Singapore—I forget where it was—and oh, guess what, it was Sun that set up that manufacturer in the Philippines or Singapore to, quote, “compete” with them so they would have foreign availability and not subject to U.S. export controls.

There are a lot of funny games going on between U.S. companies and the Commerce Department. The Commerce Department knew full well what was going on. I wrote about it publicly and Bill was an avid reader of my articles, as well as a critic, so I guarantee you that this was known and known in the U.S. Government.

Commissioner REINSCH. My critiques were as long as the article.

Mr. TIMMERMAN. Yes, they were sometimes. We had great debates at the *American Spectator* on whether we were going to run another Reinsch-Timmerman debate.

Co-Chairman BRYEN. Commissioner Lewis?

Commissioner LEWIS. We're running an \$85 billion deficit with China right now and they're coming into our capital markets for millions and hundreds of millions of dollars. Money is fungible. Do you have any doubt—

Co-Chairman BRYEN. Microphone. Start from the beginning.

Commissioner LEWIS. We are running an \$85 billion deficit in our trade with China and they're coming into our capital markets for hundreds of millions of dollars and money is fungible. Do you have any doubt that, in a sense, we are helping finance their military buildup? I'd like each of you to respond.

Mr. TIMMERMAN. I think it's very clear that we're helping finance their military buildup, through the capital markets and also through the extraordinary trade deficits that we're running with them. We are basically transferring about \$75 billion a year to Communist China by buying their goods the way that we're doing. We're financing military companies. We're financing state-owned companies. That money is being used, obviously, to improve their military buildup.

Commissioner LEWIS. Dr. Jones?

Dr. JONES. Well, I wouldn't put it in terms of financing their military buildup. What we are doing is allowing China to strengthen itself in a system that has freer and freer trade, including capital markets. Are we in some sense complicit in their getting more powerful? Yes, but we really have to look at some other things. Are they spending lots more on their defense systems in this current period? They are. They're increasing their defense budget—

Commissioner LEWIS. Which they could not do if they didn't come into our capital markets and have this big trade surplus with us.

Dr. JONES. Well, no, they could do it anyway, but it would be with more sacrifice internally and with more uncertainty about whether they can manage what is going to be a very difficult transition.

Co-Chairman BRYEN. And they'd have a lot less technology.

Dr. JONES. Yes.

Commissioner LEWIS. Mr. Allen?

Dr. ALLEN. What I know is more what I read from Roger.

[Laughter.]

Commissioner WALDRON. You're not supposed to say that.

Dr. ALLEN. I have spent the last 30 years looking more down at the tactical level, and the things that you're talking about here today, I think are very important, but having been on the ground two years in Beijing, I was day-to-day working an FMS program with China. I can honestly tell you that I learned more in the first six months of being in China and dealing with Chinese entities in just the Ministry of Aviation than 15 years on the outside.

What we're talking about here, I mean, it's nice to talk about these things, but there's barely a handful of people in the embassy in Washington or in Beijing trying to track all these things. I mean, as an individual, you could do this. The FBI has a hard time doing it.

Language—language is extremely important. There's a proliferation of material. One of the things I tried to point out in here was that the Internet has a wealth of information on China's military. The government does not have that.

Co-Chairman BRYEN. But why doesn't the government have it? They can search the internet, too.

Dr. ALLEN. Because many of the analysts in the U.S. Government, China analysts, don't speak Chinese and they are already overwhelmed with other material.

Commissioner WALDRON. And they're not tasked. I mean, I've urged that we have a classified briefing when we all have our clearances from the Tilelli Commission, which several of us were on. But one thing was very clear to me, that the tasking in the CIA was overwhelmingly not on this issue.

Dr. ALLEN. Let me get to the point I'm trying to make here, is that I honestly believe that you're going to find out more about the Chinese by dealing with them than standing on the outside and trying to work on the outside. I think there's a wealth of information available from U.S. business people trying to find out what they're doing here, but nobody's tapping that.

The money is very, very important, but if you move down another level, the PLA—I spend the majority of my time looking at the Chinese air force. Yes, they may get 250 Su-27s. What you have to do is look at what are the pilots doing now? Where are they training? I think the important thing for them is really management.

When I worked the Peace Pearl Program, which is the FMS program for the F-8, for four years, 50 percent of that program from their perspective was management. What we're talking about is technology, a computer, a weapons system, whatever. It's the management. Those are the things they're talking. They're asking the same questions today they asked ten years ago at a management level.

The money is important, I think. Yes, it's very important. But I think you may be focusing at a higher level, too. You need to also take a look at what they're really doing with this, and I'll give you a very specific example. I don't want to take a lot of time.

I could have given the tour at the Shenyang aircraft factory, I went up there so many times. And you would walk into a room and they'd say, here's a \$350,000 piece of equipment that we got from Italy. Here's a \$400,000 piece of equipment we got from France, and another, you know, a million dollars worth of equipment. And they would dust it off and nobody was ever in there because it's the system. You have to look at the system, as well.

And part of the system—I think Arthur hit it—was, to me, the revolution is coming from the bottom up. It's the college-level people, and the military—officers don't even drive in the military. The majority of them don't even know how to drive a car. But what you have are people now who are 20, 30 years old who have access to computers, are going abroad, are studying. That's what you really need to be looking at is the future ten years down and people, not just in the hardware but in people. That's where it's really changing.

And I totally agree with Arthur that the key here are the princelings and all these interlocking things. These are the people who are running all of this across the board. Those are the things you should be focusing on. And Roger talks about the capital.

Commissioner WALDRON. And could I add on the princelings, that as I understand it, that taskings have been refused in the intelligence community even to keep track of who the princelings are, who their relatives are, where they are in the U.S., and so forth, and my colleague at AEI, James Lilly, has repeatedly said that the first thing we have to know is the cast of characters.

And for whatever reason, the United States has been extremely reluctant, actually, to find out who they are, and anybody who knows China knows the first thing you want to do is figure out what the guanxi network is, and that's got to be done.

We should have that closed-door hearing on this Tilelli Commission, get Larry Wertz and a couple other people in here, and I think that will really help the Commissioners a lot, yes.

Chairman D'AMATO. I've actually looked into the Tilelli Commission issue. We'll talk about it at lunch a little bit.

And by the way, I might say, the addiction to national technical means is certainly not confined to China. This is a problem throughout the intelligence community and it is a very serious problem.

Co-Chairman BRYEN. That's the only means we have.

Chairman D'AMATO. But, you know, there's something you said I want to pick up on because it's something that I keep running across and I've become more and more convinced that the Chinese just have a lot more dedication and energy to learning about us than we do about them. I mean, they are all over us, all over us, and we are not reciprocating, particularly in the open source area.

We don't even ask—I think we ought to ask the Chinese what they think of us—that's part of our mandate—and be all over them and find out what they're saying. We don't translate their materials? How are we going to learn what their intentions are if we don't even know what they're talking about openly? I mean, do you agree with that?

Dr. ALLEN. I totally agree.

Co-Chairman BRYEN. I want to thank you very, very much, all the panelists who joined us this morning. We could spend the whole day and probably the whole week and the whole month. But everyone's made a great contribution for the Commission and we thank you.

[Off the record at 11 a.m.]

(AFTERNOON SESSION, 1:30 P.M., FRIDAY, OCTOBER 12, 2001)

PANEL II: CHINA'S PROLIFERATION BEHAVIOR—EXPERT VIEWS

Chairman D'AMATO. We're pleased to have our afternoon session on proliferation issues. Just again to mention the ground rules, this is a closed meeting. We're going to be transcribing it. It's not classified, but it's not open to the public because of the sensitivity of the intersection of the issues with the current environment, but it will be released to the public on our website at "www.uscc.gov" at a later time.

We have three witnesses this afternoon. Rear Admiral McDevitt is going to be a little bit late because he's at a funeral, but we'll go ahead and start. We've got Dr. Gary Milhollin, the Executive Director, Wisconsin Project, and Dr. Jing-dong Yuan, who's a Senior Research Associate from the Monterey Institute for International Studies, Nonproliferation Center, in California.

What we'll do, if each of you could give your—summarize your testimony in about ten minutes, and then we'll have questions from the Commissioners after you both conclude your ten-minute testimony.

Dr. Yuan, would you like to start?

Dr. YUAN. Sure.

Chairman D'AMATO. Okay.

**STATEMENT OF JING-DONG YUAN, SENIOR RESEARCH ASSOCIATE,
CENTER FOR NONPROLIFERATION STUDIES, MONTEREY INSTITUTE OF INTERNATIONAL STUDIES**

Dr. YUAN. Chairman D'Amato, Chairman Bryen, distinguished Commissioners, I'm greatly honored to testify before this Commission. I think it is very appropriate for this Commission to examine Chinese nonproliferation policy and this is a very important issue which affects Sino-U.S. relations over the years.

I'm from the Monterey Institute of International Studies, Center for Nonproliferation Studies, and our mission is to train the next generation of nonproliferation experts and to disseminate timely research and analysis. I welcome the opportunity to share with you some of my personal views.

Given the time constraint, I will just very briefly summarize what I'm going to say today. Basically, I want to cover three areas. The first is the evolution of Chinese nonproliferation policy and behavior over the last decade. And secondly, I will talk a little bit about the continuing controversy with regard to Chinese involvement in proliferation activities. And finally, I will talk about U.S. efforts to influence Chinese policy and behavior. I will close with some very general observations.

Regarding the evolution of Chinese nonproliferation policy over the last decade, a number of positive developments have taken place. There are three indicators for this. One is if we look at

China before the 1990s, it was very much involved in proliferation activities and was very active in terms of exporting nuclear, chemical, and missile-related technology and components, and some of those exports, for instance in the nuclear sector, were not to those facilities safeguarded by the IAEA (International Atomic Energy Agency).

But since the 1990s, China has acceded to the Nonproliferation Treaty (the NPT) in 1992; signed and ratified the Chemical Weapons Convention in 1993 and 1997, respectively; signed the Comprehensive Test Ban Treaty (CTBT), although not yet ratified it. The Chinese government has submitted the treaty to the Chinese legislature for ratification. And China has also supported the indefinite extension of the NPT. So this is the first indicator. That is, China has gradually moved from being part of the proliferation problem to a gradual endorsement of international norms and practices.

Secondly, through a number of bilateral arrangements and understandings, China has also moved bit by bit towards addressing the U.S. concerns over missile proliferation and nuclear proliferation. A number of commitments or understandings have been made in 1991, 1992, 1994, 1998, 2000, on missile issues, although people would question about Chinese sincerity about the implementation and enforcement of these commitments. The last one was last November, when China made a commitment not to assist in any country's missile programs which could be used as a means of delivery for weapons of mass destruction.

The third indicator refers to domestic development. Before the 1990s, there were no domestic regulations or rules governing Chinese exports in nuclear and missile or chemical items.

Co-Chairman BRYEN. For what date?

Dr. YUAN. Before 1990.

Chairman D'AMATO. Nineteen-ninety?

Dr. YUAN. Yes, 1990. But since the mid-1990s, in 1994, China passed the Foreign Trade Law, and then issued the regulations on nuclear and chemical exports and also their dual-use in 1997 and 1998. China also issued regulations on military dual-use technologies. So we begin to see a nascent, what you can call a nascent export control system, but it's still a long way to go, you know, if we compare the U.S. system with that of China's.

There are a number of factors that have influenced changes or evolution of Chinese policy. One is the image concern. Because of the revelations of Iraq and North Korean nuclear activities and that China together with France were the two nuclear weapons states not party to the NPT, and France decided to accede to the NPT, China decided, that, in terms of image, it wanted to be seen as a responsible international power. So that pushed China to embracing some of the international law.

This is very clear with regard to the CTBT, when China at the beginning tried to stop the process by insisting on the peaceful nuclear explosive and verification regimes, but once the international community, and there's general trend towards this treaty, China decided in the last minute to embrace it.

And obviously, China's reliance on getting U.S. technology is also a major factor. One example would be the 1985 nuclear cooperation

agreement and the U.S. insisting that China had to comply with international standards and norms. China join the IAEA, issued the so-called three principles of nuclear export—peaceful use, IAEA safeguards, and no transfer without China's acknowledgement.

And then U.S. pressure, obviously, including sanctions, also played somewhat a role in pushing China toward the embracement.

Now, obviously, there are continuing controversies and activities. China has continued to sell missile-related technology and components to Iran and Pakistan and also chemical items to Iran. Basically, there are, in terms of Chinese violations, three explanations.

One is because of decentralization, economic opening up, there are companies, so many companies that are not under tight Chinese central control, so this would be one possibility.

The other is basically the Chinese government enforcing—interpreting its commitment in a very legalistic, very narrow way or only complying with international treaties like the NPT, the CWC, but not with the multilateral regimes, those more restrictive regimes such as the Australia Group or the MTCR, the Missile Technology Control Regime.

And thirdly, probably the government just deliberately looks the other way because China has some concerns over U.S. policy towards China in terms of missile defense, arms sales to Taiwan. So China wants to retain whatever minimum leverage it has vis-a-vis the United States.

But in general broader terms, I think there are geo-strategic and commercial interests, you know, obviously for the companies. They want to make profit, so sometimes they bypass rules and regulations and some of the companies in the early 1990s were pretty much controlled by the princelings, the sons and daughters of the Chinese leaders, so they could bypass official formal regulation and go directly to their uncles or aunts and then they could do something like that.

And also, strategically, China wants to continue sales to Pakistan. Obviously, Pakistan has been a long-time ally for China over the last 30 years so China wants to retain that particular special relationship.

Another reason for this apparent gap between declaration and actual practice is that the Chinese export control is still at a very primitive, early stage. And certainly, we begin to see a trend towards issue linkage in the late 1990's because China started to try to link whatever its change in nonproliferation policy to changes in U.S. policy with regard to missile defense and arms sales to Taiwan.

Now, what is the U.S. role and U.S. efforts in influencing Chinese behavior? I think, very broadly, three strategies. One is sanctions, obviously, but sanctions on China have produced mixed results. You can see China has promised, pledged, to strengthen its export control or nonproliferation policy, but China has never acknowledged its past behavior. Every time China would only say, well, in the future, we will strengthen nonproliferation; we'll be more cooperative.

So in terms of direct result, it's not very clear. But certainly there is always a period of negotiation after sanctions and there will be new commitment.

Secondly are the pressure tactics. I think there, U.S. policy has been more effective in terms of linking what China wants in terms of nuclear cooperation agreement to its missile activities. There, China has gradually, or we'll say reluctantly, adopted new measures.

And certainly it's the factor bilateral relations. If China views bilateral relations as more important, it will likely to concede in certain areas in order to maintain the relationship.

Now, general observations. I think, number one, engagement continues to be very important, but the engagement in a way that gets clear Chinese commitment, because what we have is every time China has made a commitment, and later on interpreted its commitment differently. And from the U.S. side, we have a tendency to exaggerate what we have achieved so there is a heightened anticipation and then we have a disappointment because there's a gap. So I think the engagement really get China to commit clearly defined commitments and pledges and hold China accountable to those pledges.

And then there's a balance between various U.S. policies such as peaceful situation across the Taiwan Strait, missile defenses, human rights, trade. You cannot expect China to comply with U.S. nonproliferation policies when you have sales to Taiwan, and other activities, which are not seen as promoting Chinese interests.

I think pressure and sanctions should continue, but the best way to do that is to involve multilateral coordination that involves U.S. allies. Otherwise, U.S. sanctions alone would only harm U.S. businesses without achieving definite results.

And finally, I think given the nature of the Chinese export control system, there's a need for the U.S. to assist China to strengthen their licensing review, customs controls, so that China wouldn't use this as an excuse in its bilateral talks with the U.S., saying, well, we have a very primitive export control system.

So I would just stop here and just use up my ten minutes. Thank you very much.

[The statement follows:]

PREPARED STATEMENT OF JING-DONG YUAN

INTRODUCTION

Chairman D'Amato, Chairman Bryen, distinguished commissioners, I am greatly honored to testify before the U.S.-China Security Review Commission. I salute the Commission's efforts to better understand a critical issue in current Sino-U.S. relations—China's proliferation policy and behavior, and welcome the opportunity to share with you some of my personal views. I come from one of the World's leading non-governmental organizations devoted to nonproliferation research and analysis. The mission of the Center for Nonproliferation Studies at the Monterey Institute of International Studies is to stem the spread of weapons of mass destruction by training the next generation of nonproliferation specialists and disseminating timely information and analysis.

The testimony will focus on the evolution of Chinese nonproliferation policy over the last decade. During this period, a number of positive developments have taken place. These include China's accession to major international arms control and nonproliferation treaties; bilateral nonproliferation commitments given to the U.S.; and new domestic regulations governing exports of nuclear, chemical and dual-use materials and technologies. These developments have been prompted by Beijing's growing recognition of proliferation threats; an acute concern over its international image; its assessment of how progress in nonproliferation could promote better Sino-U.S. bilateral relations; and by U.S. nonproliferation initiatives aimed at influencing Chinese behavior.

Needless to say, significant problems remain and continue to haunt Sino-U.S. relations. Beijing has different perspectives on arms control and nonproliferation and tends to interpret its commitments narrowly. There are continuing controversies over Chinese transfers of nuclear, chemical, and missile components and technologies to countries of proliferation concern. Beijing is also increasingly linking fulfillment of its nonproliferation commitments to changes in U.S. policy in arms sales to Taiwan and missile defenses. This gap between Beijing's policy declarations and its actual practices has presented successive U.S. administrations with serious challenges.

The rest of this presentation is organized into three parts and addresses key issues raised by the Commission. I conclude with some general observations and policy recommendations. The three parts include:

- A brief overview of the evolution of Chinese nonproliferation policy over the past decade.
- A discussion of China's continuing involvement in proliferation activities, the underlying rationales, and strategic considerations.
- An analysis of the effectiveness of U.S. policy in influencing Chinese nonproliferation policy and behavior.

CHINA AND NONPROLIFERATION: EVOLVING TOWARD INTERNATIONAL NORMS

In the 1980s, China emerged as one of the leading suppliers of arms and dual-use technologies. Towards the end of the 1980s, revelations of Chinese nuclear and missile transfers to countries in the Middle East, the Persian Gulf and South Asia raised serious proliferation concerns and were a contributing factor in the "China threat" debate in the United States.¹ Among the controversial Chinese arms transfers were the sale of the Dong Feng 3 (CSS-2) intermediate-range ballistic missiles to Saudi Arabia, HY-2 (*Silkworm*) anti-ship missiles to Iran, the nuclear reactor deal with Algeria, and missile related transfers to Pakistan.

