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Recent Developments in the Region

China and Pakistan Plan to Increase Nuclear Energy Cooperation

China and Pakistan are preparing to step up bilateral cooperation in the development of nuclear power generation. [1] On April 10, 2005, Pakistani officials announced that the two countries reached an agreement whereby Beijing would provide two 300-megawatts-electric-capacity nuclear power reactors to Pakistan in the next ten years. These new reactors are in addition to a second plant at the Chashma Nuclear Facility, 280 kilometers (km) southwest of Islamabad, which Beijing committed to build in May 2004. [2] *[Editor's Note: The first Chashma nuclear power plant, also built with help from China, has a pressurized water reactor and is under International Atomic Energy Agency (IAEA) safeguards. China and Pakistan finalized an agreement in May 2004 for construction of the Chashma-2 reactor. For more information on the Chashma-2 agreement, see "Pakistan and China Ink Deal for Nuclear Reactor," Asian Export Control Observer, Issue 2, June 2004, pp. 4-5, <http://cns.miis.edu/pubs/observer/asian/pdfs/aeco_0406.pdf>.]*

During an April 2005 official tour of South Asia, which included Pakistan, India and Bangladesh, Chinese Premier Wen Jiabao reiterated that nuclear cooperation between China and Pakistan was meant solely for utilizing nuclear energy for civilian use. Wen made the point that nuclear assistance to Pakistan corresponded with international nonproliferation norms, stating that "the China-Pakistan nuclear cooperation is in complete compliance with the [Treaty on the Nonproliferation of Nuclear Weapons (NPT)]." Wen continued that nuclear ties with Islamabad were subject to "the supervision and the safeguards" laid out by the IAEA. [3]

China joined the Nuclear Suppliers Group (NSG)—an international grouping of states that coordinate nuclear export control policy—in May 2004, shortly after announcing the agreement for the Chashma-2 construction. Under NSG guidelines, member states are prohibited from making nuclear-related exports to states that have not agreed to place all of their nuclear facilities under IAEA inspection, an arrangement known as "full-scope safeguards." Pakistan has a number of facilities that are not under IAEA inspection, namely those associated with its nuclear weapons program. Despite the fact that Pakistan does not have a full-scope safeguards agreement with the IAEA, Chinese officials have insisted that the new agreement does not conflict with China's NSG commitments. Since the NSG does allow member countries to complete contracts and agreements existing at the time of the member's entry into the group—even if those contracts do not meet all NSG guidelines (a waiver is known as the "grandfather clause")—China will likely attempt to tie continued cooperation with Pakistan to existing agreements related to the Chashma facility. [4] *[Editor's Note: It is not clear whether China's attempt to justify new agreements with Pakistan under the "grandfather clause" will be acceptable to other NSG member states. While other members may have expected China to invoke the clause to complete the Chashma-2 reactor, work on a new reactor may be questioned as inconsistent with current NSG guidelines. However, at this time, no formal objections have apparently been raised by other NSG member states in reaction to China and Pakistan's recent announcement.]*

Sources: [1] "China Ready to Co-operate with Pak in N Power Generation," *Hindustan Times*, April 7, 2005, <http://www.hindustantimes.com/news/674_1061759,00410006.htm>. [2] Bokhari, Farhan, "China and Pakistan in Deal on Reactors," *Financial Times*, April 11, 2005, <<http://news.ft.com>>. [3] "China-Pakistan Nuclear Cooperation in Line with Non-proliferation Norms: Wen," Agence France Presse, April 12, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [4] Editor's discussion with Chinese government official, April 2005.

Illegal Nuclear Sale Blocked in India; New Delhi Passes New Export Control Legislation

On April 10, 2005, undercover Indian police officers arrested two men for attempting to sell one kilogram (kg) of semi-processed uranium for 1.5 million rupees (US\$34,313) in Guwahati, the state capital of Assam. Senior police official Khagen Sarwah, who was investigating the case, speculated that the uranium was stolen from the Department of Atomic Energy's uranium ore reserve in the neighboring state of Meghalaya. Police are still investigating the identities of the two men and the destination of the uranium. [1] *[Editor's Note: Although not specified in media reports, since the uranium came from an ore reserve, the term "semi-processed" likely meant that the uranium ore underwent some milling so that some or all of the sample were in the form of yellowcake. Yellowcake is natural or unenriched uranium. Since yellowcake is less than one*

percent U-235 (the uranium isotope good for fuel or bombs), the uranium recovered in Guwahati would have contained only about 10 grams of U-235. To begin work on a nuclear weapon, one would need at least several kilos worth of U-235.]

News of the attempted transfer of nuclear material coincided with recent efforts by the Indian government to enact new WMD-related export control legislation. Beginning in 2002, increasing exports of defense-related equipment, as well as civilian nuclear materials, became a focus of the Indian government. In connection to this new export policy, New Delhi increased attention given to domestic nonproliferation efforts, as concerns arose about the control of sensitive items being manufactured and traded by an increasing number of entities within India. [2]

On May 14, 2005, both houses of the Indian parliament, the Lok Sabha (lower house) and Rajya Sabha (upper house), approved new export control regulations, which included increased penalties for individuals involved in proliferation-related activities. [3] The legislation, called *The Weapons of Mass Destruction and Their Delivery Systems (Prevention of Unlawful Activities) Bill, 2005*, includes a minimum punishment of five years and a maximum of life imprisonment for illegally exporting controlled goods. The bill seeks to prevent the “export, transfer, re-transfer, transit and transshipment of material, equipment or technology relating to weapons of mass destruction [WMD] or their means of delivery.” [4] The law applies to all modes of transport within India, as well as in its Exclusive Economic Zone (an area of 360 km from its shores) and airspace. Foreign subsidiaries, branches, and associates registered in India are also subject to the law. [5] According to a spokesperson from India’s External Affairs Ministry, the bill also addressed India’s commitment to nonproliferation under United Nations Security Council Resolution 1540 passed in April 2004, which criminalizes the transfer of WMD to non-state actors or terrorist groups by requiring nations to implement effective national laws to prevent their spread. [6]

India, a declared nuclear weapons state, remains outside the NPT. As such, New Delhi is not eligible for membership in the NSG. A recent media report indicated that the United States might be encouraging India to join the NSG as a means of preventing any new emergence of a nuclear black market similar to the one created by Pakistani scientist A.Q. Khan. [7] However, since India would be required to give up its nuclear arsenal before joining NPT, New Delhi is unlikely to be eligible for membership to the suppliers group for the foreseeable future. [8]

Sources: [1] Subir Bhaumik, “India Foils Uranium Theft ‘Plot,’” *BBC News*, April 11, 2005, <http://news.bbc.co.uk/2/hi/south_asia/4432703.stm>. [2] “Privatization in Defense Must be Accelerated,” *India Business Insight*, February 23, 2004, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [3] “Parliament Approves WMD Bill,” *The Hindu*, May 14, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [4] “India Govt Moves to Prevent Nuclear Proliferation, Missile Technology Transfer,” AFX-Asia, May 10, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [5] “Govt Ready with Law against Smuggling WMDs, N-material,” *Indian Express*, April 27, 2005, <<http://www.indianexpress.com>>. [6] “Bill Will Not Constrict Nuclear Programme,” *The Hindu*, May 14, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [7] “U.S. Backs India, Pakistan Joining Nuclear Suppliers Group,” Japan Economic Newswire, April 30, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [8] R. Ramachandran, “India and the Nuclear Suppliers Group,” *The Hindu*, April 25, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>.

China Criticizes Export Restrictions of Trading Partners; U.S. Export Controls Singled Out

On March 31, 2005, the Chinese Ministry of Commerce (MOFCOM) released its *2005 Foreign Market Access Report*, detailing the relevant trade policies, regulations, and barriers to trade of China’s major trading partners. [1] In the sections of the report detailing the trade policies of China’s top three trading partners—the European Union, the United States, and Japan—MOFCOM complained that China was not given “market economy status” and that anti-dumping and safeguard measures were unjustly used against Chinese industry. The MOFCOM report also pointed out what it considered to be the unfair treatment of Chinese entities by the export control systems of these trading partners. Of these three, the export control regulations of the United States were discussed in the most detail and singled out by the authors as, in their opinion, particularly unreasonable.