Since the end of the Cold War, Beijing has made gradual yet significant progress in its nonproliferation policy, specifically in three key areas:

- accession to major international arms control and nonproliferation treaties and conventions;
- bilateral arrangements with the United States pledging Chinese commitment to missile nonproliferation; and
- promulgation of domestic export control regulations.

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

Beijing has also reached a number of bilateral agreements and understanding with the United States pledging adherence to the original 1987 MTCR guidelines, including a commitment not to export missiles "inherently capable of reaching a range of at least 300 km with a payload of at least 500 kg."² In addition, China promised in a statement last November that it would not assist states in developing "ballistic missiles that can be used to deliver nuclear weapons" and that it would issue "at an early date" a "comprehensive" list of missile-related and dual-use items that would require government licenses for export.³

TABLE 1.—CHINA AND INTERNATIONAL NONPROLIFERATION REGIMES

International Treaties and Negotiations	Multilateral Export Control Regimes
Acceded to the Non-Proliferation Treaty (NPT), March 1992 ...	Pledged to abide by the original 1987 Missile Technology Control Regime (MTCR) guidelines in February 1992.

¹ On this point, see Evan S. Medeiros, "China, WMD Proliferation, and the 'China Threat' Debate," *Issues & Studies* 36:1 (January/February 2000), pp. 19–48.

² "Joint United States–People's Republic of China Statement on Missile Proliferation," 4 October 1994.

³ Associated Press, "China pledges it will not aid foreign missile development," 21 November 2000.

TABLE 1.—CHINA AND INTERNATIONAL NONPROLIFERATION REGIMES—Continued

International Treaties and Negotiations	Multilateral Export Control Regimes
Signed the Chemical Weapons Convention (CWC), January 1993; ratified CWC and joined the Organization for the Prohibition of Chemical Weapons (OPCW) as a founding member, April 1997.	Agreed in the October 1994 U.S.–China joint statement to adhere to the MTCR and agreed to apply the concept of “inherent capability” to its missile exports.
Participated in the United Nations Register of Conventional Arms from 1993 to 1997.	Officially joined the Zangger Committee, October 1997.
Indicated in the U.S.–China joint statement of October 1994 support of the negotiation and “earliest possible achievement” of a Fissile Material Cut-Off Treaty (FMCT).	Promulgated the Regulations on Nuclear Export Control in September 1997; and the Regulations on Export Control of Dual-Use Nuclear Goods and Related Technologies in June 1998.
Supported the indefinite extension of the NPT, May 1995	Announced a series of decrees and circulars governing chemical exports: Circular on Strengthened Chemical Export Controls (August 1997); Decree No. 1 of the State Petroleum and Chemical Industry Administration (June 1998).
Signed the Comprehensive Test Ban Treaty (CTBT), September 1996.	Issued the Regulations on Export Control of Military Items in October 1997.
Went along with strengthened International Atomic Energy Agency (IAEA) safeguards, 1997 (although it has yet to endorse IAEA full-scope safeguards).	U.S.–China official talks during 1997–1998 on China’s possible membership in the MTCR.

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

Another significant development in China’s evolution toward international nonproliferation norms over the last decade has been the introduction of domestic export control regulations (see Table 2). Beginning with the May 1994 Foreign Trade Law, the Chinese government has issued a series of regulations, decrees, and circulars. Taken together, they constitute a nascent export control system (although China has still not promulgated the laws governing missile technology exports that it promised in November 2000).⁴ In addition, there has been institutional development indicating clearly that arms control and nonproliferation is increasingly assuming a higher profile in the making of China’s national security policy. In April 1997, a new Department of Arms Control and Disarmament was established within the Ministry of Foreign Affairs (MFA). And there has been increasing coordination among MFA, MOFTEC (Ministry of Foreign Trade and Economic Cooperation), and CAEA (China Atomic Energy Agency) officials in implementing export control regulations.⁵

TABLE 2.—EVOLUTION OF CHINA’S EXPORT CONTROL SYSTEM IN THE 1990S

Sectors	Laws and Regulations
General	Foreign Trade Law, 1994.
Chemical & Dual-Use	Regulations on Chemical Export Controls, December 1995. Supplement to the December 1995 regulations, March 1997. A ministerial circular (executive decree) on strengthening chemical export controls, August 1997. Decree No. 1 of the State Petroleum and Chemical Industry Administration (regarding chemical export controls), June 1998. (Note: These regulations have expanded the coverage of China’s chemical export controls to include dual-use chemicals covered by the Australia Group).
Nuclear & Dual-Use	Circular on Strict Implementation of China’s Nuclear Export Policy, May 1997. Regulations on Nuclear Export Control, September 1997. (Note: The control list included in the 1997 regulations is identical to that used by the Nuclear Suppliers Group, to which China is not a member). Regulations on Export Control of Dual-Use Nuclear Goods and Related Technologies, June 1998.

⁴Richard T. Cupitt and Yuzo Murayama, *Export Controls in the People’s Republic of China, Status Report 1998* (Athens, GA: Center for International Trade and Security, University of Georgia, 1998).

⁵Bates Gill and Evan S. Medeiros, “Foreign and Domestic Influences on China’s Arms Control and Nonproliferation Policy,” *The China Quarterly* 161 (March 2000), pp. 66–94.

TABLE 2.—EVOLUTION OF CHINA'S EXPORT CONTROL SYSTEM IN THE 1990S—Continued

Sectors	Laws and Regulations
Military & Dual-Use	Regulations on Export Control of Military Items, October 1997. The Procedures for the Management of Restricted Technology Export, November 1998. (Note: The new regulations cover 183 dual-use technologies, including some on the Wassenaar Arrangement's "core list" of dual-use technologies). China's Ministry of Foreign Trade and Economics Cooperation (MOFTEC) released a Catalogue of Technologies which are Restricted or Banned in China, presumably also in late 1998.

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

Contributing Factors to the Evolution of Chinese Policy

Changing Perspective on Security.—China has gradually begun to realize that proliferation of weapons of mass destruction (WMD) and delivery systems can affect its own security interests negatively. A case in point is China's response to the North Korean nuclear crisis. A nuclear North Korea and the potential fallout—nuclearization of Northeast Asia (with South Korea and Japan following suit) are definitely not in China's interest. Similarly, a North Korea that continues to develop its ballistic missiles could also cause instability in the region, leading to reactions such as theater missile defense and Japanese participation in its development and deployment. These security concerns may explain Beijing's role in defusing the nuclear crisis and its quiet efforts to urge Pyongyang to halt its missile test.⁶

Image Consideration.—China's international image is another factor. Events in the late 1980s and early 1990s created an environment under which Beijing felt obliged to move closer to the international nuclear nonproliferation norms. The revelations of Iraq's secret nuclear weapons program, the disclosure of China's export of a nuclear reactor to Algeria, and France's announcement to accede to the NPT helped push China into announcing its own accession to the NTP.⁷ China's endorsement of the NPT extension and abandonment of delaying tactics (e.g., peaceful nuclear explosions and verification) in the final stage of the CTBT negotiations also provide evidence of its concern with its image as a responsible power.

Technology Dependence.—China's need for advanced U.S. technologies has resulted in its undertaking the necessary policy adjustments required by Washington. One example is the negotiation and implementation of the 1985 U.S.-China Peaceful Nuclear Cooperation Agreement (NCA). China applied for membership and later joined the International Atomic Energy Agency (IAEA) in early 1984. Subsequently, it declared that it would apply IAEA safeguards to all of its nuclear exports and declared three principles governing its nuclear exports—peaceful use, IAEA safeguards, and no re-transfer without China's consent. In response to the Clinton administration's requests related to NCA implementation, Beijing promulgated nuclear export control regulations and joined the Zangger Committee in 1997. The Clinton administration was then able to certify China's compliance with U.S. nonproliferation legislation, paving the way for the NCA to enter into effect in March 1998.

Maintaining Stable Sino-U.S. Relations.—Maintaining stable bilateral relations is also an important consideration for Beijing as it formulates its nonproliferation policy. For example, important progress was made prior to and during the Clinton-Jiang summits in 1997–1998 when bilateral relations were relatively stable and improving. China cancelled its nuclear reactor deals and halted delivery of the C-802 cruise missiles to Iran. It promulgated nuclear export control regulations and joined the Zangger Committee. These were clear efforts on China's part to address serious U.S. concerns so that a better atmosphere could be created for the success of the summits and the advancement of bilateral relations.

CONTINUING CONCERNS AND CONTROVERSIES

Over the past decade, in particular since the mid-1990s, Chinese proliferation activities have narrowed in terms of both their scope and character. Chinese transfers have moved away from sales of complete missile systems to exports of largely dual-use nuclear, chemical, and missile components and technologies. At the same time,

⁶ Ashton B. Carter and William J. Perry, *Preventive Defense: A New Security Strategy for America* (Washington, DC: Brookings Institution Press, 1999), pp. 92–122; "PRC Played 'Crucial Role' in Halting DPRK Missile Launch," *The Korean Times* (Internet version), 20 September 1999.

⁷ Zachary S. Davis, "China's Nonproliferation and Export Control Policy: Boom or Bust for the NPT Regime?" *Asian Survey* 35:6 (June 1995), p. 591.

the number of recipient countries has also declined significantly. Iran, Pakistan, and North Korea are probably the only recipient countries of Chinese nuclear, chemical, and missile related technologies.⁸

Despite these generally positive developments, serious concerns remain over China's proliferation policy and activities. One is over Beijing's general approach to nonproliferation principles and practices. On the one hand, China has acceded to most international treaties and conventions that are broadly based with universal membership (e.g., NPT, CWC), and has by and large complied with their norms and rules. On the other hand, it remains critical of the key multilateral export-control regimes such as the Nuclear Suppliers Group (NSG), the Australia Group (AG), the Wassenaar Arrangement, and the MTCR and has declined to join them.

The record of Chinese proliferation activities over the past decade remains mixed and contentious.⁹ These controversies draw attention to the gap between Beijing's public pronouncement on nonproliferation and its reported proliferation activities, raising questions about China's commitment and intentions.¹⁰ Recent reports by the National Intelligence Council and the Central Intelligence Agency continue to identify China as one of the key suppliers of materials and technologies that contribute to the proliferation of weapons of mass destruction and their delivery systems.¹¹ Appendices I and II provide summaries of Chinese nuclear and missile exports and assistance over the past two decades.

Explaining the Word-Deep Gap

Different Perspectives, Narrow Interpretation.—While supporting the general principles of nonproliferation, China has often emphasized that there should be a proper balance between nonproliferation obligations and the need for legitimate peaceful use of nuclear, chemical, and space technologies. One plausible explanation therefore could be that Beijing simply views many of the controversial transfers, such as its nuclear reactor sales to Iran and Pakistan, as legitimate commercial transactions allowed by international treaties and under IAEA safeguards (even though not necessarily in compliance with full scope safeguards). At the same time, economic reform and opening up also encourage domestic defense industrial sectors to seek overseas markets for their products to compensate for the difficult defense conversion process and declining military procurement.¹² Commercial interests and a different perspective on nonproliferation therefore provide for China's strict interpretation of its treaty obligations.

Geo-strategic and Commercial Interests.—Geo-strategic considerations and the drive for commercial gains have been important factors behind Chinese transfer decisions. One is to expand its influence to regions of increasing importance such as the Middle East and the Persian Gulf. China's sale of the CSS-2 to Saudi Arabia gained the latter's diplomatic recognition. China's resilient defense cooperation with Pakistan is manifestation of Beijing's commitment to its loyal ally. Meanwhile, with China's conventional arms exports suffering precipitous decline since the early 1990s, sales of ballistic and cruise missiles became a "niche" or "comparative advantage" for Beijing, given MTCR member states' more restrictive export policy. These factors explain China's reluctance to fully embrace missile nonproliferation norms, which could deprive it of both the geo-strategic and commercial benefits.¹³

Nascent Domestic Export Control System.—Another reason may be the inability of the central government to monitor, much less control, the activities of various companies due to the nascent nature of the domestic export control system and ambiva-

⁸ Evan S. Medeiros, "The Changing Character of China's WMD Proliferation Activities," in Robert Sutter, ed., *China and Weapons of Mass Destruction: Implications for the United States* (Washington, DC: Congressional Research Service, Library of Congress, Spring 2000). <http://www.cia.gov/nic/pubs/conference_reports/weapons_mass_destruction.html>.

⁹ Media coverage in this area is extensive. See also, the Majority Report of the Subcommittee on International Security, Proliferation, and Federal Services of the Committee on Governmental Affairs, U.S. Senate, *The Proliferation Primer* (January 1998); and Shirley A. Kan, *China's Proliferation of Weapons of Mass Destruction and Missiles: Current Policy Issues*. CRS Issue Brief (Washington, DC: Congressional Research Service, updated 10 July 2001).

¹⁰ Medeiros, "China, WMD Proliferation, and the 'China Threat' Debate."

¹¹ National Intelligence Council, *Foreign Missile Developments and the Ballistic Missile Threat to the United States Through 2015*, September 1999. Director of Central Intelligence, *Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 July Through 31 December 1999* (August 2000).

¹² See John Frankenstein and Bates Gill, "Current and Future Challenges Facing Chinese Defense Industries," *The China Quarterly* 146 (June 1996), pp. 394–427.

¹³ Evan S. Medeiros and Bates Gill, *Chinese Arms Exports: Policy, Players, and Process* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, August 2000); Yitzhak Shichor, "Mountains out of Molehills: Arms Transfers in Sino-Middle Eastern Relations," *Middle East Review of International Affairs* 4:3 (Fall 2000), pp. 68–79.

lence in inter-agency coordination of policy from license review to approval, to customs inspections.¹⁴ Meanwhile, decentralization and institutional pursuit of parochial interests encourage companies to dodge regulations and even openly defy rules. The controversial sale of 5,000 ring magnets to Pakistan has often been cited as such an example of inadequate government oversight and effective control. In addition, the sheer size of the chemical industry and the growing number of dual-use items make control efforts exceedingly difficult if not entirely futile.

Deliberate Lapse in Enforcement.—China may deliberately choose not to enforce its nonproliferation commitments as a way to retain its bargaining leverage with the United States on issues such as NMD and TMD, or simply as a retaliatory response to what it considers as an affront to its own national security interests by others. One area where this linkage operates is with U.S. arms sales to Taiwan, where China sees continuing arms sales as a violation of the U.S. commitment in the August 1982 communiqué. In addition, when bilateral relations experience downturn, Beijing has been less cooperative in arms control and nonproliferation. Such instances would include the release of the Cox Report charging Chinese nuclear espionage, U.S. allegations of Chinese campaign contributions, the accidental bombing of the Chinese embassy in Belgrade, and the controversial Wen-ho Lee case.

Issue Linkage.—Finally, Beijing increasingly links further progress on proliferation issues to U.S. actions on its security concerns. This is clearly reflected in China's missile transfer activities. Beijing seeks to obtain tangible gains (e.g., satellite launches) in its negotiations with Washington and occasionally offers limited concessions. However, China never ignores the larger picture and has increasingly conditioned (although implicitly) its interpretation and implementation of missile nonproliferation commitment on U.S. policy in areas of direct concern to itself, namely, arms sales to Taiwan and developments in missile defenses.

BETWEEN CARROT AND STICK: THE U.S. ROLE

U.S.-Chinese disputes over nonproliferation issues remain a serious problem in bilateral relations. Over the years, successive U.S. administrations have sought to influence Chinese policy through a combination of inducements and sanctions. These range from suspension of technology transfers and imposition of economic sanctions against selected Chinese companies implicated in violation of U.S. laws, to incentives in the forms of technology transfers to and commercial space launch contracts with China.¹⁵ Table 3 summarizes U.S. sanctions against China over the years.

Despite U.S. pressure, Beijing reportedly has continued to transfer missile components and provide assistance to countries like Pakistan and Iran. Whether or not U.S. sanctions have been effective in affecting Chinese behavior remains inconclusive at this point. What can be said is that a mixture of U.S. sanctions (imposed or threatened) and economic benefits (withheld or offered) have had some impact on Chinese policy and behavior.

Washington has also resorted to economic incentives as a strategy to induce change in Chinese policy. Given that an important motivation behind Chinese weapons transfers is the pursuit of commercial interests, economic incentives in the forms of technology transfers and trade benefits, and the lifting of existing sanctions can, and under the right conditions, have induced Beijing to change its proliferation policy.¹⁶ Both the Bush and Clinton administrations have either offered to allow China greater access to U.S. technology or waived sanctions in return for Beijing's pledges and demonstrated actions to halt selling items and technologies of proliferation concern. Since 1989, Presidents Bush and Clinton have granted 20 waivers for U.S. satellites to be sent into orbit by Chinese launch vehicles.¹⁷ This practice has been used to encourage positive Chinese nonproliferation behavior by providing tangible economic benefits. Indeed, the Clinton administration specifically offered the prospect of expanding the space launch program, including waiving the post-

¹⁴ See Cupitt and Murayama, *Export Controls in the People's Republic of China*. See also, Wen L. Hsu, "The Impact of Government Restructuring on Chinese Nuclear Arms Control and Nonproliferation Policymaking," *The Nonproliferation Review* 6:4 (Fall 1999), pp. 152–167.

¹⁵ See "U.S. nonproliferation sanctions against China." (Monterey, Calif.: East Asia Nonproliferation Program database, Center for Nonproliferation Studies, 2001); Duncan L. Clarke and Robert J. Johnston, "U.S. Dual-Use Exports to China, Chinese Behavior, and the Israel Factor: Effective Control?" *Asian Survey* 39:2 (March/April 1999), pp. 193–213; Victor Zaborovsky, "Economics vs. Nonproliferation: U.S. Launch Quota Policy Toward Russia, Ukraine, and China," *The Nonproliferation Review* 7:3 (Fall–Winter 2000), pp. 152–161.

¹⁶ William J. Long, "Trade and Technology Incentives and Bilateral Cupertino," *International Studies Quarterly* 40:1 (March 1996), pp. 77–106.

¹⁷ Warren Ferster, "Sanctions Legislation Frustrates Industry," *Space News*, 25–31 May 1998, p. 20.

Tiananmen sanctions on satellite launches on Chinese boosters to induce China to join the MTCR.¹⁸

TABLE 3.—U.S. NONPROLIFERATION SANCTIONS AGAINST CHINA, 1989–2001

Date	Sanctions	Description	Status
1 Sept 2001	Imposed against China Metallurgical Equipment Corporation and its sub-units and successors.	Imposed pursuant to the <i>Arms Export Control Act</i> and the <i>Export Administration Act of 1979</i> , as amended.	Duration of a minimum of two years.
18 June 2001	Imposed against Jiangsu Yongli Chemicals and Technology Import and Export Corporation.	Imposed pursuant to the Section 3 of the <i>Iran Nonproliferation Act of 2000</i> .	
21 May 1997	Imposed against five Chinese individuals, two Chinese companies, and one Hong Kong company for knowingly and materially contributing to Iran's chemical weapons program.	Imposed pursuant to the <i>Chemical and Biological Weapons Control and Warfare Elimination Act of 1991</i> .	Duration of a minimum of one year.
24 August 1993	Imposed against China's Ministry of Aerospace Industry that had engaged in missile technology proliferation activities, and Chinese government organizations involved in development or production of electronics, space systems, or equipment and military aircraft and Pakistan's Ministry of Defense.	Imposed pursuant to the <i>1990 Missile Technology Control Act</i> .	Waived 1 November 1994; Sanctions against Pakistani Ministry of Defense expired August 1995.
25 May 1991	Prohibition of the export of missile-related computer technology and satellites.	Imposed pursuant to the <i>1990 Missile Technology Control Act</i> . Restricting the export of missile technology, missile-related computers and satellites. No waivers on satellite export licenses.	Waived 23 March 1992; Sanctions against Pakistan's SUPARCO expired.

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

Another example of economic incentives at work was the 1998 certification by the Clinton administration that paved the way for implementing the 1985 Sino-U.S. agreement on peaceful use of nuclear energy.¹⁹ This allowed the U.S. nuclear industry to tap into China's potential billion-dollar nuclear market, as well as encourage more responsible Chinese nuclear export controls.²⁰ Over the years since the conclusion of the U.S.-China NCA, successive U.S. administrations had indicated that implementation of the agreement required China to make specific nonproliferation commitments. Persistent U.S. efforts gradually brought about noticeable change in Chinese nonproliferation policy. In May 1996, China made a formal pledge not to provide nuclear and dual-use assistance to unsafeguarded foreign facilities. In addition, China phased out its nuclear cooperation programs with Iran by suspending the sale of two 300-megawatt Qinshan-type nuclear power reactors, canceling the transfer of a uranium conversion facility, and turning down Iranian requests for other sensitive equipment and technology.²¹ In October 1997, China formally joined the Zangger Committee.

However, the strategy of economic incentives, in particular in the form of technology transfers, has its limitations and is not without controversies. For instance, the Clinton administration's effort to get China to join the MTCR in exchange for greater access to American commercial space technology has been declined by Bei-

¹⁸ Howard Diamond, "U.S. Renews Effort to Bring China into Missile Control Regime," *Arms Control Today* 28:2 (March 1998), p. 22.

¹⁹ "Text: President Certifies China under U.S.-China Nuclear Agreement," United States Information Agency, 16 January 1998; Howard Diamond, "Clinton Moves to Implement Sino-U.S. Nuclear Agreement," *Arms Control Today* 28:1 (January/February 1998), p. 30.

²⁰ Jennifer Weeks, "Sino-U.S. Nuclear Cooperation at a Crossroads," *Arms Control Today* 27:5 (June/July 1997), pp. 7–13.

²¹ R. Jeffrey Smith, "China's Pledge to End Iran Nuclear Aid Yields U.S. Help," *Washington Post*, 30 October 1997, p. 1.

jing.²² At the same time, U.S. technology transfers risk diversion to Chinese military end-use or, more worrying still, re-exports to third countries. There already have been a number of such cases where U.S. machine tools and computers supposedly designated for civilian end-use have found their way in factories manufacturing Chinese cruise missiles and new-generation fighter aircraft.²³ Another prominent case involves two U.S. satellite makers, Loral and Hughes, which allegedly provided sensitive information to China. In 1995–96, the two companies conducted investigations into the causes of the failed launches of the Apstar 2 and Intelsat 708 by Chinese Long March rockets but, without obtaining the necessary export control license, had disseminated the results of the findings to China. The sensitive information transmitted could potentially help China improve its ballistic missile guidance systems.²⁴

In sum, U.S. attempts to pressure China into accepting Western arms-transfer guidelines through the use of releasing/withholding advanced technologies have so far produced mixed results. Although one cannot deny that from time to time China has exercised restraint and has made good on its pledges, this is likely a reflection of Beijing's assessment of its national interests after weighing expected rewards (Western technologies) against forsaken commercial opportunities (missile/nuclear transfers). One important factor that may have influenced China's nonproliferation policy is its perception of how progress in this policy area could contribute to the overall bilateral relationship. This may have influenced China's decision to discontinue sales of anti-ship missiles (C-802, C-801) to Iran.²⁵ It may also provide the rationale for China to issue its key nuclear and dual-use export control regulations in 1997–98: to facilitate the development of a "strategic partnership" between China and the United States, as well as to secure the Clinton administration certification for implementation of the 1985 NCA. This linkage suggests that a serious deterioration in Sino-U.S. relations could cause China to increase its proliferation activities.

Securing China's Compliance: Difficulties and Challenges

The difficulty in securing China's full compliance with U.S. nonproliferation policy lies in differences in perceptions, interests, and policy goals. While the U.S. has introduced broad-ranging nonproliferation measures and targeted particular states in implementing its policy, China has only committed to the universally accepted *global* nonproliferation norms as embodied in the NPT and the CWC. It is therefore not difficult to understand why Beijing resisted U.S. pressures to suspend nuclear exports to Iran, since the latter complies with IAEA safeguard provisions, including full-scope safeguards.

There are also differences in interests. Washington seeks to stem proliferation of WMD and their delivery systems to the Middle East, the Persian Gulf, and South Asia out of its interests for the protection of U.S. troops deployed in these regions, secure supplies of oil, the security of Israel, and stability in Indo-Pak relations. Beijing, on the other hand, regards its nuclear and missile exports as an important source of foreign exchange as well as ways to gaining influence in these regions.²⁶ Indeed, China's refusal to adopt IAEA full-scope safeguards may be due to concerns that such measures would deprive it of potential markets for nuclear technology. With regard to its continued missile technology transfers and assistance to Pakistan, Beijing's motive may be more strategic than commercial. Islamabad has remained an important factor in Beijing's strategic calculation regarding South Asia and useful in its competition with India.²⁷

Finally, China is increasingly concerned with the ultimate goal of U.S. nonproliferation policy—what it views as Washington's drive for absolute security. This

²² Howard Diamond, "U.S. Renews Effort to Bring China into Missile Control Regime," *Arms Control Today* 28:2 (March 1998) p. 22; Jim Mann, "China Rejects Joining Missile-Control Group, U.S. Officials Say," *Los Angeles Times*, 17 April 1998. <<http://www.latimes.com/HOME/NEWS/NATIONS/t000036404.html>>.

²³ Nigel Holloway, "Cruise Control," *Far Eastern Economic Review*, 14 August 1997, pp. 14–16; Jonathan S. Landay, "Is China Diverting High Technology to U.S. Foes?" *The Christian Science Monitor*, 11 July 1997, pp. 1, 8.

²⁴ "Hughes and Loral: Too Eager to Help China?" *Business Week*, 13 September 1999; Juliet Eilperin, "GOP Leaders Demand Satellite Export Data," *Washington Post*, 12 May 1998, p. A5.

²⁵ Bill Gertz, "China to halt missile sales to Iran," *Washington Times*, 20 January 1998.

²⁶ See John Calabrese, "China and the Persian Gulf: Energy and Security," *The Middle East Journal* 52:3 (Summer 1998), pp. 351–366.

²⁷ Mushahid Hussain, "Pakistan–China defense co-operation: an enduring relationship," *International Defense Review* 2/1993, pp. 108–111; Cameron Binkley, "Pakistan's Ballistic Missile Development: The Sword of Islam?" in William C. Potter and Harlan W. Jencks, eds., *The International Missile Bazaar: The New Suppliers' Network* (Boulder, Colo.: Westview Press, 1984), pp. 75–97.

has become more apparent with the developments since early 1999—the bombing of Chinese embassy in Belgrade, the release of the Cox Report, and U.S. decisions to develop and deploy both national and theater missile defense systems. Beijing is especially concerned with the last development, which it considers as the most potent threat to its national security interests.²⁸ China's predictable response will be to build up its missile forces and develop counter measures; Beijing is also likely to hold any progress in global arms control hostage to U.S. missile defense decisions. China is already pushing for setting up an ad hoc committee at the Conference on Disarmament to negotiate an outer space non-weaponization treaty and has held up work on a fissile material cut-off treaty.²⁹

Indeed, missile defenses and U.S. arms sales to Taiwan have emerged as the key issues likely to divide Beijing and Washington over the priorities of the arms control and nonproliferation agenda. Unless serious efforts are made to address some of China's core security concerns, Beijing can be expected to be less concerned about issues of greater significance to the U.S., such as weapons proliferation, when it perceives that its own interests are either being ignored or even harmed by U.S. actions. One way to register unhappiness and to avenge its grievance is to make military transfers to regions/countries of U.S. concern, or to be less responsive to U.S. calls to tighten up China's own export control and international nonproliferation commitments.

Given that Sino-U.S. disputes over proliferation issues reflect differences in threat perceptions and derive from lack of mutual understanding of each other's positions and security concerns, extended high-level talks are particularly important and can result in substantive progress in the area of nonproliferation.³⁰ Indeed, constructive dialogue and better understanding between China and the United States on various weapons transfer-related issues may increase the chance of their eventual solution. Clearly, efforts must be made to encourage Beijing to comply with, in spirit as well as in letter, the norms and practices of nonproliferation. In this regard, the U.S. can and should play an important role given its concern over the proliferation of WMD and its leadership role in various multilateral nonproliferation export-control regimes. However, the U.S. failure to ratify the CTBT and its aggressive push for ABM modification has in China's eyes greatly weakened American credibility in global nonproliferation leadership.

CONCLUSION

China has made gradual progress in its nonproliferation policy over the last decade. This is reflected in its acceptance of the core elements of the international nonproliferation norms, rules, and code of conduct. China has also pledged adherence to the MTCR's original guidelines governing missile transfers, and introduced elements of a domestic export control system. The factors that have contributed to these positive developments include China's concern over its international image, a growing awareness of the danger that WMD proliferation can pose to its own security, and its interest in maintaining a stable U.S.-China relationship. U.S. policy initiatives to engage, induce and punish have also had some impact on Chinese proliferation behavior. However, the pace and future direction of Chinese nonproliferation policy will be closely linked to Beijing's overall assessment of its security interests, threats, and policy priorities. Given recent developments in missile defenses and the growing salience of the Taiwan issue, continued Chinese support of global arms control and nonproliferation cannot be taken for granted. The Bush administration has both opportunities to seize and major obstacles to overcome in its efforts to enlist continued Chinese cooperation in arms control and nonproliferation. Several general observations can be made here.

Continue to Engage China.—Engagement should remain a key element of U.S. China policy, but the choice of appropriate policy tools remains a challenge. Continued high-level official dialogue on security, arms control and nonproliferation between the U.S. and China must be maintained and regularized. Such dialogues should not merely focus on U.S. concerns over specific Chinese proliferation activities but also on the potential threats that WMD proliferation can pose to China's own security.

²⁸ Paul H.B. Godwin and Evan S. Medeiros, "China, America, and Missile Defense: Conflicting National Interests," *Current History* (September 2000), pp. 285–289.

²⁹ See, for example, statement by Mr. Hu Xiaodi, Ambassador for Disarmament Affairs of China at the Plenary of the Conference on Disarmament, Geneva, 15 JUNE 2000. <<http://www.fmprc.gov.cn/eng/c464.html>>.

³⁰ Bates Gill and Matthew Stephenson, "Search for Common Ground: Breaking the Sino-U.S. Non-Proliferation Stalemate," *Arms Control Today* 26:7 (September 1996), pp. 15–20.

Balancing Competing Policy Objectives.—The Bush administration needs a clear sense of balance and priorities in managing U.S.-China relations, promoting global nonproliferation agendas, protecting America against ballistic missile threats, and honoring its commitment to supporting a peaceful settlement of the Taiwan issue.

Assisting China's Export Control System.—One of the consequences of China's economic reforms and opening up is the decreasing capability of the central government to oversee and control economic activities, some of which can cause proliferation concerns. While China has introduced some elements of a domestic export control system, a lot remains to be done and the U.S. can and should encourage and assist Chinese efforts in this direction by offering training and institutional development support.

Judicious Use of Sanctions.—Judicious and selective use of sanctions may continue to serve their purposes, especially when there are undeniable Chinese violations of its nonproliferation commitments and when such activities are clearly sanctioned by the government. On the other hand, a rush to impose sanctions without giving time for clarification, checking evidence, and negotiation can generate a lot of animosity but not necessarily produce the desired outcomes. Whenever possible, broad allied support should be sought; otherwise sanctions cannot be effective either as an instrumental (forcing policy change in Beijing) or a punitive (denying Beijing what it wants) tool. At the same time, sanctions (which impose high costs on certain U.S. industries) could become increasingly difficult to sustain, and incur growing opposition from American business communities.

Executive-Legislative Branch Coordination.—Finally, there must be greater coordination between the executive and legislative branches to achieve greater credibility in U.S. China policy. The implementation of the China policy must remain the purview of the executive branch, with congressional and bipartisan consultation and support. In other words, there should be only one China policy and consistency in its interpretation and implementation. Rather than seeking to introduce additional China specific legislation, Congress should work with the administration and focus on oversight issues so as to ensure that existing laws that are in line with global nonproliferation norms and principles are enforced.

APPENDIX I.—CHINA'S NUCLEAR TECHNOLOGY EXPORTS IN THE 1980S AND 1990S

Country	Type of Assistance
ALGERIA	Research Reactor 15 MWt pressurized heavy water research reactor; possible provisions of heavy water for the reactor; construction began around 1988; placed under IAEA safeguards in 1992 Designs for construction of third stage of Algeria's Center for Nuclear Energy Research
ARGENTINA	Low Enriched Uranium 20% enriched, sold in 1980s, no safeguards Heavy Water 50–60 metric tons (1981–1985); no safeguards Uranium Concentrate (U3O8) 1981–1985, no safeguards Uranium Hexafluoride Gas (UF6) Early 1980s, 30 metric tons; no safeguards
BRAZIL	Enriched Uranium 3%, 7%, 20% enriched; 200 kg total 1984, no safeguards
INDIA	Heavy Water 1982–1987; 130–150 metric tons No IAEA safeguards Low-Enriched Uranium 1995, for India's Tarapur reactors Supplied under IAEA safeguards

APPENDIX I.—CHINA'S NUCLEAR TECHNOLOGY EXPORTS IN THE 1980S AND 1990S—Continued

Country	Type of Assistance
IRAN	<p>Research Reactors</p> <p>27kW subcritical, neutron source reactor; provided in 1985; currently under IAEA safeguards</p> <p>Zero-power reactor; commercial contract signed in 1991; currently under IAEA safeguards</p> <p>HT-6B Tokamak nuclear fusion reactor, located at Azan University</p> <p>20 MWT reactor; contract signed in 1992 but the deal was canceled due to U.S. pressure</p> <p>Power Reactors: two 300 MWe reactors</p> <p>Deal suspended in 1995 and canceled in 1997</p> <p>CIA verified project cancellation</p> <p>Calutrons (electromagnetic isotope separators, EMIS)</p> <p>For Karaj and Isfahan facilities; commercial contract signed in 1989; under safeguards</p> <p>Uranium Hexafluoride (UF₆) Production Facility</p> <p>Project canceled in October 1997</p> <p>CIA verified cancellation of deal</p> <p>China possible provided blueprints for facility</p> <p>Zirconium Tube Production Facility</p> <p>Assistance continuing</p> <p>Uranium Mining Assistance</p>
IRAQ	<p>Ring Magnets</p> <p>Exports of samarium-cobalt magnets for gas centrifuges, 1989–1990</p>
PAKISTAN	<p>NUCLEAR WEAPON-RELATED ASSISTANCE</p> <p>Nuclear Weapon Design</p> <p>Basic, Hiroshima sized weapon</p> <p>Nuclear Weapon Testing</p> <p>Possible inclusion of Pakistani observers at China's Lop Nur test facility (1989)</p> <p>Possible Provision of Tritium Gas</p> <p>1986, no safeguards</p> <p>Uranium Enrichment</p> <p>Assistance to unsafeguarded Kahuta enrichment facility</p> <p>This assistance was a two-way street</p> <p>Weapons-Grade Uranium for Two Devices</p> <p>Early 1980s, supplied without safeguards</p> <p>DUAL-USE NUCLEAR ASSISTANCE</p> <p>Power Reactor: Chashma-1, 300 MWe</p> <p>Construction is continuing</p> <p>Under IAEA safeguards (INFCIRC/418)</p> <p>Reprocessing Facility at Chashma</p> <p>Possible construction assistance to unsafeguarded facility</p> <p>Research Reactors</p> <p>Miniature Neutron Source Reactor (MNSR); supplied under IAEA safeguards (INFCIRC/393) in 1991</p> <p>Construction assistance with Parr-2 reactor, unsafeguarded</p> <p>Ring Magnets</p> <p>About 5,000 to unsafeguarded A.Q. Khan Research Laboratory in Kahuta (1995)</p> <p>Plutonium Production Reactor at Khushab</p> <p>50–70 MW heavy water reactor (unsafeguarded)</p> <p>Construction assistance</p> <p>Provided special industrial furnace and high-tech diagnostic equipment (1994–1995)</p> <p>Heavy Water (D₂O)</p> <p>Up to 5 MT/year for safeguarded PHWR [Kanupp] research reactor</p> <p>Possibly diverted by Pakistan to the Khushab research reactor against Chinese wishes</p> <p>Fuel Fabrication Services</p>

APPENDIX II.—CHINA'S MISSILE TECHNOLOGY EXPORTS IN THE 1980S AND 1990S

Country	Type of Assistance
IRAN	<p>Ballistic Missiles</p> <p>8610/CSS-8</p> <p>M-9/DF-15 (China cancelled the sale under U.S. pressure)</p> <p>Cruise Missiles</p> <p>HY-1</p> <p>100 HY-2 (Silkworm)</p> <p>HY-4/C-201</p> <p>C-601</p> <p>YJ-1/C-801 (sales halted in October 1997)</p> <p>YJ-2/C-802 (sales halted in October 1997)</p> <p>Assistance to Iran's Indigenous Missile Programs</p> <p>Extensive production assistance for the 8610/CSS-8 missile</p> <p>Extensive production infrastructure for HY-2, C-801 and C-802 missiles (production assistance halted in 1997)</p> <p>Possible assistance to the Shahab-3 ballistic missile</p> <p>FL-10 air-launched cruise missile</p> <p>Missile Fuel</p> <p>Various propellant ingredients</p> <p>Ammonium perchlorate</p> <p>Missile Guidance and Control Technology</p> <p>Guidance kits (mid-1990s)</p> <p>Gyroscopes (mid-1990s)</p> <p>Accelerometers (mid-1990s)</p> <p>Test equipment for ballistic missiles (mid-1990s)</p>
IRAQ	<p>Cruise Missiles (1980s)</p> <p>HY-2 (Silkworm)</p> <p>C-601</p> <p>YJ-1/C-801</p> <p>Missile Engine Testing Facility/Project 3209</p> <p>Supply of standard parts for liquid propellant engine, late 1980s</p> <p>Missile Fuel</p> <p>10 tons of UDMH, late 1980s</p> <p>7 tons of lithium hydride, 1989-1990; exported by the China Wanbao Engineering Company (CWEC)</p> <p>Ammonium perchlorate, 1994</p>
LIBYA	<p>Missile Fuel</p> <p>Lithium hydride</p>
PAKISTAN	<p>Ballistic Missiles and Launchers</p> <p>34 M-11/DF-11 missiles; stored at Pakistan's Sargodha Air Force Base near Lahore; delivered in November 1992</p> <p>M-11 transporter-erector-launchers (TELS)</p> <p>Possible Assistance to Indigenous Missile Programs</p> <p>Hatf-1, Hatf-2 and Hatf-3 ballistic missiles</p> <p>Missile Fuel</p> <p>Ammonium perchlorate, 10 tons seized in Hong Kong in 1996; Pakistan's SUPARCO was caught attempting to import the ammonium perchlorate from a company in Xian, China</p> <p>Missile Guidance</p> <p>Gyroscopes</p> <p>Accelerometers</p> <p>On-board computers</p> <p>Assistance to Missile Production Factory</p> <p>Rawalpindi, 40 km west of Islamabad</p> <p>Likely producing Pakistani version of M-11 missile</p> <p>Blueprints and construction equipment, possibly ongoing</p>
SAUDI ARABIA	<p>Ballistic Missiles</p> <p>30+ DF-3 (CSS-2) missiles; deliveries began in 1988; and included construction of launch complex, training, and post sale systems maintenance</p> <p>In 1997, Saudi Arabia requested from China possible replacements for the aging DF-3 missiles; China did not provide any replacements</p>

APPENDIX II.—CHINA'S MISSILE TECHNOLOGY EXPORTS IN THE 1980S AND 1990S—Continued

Country	Type of Assistance
SYRIA	Ballistic Missiles DF-15/M-9 missiles, Syria provided advance payments Cancelled under U.S. pressure in 1991; Syria possibly received test missile Assistance with Indigenous Programs 30 tons of ammonium perchlorate in 1992 Technical exchanges

Chairman D'AMATO. Thank you, Dr. Yuan.