In the case of the European Union, the report considered the EU arms ban against China to be discriminatory and negatively affecting bilateral trade. However, MOFCOM did not heavily criticize the EU policy, choosing to focus more attention on recent bilateral discussions aimed at lifting the ban. In the section reporting on Japan's market access, the MOFCOM report criticized Tokyo's use of "catch-all" provisions and the resulting placement of 14 Chinese entities on Japan's list of entities accused of trading WMD-related goods to countries of concern—an action that, according to the report, was undertaken "without any conclusive evidence."

In comparison to the other trading partners, U.S. export controls drew the harshest criticism from the market access report. According to MOFCOM, China applied to the U.S. Department of Commerce for more dual-use product export licenses than any other nation. However, the report complained, application procedures for Chinese companies are "the lengthiest," and ultimately "China is afforded very few license exceptions." The report further complained that 19 Chinese entities are on the U.S. Department of Commerce's *Entity List*, accounting for one-third the total companies singled out by the United States for stricter licensing scrutiny. [1] According to one analysis of the report, in 2004 "Chinese companies faced more trade and investment barriers in the United States than in any other part of the world." [2]

While Washington did not respond directly to the complaints set forth in China's *Market Access Report*, a number of issues discussed in MOFCOM's report were recently addressed by a high-level official from the U.S. Department of Commerce. In a speech given to the Eighth National Forum on Export Controls in Washington, D.C., on April 28, 2005, the U.S. Acting Under Secretary of Commerce for Industry and Security, Peter Lichtenbaum, addressed the issue of U.S. export controls and dual-use exports to China. According to Lichtenbaum, the rapid increase of trade with China has made licensing procedures for dual-use exports more complex than in the past "when Western countries reviewed all license applications for exports to China as likely transfers to a hostile military." While recognizing that the United States and other Western trading partners are seeking to work with China to promote international stability, Washington continues to differ with Beijing on a number of security and foreign policy issues. As a result, states Lichtenbaum, the "objective [of the United States] is to expand trade with China, consistent with a sober consideration of the security and foreign policy concerns." [3]

In contrast to the claims in MOFCOM's report, Lichtenbaum argued that U.S. dual-use export controls "are not major impediments to overall U.S. trade with China. Licensing requirements affect only 1.5 percent of exports to China and, for those exports that require a license, about 95 percent of the applications are approved. Further, for those exports to China requiring a license, we have reduced processing times from FY 2004 to the first half of FY 2005." However, Lichtenbaum continued, "As much as we favor expanding trade with China, we will not knowingly approve any export that will help China modernize its military capabilities." [3]

Sources: [1] The full report in English is available on China's Ministry of Commerce website, <<http://gpj.mofcom.gov.cn/table/2005en.pdf>>. The trading partners profiled in this report were: Argentina, Australia, Brazil, Canada, Egypt, the European Union, India, Indonesia, Japan, Malaysia, Mexico, New Zealand, Nigeria, the Philippines, Republic of Korea, the Russian Federation, Saudi Arabia, South Africa, Thailand, the United States, and Vietnam. These 22 countries accounted for 68 percent of China's total trade. [2] "Report Points to Trade Barriers," *China Daily*, April 1, 2005, <<http://www.china.org.cn/english/2005/Apr/124485.htm>>. [3] "Speech by Acting Under Secretary Peter Lichtenbaum, 8th National Forum on Export Controls, April 28, 2005," Website of the U.S. Department of Commerce's Bureau for Industry and Security, <<http://www.bxa.doc.gov/News/2005/USNationalForum.htm>>.

Embargoes and Sanctions Regimes

U.S. Adds Entities in China and Hong Kong to "Denied Persons," "Unverified" Lists

In March and April 2005, the U.S. Department of Commerce Bureau of Industry and Security (BIS), branded seven firms and individuals from China and Hong Kong as noncompliant with U.S. export control regulations. On March 8, 2005, BIS placed four Hong Kong-based companies, one Chinese company based in the port city of Tianjin, and one Hong Kong-based individual on the "Denied Persons List" for having exported controlled items to Pakistan that could be used in a nuclear weapons program. The five firms and one person identified were: Gold Technology, Ltd. (Hong Kong); Hero Peak, Ltd. (Hong Kong); Portson

Trading, Ltd. (Hong Kong); Sunford Trading, Ltd. (Hong Kong); Zhenke International Trading Company, Ltd. (Tianjin); and Joanna Liu (Hong Kong). [1] The measure taken by BIS denies these entities licenses to buy, sell, or trade any technology or commodities in the United States controlled under U.S. Export Administration Regulations (EAR). [2]

On April 26, 2005, BIS added the Hong Kong company Parrlab Technical Solutions, Ltd., to its “Unverified List.” Companies are added to this list if BIS is unable to carry out either a pre-license check (PLC) or a post-shipment verification (PSV) to confirm the validity of export transactions and to ensure that U.S. exports have been delivered only to authorized end users. Companies can also be added to the list if BIS is unable to verify the existence or authenticity of any of the entities involved in an export transaction. The reason for Parrlab’s addition to the list was not indicated on the official BIS announcement of the action. Companies on the “Unverified List” are “red-flagged,” placing an affirmative duty on exporters “to inquire, verify, or otherwise substantiate” that transactions with this company do not violate the EAR. [3] Currently 12 entities are on the list, including six other firms from Hong Kong, two firms from Malaysia, two from Singapore, and a company in the United Arab Emirates. [4]

Sources: [1] U.S. Department of Commerce Bureau of Industry and Security, “Press Release: Order Temporarily Denying Export Privileges”, *Federal Register*, March 14, 2005, Vol. 70, No. 48, p. 12442, <<http://a257.g.akamaitech.net/7/257/2422/01jan20051800/edocket.access.gpo.gov/2005/pdf/05-4877.pdf>>. [2] “Denied Persons List – The Standard Order,” Website of the U.S. Department of Commerce Bureau of Industry and Security, <<http://www.bis.doc.gov/dpl/StandardOrders.htm>>. [3] U.S. Department of Commerce Bureau of Industry and Security, “Revision to the Unverified List—Guidance as to ‘Red Flags’,” *Federal Register*, April 26, 2005, Vol. 70, No. 79, pp. 21394-21395, <http://www.bxa.doc.gov/Enforcement/UnverifiedList/UVL%20NOTICE_04262005.pdf>. [4] “Unverified List, April 26, 2005,” Website of the U.S. Department of Commerce Bureau of Industry and Security, <http://www.bxa.doc.gov/Enforcement/UnverifiedList/unverified_parties.html>.

Proliferation Issues in the Region

Indonesia’s Plan to Build Nuclear Power Plant Raises Security Concerns

In April 2005, Indonesia announced plans to build the country’s first nuclear power plant on the Muria peninsula in Central Java. [1] According to the Indonesian National Nuclear Energy Agency (Badan Tenaga Nuklir Nasional, or BATAN), construction on the project will start in 2010 and is expected to produce electricity by 2016. An earlier plan to build a nuclear power plant was shelved in 1997 after legislators, environmentalists, and academics argued that Indonesia should use alternative sources of energy since nuclear power was not a suitable option for the earthquake-prone country. [2] Keeping these past concerns in mind, Indonesian authorities chose the Muria peninsula site in large part due to its relative tectonic and volcanic stability. [1]

Indonesia currently relies on hydro-, coal-, and oil-generated electricity for its energy needs, and it is also exploring untapped geothermal resources. [3] However, the Indonesian government believes these resources will not satisfy the growing needs of the country’s emerging economy. Indonesia’s demand for energy has risen steadily and, for the past several years, its imports of petroleum products have exceeded exports. [4] According to BATAN’s Chairman Soedyartomor Soentono, the country has about “five percent renewable energy left.” Arguing for the need to build a nuclear power plant, he continued that “in order to prop up the country’s industry sectors [Indonesia will] need long-term energy sources.” [5]

Since the announcement of the newest plan to build a nuclear reactor, concerns have arisen regarding Indonesia’s ability to secure its nuclear facilities and materials effectively. [6] Several recent terrorist bombings and thefts of radioactive materials in Indonesia have raised questions about the security of domestic facilities. In 2000, for example, 21 radioactive sources were stolen from a steel company located near the coastal town of Cilegon, West Java, roughly 93 miles northwest of Jakarta. [7] The country is estimated to have more than 3,000 sites holding radiological material. Highlighting these concerns, Azhar Djaloelis, Chairman of Indonesia’s Nuclear Energy Regulatory Agency, admitted that the theft prevention, detection, and response capabilities of nuclear and radiological facilities in Indonesia were “inadequate.” [8]