I think we'll move right on to Dr. Milhollin and then we'll open it up to questions after that.

STATEMENT OF GARY MILHOLLIN, PROFESSOR EMERITUS, UNIVERSITY OF WISCONSIN LAW SCHOOL, AND DIRECTOR, WISCONSIN PROJECT ON NUCLEAR ARMS CONTROL

Dr. MILHOLLIN. Thank you very much. I'll just summarize my testimony. I assume it's going to be incorporated in the record in whole.

Chairman D'AMATO. Yes, it is.

Dr. MILHOLLIN. I'm very pleased to appear before the Commission and I was pleased to hear that it had been created. I think it's fair to say that China's exports continue to be one of the most serious proliferation threats in the world. I've been following the question of who's supplying whom for about 15 years.

I think that the Chinese in the '90s have sort of taken over the lead from the Germans, who were the leaders in the 1980s. The Chinese have supplied nuclear weapon, chemical weapon, and missile technology to South Asia, the Middle East, and South Africa, and we have been protesting this for—the United States has been protesting this for many years and the conduct has continued. This is common knowledge.

My organization has prepared some charts which list China's exports. They are, I think, a part of your—I was told they're part of your briefing book. I haven't seen your briefing book, but I assume they're part of it. This is a fairly clear picture, I think, a fairly comprehensive picture of what China's been up to, always, I might emphasize, in the teeth of U.S. protests.

And this activity is still going on. Last month, the CIA submitted one of its periodic reports to Congress and it noted that Chinese firms had supplied missile-related items, raw materials, and assistance to Pakistan, Iran, North Korea, and Libya during the last half of the year 2000. And just last month, a Chinese firm was sanctioned for missile technology proliferation.

Co-Chairman BRYEN. To where? Where was it sending it?

Dr. MILHOLLIN. Pakistan. In addition to missiles, China has continued to proliferate chemical weapon technology. In my testimony, I point out that in 1995, my organization revealed in the *New York Times* that the United States had caught China supplying poison gas ingredients to Iran and that the sales had been going on for at least three years. Since that time, the conduct has pretty much continued.

And recently in June 2001, another Chinese firm was sanctioned for the same kind of behavior. So we see a fairly consistent pattern of proliferation.

In the nuclear area, I think if you imagine Pakistan's nuclear program without Chinese assistance, you don't have a program. China gave Pakistan its nuclear weapons design. China helped Pakistan produce the fuel necessary to fuel that design. Recently, China helped Pakistan build the Chashma reactor and the Khushab reactor. The Khushab reactor is not safeguarded. It's making plutonium for atomic bombs. It's a production reactor. It's also making tritium, I assume, to boost China's current generation of nuclear weapons.

So we see—it may be that the sore is hurting a little bit less than it did before, but it's certainly still not a pleasant thing to regard China's export behavior.

The Commission has asked me to comment on China's national export controls. I will just say that China has made promises, but China's been making promises since the early 1980s and the problem is not the promises but whether the promises are performed, and we have seen one thing that's been very consistent and that is that the performance does not match the promises.

It could be that in your briefing materials there's also a list of promises. We have produced a list of promises. I don't know whether you have them or not. The promises have pretty much kept right up with the behavior. In fact, the promises have almost become boilerplate. The Chinese pretty much repeat the same promises every time we go complain about a new export.

Co-Chairman BRYEN. This is your list, this one?

Dr. MILHOLLIN. Is it attributed to us?

Co-Chairman BRYEN. I don't see whose it is.

Dr. MILHOLLIN. I haven't seen the list.

Dr. YUAN. Appended is mine.

Co-Chairman BRYEN. This is yours?

Dr. YUAN. Yeah, it's mine.

Co-Chairman BRYEN. It would be helpful if we could get this list for our hearing with dates—with dates.

Dr. MILHOLLIN. Do you have my list?

Co-Chairman BRYEN. It's number eight. And yours has some dates, yes.

Dr. MILHOLLIN. Yes, ours has dates. I don't recall whether we—yes, that's it. Yes. It should have "Risk Report" at the top.

Co-Chairman BRYEN. Yeah.

Dr. YUAN. I have provided for the record more detail on those dates.

Co-Chairman BRYEN. On those dates that you gave?

Dr. YUAN. On those dates.

Co-Chairman BRYEN. Good.

Dr. MILHOLLIN. I must say, we produced these lists some time ago.

Co-Chairman BRYEN. Yes, because yours only goes up to '97, this one. That's yours?

Dr. MILHOLLIN. Yes.

Co-Chairman BRYEN. Yes.

Dr. MILHOLLIN. Yes.

Co-Chairman BRYEN. So does it mean there's no more after '97?

Dr. MILHOLLIN. No, it just means it's an old list, I'm afraid.

Co-Chairman BRYEN. I'd like to ask both of the witnesses if they would provide us with a list with dates.

Dr. YUAN. Sure.

Chairman D'AMATO. Iran goes to '98. Pakistan is '97.

Co-Chairman BRYEN. Yes. I mean, it's just kind of uneven, and so—but it's not clear that—what I'm trying to figure out is the witnesses this morning and then again this afternoon have said that, in some cases, China stopped. In other cases, China didn't stop. And it would just be really helpful if we could identify what has actually happened.

Dr. MILHOLLIN. Okay.

Commissioner ROBINSON. And you have a list of specific companies underpinning these, as well?

Dr. MILHOLLIN. In some cases—yes, in most cases, we know which companies were involved. In some cases, it's not clear which companies. But in most cases, yes, we know which companies.

Commissioner ROBINSON. That would likewise be terrifically useful, Mr. Chairman and Co-Chairman.

Chairman D'AMATO. Yes, I agree. We would love to get from you whatever you know about the origin of the Chinese companies involved.

Dr. MILHOLLIN. Well, many of them are public record because they've been sanctioned.

Chairman D'AMATO. Yes.

Dr. MILHOLLIN. More than once.

The Commission also asked me to comment on China's global and regional strategy. I think we can see that China's policy with respect to Pakistan has been to keep Pakistan pretty much even with India. When India makes progress in missilery, we see the Chinese stepping in, helping Pakistan keep up. And the same is generally true in the nuclear area. I think it's a firm policy of the Chinese to not let Pakistan fall behind the Indians.

And so today, I think if you look at the Indian and Pakistani arsenals, they are roughly equivalent. India has more material, but Pakistan's design is better, smaller, lighter, and can be delivered.

You also asked me to comment on China's motivation. I would say that it's a dual motivation. It's both political and economic. Exports do earn money. The money goes to people who have political power. But the exports also produce diplomatic influence, and I think in the case of Iran and Pakistan, China sees itself as having a special relationship with those countries, which is nourished by this special export arrangement.

And so I think as long as China has that point of view, its policy will continue to be the same. For China to change its point of view, I believe the United States would have to convince China that the burdens of having this policy outweigh the benefits. That means that we would have to impose some costs on China for having this policy, and so far, I don't think we've been willing to do that, and so that's why the policy has not changed, and I don't think it will change until we change our policy.

Also, the Commission asked me to comment on whether U.S. export controls are strong enough. It won't surprise you to discover that I think the answer is no. I've listed some cases here in which, in my view, U.S. exports have actually helped China proliferate.

One of them is—the first one is a recent case, Huawei Technologies. Huawei Technologies is the Chinese company that was caught outfitting Iraq's air defense system in violation of the U.N. embargo. It turns out that the United States has—

Co-Chairman BRYEN. The same one in Kabul now?

Dr. MILHOLLIN. There is a report to that effect, yes. There is a report to that effect.

It turns out that U.S. exports have been very important in building up Huawei's capabilities. I would say that they've been crucial in building it up.

Commissioner MULLOY. Huawei, which is the—

Dr. MILHOLLIN. Huawei is the Chinese company helping Iraq improve its air defenses with fiber optic technology.

During the Clinton administration, the Commerce Department approved for Huawei high-performance computers worth \$685,000 from Digital Equipment, \$300,000 from IBM, \$71,000 from Hewlett Packard, and \$38,000 from Sun Microsystems. In addition, Huawei got \$500,000 worth of telecommunication equipment from Qualcomm. Now, this is a company that was a \$1,000 start-up in 1988. I'll say that again, a \$1,000 start-up in 1988.

Chairman D'AMATO. Is that when you bought stock?

Dr. MILHOLLIN. That's when I bought—no. No.

[Laughter.]

Its sales are projected to reach \$5 billion in 2001.

Co-Chairman BRYEN. Mostly inside China.

Dr. MILHOLLIN. If you look at who helped Huawei get where it is, it's a roster of American blue chip companies. They're all in my testimony—Lucent, AT&T, IBM, Texas Instruments, a tremendous amount of technology transfer through joint ventures.

This was all made easier by the fact that the Clinton administration decontrolled fiber optic switching and telecommunication technology. The GAO found that in the first two years after the decontrol, China bought large amounts of telecommunication equipment suitable for military command and control, so it's pretty obvious what's going on.

Also, there are other cases which are listed in my testimony, one of which is a case where the Commerce Department approved a series of exports to a Chinese company that makes radar, and soon after the exports were made—all these exports were useful for making radar—the same Chinese company sold a big air defense radar to Iran. So you can track U.S. exports into China and out to places like Iran and Iraq.

Co-Chairman BRYEN. What type of radar was it?

Dr. MILHOLLIN. It was a big air defense radar.

Co-Chairman BRYEN. For missile defense?

Dr. MILHOLLIN. Surveillance radar for, I think, primarily anti-aircraft, with a 300-kilometer detection range. It's now integrated into the air defense system.

The Commission also asked me what the United States can do. There is one simple step the U.S. Government can take. There is a list right now of dangerous buyers in the *Federal Register*. It's put out by the Commerce Department. It lists 19 Chinese companies.

Attached to my testimony, I've included the names of 50 more Chinese companies that are dangerous buyers. These are companies linked to nuclear weapon or missile activities or advanced conventional weapon capabilities. It would be good if we didn't sell these companies much at all, and it would be good if we reviewed very carefully any export that we make to those companies.

Commissioner LEWIS. How many companies are listed on that register, hundreds?

Dr. MILHOLLIN. Now?

Commissioner LEWIS. Yes.

Dr. MILHOLLIN. There are a number of companies listed. Most of them are Indian and Pakistani companies that were put on after the Indian and Pakistani nuclear weapons tests.

Commissioner LEWIS. Are there hundreds listed there?

Dr. MILHOLLIN. Probably so, but almost all of them are Indian-Pakistani.

Commissioner LEWIS. Except for the 19.

Dr. MILHOLLIN. But there are only 19 for the Chinese companies. There are very few companies other than Indian and Pakistani.

Commissioner LEWIS. Right.

Dr. MILHOLLIN. And I think that once sanctions relief for those two countries goes into effect, that list is going to be pared down.

So my point is that we all know there are more than 19 Chinese companies that are dangerous and that U.S. exporters ought to be worried about.

Commissioner LEWIS. Where have you listed yours?

Dr. MILHOLLIN. At the end of my testimony. There are 50 companies listed.

Commissioner ROBINSON. And the Commerce Department's, they're not in your testimony but they're located in the *Federal Registry*?

Dr. MILHOLLIN. Yes. You can just look them up in the *Federal Register*. The ones that the Commerce Department lists, the 19 are listed in the *Federal Register*. I'm suggesting 50 more, which are attached to my testimony.

Commissioner ROBINSON. That's a start?

Dr. MILHOLLIN. I'm suggesting those as a start. If you want me to give you 100, I could give you 100, but they would be less—these are the 50, well, that we should be most worried about.

Commissioner WALDRON. Could you give us a list—

Dr. MILHOLLIN. There are 50 more that we probably also ought to be worried about. We have a database that has about 600 in it.

Commissioner WALDRON. Could you give us that list and then give some indication of what you think are the highest priority, medium priority, and so forth? That'd be very helpful to us.

Dr. MILHOLLIN. We could supply the list, but normally, it's only available to subscribers because we have to pay the rent.

Commissioner WALDRON. Well, Mr. Chairman, could I move—I don't know how expensive it is—could I move that we procure this for the use of this Commission?

Commissioner ROBINSON. Seriously—

Commissioner WALDRON. Seriously. I'm absolutely serious.

Chairman D'AMATO. What was that? I'm sorry.

Commissioner WALDRON. I would move that he has a list of 600 Chinese companies which his project considers to be dangerous buyers to various degrees, but because they have to pay the rent, they charge money for it. I would move that we procure a copy of this list for the use of this Commission. It seems to me that's a very important piece of information.

Chairman D'AMATO. Sure. Can you get us a copy, Doctor?

Dr. MILHOLLIN. I can, and I must say, I didn't plan this. It just came up.

Chairman D'AMATO. Okay. Thank you.

Commissioner WALDRON. It sells itself.

Dr. MILHOLLIN. Fine. No, we'd be pleased to do that.

Co-Chairman BRYEN. These are all companies that are involved in military-related—

Dr. MILHOLLIN. Yes. These are all companies that are involved in military-related activities. Some of them are high-tech military. Some of them are missile-related. Some of them are nuclear-related.

Co-Chairman BRYEN. Because I think that one of the requirements of an export license is to know what the end use is and to be able to—the exporter—Bill Reinsch is more of an expert on this than I am, but the exporter has to affirm that the export will not be used in any military or military-related application. I can't confirm that—if the company's known to be involved in military transactions, then the exporter getting a valid license from the U.S. Government can't affirm that. They can't get a license.

What I'm thinking is that one way to get at this problem with these companies is to make it—if these are without a doubt companies that are involved in military programs and military exports, including for weapons of mass destruction but not limited to that, then, in fact, they're not qualified to receive a civilian export license from the United States. That would be something we should pursue, because it seems to me that the U.S. exporter could not export to those entities.

Dr. MILHOLLIN. Well, what I'm suggesting is at least that before exporting to these entities, there ought to be a review process, and I think, as I understand what you're saying, you're suggesting that perhaps there ought to be a presumption of denial. That's also possible.

Co-Chairman BRYEN. Well, I think under the existing regulations, there is a presumption of denial if, in fact, the company is engaged in military—there are a presumed military end use involved. So typically, the way these things are handled is that when you fill out an export license, you affirm that there's no military end use, but you can't do that if you know that the company is engaged in military work.

So, I mean, I think it would be useful to find some process to take your list, I mean, a real list and the evidence and to say—and to ask the question, and the Commission can ask the question, the Congress can ask the question, if these companies are engaged in this, then American companies ought to be forewarned that they can't do business with them on that.

Chairman D'AMATO. Why don't we let Dr. Milhollin finish his testimony and then we'll go into questions.

Dr. MILHOLLIN. That concludes the summary of my testimony.
[The statement follows:]

PREPARED STATEMENT OF GARY MILHOLLIN

I am pleased to appear today before the U.S.-China Security Review Commission. The Commission has asked me to comment on China's proliferation record and to recommend possible responses by the United States.

Today, China's exports are one of the most serious proliferation threats in the world. Since 1980, China has supplied billions of dollars' worth of nuclear weapon, chemical weapon and missile technology to South Asia and the Middle East. It has done so in the face of U.S. protests, and despite repeated promises to stop. The exports are still going on, and while they do, they make it impossible for the United States and its allies to halt the spread of weapons of mass destruction. For a comprehensive look at China's export activities, I invite the members of the Commission to examine the charts prepared by the Wisconsin Project entitled "China's Dangerous Exports" that are available in your briefing packets.

Missile Proliferation

According to a report that the CIA submitted to Congress last month, Chinese firms provided missile-related items, raw materials, and/or assistance to Pakistan, Iran, North Korea, and Libya during the last half of the year 2000. And just last month, the China Metallurgical Equipment Corporation (CMEC) (MECC) was sanctioned by the United States for transferring missile parts and technology to Pakistan's National Development Complex (NDC), which makes the Shaheen-series of solid propellant missiles.

There have also been disturbing reports lately in the press saying that China, in cooperation with North Korea, has contracted to supply titanium-stabilized steel used in making missiles to Pakistan, that China is training Iranian engineers (in China) on inertial guidance techniques, and that China has sold Iran specialty metals and chemicals used in missile production.

Chemical Weapon Proliferation

In 1995 my organization discovered, and wrote in the *New York Times*, that the United States had caught China exporting poison gas ingredients to Iran, and that the sales had been going on for at least three years. In 1996, the press reported that China was sending entire factories for making poison gas to Iran, including special glass-lined vessels for mixing precursor chemicals. The reported shipments also included 400 tons of chemicals useful for making nerve agents.

This activity appears to have continued. In May 1997, the U.S. government sanctioned the Jiangsu Yongli Chemical Engineering and Technology Import Export Corporation for contributing to Iran's chemical weapon program. The same Chinese firm was sanctioned again in June 2001 for helping Iran build a plant to manufacture equipment useful for making chemical weapons.

Nuclear Weapon Proliferation

China has also been one of the leading proliferators of nuclear weapon technology. In the early 1980s, China gave Pakistan a tested nuclear weapon design and at least some enriched uranium to fuel it. This has to be one of the most egregious acts of nuclear proliferation in history. Then, China helped Pakistan produce high-enriched uranium with gas centrifuges. More recently, it has helped Pakistan build the Chashma 300 megawatt power reactor and the clandestine Khushab reactor which is now producing plutonium for nuclear weapons.

In February 2001, the press reported that China's Seventh Research and Design Institute, which is overseen by the China National Nuclear Corporation, supplied 50 ceramic capacitors to Pakistan's New Labs plutonium reprocessing plant. The Institute was reportedly paid through a bank account maintained by an official at the Pakistani embassy in Beijing. The Chinese-supplied Khushab reactor can generate enough plutonium for at least one nuclear weapon per year, and probably more.

It was also reported in April 2000 that China had revived long-dormant negotiations with Iran on the construction of a nuclear graphite production facility. It is important to remember that in October 1997, China assured the United States that China would not supply Iran a uranium conversion facility and would undertake no new cooperation with Iran after completion of two existing projects—a zero-power reactor and a zirconium production plant.

Chinese National Export Control

The Commission has asked me to comment on China's export control laws. According to the web site of China's State Council, China now pursues a

“policy of not endorsing, encouraging or engaging in nuclear weapons proliferation and not assisting other countries in developing nuclear weapons. At the same time, China stresses that the prevention of nuclear weapons proliferation should not impede the international cooperation in peaceful uses of nuclear energy.”

In October 1997, China joined the NPT Exporters Committee, also known as the Zangger Committee. China’s representative to the Committee has stated that China’s policy of not assisting unsafeguarded nuclear facilities extends to activities related to nuclear explosive devices, and that China strictly prohibits any exchange of nuclear weapons related technology and information with other countries. China has also pointed out that its export controls include a “catch-all” authority whereby exports which pose a proliferation risk, whether or not they are on a control list, will be denied export licenses.

Notwithstanding this apparent progress, China’s export control system does not yet meet international standards, according to the U.S. State Department. Chinese entities continue to provide, for example, equipment, technology and materials to missile programs in Iran and Pakistan. China has also helped Pakistan build a plutonium-producing reactor at Khushab. It is still uncertain whether China will implement its export control laws or live up to its international obligations in the future.

China’s Global and Regional Strategy

China’s conduct in export control has not matched its statements about it. China’s policy with respect to Pakistan has been to keep Pakistan even with India in nuclear weaponry, including long-range missiles. Each time India has taken a step forward, China has acted to help Pakistan keep pace. I expect this pattern to continue, regardless of what China says its policies are. China sees Pakistan as an important ally and a bridge to the outside world. This point of view has resulted in a special relationship that China sees as very much in its interest. To a lesser extent, China has maintained a special relationship to Iran, for essentially the same reasons.

China’s motivation is both political and economic. Exports earn money. They also produce diplomatic influence. As long as China can gain these advantages, and do so at an acceptable cost, it is reasonable to expect that China’s exports will continue. For them to stop, the costs would have to start outweighing the benefits.

Are Current U.S. Export Controls Strong Enough?

The Commission has asked whether U.S. export controls on transfers to China are sufficient to prevent subsequent transfers by China that lead to proliferation. The answer to this question is “no.” The Commerce Department has favored, and continues to favor, exports to China that are likely to undermine U.S. national security. Three cases illustrate the point.

(a) Huawei Technologies

Huawei Technologies is the Chinese company that was recently caught helping Iraq improve its air defenses by outfitting them with fibre optic equipment. The assistance was not approved by the United Nations, and thus violated the international embargo against Iraq.

The history of Huawei shows how American exports to China can wind up threatening our own armed forces. At about the time when this company’s help to Iraq was revealed earlier this year, Motorola had an export license application pending for permission to teach Huawei how to build high-speed switching and routing equipment—ideal for an air defense network. The equipment allows communications to be shuttled quickly across multiple transmission lines, increasing efficiency and immunizing the network from air attack.

Motorola is only the most recent example of American assistance. Other American firms have sold Huawei supercomputers and other equipment. During the Clinton Administration, the Commerce Department allowed Huawei to buy high-performance computers worth \$685,700 from Digital Equipment Corporation, \$300,000 from IBM, \$71,000 from Hewlett Packard and \$38,200 from Sun Microsystems. In addition, Huawei got \$500,000 worth of telecommunication equipment from Qualcomm.

Still other American firms have transferred technology to Huawei through joint operations. Last year, Lucent Technologies agreed to set up a new joint research laboratory with Huawei “as a window for technical exchange” in microelectronics. AT&T signed a series of contracts to “optimize” Huawei’s products so that, according to a Huawei vice president, Huawei can “become a serious global player.” And IBM agreed to sell Huawei switches, chips and processing technology. According to a Huawei spokesman, “collaborating with IBM will enable Huawei to . . . quickly deliver high-end telecommunications to our customers across the world.” One wonders whether IBM knew that one of these customers might be Saddam Hussein.

As a result of deals like these, Huawei's sales rocketed to \$1.5 billion in 1999, to \$2.65 billion in 2000, and are projected to reach \$5 billion in 2001. These are extraordinary heights for a company that began in 1988 as a \$1,000 start-up. Real growth did not begin until the mid-1990s, when American help started rolling in. Texas Instruments started its assistance in 1994, and by 1997 had set up laboratories to help Huawei train engineers and develop digital signal processing technologies. Also in 1997, Motorola and Huawei set up a joint laboratory to develop communication systems.

This sudden flood of help was unleashed by the Clinton Administration, which decided in 1994 to remove the need for prior government approval of the export of fiber optic, switching, and telecommunication transmission equipment. The first President Bush had resisted pressure from AT&T, Lucent and US West to decontrol fiber optics, but Clinton freed up the technology over the objection of the National Security Agency, which argued that the widespread use of fiber optics would cripple its eavesdropping ability. A study by the U.S. General Accounting Office found that in the first two years after the decontrol, China bought large amounts of telecommunication equipment suitable for military command and control and intelligence gathering, as well as for civilian uses. It is highly likely that Huawei was one of the buyers.

(b) *China Precision Machinery Import-Export Corporation (CPMIEC)*

Sanctioned by the United States in August 1993 for missile proliferation, the China Precision Machinery Import-Export Corporation (CPMIEC) has supplied C-801 and C-802 anti-ship cruise missiles to Iran, and, according to United States intelligence, shipped M-11 missiles to Pakistan in 1992. CPMIEC markets and sells the M-family of medium-range surface-to-surface missiles, a variety of shipborne, anti-ship, and tactical missiles, as well as liquid and solid rocket motors, precision machinery, optical equipment, and radars.

The U.S. Commerce Department approved six licenses for export of equipment to CPMIEC from 1989 to 1993. Most notably, the export of a computer workstation for the simulation of wind effects was licensed. The ability to simulate wind effects is something the designer of an anti-ship missile could find useful. The missiles now pose a threat to U.S. ships and sailors in the Persian Gulf as well as to commercial shipping.

(c) *China National Electronics Import-Export Corporation (CEIEC)*

CEIEC markets electronic and cryptographic systems, radars, mine detection equipment, fiber and laser optics, and communications technology. In the mid-1990s, Iran imported a powerful surveillance radar from CEIEC—it can detect targets up to 300 kilometers away—and integrated it into its air defense system. This radar may have been built using U.S. equipment. Microwave research equipment, a very large scale integrated system for testing integrated circuits, equipment for making semiconductors, and computer equipment were all licensed for export to CEIEC by the Commerce Department from 1989 to 1993.

What Can The United States Do?

The United States can do a much better job of controlling sensitive exports to the Chinese firms that are developing weapons of mass destruction. The United States now publishes a list of dangerous buyers in the *Federal Register*. It is essentially a warning list. Before selling any listed company a product that could contribute to the spread of weapons of mass destruction, an exporter is required to obtain an export license. This allows our government to turn down dangerous sales without impeding innocent ones, and enables American industry to keep its competitive edge without arming the world. There will always be the buyer who smuggles, or uses a front company, but without an export license that buyer will find it harder to get the parts and service needed to keep a high-tech enterprise going.

The United States did publish a list of 150 dangerous buyers in India and Pakistan after the two countries tested nuclear weapons in 1998. But so far, our government has not published a comprehensive, worldwide list of such buyers. The U.S. warning list for China, for example, contains only nineteen names. Our government has claimed that a more extensive list would reveal intelligence sources and set off diplomatic conflicts. But it is well-known that scores, if not hundreds of firms in China are active in nuclear, missile and military production. Their names are not secret. It is silly to pretend we don't know they exist. The computer industry, in fact, would welcome a list of dangerous buyers. Industry would prefer to spend its scarce marketing dollars on buyers that don't present problems.

As a first step in building such a list, I have attached to my testimony the names of 50 firms that are well-known parts of China's nuclear, missile and military complex. They have been selected on the basis of reliable, unclassified information. I

recommend that the Commission submit these names to the Department of State, and ask for an opinion on whether the names should be included on the published U.S. export warning list. If the State Department judges that these firms should be included, then the Commission should ask the Commerce Department to add the names to the "entity" list in Part 744 of the Export Administration Regulations. American firms should not unwittingly make sales that undermine American security.

APPENDIX

22nd Construction and Installation Corporation (Yichang)
 23rd Construction Corporation (Beijing)
 Aviation Industries of China I and II (AVIC) (Beijing)
 Beijing Institute of Aerodynamics (BIA) (Beijing)
 Beijing Institute of Electromechanical Engineering (Beijing)
 Beijing Institute of Electronic Systems Engineering (Beijing)
 Beijing Institute of Nuclear Engineering (BINE) (Beijing)
 Beijing Institute of Space System Engineering (Beijing)
 Beijing Institute of Technology (BIT) (Beijing)
 Beijing Research Institute of Uranium Geology (BRIUG) (Beijing)
 Beijing Wan Yuan Industry Corporation (BWYIC) (also known as the China Academy of Launch Vehicle Technology [CALT]) (Beijing)
 Chengdu Aircraft Industrial Corporation (CAIC) (Chengdu)
 China Aerospace International Holdings Ltd. (CASIL) (Hong Kong)
 China Aerospace Machinery and Electronics Corporation (CAMEC) (Beijing)
 China Aerospace Science and Technology Corporation (CASC) (Beijing)
 China Chang Feng Mechanics and Electronics Technology Academy (Beijing)
 China Great Wall Industries Corporation (CGWIC) (Beijing)
 China Haiying Electro-Mechanical Technology Academy (Beijing)
 China Hexi Chemistry and Machinery Company (Beijing)
 China Nanchang Aircraft Manufacturing Company (Nanchang)
 China National Aero-Technology Import-Export Corporation (CATIC) (Beijing)
 China National Aero-Technology International Supply Corporation (CATIC Supply) (Nanchang)
 China National Nuclear Corporation (CNNC) (Beijing)
 China North Chemical Industries Corporation (NOCINCO) (Beijing)
 China North Industries Corporation (NORINCO) (Beijing)
 China North Opto-electro Industries Corporation (OEC) (Beijing)
 China Nuclear Energy Industry Corporation (CNEIC) (Beijing)
 China Precision Machinery Import-Export Corporation (CPMIEC) (Beijing)
 China Sanjiang Space Group (Wuhan)
 Chinese Academy of Sciences (CAS) (Beijing)
 Commission on Science, Technology and Industry for National Defense (COSTIND)
 East China Research Institute of Electronic Engineering (ECRIEE) (Hefei)
 Harbin Engineering University (Harbin)
 Harbin Institute of Technology (HIT) (Harbin)
 Hua Xing Construction Company (HXCC) (Yizheng)
 Hubei Red Star Chemical Institute (also known as Research Institute 42) (Xiangfan)
 Luoyang Electro-optical Technology Development Center (LEODC) (Luoyang)
 Nanjing University of Science and Technology (Nanjing)
 National University of Defense Technology (NUDT) (Changsha)
 Nuclear Power Institute of China (NPIC) (Chengdu)
 Research Institute 31 (Beijing)
 Shaanxi Institute of Power Machinery (also known as Research Institute 41) (Shaanxi)
 Shanghai Institute of Electromechanical Engineering (Shanghai)
 Shanghai Power Equipment Research Institute (SPERI) (Shanghai)
 Shanghai Xinfeng Chemical Engineering Research Institute (Shanghai)
 Shanghai Xinli Research Institute of Power Equipment (Shanghai)
 Shanxi Xingan Chemical Material Plant (Taiyuan)
 Shenyang Aircraft Corporation (SAC) (Shenyang)
 Shenyang Aircraft Research Institute (SARI) (Shenyang)
 Xidian University (also known as the Xian University of Electronic Science and Technology) (Xian)

Chairman D'AMATO. Okay. Thank you very much.

We'd like to welcome Rear Admiral McDevitt, who is the Director of the Center for Strategic Studies at the CNA Corporation. Thank you for coming to join us today, Admiral. What we're doing is if you could summarize your testimony in ten minutes or so and then we'll go to questions.

**STATEMENT OF MICHAEL McDEVITT, RADM, USN (RET.), DIRECTOR,
CENTER FOR STRATEGIC STUDIES, CENTER FOR NAVAL ANAL-
YSES CORPORATION**

Rear Admiral McDEVITT. Thank you, Mr. Chairman. I apologize for being late. I was at the Naval Academy for a funeral for one of the Naval officers killed in the Pentagon.

Listening to the commentary as I came in, there was a great deal of specificity. What I have to say is at the other end of the spectrum—I will talk at a high level of generalization, as I comment on my perceptions of China's attitudes towards nuclear proliferation.

Chairman D'AMATO. Thank you.

Rear Admiral McDEVITT. From China's perspective, they believe that the U.S. approach to nuclear proliferation is hypocritical, as is theirs, I might add, because they believe that we're not nearly as concerned about the spread of nuclear weapons as long as they're either in the hands of old allies, or budding security partners like India, or even temporary relationships like Pakistan. They frequently point out that in the case of India—and now probably Pakistan, that U.S. proliferation concerns often slip in priority once it is clear that diplomatic and economic efforts to prevent proliferation have failed.

China understands clearly since the end of the Cold War the U.S. policy focus on nonproliferation has become even more prominent. In terms of U.S. security policy, I think Les Aspin as Secretary of Defense in 1992 made it a centerpiece of U.S. national security policy. He also included what I term proliferations "muscular twin" counter-proliferation as an element of US security policy. Since that time, non proliferation has really become a dominant theme in our security strategy for the country.

Despite Washington's bitter acquiescence in the development of nuclear weapons by India and Pakistan, it's still safe to assert,—and the Chinese understand this—that as a general proposition, official U.S. policy remains absolutely opposed to the spread of nuclear weapons, especially to countries it deems inherently dangerous.

I want to emphasize the point that China has no doubt about this U.S. policy position. Whatever policy choices China chooses to make regarding whether to proliferate or not, these choices are being made with a full understanding and appreciation of extant U.S. policy. It's not because they don't understand.

Like the U.S., China has decried the proliferation of nuclear weapons. However, in my reading, it's clear that the issue is not nearly as high on Beijing's list of national security priorities as it is on ours. Unlike the almost theological basis of some declaratory U.S. nonproliferation policy, China has what I would term a much more pragmatic attitude.

For example, they've been very selective in how it expresses concerns about situations regarding proliferation of nuclear weapons. They are much more guarded and restrained about the activities

of friends. In their defense white paper of July 1998, for example, a lot more venom and vitriol was written about India's nuclear tests than was written about Pakistan's. And moreover, they've demonstrated a lot less concern than the United States about the fact that North Korea might have a nuclear weapons program.

Now—this is not to say that China doesn't appreciate the value of a nonproliferation policy. Witness again its reaction to India's test and continued disappointment and concern that Washington has acted with what I would call pragmatism rather than dogmatic adherence to nonproliferation, i.e., insisting on a nuclear rollback with India before we are willing to engage them more broadly on security issues and what have you.

China's approach to proliferation, I believe, is based more on considering nonproliferation as simply one of a number of security-related issues to be addressed as the situation dictates. What makes it important for them is that Washington thinks it is important, and not necessarily because of the inherent merits of the issue. While this attitude has the effect of non-plussing dedicated U.S. nonproliferation proponents, who don't understand why Beijing doesn't share their view, it does suggest that there's room for Beijing and Washington to negotiate over nonproliferation.

This means that America has to either be willing to threaten punishment or trade something for nonproliferation from China. In other words, moral suasion by the U.S. or arguments regarding the inherent goodness of nonproliferation will not be enough for Beijing to make lasting agreements.

So I conclude that China's priorities are more pragmatic and less universal than ours, and also think that proliferations are going to be much lower on their list of concerns than ours. Let me offer two caveats to this conclusion. If they believe Japan was building a nuclear weapon, China would be very concerned. And, of course, Beijing has said if Taiwan builds a nuclear weapon, that's cause for China to attack. In these two cases, China would place nonproliferation very high on its agenda.

On the other hand, North Korea provides an example of China's "pragmatic" nonproliferation policy. Beijing rhetorically agrees that it's good to have a non-nuclear Korean peninsula. But the main reason that this is so is because they're worried that the U.S.—this perhaps is less so a few years ago—that the U.S. is going to preemptorily try to militarily take out the North Korea nuclear capability. This would probably start a war, and they don't want a war in Korea.

But if somehow North Korea turns out to be a widely attributed nuclear state, but not a "declared" nuclear power, China would be perfectly happy with that, because the nuclear weapon is one more ace in Pyongyang's hand that they can play to ensure its survival. Pyongyang's survival is very, very high on Beijing's agenda. They don't want North Korea to go away.

I've become convinced that Beijing's attitude about nuclear weapons today is much closer to the way the U.S. thought about them in the '50s, simply another very destructive weapon. Remember, throughout the 1950s, Washington was routinely willing to talk about, we're going to nuke you if you don't do X, Y, or Z.

Whereas people in the U.S. today argue that nuclear weapons are politically unusable, I don't think China thinks that way. In fact, Beijing's nuclear doctrine of "no first use" forces them to think that weapons are usable, because when you say, I have a "no first use" policy, what you're really saying, in essence, is we as a country are resigned to absorbing the first nuclear hit before we retaliate. So the whole notion of the usability of nuclear weapons is different.