In order to improve security of its nuclear facilities, Indonesian authorities have expressed interest in cooperating with the IAEA, as well as with other states, through various bilateral agreements. In November 2004, for example, the Indonesian Nuclear Energy Regulatory Agency signed an agreement with the U.S. Department of Energy aimed at increasing cooperation on nuclear safeguards and security. [9] Jakarta has also stated its intention to implement the IAEA's Code of Conduct on Safety and Security of Radioactive Sources, which outlines the responsibilities of each state in regulatory control and management of radioactive materials used in industry, research, and medicine. [10, 11]

According to Thomas Aquino Sriwidjaja, Indonesia's Ambassador to the IAEA, Jakarta "has taken the necessary measures to minimize any possible threat to its own nuclear facilities [and] has also improved and strengthened the physical protection of the existing nuclear facilities in accordance with international standard requirements." [10]

Sources: [1] "Indonesia Gives Green Light to Nuclear Power Project," Agence France Presse, April 18, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [2] S. Soekamto, "Gov't Considers Postponing Plan to Build Nuclear Plant," Indonesian National News Agency, August 14, 1997, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [3] "Indonesia to Seek Public Approval Over Nuclear Power Plant Plan," Agence France Presse, April 19, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [4] "Indonesia Should Downgrade its OPEC Status, Government Panel Says," Associated Press, April 19, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [5] "Indonesia Expects to Begin Nuclear Power Plant Operations in 2016," Deutsche Presse-Agentur, February 23, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [6] "Indonesia Revives Nuclear Power Plan," *Sydney Morning Herald*, March 23, 2005, <<http://www.smh.com.au>>. [7] "Radioactive Materials Stolen from Indonesian Steel Factory," Associated Press, October 24, 2000, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [8] "Third World Must Boost Nuclear Security, Experts Say," Global Security Newswire, March 18, 2005, <http://www.nti.org/d_newswire/>. [9] National Nuclear Security Administration, "U.S. and Indonesian Governments Sign Arrangement on Nuclear Safeguards and Security Cooperation," November 9, 2004, Press Release on NNSA website <[http://www.nnsa.doe.gov/docs/PR_NA-04-25_Indonesia_Arrangement_\(11-09\).htm](http://www.nnsa.doe.gov/docs/PR_NA-04-25_Indonesia_Arrangement_(11-09).htm)>. [10] "Indonesia Wants Nuke Power, Aware of Terrorist Threat," Reuters, March 21, 2005, <<http://www.reuters.com/>>. [11] "Code of Conduct on the Safety and Security of Radioactive Sources," International Atomic Energy Agency, Vienna 2004, IAEA/CODEOC/2004, <http://www-pub.iaea.org/MTCD/publications/PDF/Code-2004_web.pdf>.

Regional Cooperation

Brunei Welcomes Japanese Export Control Experts

Japan's Ministry of Economy, Trade, and Industry (METI) conducted an export control seminar in Brunei Darussalam on March 23, 2005. At the event, three METI officials gave presentations to officials from Brunei's Ministry of Finance and the Royal Brunei Customs and Excise Department on several export control-related topics. The METI officials provided an overview of Japan's export control system, control lists, screening and verification system, and business outreach efforts. Additionally, METI officials discussed with their Bruneian counterparts recent illicit procurement trends and the need for export controls in the region. [1,2,3]

The March seminar also looked at how improvements could be made to Brunei's export control system. Although Brunei has attended regional meetings and seminars focused on export controls and nonproliferation in the past, the Sultanate's infrastructure for controlling illicit transfers of WMD-related items is weak. Prior to March 2005 seminar, little had been done domestically to address weaknesses in Brunei's export control system. [*For an assessment of the Sultanate's recent export control activities and domestic system, see the Brunei Darussalam section in "2004 In Review: Export Controls and Nonproliferation in East Asia," Asian Export Control Observer, Issue 5, December 2004/ January 2005, pg. 6, <http://cns.miis.edu/pubs/observer/asian/pdfs/aeco_0412.pdf>.*] In an effort to improve Brunei's system, METI officials offered Japanese government assistance with establishing effective export controls. [1,3] During the seminar, Bruneian officials announced that the Sultanate is considering signing the IAEA's Additional Protocol. [4]

The Brunei seminar was part of Japanese efforts to improve domestic export controls in Southeast Asia. As ASEAN member states increase trade within the region, Tokyo has expressed growing concern that

Southeast Asian countries will become transshipment points for WMD-related materials. [1] Besides the annual Asia Export Control Seminar, which Japan has hosted for the last 12 years, Tokyo has held several export control seminars in the last few years with the cooperation of a number of Southeast Asian nations, including Indonesia, the Philippines, Thailand, Vietnam, Cambodia, and Laos. [1] [*Editor's Note: Tokyo announced on January 5, 2004, that it would begin to use the strength of a recipient country's export control system as one factor for assessing access to Japanese Official Development Assistance (ODA.) See related story in the Asian Export Control Observer, Issue 1, April-May 2004, p. 8, <http://cns.miis.edu/pubs/observer/asian/pdfs/aeco_0404.pdf>.*]

Sources: [1] "Brunei Yushutsukanri Genchi Seminaa No Kaisai Ni Tsuite (Regarding the Export Control Seminar in Brunei)," Japanese Ministry of Economy, Trade, and Investment (METI) News Release, March 25, 2005, <<http://www.meti.go.jp/press/20050325004/20050325004.html>>. [2] Azlan Othman, "Japan's METI to Host Export Control Seminar," *Borneo Bulletin*, March 26, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [3] Azlan Othman, "Brunei: Japan Offers Help on WMD Expertise," *Borneo Bulletin*, March 29, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [4] Azlan Othman, "Brunei: Brunei May Sign IAEA Additional Protocol," March 30, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>.

Maritime and Port Security

Chinese Port of Shanghai Joins U.S. Container Security Initiative; Argentina and Brazil to Follow Suit

On April 28, 2005, Robert C. Bonner, Commissioner of U.S. Customs and Border Protection (CBP) and Mou Xinsheng, Director of the General Administration of Customs of the People's Republic of China (PRC), announced that the Chinese port of Shanghai became the 36th operational port under the Container Security Initiative (CSI). [1]

CSI cooperation between the United States and China began on October 25, 2002, when U.S. President George W. Bush and former PRC President Jiang Zemin reached a consensus on the issue in Crawford, Texas. On July 29, 2003, Commissioner Bonner and Director Mou signed the Declaration of Principles on CSI to target and pre-screen cargo containers from the ports of Shanghai and Shenzhen destined for U.S. ports. According to a written statement by Mou Xinsheng, "the Chinese government firmly opposes and condemns terrorism in all its forms and manifestations, and actively takes actions to prevent and combat all terrorist activities. China and the U.S. have great prospects for anti-terrorism cooperation and both sides' efforts in strengthening cooperation in container security are a good example." U.S. Ambassador to the PRC Clark T. Randt, Jr., said, "I am pleased that CSI is now extended to the port of Shanghai, China's busiest port and one of the world's most important ports. I look forward, also, to the opening of CSI in Shenzhen in the coming months." [1] [*For more detail on the negotiations between China and United States on CSI, see Shi-Chin Lin, "The U.S. Container Security Initiative in Asia," Asian Export Control Observer, Issue 2, June/July 2004, pp. 18-21.*]

In a related development, on May 9, 2005, U.S. Ambassador to Argentina Lino Gutierrez and Dr. Alberto R. Abad, federal administrator of National Revenue of the Argentine Republic, signed the Declaration of Principles on CSI. Argentina is the first South American country to participate in the CSI. It is expected that Buenos Aires will become the first Argentine port to join the initiative. [2] On May 24, 2005, U.S. Ambassador to Brazil John Danilovich and Antonio Deher Rachid, Brazil's secretary of the Federal Revenue Secretariat, signed the Declaration of Principles on CSI. In accordance with the declaration, the port of Santos, a major export center in southeastern Brazil and the largest port in South America, will become the second port in this part of the world to be included in the CSI. [3]

The CSI is a U.S. initiative launched in January 2002, with the aim of securing maritime containerized cargo shipped to the United States against terrorist threats, by inspecting such cargo at the port of embarkation. As of May 2005, the 36 operational ports collaborating in the CSI effort and representing the world's major seaports are: Antwerp and Zeebrugge, Belgium; Halifax, Montreal, and Vancouver, Canada; Shanghai, China; Le Havre and Marseilles, France; Bremerhaven and Hamburg, Germany; Piraeus, Greece; Rotterdam, the Netherlands; Hong Kong; Genoa, Gioia Tauro, La Spezia, Livorno, and Naples, Italy; Kobe, Nagoya, Tokyo, and Yokohama, Japan; Port Klang and Tanjung Pelepas, Malaysia; Singapore; Durban, South Africa;