Because China's perception of nuclear weapons is different from ours, China is willing to proliferate goods and services useful for nuclear weapons development with countries that the U.S. worries about. This includes countries like Iran, or Pakistan, which is in the context of simply another issue. Like human rights or religious freedom that Beijing will use tactically for dealing with Washington. Beijing will either reward or punish the U.S. for what it considers either positive actions Washington takes or transgressions Washington makes in areas that Beijing thinks are vital, and the most important of these litmus tests is Taiwan.

Like virtually every other aspect of Sino-U.S. relations, Beijing's willingness to cooperate on nonproliferation will be linked to U.S. support of Taiwan. Support or non-support of Taiwan, especially arms sales by the U.S., will be the barometer, perhaps the main barometer, Beijing uses for shaping its own nonproliferation policies and willingness to comply with U.S. concerns, or, I might add, willingness to comply with agreements they've made with the U.S.

Less U.S. cooperation with Taiwan, more Beijing cooperation on nonproliferation. More U.S. cooperation with Taiwan, less Beijing cooperation with the U.S. on nonproliferation. If the U.S. does something that they would consider particularly egregious, such as selling missile defense to Taiwan, deliberate ratcheting up of Chinese proliferation activities in order to punish Washington.

Because they know we care, they use the proliferation tool to wield against us. And I want to say, I'm not implying a perverse approach to proliferation in which we hope China will become less of a proliferator because we make them believe we do not care anymore. What might be termed a policy of "studied indifference" is not sensible or viable for the United States, but neither is cutting off arms sales or other political support to Taiwan.

Therefore, as long as Beijing sees nonproliferation in tactical terms as opposed to being a vital Chinese interest, it is unlikely we will ever persuade or coerce Beijing into wholehearted support. It seems to me, therefore, that as long as Beijing treats nonproliferation as simply one more issue on the bilateral agenda with Washington and does not embrace Washington's overarching commitment, nonproliferation discussions with Beijing are unlikely to achieve all that the U.S. desires. This does not mean that we should stop trying, it just means that it's going to have a very Sisyphian quality in our negotiations with them. Thank you.

[The statement follows:]

PREPARED STATEMENT OF MICHAEL MCDEVITT

It is almost an article of faith within the United States that the spread of nuclear weapons is inherently bad and should be opposed. This view has been put in practice over the years by the combined use of America's diplomatic and economic in-

struments of statecraft to persuade non-nuclear states that possess the capability to develop nuclear weapons to refrain from doing so.

Generally speaking, the combination of economic suasion, public diplomacy, and the Nonproliferation Treaty regime have been successful in arresting the spread of nuclear weapons; given the number of states that have the capability to fabricate a nuclear weapon. But, it must also be said, however, that the U.S. has not been consistent in its nonproliferation policies. There are inconsistencies between declaratory policy and policy in practice. The U.S. has been willing to countenance exceptions to its overall antipathy to the spread of nuclear weapons. The cases of the UK, France are the oldest examples, while India and Pakistan the most recent. Israel is tacitly accepted as residing in the twilight zone of acknowledged but an undeclared nuclear power without apparent U.S. sanction. I make this point not to criticize the United States for what I consider sensible policy decisions, but to provide a context for Chinese approaches to nonproliferation.

From China's perspective the U.S. approach to nuclear proliferation is hypocritical—as is China's—and suggests that the U.S. is not nearly as concerned about the spread of nuclear weapons as long as they are: (1) in the hands of old allies, or (2) budding security partners, like India, that appear to serve long term U.S. strategic interests, or (3) temporary relationships such as Pakistan.

China understands clearly that since the end of the Cold War the U.S. policy theme of nonproliferation has become even more prominent. Les Aspin made nonproliferation and its muscular twin, counter-proliferation, a dominant theme of U.S. post-Cold War security strategy. As a result it has an ever more prominent place on the list of issues between the U.S. and China. Despite Washington's bitter acquiescence to the development of nuclear weapons by India and Pakistan, it is safe to assert that, as a general proposition, official U.S. policy remains absolutely opposed to the spread of nuclear weapons—especially to countries it deems inherently dangerous. China has no doubts about this. Whatever policy choices China chooses to make regarding proliferation or nonproliferation they will be made with a full appreciation of U.S. policy—inconsistencies and all.

Like the U.S., China has decried the proliferation of nuclear weapons. However, it is clear that this issue is not as high on Beijing's list of national security priorities as it is in the United States. Unlike the almost theological basis of declaratory U.S. nonproliferation policy, China has a much more pragmatic attitude. For example, China has been somewhat selective in its levels of concern about situations regarding the proliferation of nuclear weapons. Clearly, Beijing's defense white paper of July 1998 implied greater weight of concern to India's actions than to those of Pakistan. Moreover, Beijing has evinced much less concern about the possibility that North Korea might have a nuclear weapons program than has Washington.

This is not to say that China does not appreciate the value of a nonproliferation policy—witness, again, its reaction to India's tests and continued disappointment and concern that Washington has acted with pragmatism rather than its usual dogmatic adherence to nonproliferation (i.e. nuclear roll-back) in subsequent relations with India, and more recently with Pakistan.

China's approach to cooperation on nonproliferation, I suspect, is based more on considering nonproliferation as simply one of a number of security related issues to be addressed as the situation dictates. What makes it important for them is that Washington thinks it is important, and not because of inherent merits of the issue. While this attitude has the effect of nonplussing dedicated U.S. nonproliferation proponents who see proliferation as inherently bad, and who cannot understand why Beijing doesn't share their zeal, it does suggest that there is room for Beijing and Washington to negotiate over nonproliferation. This means an American willingness to either threaten punishment or be willing to "trade" something for nonproliferation cooperation from China. In other words, moral suasion by the U.S. or arguments regarding the inherent "goodness" of nonproliferation will not be enough for Beijing to make lasting agreements.

China's nonproliferation priorities, therefore, will be more pragmatic and less universal than those of the U.S. Nonproliferation will continue to be much lower on the Chinese list of security concerns than it is on America's, unless the potential proliferator is Japan or Taiwan (a declared *causus belli*). Beijing is likely to continue to see proliferation as a more situational issue. If possession of nuclear weapons by countries on its frontier is believed to contribute to stability, Beijing will not be seriously, except perhaps rhetorically, object. The classic example is North Korea. I believe that Beijing is ambivalent about North Korean nuclear weapons. They only diplomatically support on non-nuclear Korea because they worry that the United States might peremptorily attempt to destroy North Korea weapons and/or launching systems. But, if North Korea somehow winds up in the twilight zone of an undeclared nuclear weapons state Beijing would likely see North Korean nuclear

weapons as stabilizing, in that it would be one more “ace” that Pyongyang would have in ensuring regime survival; which Beijing desires. Beijing’s nonchalance about this issue rests on its entire attitude regarding nuclear weapons. I have become convinced that Beijing’s attitude about nuclear weapons today is much closer to the way the U.S. thought about them in the 1950s—simply another very destructive weapon. Whereas people in the U.S. today argue that nuclear weapons are really politically “unusable” I don’t believe that China thinks that way. In fact, Beijing’s nuclear doctrine of “no first use” forces them to think this way. No first use essentially means, “We as a country are resigned to absorbing the first nuclear blow.”

Even in the hands of potentially powerful foes, such as India, nuclear weapons will only be opposed verbally. On the other hand, Chinese willingness to proliferate with countries the U.S. worries about, like Iran or in the past Pakistan, will be used tactically by Beijing to either “reward” or “punish” the U.S. for what it considers either positive actions Washington takes or transgressions Washington makes in areas that Beijing considers of vital interest. The most important of these litmus tests is Taiwan.

Like virtually every other aspect of Sino-U.S. relations, Beijing’s willingness to cooperate on nonproliferation will be linked to U.S. support of Taiwan. Support or non-support of Taiwan, especially arms sales, by the U.S. will be the barometer Beijing uses for shaping its own nonproliferation policies and willingness to comply with U.S. concerns—less U.S. cooperation with Taiwan; more Beijing cooperation on nonproliferation. More U.S. cooperation with Taiwan; less cooperation with the U.S. on proliferation; or more probably, a deliberate ratcheting up of Chinese proliferation activities in order “to punish” Washington. Because they know we care, that gives them a “proliferation” tool to wield against us. I hasten to add I am not implying a perverse U.S. approach to proliferation with China that rests on the “logic” that the best way to have Beijing curb its proliferation activities would be to persuade them we really don’t care. Realistically “studied indifference” is not a viable or realistic policy option for the U.S.; nor is cutting off arms sales and other political support for Taiwan. Therefore as long as Beijing sees nonproliferation policy in tactical terms, as opposed to a vital Chinese interest, it is unlikely we will ever persuade, or coerce, Beijing into whole-hearted support.

It seems to me, therefore, that as long as Beijing treats nonproliferation as simply one more issue on its bilateral agenda with Washington, and does not embrace Washington’s overarching commitment, nonproliferation discussions with Beijing are unlikely to achieve all that the U.S. desires. This does mean we should stop trying, it just means that nonproliferation policy with China will have a Sisyphian quality.

PANEL II DISCUSSION AND QUESTIONS AND ANSWERS

Chairman D’AMATO. Thank you, Admiral McDevitt.

So we’re open to questions. The first round will be five minutes. Commissioner Lewis?

Commissioner LEWIS. I’d like to ask you a question, Dr. Yuan, and then Admiral. Pakistan is obviously cooperating very closely with the United States now with what’s going on in Afghanistan and China has this special relationship with Pakistan that has caused them to want to make sure Pakistan is on a par with India. Do you think that Pakistan is cooperating with us today because of their relationship with China or it’s independent of that altogether?

And the question I have for you is, you said that the United States has tacitly accepted the nuclear capability of France or U.K. or India, Pakistan, and Israel, or bitter acquiescence of those two. I may be missing something, but there’s a difference between bitter acquiescence or tacit acquiescence and actually helping somebody else proliferate and I don’t see the equality of that. We’re not helping somebody become a nuclear power, whereas China is helping countries that are really antagonistic to us becoming nuclear powers.

So it seems to me that the whole rationalization that you mentioned about they think we’re hypocritical but we’re not helping

somebody, and you're saying they're hypocritical but they are helping somebody, I don't see that as apples and apples. I think that's totally apples and oranges and I'd like you to tell me whether we should be using the leverage we have with the incredible trade surpluses they have with us and tapping into our capital markets as a way to negotiate with them. If they use that as a lever to negotiate with us, why don't we use economics as a lever to negotiate with them?

Dr. YUAN. Thank you very much. I think China has a special relationship with Pakistan, but over the last decade, China has gradually adopted a more balanced approach to both India and Pakistan. A good indicator is China's change of policy on the Kashmir issue.

In the past, China always supported the international resolution of the issue, where India wanted no external interference. So over the last decade, as China gradually improved relations with India, it basically has become a little bit more neutral. This is very clear during the 1999 Kargit crisis, where China basically persuaded Pakistan to stop saying infiltration doesn't help and you can't expect China to be drawn into this kind of conflict.

Obviously, in the past, in the '60s, '70s, when China was pretty isolated, Pakistan played a very important role, in introducing, you know, Kissinger's trip opening up Sino-U.S. relations. So China has this long policy of not deserting an old friend. But China's policy certainly has become more balanced.

With regard to this warming up of—not warming up, but U.S.-Pakistan cooperation in fighting terrorism, China, I think, over the last two years in particular after nuclear tests, has argued that the U.S. should treat India and Pakistan in a more balanced way because there are a number of concerns.

One is we have a pretty moderate government in Pakistan under General Musharraf, and there are a lot of Islamic fundamentalists in Pakistan. So the question is, if you push Pakistan too hard, as the Clinton administration did, three days of India visit, only six hours or 24 hours visit of Pakistan, it's not very balanced and Pakistan felt very isolated, receiving a different kind of treatment. So in that regard, China basically says you need to have a balance because the region is on a tinder box and we don't want to have a radical government there. So I think that's the Chinese policy and this—

Commissioner LEWIS. So you're saying Pakistan's position with us would have occurred even if China was not trying to influence them to be moderate with us?

Dr. YUAN. China has tried to moderate in terms of Pakistan and India relations. You know, Pakistan should not be too supportive of, openly supportive of, those guerilla penetrations into Kashmir. But in terms of Pakistani-U.S. relations, China has been trying to tell the U.S. side to be more understanding of Pakistan's dilemma.

Commissioner WALDRON. Could I—I'm sorry, excuse me. Could I just say, I have to go to another meeting and I just wanted to thank the three witnesses. I think those were all extremely useful and interesting presentations and I regret very much that I won't be able to hear the rest of the questioning, but I will read the transcripts. I just wanted to thank you all.

Chairman D'AMATO. Thanks.

Rear Admiral MCDEVITT. I agree with you. You put your finger on it. There is quite a lot of difference between acquiescing in an event that somebody else has done versus aiding and abetting them, and the Chinese understand that. Where they really accuse the United States of being a hypocrite is in the policy of what do you do about it. In other words, you're willing to sanction us, but you don't sanction Israel.

Commissioner LEWIS. But Israel is not also proliferating with somebody else.

Rear Admiral MCDEVITT. I agree with the logic of your position. I'm just trying to relate the responses you get when you present that to the Chinese. They accuse us of doing what they do, which is using the policy on a situational basis as opposed to a consistent overarching approach that doesn't take into account one's own interests and friends. I'm just saying it's not necessarily logical, but it's the argument you get.

Commissioner LEWIS. Pakistan, I understand, but I don't understand Iran. That's not an old ally of China.

Rear Admiral MCDEVITT. No. I think Iran is the one they use to irritate us, plus China has major interests in the Gulf because their economy depends—and is going to increasingly depend upon petroleum, and most of that petroleum for the foreseeable future, is going to come out of the Gulf, and so—

Commissioner LEWIS. Do you think we should use our economic leverage to—

Rear Admiral MCDEVITT. Absolutely. We have lots of leverage. We ought not to be bashful about using the leverage we have to make them realize that there are consequences to your actions.

Commissioner LEWIS. Which we don't use.

Rear Admiral MCDEVITT. Which we don't use.

Chairman D'AMATO. Thank you. Commissioner Robinson?

Commissioner ROBINSON. Yes. Starting with Dr. Yuan, you implied that part of the problem of China's noncompliance with our nonproliferation efforts or counter-proliferation efforts was quite possibly that we were insufficiently clear and forthright in communicating our concerns. Did I understand you correctly on that?

Dr. YUAN. It's not that we—I would characterize it as the U.S. probably has not got a clearly defined commitment from the Chinese and they think they've got some pledges, for instance, the missile pledges in '91, '94, '92. It was only later that the U.S. realized that China has only agreed to comply with the 1987 MTCR parameters but not the annex. So China has stopped exporting, you know, complete missile systems or subsystems according to those parameters and also agreed to this inherent capability of their M-11 missiles. But the annex, which covers a lot of dual-use technologies that China has so far refused, has not agreed to comply.

Commissioner ROBINSON. So it's more of a matter of our not adequately defining the nature of agreements and what we're getting—

Dr. YUAN. Right.

Commissioner ROBINSON. —and, hence, undue expectations, disappointment, frustration, et cetera.

Dr. YUAN. Right.

Commissioner ROBINSON. That is different, because for a moment there, I thought it was somehow the nature of our interventions with them, which I would just guess off the cuff have been crystal clear.

Rear Admiral MCDEVITT. Could I just intervene on that, make a comment on that one point? I've been in a couple of these events when, for example, CINCPAC was dispatched to Beijing to talk to the Chinese and encourage them to make sure that Pakistan—this is '95—didn't test beyond MTCR regimes and the Chinese foreign minister sat there and assured the U.S. side, don't worry about it. We've got that under control.

The problem is in a number of these, you have these verbal assurances that are vague. They're not like a business deal, that you get it in writing. And so what happens, of course, is the American side comes back thinking, well, we've cut a deal, and the reality is, you haven't cut a deal at all.

You need to have a piece of paper with an understanding, and not really on verbal assurances. Verbal guarantees are just too vague for something as specific and detailed as nonproliferation.

Commissioner ROBINSON. You know, picking up on Commissioner Lewis's—thanks for that clarification. Picking upon Commissioner Lewis's good point on leverage, Dr. Yuan, again, you mentioned that for us to successfully raise the costs of Chinese continued proliferation activity, that any sanctions we might contemplate would need to be multilateral, in your view, if I've got it right, to be effective.

Commissioner LEWIS. On the export side.

Commissioner ROBINSON. Well, yes. Have any of the panelists ever considered in your longtime review of these issues the financial leverage specifically, that is, the globally dominant status of the U.S. capital markets in the event that we can't effect multilateral sanctions, which as you know are excruciatingly difficult, if not impossible, in this era. Maybe September 11 improved that somewhat, let's hope, but prior to September 11, as you know, the chances for multilateral sanctions were woefully inadequate. And given that fact, either the U.S. throws up its hands and gives up or comes up with more creative unilateral tools.

Now if that's the case, and trade has a lot of problems with it for reasons we know in terms of sanctions that I won't need to repeat here, if you move to finance and move to the capital markets, if you talk about the list of known proliferators or their parent companies and subsidiaries, and you were to discuss the notion of denial of those companies and that family of companies to the U.S. debt and equity markets for their critical fundraising needs for the foreseeable future, I'm just interested in each of your views as to whether or not you think that's meritorious to explore as a new lever.

Now, I'm not expecting you to be well versed in it because you may not have had a chance to reflect on it, but in terms of deserving further study, because from our perspective, or at least my own, having looked at this for five years rather solidly right now, this is a very onerous problem for anyone tagged in the sphere of proliferation to take a blow of that kind because of our unique position in the global capital markets.

I'd be interested in that, Gary, if you don't mind, and others.

Dr. MILHOLLIN. Well, I've been advocating for quite a number of years that the United States ought to use its economic leverage to achieve its proliferation goals, but in the case of China, for example, we've been running a vast surplus, as everybody knows, for a long time, and—

Commissioner LEWIS. Say that again, please.

Dr. MILHOLLIN. We've been running a vast surplus with China for a long time. That is, China is selling us scores of billions more than we're selling them.

Commissioner LEWIS. We're running a deficit.

Commissioner DREYER. A deficit.

Commissioner LEWIS. That's a deficit.

Dr. MILHOLLIN. I'm sorry. Excuse me. From—I'm sorry. I guess it depends on which side you're looking at it from. China is selling us a lot more than we're selling China, and that's—

Commissioner MULLOY. About \$85 billion a year.

Dr. MILHOLLIN. Yes, and it's been true for a long time, and that gives us a tremendous amount of leverage.

Commissioner MULLOY. It's actually widening. It's getting worse.

Dr. MILHOLLIN. Yes, but we've never been willing to use it. And so I think it would be a great idea to use it, but so far the political will hasn't been there and I don't see it suddenly appearing.

I think it might be profitable to look at some subset of that, however, some more focused approach, such as denial to certain kinds of capital markets. We could also think about satellite launch contracts. For example, we could think about not granting a satellite launch contract if it involved a company in China that was proliferating or had proliferated or might proliferate. That would be a more focused remedy. But again, there are political forces on the other side.

So the way I see it, the nonproliferation agenda or the nonproliferation interest hasn't ever been weighty enough to overcome the lobbying groups who don't want our leverage to be used, and that's why we haven't used it.

Commissioner ROBINSON. Neither was terrorist sponsorship until September 11. Admiral, your view?

Rear Admiral MCDEVITT. I'm a historian, so I'm probably the last person in the world to be commenting on financial markets, but it strikes me that the regime has bet its survival on continued growth of the economy and they've chosen to go the road of entering the WTO and hope that they'll be able to create enough jobs to keep the thing afloat through creating competitive industries.

It strikes me the key to developing competitive industries is foreign direct investment for China. So if what you're speculating on or what you're suggesting gives you a lever that you can use to actually manipulate or squeeze down on foreign direct investment to China, you're going to get their attention. You're going to get their attention in a big way.

Commissioner LEWIS. That's what they want.

Commissioner ROBINSON. Dr. Yuan?

Dr. YUAN. I think if sanctions are to work, it will very much depend on the extent of Chinese reliance on the U.S. capital market. In terms of foreign direct investment, a lot of the U.S. big compa-

nies, auto industry, telecommunications companies, they want to get into that market so they invested a great deal into the Chinese markets.

For instance, in China, domestic airlines of 500 aircraft, over 300 are from the Boeing company. So these companies have a tremendous economic interest to get into the market.

You know, one of the things the U.S. auto industry was late—the German auto maker was first in Shanghai. You see all the Shanghai taxi cabs are all German joint venture cars, no American cars. So GM, Chrysler, you know, all the—Ford, are trying to get into that market.

Commissioner ROBINSON. I don't mean to interrupt your answer, but you just need to be aware that we're not talking about foreign direct investment, to be honest with you. We're talking about fundraising in the U.S. capital markets via equity bonds with cash transactions. There are no underlying trade transactions. There are no U.S. exports and jobs at play. There's none of the traditional collateral damage in terms of U.S. traditional business interests, or at least a very small fraction of what you'd get in the trade portfolio. So I just didn't want to go down a road on FDI necessarily when you were talking about more or less pure cash.

Dr. YUAN. Right.

Chairman D'AMATO. All right. Commissioner Mulloy?

Commissioner MULLOY. I just wanted to follow up first on the question that was out there regarding sanctions. Dr. Yuan, you thought that they'd made significant progress on their nonproliferation policies in the past decade. Secondly, you caution us about putting on sanctions because you're not sure that they really work that well.

What about import sanctions rather than export sanctions? What do each of you think about that idea as a way of getting the Chinese to pay more attention to these proliferation issues, controlling access to our consumer market, essentially.

Commissioner LEWIS. For the \$85 billion a year, no.

Dr. MILHOLLIN. Well, we have sanctioned companies in China for chemical and missile proliferation activities to find that they don't really sell us much and that we don't sell them much. They're military companies, often.

Commissioner MULLOY. No, what if you picked out—but I mean just the concept of picking out things that you would say, all right, we're sanctioning these imports.

Dr. MILHOLLIN. I would say that where you have a company that is state controlled or in which there's strong state investment, if it commits a sanctionable violation, it seems to me it'd be a lot more effective to sanction the Chinese government than to simply sanction the company, which, because of its military characteristics, may not do much business with us, either import or export.

Commissioner MULLOY. Okay. Admiral?

Rear Admiral MCDEVITT. I think it's one of those things—I suspect that we're talking or you're thinking about a whole quiver full of arrows and there is no silver arrow that will solve all of these problems, and so certainly that would be one thing that could be applied, depending upon the circumstances.

But if you've got the company and then this access to cash, some of that is related, is it not? I mean, these companies may not be seeking to borrow on the U.S. financial markets, but if they are, then you would have a double whammy. You threaten to cut off their cash as well as refuse to allow them to import to the United States.

Commissioner MULLOY. Dr. Yuan?

Dr. YUAN. I think, because you want to sanction those companies who are involved in proliferation activities, if you try to cut off imports, you're actually sanctioning those companies of the Chinese making toys, clothing, footwear which are part of the U.S. multinational corporations' subsidiaries. They subcontract assembly lines to China because of the labor costs and all that. So it's difficult to make the link.

The Clinton administration tried to make that during the first year of its administration, tried linking human rights, you know, seven conditions to import—

Commissioner MULLOY. That was MFN.

Dr. YUAN. MFN, and so it's difficult. But if you are trying to impose sanctions with regard to economic-related issues, intellectual property, market access, I think the U.S. sanctions or threat of sanctions have worked in the past.

Commissioner MULLOY. Okay.

Commissioner BECKER. Could I add something to that, Pat?

Commissioner MULLOY. Yes.

Commissioner BECKER. What if you just started with the PLA? Any company or entity in China that's owned and controlled by the PLA as a part of the government, that you would sanction them, that you would ban, bar all exports into the United States?

Dr. YUAN. Sure.

Commissioner BECKER. How would you feel about that?

Rear Admiral McDEVITT. In fairness, the PLA is getting out of business by government policies—

Commissioner BECKER. Well, there's been testimony—

Rear Admiral McDEVITT. —because there aren't that many—

Commissioner BECKER. There's been testimony, I think, by other people, though, that said that's really not true.

Commissioner LEWIS. Admiral Prueher told us that.

Commissioner DREYER. Yeah, Admiral Prueher and Charlene Barshefsky said that they don't believe that's quite true.

Commissioner BECKER. But if they're getting out—but as an extension of the government, the PLA. To whatever extent they own, control industry, ban them carte blanche.

Dr. MILHOLLIN. You mean if one of their members commits a violation, you ban them all?

Commissioner BECKER. We're talking about proliferation.

Dr. MILHOLLIN. Yes.

Commissioner BECKER. That's government. So any government-owned entity cannot export into the United States. How do you feel about that, as putting your finger not on the toy makers, not on the multinationals, the United States multinationals that has entities in China, but as government-controlled business?

Dr. MILHOLLIN. I would support that.

Dr. YUAN. Sure.

Commissioner BECKER. You would support that?

Dr. MILHOLLIN. Yes, I'd support that.

Dr. YUAN. But I don't think—

Chairman D'AMATO. Easily said.

Rear Admiral MCDEVITT. The thing of it is, I'm not sure it's executable because some of these folks that are doing the things we don't like are also making toys. I guess my answer is, if you decide that you want to sanction somebody, have a policy that will punish China for doing bad things.

Commissioner BECKER. Or not doing good things.

Rear Admiral MCDEVITT. Or not doing good things. But normally, it's better to punish them for doing bad things. But—

Commissioner BECKER. That's good.

Rear Admiral MCDEVITT. Do you want to make it kind of a general, across-the-board, or are you going to try to—

Commissioner BECKER. China-owned companies.

Rear Admiral MCDEVITT. —or are you going to try to wicker it down to, well, maybe it's this company or that company? It seems to me that in the past, people have tried to do this very discrete targeting as opposed to the blunderbuss approach and the discrete targeting doesn't work.

Commissioner BECKER. Well, the PLA is China, is the country.

Rear Admiral MCDEVITT. Well, I'm not sure I'd agree with that; the PLA is still very much a party anyway, in control of the Chinese Communist Party.

Commissioner BECKER. Okay. That's—

Commissioner MULLOY. Let me reclaim my time. Dr. Allen from the Center for Naval Analyses testified earlier today and he said in his prepared testimony that he, quote, "makes the assumption that China will continue to proliferate weapons of mass destruction no matter what official policy, regardless of what"—no, "as a matter of official policy, they'll continue to proliferate as a matter of official policy, regardless of what international agreements are signed."

Do you—would each of you comment on what—I mean, he's saying these guys are going to be bad actors regardless of what they sign. How do you guys think—what is your own view on that statement, starting with Dr. Yuan?

Dr. YUAN. I would modify that. I think for the international treaties, what the CWC, NPT, and all these treaties prescribe, reasonable behavior or accountable behavior. China probably will comply with those, at the minimum, at least with the latter of the treaties.

But in terms of those multilateral arrangements, like Australia Group, Nuclear Supplier Group, MTCR, since China is not part of those, none of the regimes, so China probably will continue to act in those gray areas. It's really because increasingly you have dual-use technology which can be contributing elements to weapons of mass destruction and—

Commissioner MULLOY. Okay. So you disagree with this statement because you're saying if they sign something, they're more apt to try and live up to it.

Dr. YUAN. Right.

Commissioner MULLOY. But if they're not part of it, they're not going to live up to it.

Dr. YUAN. They will try to play——

Commissioner MULLOY. Admiral?

Rear Admiral MCDEVITT. I think that China will try to always act in what it perceives is in its best interests. In other words, it will not adopt a deliberately perverse policy, such as “I’m just going to proliferate just for the hell of it.” If they proliferate, it’s going to be because they see that there’s some advantage; i.e., Iran asks them for something, Pakistan asks them for something, and they feel that it’s in their interest to satisfy that request because over the long haul, they see an advantage in responding to their request.

And I tend to be on the side that if you can cut an agreement that’s detailed and specific enough——

Commissioner MULLOY. That they’ll live up to it.

Rear Admiral MCDEVITT. —that by and large, they will live up to it, yes.

Commissioner MULLOY. Okay. So you think if they sign it, they’ll probably live up to it?

Rear Admiral MCDEVITT. But, I mean, getting the details down——

Dr. MILHOLLIN. Well, I would say historically that the evidence is that that statement is correct, that historically, if you just look back over two decades and compare promises to behavior, you see very clearly that the behavior’s been independent of the promises.

Commissioner MULLOY. Okay. So we——

Dr. MILHOLLIN. And I would say also that China has already broken the NPT. After agreeing to the NPT, China exported ring magnets to Pakistan, which violated the NPT’s export clause, and I think if you pin the State Department down, they would admit that the Chinese did violate the NPT. So it’s hard for me to find any fault with that——

Commissioner MULLOY. When did that take place, ’95?

Dr. MILHOLLIN. I think so. You can check on our chart.

Co-Chairman BRYEN. Is that the one where there was an annex that they say they didn’t—they agreed to the basic treaty but not to some supplementary provisions?

Dr. MILHOLLIN. I’m not sure. My recollection is that they said it didn’t happen.

Chairman D’AMATO. Commissioner Dreyer?

Commissioner DREYER. Yeah, a point of clarification.

Dr. MILHOLLIN. That the export didn’t happen.

Commissioner DREYER. A point of clarification. China’s friendship with Iran actually goes back quite a ways. And, by the way, friendship is not the right word. Don Keyser warned us about that this morning. And it was originally designed, I’m pretty sure, to twit the Soviet Union and not us.

The twin sister of the Shah of Iran used to appear in Beijing regularly and the two sides would issue a statement saying even though our social systems are different, we agree on blah, blah, and blah. And, of course, when the Iranian revolution occurred, the Chinese saw this as, you know, first Afghanistan, the Soviet Union pulls off something in Afghanistan. Next, the party comes marching in, and then the next thing you know, the Soviet Union in charge in the Persian Gulf. And so they quickly moved, despite the

fact they couldn't be ideologically in tune with the Ayatollah, to mend relations with the fanatic Muslim regime as best they could.

Dr. Yuan, just in support of what you said, I have heard Chinese scholars argue cogently that they think that the Chinese relationship with Pakistan has reached its limits and they ought to do some more. But at the same time, I also see something else happening and that is that they are very concerned about the United States and India moving closer together. Jiefang JunBao, for example, seems—somebody there seems to keep very, very careful track of exactly who in the United States talked to exactly whom in India about what and they have railed against cooperation.

So even though they, on one level, they look like they're becoming more evenhanded between India and Pakistan, on the other hand, they look like they're becoming harder line against India, would you not agree with that?

Dr. YUAN. Well, again, I would modify that a little bit because certainly for the PLA, and in China, they pay close attention to whatever India does in terms of defense budget increases, increasing U.S.-India military cooperation, and the Indian purchase of Russian equipment, and also the Indians trying to act as a global power and as a bilateral, you know, the so-called bilateral relations with Japan, the Asian countries, and all over the place.

But the majority, I think, in China, the analysts would downplay this concern and fear and they would say, well, India is just like China. You know, it wants to play out this partnership card. But India, given its history of independence, doesn't want to be beholden to any great powers, probably won't be a card for the United States, for its long-term interests.

And also at the global level, China and India share a lot of commonalities in terms of international order, political and economic order, and human rights and all these areas. But obviously, there are bilateral issues—

Commissioner LEWIS. Excuse me. Were you saying they share human rights commonalities, India and China?

Dr. YUAN. India and China agree, basically in terms of non-interference in domestic affairs, in that regard. I have an article coming up this year in *Asian Survey* where I do a survey of Chinese views of India after nuclear tests. Clearly, you have different schools and different people, groups of people, but at the moment, I think the normalization school—

Co-Chairman BRYEN. India sees it as a major competitor, don't you think?

Dr. YUAN. Well, I asked the—

Co-Chairman BRYEN. You tell me.

Dr. YUAN. —Indian scholars, and basically for security analysts, they would always regard China as a potential threat simply because of geography and history and China's moving up as a rising, growing economic and military power. But if you want to ask people about, you know, who's the number one threat, probably 700 million people will turn to Pakistan. And if you ask about the China threat, maybe 70 people or 100 security analysts, and they would say, well, China is a threat. So it's a different perception there.

Commissioner DREYER. You know, I'm not sure that they see those two as discretely as you presented it and that at least the analysts I talk to see Pakistan as a threat in league with China, and so they wouldn't say, well, I think Pakistan is the worst threat or I think China is the worst threat because they tend to see them allied.

Dr. YUAN. Right. I try to ask Chinese analysts, you know, how can you convince India that your cooperation with Pakistan is not a threat, and they say, we have done enough, but we cannot base our policy, you know, as a hostage to India. So they still want to maintain a minimal relationship with Pakistan, and because the concern—you know, it's somewhat like North Korea. You don't approve all of their behaviors, but you don't want to push them to the corner or there will be serious consequences.

Commissioner DREYER. Thank you.

Dr. YUAN. Thanks.

Chairman D'AMATO. Thank you. Commissioner Wessel?

Commissioner WESSEL. I appreciate all your time and appearance here this afternoon. We've heard, and we had a discussion earlier, there was a discussion among the witnesses about the question of whether the PLA companies are being spun off and we heard earlier today about the difference between the defense industries and the PLA, et cetera.

I'm trying to understand to what extent are the proliferation activities state-sanctioned or are they increasingly turning to profit-making ventures of Chinese companies, meaning to what extent does China have continuing control over proliferation activities, export controls, how active is their regime, the policing of it, et cetera, from each of the witnesses.

[Deleted].

Rear Admiral MCDEVITT. I'm really not an expert on the internal processes of China, but I would just make the observation that Falun Gong might provide a useful example of how to think about the question you posed.

On the one hand, the government has made it clear that they want to clamp down on Falun Gong and they've been arresting a lot of people and thrown a lot of them in the slammer, et cetera, et cetera. But at the same token, there's a lot of people still practicing Falun Gong who haven't been swept up yet.

So the bottom line is control is imperfect, and if you want it in a country as vast as China. I mean, if the government is dead serious about really wanting to clamp down on selling whatever it is to so and so, they have to make it a serious, serious push. Otherwise, there's going to be a lot of this going on underneath, whether it's turning a "Nelsonian" blind eye by the government officials—notice how I got that Naval reference in there—

[Laughter.]

—or just truly being ignorant of the problem will be hard to establish.

So you have the two levels. If you want to crack down, you've really got to put the pedal to the metal, as it were, and be serious about it across the board. But if you're only halfhearted about it in terms of your policy proclamations coming out of the center,

then, in fact, you're going to have very uneven enforcement throughout the country. That's my take.

Dr. MILHOLLIN. I think I'd second what Admiral McDevitt says. I guess we all have our anecdotes. This one can go in the record. I discovered several years back that when India was desperately in need of components for its nuclear weapons program, it managed to import a very sorely needed item from China. And so if you're a geopolitical theorist, you would say, why would that happen? The answer is that, through an audit of a German company, a German broker's accounts, it was discovered that he paid a rather large bribe to the Chinese company involved to get the material out. Now, he listed that as a business expense, which is why we know about it, which is why the auditors caught it.

But if you think about that for a minute, here's really a crucial element for India's nuclear program being sold by a Chinese company because of a bribe. Now, was that approved at some higher level? Was it even known about at a higher level? Could a foreign ministry person plausibly deny that that export happened? I'm sorry, honestly deny, not knowing that it did? I don't think we really know the answers to a lot of those questions.

I think we have a combination of corruption, lack of control, and dishonesty on the part of officials, and where one begins and one ends, I don't think we really know. But what we see are statements coming out of the Foreign Ministry over the 15 years that I've been following this, and then we see exports coming from various places, and I'm not sure we understand what the connections really are to this day. I must say, I don't really understand it. It's very perplexing to me, but I suspect it's a combination of the things I said.

Chairman D'AMATO. I have a couple of questions. One for Dr. Yuan on Israel. You're an expert on proliferation in your Center. I wonder, to what extent, how important Israeli behavior in terms of their relation, Israel's relation to the Chinese missile production and acquisition regime, has undercut American policy on non-proliferation with regard to China. Do you have any sense of that?

Dr. YUAN. With reference to Patriot technology—

Chairman D'AMATO. Well, whatever. I mean, whatever technologies. The Israelis do have access to a lot of technologies that they could export. They do export some. I'm starting to get the feeling that there's some conflict between Israel and American policy that may undercut our policies. I wonder if you could comment on that.

Dr. YUAN. I think Israel and China have had a pretty long period of defense cooperation, some of which was covert and some of which has been reviewed. I think my understanding is, through this kind of bilateral relations, both sides benefit from this defense cooperation.

From the Chinese side, China can gain the political recognition of Israel and switching diplomatic recognition from Taiwan to China. And Israel, I think it has got Chinese commitment not to sell missiles to Syria, although Syria was reportedly putting investment into Chinese production of M-9 missiles. So China was approached by Syria to sell those missiles, but China eventually did not sell the missiles. So that's some connection there. And then there was a revelation a couple years ago about the Israelis passing

missile technology to China, and the recent case last year about this AWACS Falcon technology to China.