Busan, South Korea; Algeciras, Spain; Göteborg, Sweden; Laem Chabang, Thailand; Dubai, UAE; and Felixstowe, Liverpool, Southampton, Thamesport, and Tilbury, United Kingdom [1]

Sources: [1] "China Implements Container Security Initiative at Port of Shanghai to Target and Pre-Screen Cargo Destined For U.S.," U.S. Customs and Border Protection press release, April 28, 2005, CBP website, <http://www.cbp.gov/xp/cgov/newsroom/press_releases/04282005.xml>. [2] "Argentina Becomes the First South American Country to Sign Container Security Initiative Declaration of Principles," U.S. Customs and Border Protection press release, May 11, 2005, CBP website, <http://www.cbp.gov/xp/cgov/newsroom/press_releases/05112005.xml>. [3] Eric Green, "Brazil Signs On to U.S. Container Security Initiative," U.S. Department of State Bureau of International Information Programs, <<http://usinfo.state.gov/is/Archive/2005/May/26-824325.html>>.

Initiatives to Enhance Maritime Security in the Malacca Strait

Following an increase in piracy and armed attacks in the Strait of Malacca, Indonesia and Malaysia recently stepped up maritime security efforts in the waterway. Over one-third of the world's cargo and one-half of the world's oil passes through the strait. Acts of piracy increased by 32 percent in 2004 in the 600-nautical-mile-long, 24-mile-wide strait. The security concerns were further underscored by the March 14, 2005, hijacking of an Indonesian cargo ship transporting the combustible chemical methane. [1]

In 2004, Indonesia, Malaysia, and Singapore pledged cooperative measures to ensure the security of the strait from terrorist attack, drug and arms trafficking, and piracy. In line with this policy of regional cooperation, the three states began coordinating naval patrols in the strait. [1]

To increase the effectiveness of Indonesian patrols, the Japanese government offered Jakarta up to three mid-sized Craft Large (CL) patrol boats. Measuring 20 meters in length, each CL boat cost 700 million yen (US\$6.5 million) and will be paid for under the Japan's ODA budget—this represents the first time Japan has offered equipment of this type to a developing country free of charge. Capable of traveling at high speeds and making razor-sharp turns, the patrol boats "are ideal for handling pirates in the Malacca Strait where there are many islands," a senior Japanese Coast Guard official said. Other Japanese officials emphasized that since the boats will not be armed, they do not violate Japan's ban on weapons exports. More than 90 percent of Japan's oil passes through the strait. [2]

Malaysia has recently announced that it will establish a 24-hour radar system in the strait to protect against attacks by terrorists and pirates. Malaysia's Deputy Prime Minister Najib Razak stated that Malaysia wanted to improve sensor capabilities "especially at night, using radar to conduct surveillance on traffic that goes through the Strait." Najib also stated that a Malaysian Maritime Enforcement Agency would be operational by the end of 2005. The government has earmarked 286 million ringgit (US\$75 million) to establish the agency, which is designed to increase enforcement to curb terrorist attacks, piracy, and illegal immigration. [3]

Despite the ongoing efforts of the primary states involved, the Japan-based National Institute for Defense Studies stated in its *Strategic East Asian Review*, published March 28, 2005, that greater multilateral cooperation on maritime security issues was warranted and encouraged the Japanese government to take the lead on such matters. [4]

Sources: [1] "Sea Pirates Strike in Strait of Malacca," ISN Security Watch, March 14, 2005, <<http://www.isn.ethz.ch>>. [2] Tsuyoshi Nojima, "Japan to Offer Patrol Ships to Curb Piracy," *Asahi Shimbun*, March 17, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [3] "Malaysia to Boost Malacca Strait Security with 24-hour Radar System," *MPS Newsletter*, March 18, 2005, <<http://www.mpsint.com/newsletter.html>>. [4] "Greater Maritime Security Needed for Southeast Asia: Report," Tokyo Jiji Press, March 28, 2005, in FBIS JPP20050328000070.

Regional Round-Up

Negotiations Continue between China and Australia over Uranium Exports: Australia has opened negotiations to become China's main supplier of natural uranium in a deal that is expected to be concluded within 12 months. According to the Australian government, any agreement must include Beijing's commitment to prevent any supplied uranium from being used for nuclear weapons. China plans on building

40 to 50 power plants in the next two decades, and uranium shipments from Australia would help alleviate some of its growing energy needs. [1] During a press conference in China on April 23, 2005, Australia's Prime Minister John Howard, commenting on the current uranium negotiations, said, "I think at this stage we're just talking about the issue...it's on the agenda whereas a year ago...I don't think it was on the agenda to the extent that it is now." In a briefing to the Australian parliament, Foreign Minister Alexander Downer also identified Indonesia, Thailand, and Vietnam as potential future markets for Australian uranium exports. [2]

U.S. Seeks to Block Export of Mapping Technology to China: According to the Australian mining company BHP Billiton, the United States Navy has blocked the company's attempts to use an advanced geographic surveying technology in China. The plan to use the "Falcon" mapping system in China for mineral and oil and gas exploration was rejected by the U.S. Navy, because the system appears on the list of U.S. munitions banned for export to China. BHP Billiton leases the Falcon system from the U.S. Navy, and according to a spokesperson for the company, "[The US Navy] can dictate where we can and can't use it." Falcon technology was originally intended for use aboard U.S. submarines, and there is concern that if China obtained this mapping system, it may be adapted for military purposes. [3]

Malaysia's Chemical Arms Bill Goes to Upper House: Legislation aimed at regulating possession, production, or trade in chemical weapons and their precursor chemicals reached the Malaysian upper house of parliament (the Dewan Negara) in May 2005. *The Chemical Weapons Convention Bill (2004)* seeks to enact legislation making the transfer, possession, or production of chemical weapons punishable by a maximum of 30 years in prison. [4] The bill was introduced in the parliament by the Malaysian government in December 2004. The lower house (the Dewan Rakyat) began debating the legislation in March 2005, and approved the act on April 18, 2005. The bill then moved to the upper house, where it was scheduled for a vote on May 18, 2005; however, no final results from the upper house's debate have been released as yet. [5] In response to concerns raised within Malaysia's chemical industry, Foreign Minister Datuk Seri Syed Hamid Albar said that the intention of the act was not to control the use, production, or movement of chemicals, but to ensure that dangerous chemicals do not fall into the wrong hands. The Foreign Minister also stated that the legislation will not impact Malaysian industry, as no action would be taken against those who adhered to the provisions of the CWC bill. [6] On May 17, 2005, the Federation of Malaysian Manufacturers (FMM) held a briefing in Kuala Lumpur to raise awareness among chemical industry professionals about their obligations under the CWC as well as the new national legislation, which is expected to pass the Dewan Negara and be in effect by November 2005. [7]

Vietnam Considers Additional Protocol: Tran Ci Thanh, an official at Vietnam's Institute for Energy under the Ministry of Industry, recently stated that despite earlier reservations, Vietnam now intends to sign the Additional Protocol to its IAEA inspection ("safeguards") agreement. Many countries in Southeast Asia, including Vietnam, have expressed concern that the widespread adoption and implementation of the IAEA protocol will cause the agency to shift its attention away from providing technical assistance to developing countries and to focus more of its efforts on nonproliferation programs. Despite such fears, according to Tran, Hanoi is expected to sign the agreement following an IAEA meeting on the protocol held later this year in Vietnam. [8]

Sources: [1] Janaki Kremmer, "Proposed Uranium Deal to China Raises Weapons Concerns," *Christian Science Monitor*, March 29, 2005, <www.csmonitor.com/2005/0329/p04s01-woap.html>. [2] "Transcript of the Prime Minister Hon. John Howard MP," Boao Forum, Shanghai, April 23, 2005, <www.pm.gov.au/news/interviews/Interview1347.html>; "Australia Eyes Uranium Sales to SE Asia," Reuters, May 31, 2005, <<http://www.reuters.com>>. [3] Wayne Arnold, "U.S. Blocks Use of Mapping System in China," *New York Times*, April 4, 2005, <<http://nytimes.com/2005/04/04/technology/04map.html>>. [4] Dalilah Ibrahim, "House to Debate Chemical Arms Bill," *The Star Online*, March 17, 2005, <<http://thestar.com.my/>>. [5] "Disarmament Must Be Pursued Vigorously within UN Context," Bernama (Malaysian National News Agency), May 16, 2005, <<http://www.bernama.com>>. [6] Chok Suat Ling, Ranjeetha Pakiam and Minderjeet Kaur, "Chemical Weapons Bill Passed," *New Straits Times* (Malaysia), April 19, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [7] Federation of Malaysian Manufacturers, "Briefing-cum-Dialogue Session on Chemical Weapons Convention (CWC)," May 17, 2005, <<http://www.fmm.org.my>>. [8] Mark Hibbs, "Vietnam to Join Protocol 'Soon' after IAEA Meeting," *Nuclear Fuel*, April 25, 2005.