But I think, again, you can say it's undercutting U.S. policy. But on the other hand, Israel's argument is that U.S. policy has shifted over the past four or five years. When China first approached Israel for this Falcon technology, Israel reported it to the U.S. and the U.S. didn't raise any objection. But it was only over the last two years because of the increased tension across the Taiwan Strait that the U.S. becomes more concerned about China getting this capability, which would be threatening to Taiwan, so the U.S. started to exert pressure and so that deal was canceled. And Israel actually, if you read *Defense News*, their officials feel pretty bad about this thing. You know, they tried to compensate in some way, if possible.

So you can say undercutting, I don't know, because U.S. policy has been moving to the missile transfers in the '80s or defense cooperation with Pakistan and all these countries in the '80s, because at the time, U.S. concern was more supporting Pakistan in support of Mujahadeen and guerilla resistance to the Soviet Union. But then times have changed, and so U.S. policies changed. So it's really—

Commissioner DREYER. One slight correction. Israel didn't switch relations from Taiwan to the People's Republic of China. Israel never—

Dr. YUAN. Never recognized that.

Commissioner DREYER. —never recognized—Israel was one of the very first countries to recognize the People's Republic of China in 1949. It's just that it wasn't reciprocated from China's point of view.

Dr. YUAN. Yes. Saudi Arabia was the one.

Co-Chairman BRYEN. They switched arms sales.

Commissioner DREYER. Yeah. They switched arms sales, but they never had diplomatic recognition of Taiwan.

Co-Chairman BRYEN. They sold heavily to Taiwan and then they switched because they saw the China market as more advantageous.

Chairman D'AMATO. Well, I have a second more general question and that is on the question of sanctions, we look at non-economic sanctions as one area that people have discussed, and that is the question of giving visas to Chinese citizens, particularly well-placed family members, and to withholding those visas as part of an effort to change proliferating behavior. How would you rank that possibility or that piece of leverage, any one of you? Has anybody got any thoughts on that? Princely visa withdrawal.

Rear Admiral MCDEVITT. It's an interesting proposition, but you've got to have a relationship between cause and effect there, it seems.

Chairman D'AMATO. They have to know why.

Rear Admiral MCDEVITT. Know why and who's doing it. The trouble is, of course, you're going to be faced with the same argument that our defense contractors use when they want to sell abroad. If I don't do it, the French will do it. So, okay, if—

Chairman D'AMATO. They don't want to go to France.

Rear Admiral MCDEVITT. They may. As an alternative, they may want to go to France or they may want to go to the U.K. or they may want to go to Germany or they may want to go to Australia, and so it would seem to me if you're going to do this, you're going to have a lot of pressure from academe here in the United States saying, hey, you know, why don't we want to have this young scholar or student come over here and learn about America and have an appreciation for democracy, et cetera, et cetera, and instead of letting him go to Harvard, you're forcing him to go to Oxford.

Co-Chairman BRYEN. Does that mean he's going to learn about communism there?

Rear Admiral MCDEVITT. Probably he can get a better shot at that at Oxford than he will at Harvard these days, but I'm not sure.

Co-Chairman BRYEN. It's happened before.

Chairman D'AMATO. Do you have some thoughts on that?

Dr. MILHOLLIN. Yes. I would say that I would like to avoid the question of the princes and suggest something else. That is that it would make sense to me to condition visas on affiliation with known proliferant companies in China. If a Chinese company has been sanctioned by the United States or if a Chinese company is a key part of the Chinese rocket program or nuclear program or if it's an institute that does, for example, nuclear weapon design, it seems to me that an affiliation there ought to cause a lot of concern in terms of visas.

I would like to have our visa program look carefully at applicants who have affiliations of those kinds. I think that would make a lot of sense.

Chairman D'AMATO. I do, too, actually.

Dr. Yuan is going to have to leave shortly, so I wondered if anyone had any additional questions for him, now would be the time to ask them.

Commissioner DREYER. Thank you very much.

Chairman D'AMATO. Thank you for coming. We really appreciate your testimony and good luck getting your flight.

Dr. YUAN. Thank you. Thank you very much.

Commissioner MULLOY. Let me just—Dr. Yuan, as I read your testimony, you're saying sanctions aren't the way to go in trying to get Chinese cooperation.

Dr. YUAN. No, I used the word judicious use of sanctions. I think the current policy of withholding satellite exports is the way to go.

Commissioner MULLOY. Judicious use.

Dr. YUAN. But otherwise, the sanctions are, you know, if you read the *Federal Register*, it's really they don't have any impact.

Commissioner LEWIS. But sanctions is talking about exports. How about not allowing imports?

Dr. YUAN. And then there's the question of how would you like to link those companies which do not involve in proliferation activities with those companies which do. You know, you sanction those companies, but it won't have effect. If you want to have effect, you'll sanction those companies which actually don't involve themselves in proliferation activities. So there's—if you do the import restriction, that is the case, because unless you can find the PLA companies or Chinese defense industrial companies which do in-

volve themselves in proliferation activities and also sell stuff to the United States, you can't restrict their imports. That would be—

Commissioner ROBINSON. And it's safe to say you haven't given thought to the financial side, is that right?

Dr. YUAN. No. Yes.

Chairman D'AMATO. Thank you, Dr. Yuan.

Dr. YUAN. Okay. Thank you very much.

Commissioner DREYER. Have a safe trip.

Chairman D'AMATO. Commissioner Wessel?

Commissioner WESSEL. If I could, and I had asked this question of an earlier panel, that we have focused mostly on the issue of export controls in terms of our security interests, but increasingly, we're seeing, as we have with setting up chip plants in China, et cetera, that the technological expertise is not simply a straight transfer but may be as a result of our investments.

I'd like your views on whether we should be looking not only at export controls in the traditional sense, but also investment controls of some sense, in some way to look at the R&D related aspects, the investment, the enhancement of their technological infrastructure, if you will, and all that comes with that.

Dr. MILHOLLIN. That's a tough one. You'd be asking people to restrict the flow of knowledge without being able to show a national security—necessarily a national security dimension to the reason for their restriction, as I—but that's what I hear you saying.

Commissioner WESSEL. Well, I mean, in the broadest application, potentially. But I think that it's more important to look at investing in certain basic defense-related—or areas where we are enhancing their defense industrial base potentially.

Dr. MILHOLLIN. Well, as you know, I've spent a lot of time thinking about export controls. I think it'd be very difficult to take the position that you're going to impede the overall technological and economic development of a country because it would increase its military potential unless you can identify the country and say, well, it's clearly an enemy. I mean, we did that through COCOM to the East Bloc and that was very successful. COCOM was a tremendously successful program, but we just don't have the kind of unity in the West concerning China that we had with respect to Russia.

Commissioner LEWIS. Why? Why?

Dr. MILHOLLIN. China is not perceived to be the threat that the Russians were perceived as being. If you're living in the plain of Europe, the Chinese can't march there.

Commissioner MULLOY. Or at least it's a very long walk.

Commissioner ROBINSON. A long march.

Dr. MILHOLLIN. You could get the Germans and the French and, you know, you could get the Europeans to come along, and they're the main other sources of high technology in the world, because of the imminent possibility that they could get into a ground war with the Russians. We don't have that now.

Commissioner DREYER. Even there, it was a tough sell. Remember the Emal pipeline?

Dr. MILHOLLIN. Even there, it was a very tough sell.

Commissioner ROBINSON. Germany.

Dr. MILHOLLIN. There were lots of egregious violations of COCOM. But on the whole, it worked. It worked very well. But

it's—I think you don't have the situational prerequisites for a broad attack on China's technological infrastructure that we had with respect to Russia, so—

Commissioner WESSEL. So are the investments being made, or potentially are they a way around our export controls in the sense that export controls stop the hard product, if you will, on a short-term basis, that to the extent China wants to get around that, they can seek the investment and the development of a domestic indigenous capacity?

Dr. MILHOLLIN. Well, and theoretically, export controls apply to the transfer of—

Commissioner WESSEL. Technology.

Dr. MILHOLLIN. —technology or anything that's controlled by the commodity control list, whether it's part of a joint venture or not. And we have an expert on that subject who is on the Commission, Mr. Reinsch. So at least in theory and in law, the fact that a joint venture exists doesn't mean that the export control system is not—

Commissioner WESSEL. I understand.

Dr. MILHOLLIN. —doesn't apply, but it's just—what you're positing, I think, is something beyond what we now have and it's been pretty hard to keep in place what we now have. I mean, every day, battalions of well-financed lobbyists get up in the morning and try to get rid of what we already have. I can tell you that there aren't too many troops on the other side. I can tell you that from personal experience.

So to posit a system in which we would be even more aggressive, I think it would be wonderful if we could do it, but I don't—you'd have to come up with a new theory and a new system beyond what we have.

Commissioner WESSEL. And more of a perceived threat, I guess, from our allies, as well.

Dr. MILHOLLIN. I think there would have to be more of a perceived threat.

Commissioner WESSEL. Thank you.

Chairman D'AMATO. I can't believe it.

Commissioner MULLOY. Well, can I follow up on that?

[Laughter.]

Two more minutes. You devote a lot of your testimony to the precise point that Mike Wessel was just making about Lucent and AT&T and all this investment that they put in. Okay. Now, maybe that investment could be subject to export controls, but when you're investing, you're building an indigenous capacity to go beyond what you were really trying to control because you're transferring knowledge and experience which could then ratchet up to make something that you may not want to have exported to China, right?

Dr. MILHOLLIN. That's true.

Commissioner MULLOY. So that's the issue, that your investment and the level of technology you're transferring by investment could get you into a bigger problem later on.

Dr. MILHOLLIN. Yes. It's the strategy of all recipients to become independent.

Commissioner MULLOY. Yeah.

Dr. MILHOLLIN. I mean, Saddam is the clearest example. When he started his chemical weapon program, he started by buying direct precursors or agents. But then he wanted to be able to make the precursors, and so he kept building backward. And at some point, you lose the ability to do export control because—

Commissioner MULLOY. They can do it.

Dr. MILHOLLIN. —because you create the indigenous capability. Over time, people create their own indigenous capability. I think what's being asked here is, is there a way we can stop that indigenous capability from being created over time by slowly absorbing outside technology? That may be in some cases illicit, but in most cases, illicit transfer.

Co-Chairman BRYEN. If I can—

Dr. MILHOLLIN. I think it's just part of the process of expanding knowledge, and I can't come up with a formula, but I would not be opposed to somebody else doing so.

Co-Chairman BRYEN. Any good export control which has an end point anyway, so you have—you buy time.

Dr. MILHOLLIN. Yes, you do. You buy time.

Co-Chairman BRYEN. You buy time, and you can't expect to do any more than that. Sometimes it's a few years. Sometimes it's five years. At the outside, it's ten. But that's pretty much it.

Dr. MILHOLLIN. We bought time in Argentina and Brazil and that was a success because we were lucky. We got a couple of good governments that decided to get rid of their programs. If we hadn't bought the time and the programs had reached maturity, then it would have been much harder to get rid of them. These programs have the momentum.

Commissioner REINSCH. I'd like to follow up on your question about the perceived threat.

Rear Admiral MCDEVITT. Well, I was just going to respond to Pat's comment. It's the technology that's controlled, not the investment, and the debate that goes on is precisely the one you're discussing, not only what the level of technology is that is proposed to be transferred but what it might or might not lead to, and people divide on that question.

There has tended to be in each administration a rule of thumb generally propagated by the Pentagon relating to how many generations behind you do you want the other guy to be, which means export controls, in part, becomes a function of how fast we're moving as well as how fast we want them to move because it implies a recognition of the futility of being able to keep them stationary and a recognition of the fact that they're going to progress because they have other sources of supply.

The question is not just can we buy time by holding them in stasis but can we buy time by making sure that they are one, two, three, whatever it is, generations behind us and we can continue to move forward at the same pace. That's what gets debated, and the reality is that people divide on the merits of individual cases based on how they parse out those kinds of functions.

Chairman D'AMATO. Thank you. Commissioner Robinson?

Commissioner ROBINSON. Yes. A question in terms of looking at your own experience in this business. China, by at least my assessment and I think those of folks that know a good deal more about

it than I do, could be perceived as in an energy crisis of a kind. They not only have a major import need, but their imports have to double, at minimum, within the next ten years, for example. In fact, that may be a modest estimate.

You also know how they have prosecuted their energy development strategy. You know, they don't believe in the spot markets. They like to put a flag down in concrete concessions in the ground in places, not coincidentally, where the G-7 countries and the Western democracies generally can't operate very effectively, if at all, notably the terrorist-sponsoring states.

Hence, you see major multi-billion-dollar investments in Sudan, Iran, Iraq, I think less so in Libya but that would be a candidate. They love Hugo Chavez in Venezuela, which is a coming thing. And so they're very careful. There's no way that it's not obviously by design.

In this connection, they are also dead keen to secure large-scale contracts, which can be very lucrative, as well as those critical concessions. Now, there are certain ways to do that. One way is to be flush with cash, bribes, whatever, you know, the standard operating procedure for them, but also to traffic in components of weapons of mass destruction, ballistic missile delivery systems, in short, the proliferation portfolio with an energy security impetus.

My question is, is that your experience, too? Have you taken note of this, and have you seen a coincidence between proliferation related activities of the type I'm describing and the time table with which they secured valuable energy concessions and contracts in rogue state/terrorist-sponsoring regimes?

Rear Admiral MCDEVITT. You put that in a very interesting way. I'd never thought about it in the way you put it, but I think the answer to your question is yes, because as I said, China will do whatever it perceives in its best interests. So if it perceives that it's important that it have good relations with Iran, good relations with Iraq and what have you. It is more appropriate to satisfy requests from those countries for proliferation related goods and services.

So if, Iran as part of the deal to get concession X, Y, or Z, says, oh, by the way, can I have goodies for my missile system that becomes part of the package that China would be willing to put on the table to achieve what they perceive as their long-term interest, in this case energy security. They will act in a self-interested way.

It would make sense to them to be able to do this. They are less worried about Iran ever nuking China than they are about not having access to Persian Gulf oil.

Commissioner ROBINSON. Gary, do you have a view on that?

Dr. MILHOLLIN. There has been a practice that I have observed over the years of using sweeteners to make large deals, but this has been pretty much in the reactor business. That is, there has been a long practice of, when bidding for a reactor, the supplier of the reactor will offer sweeteners, little things that should not be sold.

Co-Chairman BRYEN. Like a little anthrax.

Dr. MILHOLLIN. Like a little enrichment capability—

Commissioner ROBINSON. Or a centrifuge or—

Dr. MILHOLLIN. —or some centrifuges or some plutonium extraction equipment, that sort of thing, to sort of go along with the reac-

tor to make your offer more attractive. These things probably wouldn't be sold on their own, the little sweeteners, because the heat that the seller would have to take would be out of proportion to the proceeds.

So if the principle you're asking about is, is there a history of sweeteners, the answer is yes. In my experience, they have been pretty much connected to reactor deals, and I don't know whether they have also been connected to petroleum deals, but let's say if they were, it wouldn't surprise me. But I don't know of specific cases.

Co-Chairman BRYEN. But the reverse is true, that companies have gone into China and have coughed up—we know the reverse is true, that Western companies have gone into China to sell a big deal and have coughed up some military technology in order to cement the deal. That's what some of the prosecutions we've seen recently concern.

Dr. MILHOLLIN. Yes, one celebrated case in particular I can think of.

Co-Chairman BRYEN. Right. So I think that there's no reason to expect it wouldn't happen the other way around.

Chairman D'AMATO. I think our last questioner, Commissioner Lewis.

Commissioner LEWIS. I'd like to ask Dr. Milhollin, discussing before the difference in the perceived threat of the Western alliance towards Russia and China and why there isn't a stomach to do with China what we did with Russia earlier.

In the height of the Cold War, the Soviet Union, to my knowledge, wasn't giving weapons of mass destruction to enemies of the United States and they kept a pretty tight control over those weapons. And China is now supposedly our friend with this wonderful two-way trade and they're gaining all this access to our markets, which Russia never did in those days, and access to our capital markets, which Russia never did in those days, either, and yet they are arming our worst enemies with weapons of mass destruction.

I mean, it seems to me that the threat from China is much greater than the threat from Russia. In fact, Russia today, while not our close friend, is still concerned about keeping some controls over the nuclear weapons and we're having these agreements with the Ukraine and Kazakhstan and so on.

Dr. MILHOLLIN. Yes, but not in Iran.

Commissioner LEWIS. Is Russia arming Iran?

Dr. MILHOLLIN. Well, I mean, there are a lot of reports about nuclear—

Commissioner ROBINSON. Russia is arming Iran.

Dr. MILHOLLIN. Yes.

Commissioner LEWIS. With nuclear weapons?

Dr. MILHOLLIN. And long-range missiles.

Commissioner ROBINSON. Yes, absolutely.

Dr. MILHOLLIN. But you asked a very perceptive and interesting question. I think the Chinese are in the enviable position of being able to benefit from having normal status in the world, but at the same time behaving like a rogue.

Commissioner LEWIS. And doing something that nobody has ever done on the scale that they're doing it before.

Dr. MILHOLLIN. Yes. And in terms of the risk to us, I would say that Chinese proliferation behavior increases the risk that one or two or five nuclear weapons are going to go off on U.S. soil, but it doesn't rise to the level of the risk during the Cold War, where one could simply annihilate us. But the risk is still very—it's still much greater than any risk we should accept.

Commissioner LEWIS. But then you had two nations, essentially, that could annihilate each other, but now China is helping many nations being able to cause severe damage to us.

Dr. MILHOLLIN. That's right, but I think in order to build the political case that you'd have to have to do a better job of restraining China, the administration would have to be willing to come out and declare that helping Iraq, helping Iran, helping Syria was a threat to the United States. And so—

Commissioner LEWIS. Don't you think it is?

Dr. MILHOLLIN. It is, but we've seen it as a threat to the next administration or down the road or a few years away and no administration yet has come out and tried to rally the public and put the kind of pressure on China and Russia that you have to put on them to get them to stop. It just hasn't happened.

Now, your question assumes it should happen, and I agree. I think it should happen. Maybe we'll need a connection between these countries and terrorism for it to happen, but it should happen. So far, at least politically, it hasn't happened.

Commissioner LEWIS. Thank you. Thank you.

Chairman D'AMATO. Well, I want to thank the witnesses. Admiral McDevitt, thank you for coming. Dr. Milhollin, that was interesting testimony. And I want to thank all Commissioners for their testimony, their questions today.

This will conclude our hearing. We're going to reconvene, I believe, the 26th of October for some informal briefings. That concludes today's hearing.

[Whereupon, at 3:39 p.m., the proceedings were adjourned.]