Export Controls In Focus

Japanese METI Strengthens Export Controls

On April 1, 2005, the Japanese Ministry of Economy, Trade and Industry (METI) issued a press release announcing five steps being taken to strengthen the Japanese export control system. [1] [*See earlier story on Japan's export control system in the April 2004 issue of the Asian Export Control Observer, pg. 11.*]

First, four new categories have been added to Japan's export control list, and one category has been expanded. The added categories are for maraging steel (for its use in nuclear and missile development), mobile cranes (for their use in missile development), unmanned aerial vehicles (UAVs) intended for carrying sprayers, and sprayers for mounting on UAVs (as potential delivery systems for biological and chemical weapons). The category for carbon and glass fibers has been expanded to include aramid fibers, which can be used in the development of nuclear weapons and missiles. The full control list now includes a total of 40 categories; all items falling under these categories require export licenses from METI.

Second, METI issued an update of the foreign entities list—organizations believed linked to foreign WMD programs and banned from receiving sensitive Japanese exports. Fourteen new companies have been added to the list, including six North Korean companies (Korea Kuk Sabong Joint Venture Company, Korea Kuwolsan Trading Company, Taean Electric Factory, Korea Rungra-888 Trading Corporation, Taean Friendship Glass Factory, and Korea Rungra-888 Muyeg Hisa), as well as one Chinese firm—the Chinese Aerodynamics Research and Development Center (CARDC). [*Editor's Note: Although Korea Rungra-888 Trading Corporation and Korea Rungra-888 Muyeg Hisa are listed as separate entities on METI's list, they appear to be the same company.*] Nine firms have been removed from the list, including China's state-owned civilian nuclear corporation, China National Nuclear Corporation (CNNC). In total, METI's current list consists of 165 companies, with the majority of the companies from North Korea (39), Iran (39), India (35), and Pakistan (24). Fourteen Chinese firms and one Taiwanese firm are also on the list. [2]

Third, beginning in June 2005, the Japanese government will undertake a program to provide comprehensive export licenses to companies that have instituted voluntary internal export control compliance programs (CP). CPs are based on the establishment of strong internal control systems, including thorough screening of contracts and en-route monitoring of exports. Currently, 360 Japanese companies have developed CPs, and METI predicts that an additional 200 companies will adopt CPs each year for the next three years.

Fourth, METI announced plans to promote the understanding of the importance of export controls by holding informational meetings for representatives from 767 universities and research institutes in Japan. These meetings are intended to familiarize participants with proper compliance with foreign exchange laws.

Finally, METI plans to strengthen export control assistance programs for overseas subsidiaries of Japanese companies. The Japanese government will provide resources for on-the-job-training sessions, assist in spreading best practices, and encourage the dissemination of the Center for Information on Security Trade Control (CISTEC) trade control guidelines and guidance procedures. [*Editors Note: The Center for Information on Security Trade Control is a non-profit, non-governmental Japanese organization dedicated to maintaining international peace and security by supporting the development of rational export controls consistent with Japanese economic activities. CISTEC works to promote the harmonization of international export control laws and regulations.*]

Sources: [1] Japanese Ministry of Economy Trade and Industry (METI) News Release, "Yushutsukanri no houkatsuteki kyouka ni tsuite (Comprehensive Strengthening of Export Controls)," April 1, 2005, <<http://www.meti.go.jp/press/20050401006/050331yusyutu.pdf>>. [2] For the complete list, see the website of the Japanese Ministry of Economy, Trade and Industry (METI), "Gaikoku yuuzaa risto (Foreign Users List)," April 1, 2005, <<http://www.meti.go.jp/policy/ampo/>>. For comparison, the previous version of the Foreign Users List (December, 2004) is available at <<http://www.meti.go.jp/policy/ampo/tamago/catch-all/userlist/gaikoku-risuto.xls>>.

International Supplier Regimes

Australia Group's Plenary Meeting Marks the Organization's Twentieth Anniversary; Dual-Use Biological Equipment Control List Expanded

On April 18-21, 2005, the Australia Group (AG) met for its annual plenary, in Sydney, Australia. This year's meeting marked the 20th anniversary of the AG, which was founded in 1985. The plenary—the first to be held in Australia—was opened by the Australian Minister for Foreign Affairs, Alexander Downer. Minister Downer praised the work of the AG over the previous 20 years noting that “the Group's forward thinking, cohesive and pragmatic approach to preventing the spread of weapons of mass destruction ensures it achieves practical gains in the fight against proliferation.” Downer also noted the criticisms leveled by some countries “that the export controls [the AG] promotes restrict the access of developing countries to technology transfers.” The minister claimed that “these criticisms have become steadily less vocal in recent years.” Downer explained this development as reflecting the increasing recognition that “[w]hile many states parties to the Chemical Weapons Convention (CWC) and the Biological Weapons Convention apply export controls in the implementation of their convention obligations, others do not. And many fail to enforce controls in a robust and effective manner. Moreover, in the absence of a verification body for the Biological Weapons Convention, the Australia Group's development of control lists covering materials and technology relevant to the production of biological weapons represent the only harmonised form of control over these items... It has become increasingly apparent that the well-balanced and harmonised export controls implemented by Australia Group members have brought increased security to this trade [in the chemical and biotechnology sectors], without restricting legitimate trade... [M]any non-Australia Group members have recognised the real value of the Australia Group's comprehensive control lists in preventing chemical and biological weapons-relevant items and technology falling into the hands of proliferators.” [1] *[Editor's Note: Downer appears to be reiterating the view that international trade will be increased if there is confidence that exported materials will not be diverted to support prohibited activities. This statement is unlikely to assuage sufficiently the concerns of Iran and other members of the Non-Aligned Movement who regularly express displeasure with the AG in international forums such as the meetings of the Organization for the Prohibition of Chemical Weapons.]*

An important development at this year's plenary was the acceptance of Ukraine as the 39th member of the AG. Ukraine possesses a large chemical manufacturing industry and, according to the AG press release, bringing it into the AG strengthened the credibility and effectiveness of the regime as a whole. Ukraine's acceptance into the AG continued the process whereby the AG has worked to improve the coordination of the export control regulations of major chemical and biotechnology exporting nations. In this regard, the meeting also welcomed Israel's recent announcement that it would adhere to the AG export control guidelines in administering its chemical and biotechnology exports. [2]

In order to encourage more states to adopt AG guidelines as the basis for their export control administration, the participants agreed to continue work on developing outreach strategies based on targeted regional approaches. The AG also recognized the need to improve its website by incorporating practical information on export control implementation and translating the site into all official UN languages. [2] *[Editor's Note: Currently the AG website is available only in English, French, German, and Spanish. The implementation of the aforementioned proposal would, therefore, create Arabic, Chinese, and Russian mirror versions of the website.]*

Another important development at this year's meeting, which will serve to increase the timeliness and effectiveness of information sharing among participants, was the establishment of the Australia Group Information System as a secure electronic communication tool between participants. [2] The effectiveness of the AG as a nonproliferation tool is highly dependent on all members having clear and up-to-date knowledge of denied applications in other member states. As a consequence of the new system, the time and expense involved in processing export permit applications will hopefully be reduced, thus minimizing the burden on exporters.

The activities of the nuclear proliferation network led by Pakistani nuclear scientist A.Q. Khan were also noted and led to proposals for the examination of tighter controls on brokering and intermediary activities in trade involving chemicals and biotechnology.

The AG meeting agreed on a number of important adjustments to the existing control lists. Existing controls on pumps and genetically modified organisms were revised to improve enforcement and help exporters better understand their obligations. As part of the AG's ongoing efforts to keep its common control lists up to date and scientifically relevant, participants also agreed to examine the addition of up to 25 more biological agents to the control lists. [2] These agents were not added at this meeting but may be added to the control lists at the next plenary meeting in 2006.

Finally, an agreement was reached on adding a new category of items to the control list of dual-use biological equipment. [3] The addition of certain types of spraying and fogging systems, which are capable of disseminating biological agents as infectious aerosols, to the control list was a significant enhancement of international controls, but it is also likely to increase concerns that the AG is impeding the modernization of developing countries. The AG added what it describes as "the most threatening aerosol sprayers" to the control list in response to increasing concerns over indications of terrorist interest in dispersal devices for biological agents. [2] The AG members have attempted to limit the range of items incorporated in the control list so that the new regulations would not affect traditional crop-dusting type activities. These activities generally rely on much larger droplet sizes than those suitable for the dissemination of biological warfare agents.

The AG Control List of Dual-Use Biological Equipment and Related Technology now includes the following new section:

8. *Spraying or fogging systems and components therefore, as follows:*
- a. *Complete spraying or fogging systems, specially designed or modified for fitting to aircraft, lighter than air vehicles or UAVs [unmanned aerial vehicles], capable of delivering, from a liquid suspension, an initial droplet "VMD" of less than 50 microns at a flow rate of greater than two litres per minute.*
 - b. *Spray booms or arrays of aerosol generating units, specially designed or modified for fitting to aircraft, lighter than air vehicles or UAVs, capable of delivering, from a liquid suspension, an initial droplet "VMD" of less than 50 microns at a flow rate of greater than two litres per minute.*
 - c. *Aerosol generating units specially designed for fitting to systems that fulfil all the criteria specified in paragraphs 8.a and 8.b. [3]*

Sources: [1] Alexander Downer, Speech before the Twentieth Anniversary Plenary of the Australia Group, April 18, 2005, Website of the Minister for Foreign Affairs of Australia, The Honorable Alexander Downer, MP, <http://www.foreignminister.gov.au/speeches/2005/050418_ag.html>. [2] "Media Release: 2005 Australia Group Plenary," Australia Group website, April 2005, <http://www.australiagroup.net/en/releases/press_2005.htm>. [3] "Control List of Dual-Use Biological Equipment and Related Technology," Australia Group website, <http://www.australiagroup.net/en/control_list/bio equip.htm>.

NSG Officials Visit Pakistan; Islamabad's Membership Not Possible

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On April 11, 2005, representatives of the Nuclear Suppliers Group (NSG), including current chair Richard Ekwall of Sweden, and incoming chair, Roald Naess of Norway, traveled to Pakistan for discussions with Pakistani authorities. The trip came after Pakistan's president General Pervez Musharraf agreed to consider "sending nuclear centrifuges to [the IAEA] for inspection" in order to determine if Pakistani equipment was supplied to Iran through the A.Q. Khan nuclear black market. [1]

The NSG delegation met with senior officials from Pakistan's Foreign Ministry, including Additional Secretary Tariq Osman Hyder. [*Editor's Note: Additional Secretary is equivalent to an undersecretary or vice-minister.*] Ambassador Ekwall described the visit as part of an "outreach program to states that are not members [of the NSG] but are important for the global export control regime." NSG delegations have also visited Israel, Egypt, and India as part of this effort. [2] The meeting was described by Foreign Ministry Spokesperson Jalil Abbas Jilani as "extremely fruitful," adding that the visit "afforded the opportunity to

explain steps Pakistan has taken for the establishment of [an] export control regime...consistent with Pakistan's strong commitment to nuclear nonproliferation." [2,3] Jilani also stated that "Pakistan would welcome cooperation with NSG members in the field of peaceful uses of nuclear technology and energy while maintaining our nuclear deterrence as an indispensable part of security." He went on to clarify that this meeting was the first between NSG and Pakistani officials, that it had been exploratory, and that no formal request for membership had been made. [2,3]

Prior to the visit by the NSG delegation, however, Pakistani officials appeared to indicate an interest in joining the suppliers' regime. According to Jilani, "Pakistan is fully prepared to interact with the Nuclear Suppliers Group and to become a member." [4] Jilani also stated that "being a nuclear weapons state, Pakistan has the capabilities of research and development of nuclear technology and materials... Therefore, Pakistan can contribute to the objectives of nonproliferation by joining the NSG as a partner." [5] However this proposal did not meet with a favorable response from NSG member states prior to the arrival of the delegation. Indeed, inclusion of the South Asian state into the Nuclear Suppliers Group would contradict many of the current guidelines of the group as long as Pakistan continues to possess nuclear weapons and remains outside the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Adherence to the NPT or membership in a nuclear-weapons-free zone is required to become a member of the NSG. [6] To be admitted Pakistan would have to give up its nuclear weapons and join the NPT as a non-nuclear weapon state.

Editor's Note: In September 2004, in reaction to revelations regarding the A.Q. Khan nuclear black market network, the Pakistani legislature passed the Export Control on Goods, Technologies, Material and Equipment related to Nuclear and Biological Weapons and their Delivery Systems Act, which strengthened domestic export controls and penalties for illegally transferring controlled items. For more information on changes in Pakistan's export control regulations, see Shi-Chin Lin, "The A.Q. Khan Revelations and Subsequent Changes to Pakistani Export Controls," NTI Issue Brief, October 2004, <http://www.nti.org/e_research/e3_54a.html>.

Sources: [1] "Pakistan Plans to Send Nuclear Centrifuges to International Agency," PTI News Agency (New Delhi), March 25, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [2] David Brunnstrom, "Anti-Proliferation Group Holds Talks in Pakistan," Reuters, April 11, 2004, DefenseNews.com, <<http://www.defensenews.com/story.php?F=778624&C=asiapac>>. [3] "Nuclear Supply Group Appreciates Pak Efforts in Nuclear Non-Proliferation," *Asia Pulse*, April 12, 2005, in Lexis-Nexis Academic Universe, <<http://www.lexis-nexis.com>>. [4] Sadaqat Jan, "Pakistan Wants to Join Nuclear Suppliers Group, Official Says," Associated Press, March 15, 2005. [5] "Nuclear Suppliers Group Denies Pakistan's Membership Request," *The Frontier Post*, March 19, 2005, in FBIS SAP20050321000101. [6] "Participants," Nuclear Suppliers Group website, <<http://www.nuclearsuppliersgroup.org/member.htm>>.

International Developments

IAEA Issues Report on Multilateral Approaches to Nuclear Fuel Cycle

by Lawrence Scheinman, Center for Nonproliferation Studies

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On February 22, 2005, an international expert group with representatives from 26 countries released a report on ways to strengthen controls over sensitive nuclear materials and technologies. The group was created in June 2004 by IAEA Director-General Mohamed ElBaradei.

Concerned about the impact on the international nuclear nonproliferation regime of the continuing spread of nuclear technologies that can provide direct access to nuclear-weapons-usable materials, ElBaradei convened an international group of experts to consider possible approaches to these sensitive parts of the nuclear fuel cycle that would place them under multinational controls rather than under the control of individual countries. In particular, the group was charged with identifying and analyzing multilateral approaches to managing uranium enrichment, which can give states the ability to enrich uranium to levels usable for nuclear weapons, and to plutonium separation (or reprocessing), which can enable states to acquire plutonium, the other material that can be used as the core of nuclear weapons.

The group was asked to assess the policy, legal, security, economic, institutional, and technological incentives and disincentives for cooperation on alternative multilateral arrangements. It was also asked to provide a brief review of relevant historical and current experiences relating to multilateral arrangements covering these sensitive elements of the nuclear fuel cycle.

The expert group submitted its report to the IAEA Director-General in February 2005. He in turn transmitted the report to the IAEA Board of Governors for their consideration and recommendations and plans to circulate it for information at the 2005 Review Conference on the Treaty on the Nonproliferation of Nuclear Weapons (NPT).

Four aspects of the nuclear fuel cycle were identified as areas of concern and were addressed in the study. These were uranium enrichment, reprocessing, permanent repositories for used (spent) nuclear reactor fuel and facilities for the shorter-term storage of used nuclear reactor fuel. [*Editor's Note: Plutonium is created in reactor fuel as it is used; if the plutonium is separated from the other components of the used fuel, it could potentially be used in nuclear weapons. For this reason, multilateral approaches for managing used fuel were one of the areas studied by the international expert group.*]

The report outlined for further consideration a number of means by which to strengthen nonproliferation efforts while making peaceful uses of nuclear energy more economical and attractive. Specifically, the report outlined a number of mechanisms for ensuring supplies of enriched uranium fuel for nuclear power plants to reduce incentives for additional states to develop new uranium enrichment capabilities under national control. Among these mechanisms was reinforcing existing commercial arrangements for the supply of nuclear reactor fuel by possibly creating backup arrangements such as inter-governmental agreements among supplier states to ensure NPT states in good standing that they would have predictable and reliable fuel supplies for their civil programs. A second option discussed was the development of international supply guarantees involving IAEA participation, perhaps as an administrator of a "fuel bank" upon which an NPT party in good nonproliferation standing could draw, if necessary. Another concept thought to deserve further study and consideration included the possibility of voluntary conversion of existing uranium enrichment facilities into regional or international entities in which nuclear weapon states, non-nuclear weapon states, and even non-NPT states could participate. Creating new multinational facilities through voluntary agreements based on joint ownership was also reviewed. There was also widespread interest in ideas involving fuel leasing and fuel take back options that opened the possibility for benefiting from the peaceful uses of nuclear energy without having the burden of spent fuel storage and disposal.

UN Readies New Treaty to Curb Nuclear Terrorism

On April 13, 2005, the UN General Assembly unanimously adopted the International Convention for the Suppression of Acts of Nuclear Terrorism. The convention provides a legal basis for international cooperation in the investigation, prosecution, and extradition of those who commit terrorist acts involving radioactive material or a nuclear device.

The convention will open for signature on September 14, 2005, at the high-level plenary meeting, scheduled for the General Assembly's 60th session. The treaty will enter into force after 22 states ratify it. [1, 2]

Under the convention, it is an offense to possess or use nuclear material; damage a nuclear facility (such as a nuclear power plant) with the intent to cause death, serious bodily injury, or substantial damage to property or the environment; or to compel a natural person, a legal person, an international organization, or a state to take or refrain from taking a specific action (such as acceding to demands of a terrorist organization). Radioactive material is defined to include both materials that might contribute to the manufacture of a nuclear explosive and materials that (because of their inherent radioactivity) could be used in a radiological dispersion device, or "dirty bomb."

The convention calls for states to develop appropriate legal frameworks to criminalize nuclear terrorism-related offenses and requires that alleged offenders be either extradited or prosecuted. It also encourages states to cooperate in preventing terrorist attacks by sharing information and assisting each other in connection with criminal investigations and extradition proceedings. [3]

In addition, parties are called upon to provide technical assistance in the aftermath of nuclear terrorism incidents. The convention also requires states to make every effort to adopt appropriate measures to ensure the protection of materials usable for the development of nuclear weapons or dirty bombs, taking into account relevant recommendations and functions of the IAEA. The text of the International Convention for the Suppression of Acts of Nuclear Terrorism may be viewed at <<http://www.un.int/usa/a-59-766.pdf>>.

The convention is based on a draft instrument submitted by Russia in 1998 and is the first treaty the UN has adopted at Moscow's initiative. [3, 4] U.S. President Bush and Russian President Putin called for early adoption of this convention in their February 24, 2005, joint statement on Nuclear Security Cooperation. [5]

The convention deals only with offenses committed by persons. Article 4 of the treaty makes clear that the convention does not cover the use of nuclear arms by states, declaring, "This Convention does not address, nor can it be interpreted as addressing, in any way, the issue of the legality of the use or threat of use of nuclear weapons by States."

Commenting at an April 1, 2005, press conference on the completion of the convention, Albert Hoffman of South Africa, coordinator for the negotiations on the draft convention, stated that the negotiations had been stuck on key outstanding issues (which he termed "politically motivated") that the UN General Assembly's Ad Hoc Committee on Terrorism had tried to deal with for several years. He was pleased, he commented, with the will and flexibility of delegations in recent days that led to reaching agreement. [6]

Regarding some of the proposals that were eventually withdrawn, Rohan Perera, of Sri Lanka, chair of the Ad Hoc Committee on Terrorism, identified a proposal by Pakistan on state use of nuclear weapons, which many felt was outside the scope of a law enforcement convention dealing with non-state actors.

Another proposal, Mr. Hoffman added, was by Cuba, relating to the inclusion of the actions of troops and military forces. A third proposal was offered by the United States, which wanted to add wording to the convention's preamble to stress that the goals of the peaceful utilization of nuclear technology should not be used as a cover for proliferation. That, in turn, led to a proposed amendment to the U.S. proposal by Iran emphasizing the right of all states parties to the NPT to participate in the fullest possible sharing of resources for exploiting peaceful nuclear energy resources.

Statements on the conclusion of the convention by a number of Asian states, including India, Indonesia, Japan, Pakistan, Sri Lanka, may be found at <<http://www.unis.unvienna.org/unis/pressrels/2005/13085.html>>.

Sources: [1] "General Assembly Adopts Treaty on Nuclear Terrorism; Annan Hails It as 'Vital Step,'" UN NewsCenter, April 5, 2005, <<http://www.un.org/apps/news/story.asp?NewsID=13962&Cr=terror&Cr1>>. [2] "International Convention for the Suppression of Acts of Nuclear Terrorism," Press Statement by Richard Boucher, U.S. Department of State, April 13, 2005, <<http://www.state.gov/r/pa/prs/ps/2005/44603.htm>>. [3] "Ad Hoc Committee Adopts Draft Nuclear Terrorism Convention, Culmination of Negotiations Begun in 1998," United Nations Information Service (Vienna), April 4, 2005, <<http://www.unis.unvienna.org/unis/pressrels/2005/13085.html>>. [4] "Statement by Russian Minister of Foreign Affairs Sergey Lavrov Regarding Adoption of International Convention for the Suppression of Acts of Nuclear Terrorism," Website of the Ministry of Foreign Affairs of the Russian Federation, April 2, 2005, <http://www.in.mid.ru/brp_4.nsf/0/2596d220f52b5e27c3256fd9004ac318>. [5] "Joint Statement by President Bush and President Putin on Nuclear Security Cooperation," The White House, February 24, 2005, <<http://www.whitehouse.gov/news/releases/2005/02/20050224-8.html>>. [6] Press Briefing on the Nuclear Terrorism Convention, April 4, 2005, <http://www.un.org/News/briefings/docs/2005/Terrorism_Convention_Briefing_050401.doc.htm>.

Potential Restrictions on Chinese Re-Exporting Russian Engines to Pakistan

On May 13, 2005, the state-owned Russian arms-trading firm Rosoboroneksport signed a contract with a Chinese aerospace firm to supply 100 RD-93 engines, spare parts, and technical services to be used in Chinese FC-1 fighter aircraft. Under the \$267 million agreement, the contract may be extended to provide an additional 500 engines. [1] The Russian Aircraft Corporation "MiG" (RAC "MiG") will produce the engines at its Chernyshev Machine-Building Enterprise in Moscow and at its V. Ya. Klimov Plant in St. Petersburg. [Editor's Note: The RAC "MiG" was formed in 1999 from a merger of the major manufacturers and

developers of the Russian MiG aircraft. The Federal State Unitary Enterprise RAC “MiG” is the first fully integrated aircraft company in Russia and is a full-cycle enterprise combining all aspects of production, sales, support, and overhaul. RAC “MiG” is an official main contractor to the Russian Ministry of Defense and has long-standing marketing agreements with Rosoboronekспорт. The Klimov Plant specializes in development of aircraft engines, while Chernyshev carries out the production of the engines. [2] The delivery contract between the Russian and Chinese companies does not currently allow for the production of the RD-93 engines at Chinese plants. [3] [Editor’s Note: While Russia up to now has not allowed Chinese companies to be involved in aero-engine production, there have been technology transfers in other aerospace areas, such as avionics and fire control.] [4]

After the deal was announced, questions arose about whether Russia would allow re-export of these engines. [1] The Chinese and Pakistani aerospace industries have cooperated in the development of the FC-1 fighters—also known as the JF-17 Thunder—since the early 1990s. Of the 400 fighters expected to be produced under this cooperation, the Pakistani military will receive 150 aircraft and China will retain the remaining 250 fighters, most likely for the export market. [Editor’s Note: The JF-17 Thunder is being jointly developed by China’s Chengdu Aircraft Group Corporation, in cooperation with the China Aero Technology Import and Export Corporation (CATIC) and the Pakistan Aeronautical Complex at Kamra. The United States imposed sanctions against CATIC in December 2004, reportedly for assisting Iran with its missile development program.] The JF-17 prototype made its maiden flight on September 3, 2003, and is currently undergoing trials for its fourth prototype. [5] Pakistan plans to receive the first four aircraft by the end of 2006 for trial flights and then begin domestic serial production of the JF-17 at Kamra by 2007. [6]

The use of the Russian engines in the JF-17s may cause problems for this plan, however, as Russia has committed itself not to supply arms to Pakistan. On December 1, 2004, at a press conference in New Delhi, Russian Defense Minister Sergey Ivanov stated, “At the request of the Indian side, we have virtually no military-technical cooperation with Pakistan.” [7] Owing to objections from India over the supply of Russian engines to Pakistan, a source in Russia’s Federal Service for Military Technical Cooperation told the Russian newspaper *Kommersant*, China is not being given the right to re-export the engines either separately or installed in the FC-1 aircraft. [1] However, according to one expert on China’s defense industry, the use of Chinese-made engines would not be feasible since China has not developed a power plant “sufficiently suitable for the FC-1. The aircraft has to be powered by the RD-93.” [4] Russian reluctance to allow re-export of the engine could also prove a problem for China’s marketing of the aircraft to other customers. A number of other countries, including Iran [8] and Zimbabwe [4], have reportedly already made orders for this aircraft.

Pakistani officials appeared unconcerned about the Russian statements about the engines’ re-export. The Pakistani head of the joint JF-17 project, Air Vice Marshal Shahid Latif, responded to the Russian reports in early May 2005, stating that there would be no hurdles to acquiring the Russian-produced engines, as China has already provided written assurances to Pakistan that the Russian engines would be supplied. According to Latif, the statement by the Russian Defense Minister in India had been motivated by political reasons and was not a concern for Pakistan. [9]

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Workshops & Conferences

South Korea Hosts Export Control Workshop as U.S. Raises Concerns about ROK Export Control System

South Korea's Ministry of Commerce, Industry and Energy (MOCIE) hosted a five-day export control workshop May 16-20, 2005, in Seoul. [1] Participants included officials from the U.S. Department of Energy National Nuclear Security Administration (NNSA), South Korea's Customs Office, and other Korean government agencies. The workshop was designed to enhance cooperation between the United States and South Korea in the area of export controls and to improve the ability of customs inspectors to identify controlled items or materials. [2]

The workshop followed reports of U.S. concerns over the efficacy of the South Korean export control system. U.S. officials had reportedly conveyed their dissatisfaction on numerous occasions, and, as recently as February and March of 2005, had warned South Korean officials that South Korean firms could face U.S. sanctions for unlicensed transfers of items controlled by international supplier regimes. [2, 3] South Korean press reports indicate that the United States is particularly troubled by the possible export of sensitive items to Iran and Pakistan. [4]

In 2004, the total value of South Korean exports was US\$254 billion, and strategic items or materials with the potential to contribute to foreign military or WMD programs accounted for about 33 to 40 percent of total exports. However, only about five percent of Korean strategic export items received government approval. [5] About 16 percent of South Korean export items are believed to have the potential to contribute to the development of nuclear, chemical and biological weapons or missiles. [6]

According to South Korean press reports, the South Korean government will increase monitoring and begin a crackdown on violators beginning July 2005 in an effort to avoid U.S. sanctions. [3] U.S. officials have also requested that South Korea prohibit the shipment of any products with at least 10 percent U.S. content from entering the Kaesong Industrial Complex—the inter-Korean industrial project, in North Korea, near the demilitarized zone. [7] [*For more information on the Kaesong Industrial Complex, see “Kaesong Industrial Complex near ROK/DPRK Border Opens” in the Asian Export Control Observer, Issue 6, February/March 2005, pg 3, <http://www.cns.miis.edu/pubs/observer/asian/pdfs/aeco_0502.pdf>.*]

Enforcing South Korea's export control regulations has not been easy since the Strategic Item Control Division in MOCIE currently employs only eight staff members. In February 2005, the division launched the Strategic-Item Export Control Information System as an online source to assist South Korean firms in complying with export control requirements. [6] [*For more information on the Strategic-Item Export Control Information System, see “South Korea Launches Online Database for Strategic Items Exports” in the Asian Export Control Observer, Issue 6, February/March 2005, pg 2.*] A second U.S.-South Korea-sponsored workshop is scheduled in June 2005 to educate South Korean firms about export controls. [1]

[1] “S.K., U.S. To Hold Seminars on Strategic Items,” Yonhap News Agency, May 8, 2005, in FBIS KPP20050508000083. [2] “U.S. Worried about S. Korea's Strategic Material Export Control,” Yonhap News Agency, May 16, 2005 in FBIS KPP20050516000019; Im Sang Kyun, “Mi, Han'guk Chollyangmulcha Such'ul'e Kyonggo (U.S. Warns Korea on Strategic Item Exports),” *Maeil Kyongje Sinmun*, May 9, 2005, in KINDS, <<http://www.kinds.or.kr>>. [3] Kim Sang Su, “7 Wolbut'o Chollyangmulcha Such'ul Omyokha'ge T'ongje (From July Exports of Strategic Items Will be Severely Restricted),” *Donga Ilbo*, May 17, 2005, in KINDS, <<http://www.kinds.or.kr>>. [4] Im Sang Kyun, “Mi, Han'guk Chollyangmulcha Such'ul'e Kyonggo (U.S. Warns Korea on Strategic Item Exports),” *Maeil Kyongje Sinmun*, May 9, 2005, in KINDS, <<http://www.kinds.or.kr>>; Lee Chae Ho, “Chollyangmulcha Mollae Such'ulha'myon Hoesa Manghanda (If Firms Unknowingly Export Strategic Items, They Can Go out of Business),” *Naeil Sinmun*, May 19, 2005, in KINDS, <<http://www.kinds.or.kr>>. [5] Yoon Chang-hee, “U.S. to Closely Watch Some Korean Exports,” *Joongang Ilbo*, May 17, 2005, <<http://joongangdaily.joins.com/200505/16/200505162214406839900090509051.html>>; Im Sang Kyun, “Mi, Han'guk Chollyangmulcha Such'ul'e Kyonggo (U.S. Warns Korea on Strategic Item Exports),” *Maeil Kyongje Sinmun*, May 9, 2005, in KINDS, <<http://www.kinds.or.kr>>; Im Sang Kyun, “Mi Chollyangmulcha Such'ul T'ongje Pon'gy okhwa, Such'ulmullyang 40% Ka Chollyangmulcha (U.S. Seriously Controls Exports of Strategic Items, 40% of [Korean] Exports Are Strategic Items),” *Maeil Kyongje Sinmun*, May 9, 2005, in KINDS, <<http://www.kinds.or.kr>>; “[Sasol] Paltung'ui Pul Toen 'Chollyangmulcha Such'ult'ongje' ([Editorial] The Urgent Business of Strategic Item Export Controls),” *Segye Ilbo*, May 17, 2005, in KINDS, <<http://www.kinds.or.kr>>. [6] Im

Sang Kyun, "Mi Chollyangmulcha Such'ul T'ongje Pon'gyokhwa, Such'ulmullyang 40% Ka Chollyangmulcha (U.S. Seriously Controls Exports of Strategic Items, 40% of [Korean] Exports Are Strategic Items)," *Maeil Kyongje Sinmun*, May 9, 2005, in KINDS, <<http://www.kinds.or.kr>>. [7] Yoon Chang-hee, "U.S. to Closely Watch Some Korean Exports," *Joongang Ilbo*, May 17, 2005, <<http://joongangdaily.joins.com/200505/16/200505162214406839900090509051.html>>.

Special Report

The Globalization of Nuclear Smuggling: Methods Used by Two Pakistan-Based Networks

As nuclear smuggling networks are becoming global, it is important to understand how proliferators manage to bypass existing export control systems and exploit the weaknesses of multilateral regimes. This article describes the methods used by two Pakistan-based networks—the little-publicized Karni-Khan network and the better-known A.Q. Khan network. Apart from being both based in Pakistan, these two networks have many other similarities: they both extended to various countries of the world, they involved people knowledgeable in the nuclear area, they capitalized on an unexpected flaw in the Nuclear Suppliers Group (NSG) regime, and they exploited the weaknesses of national export control systems.

The Case of Asher Karni and Humayun Khan

by Stephanie Lieggi, Center for Nonproliferation Studies, Monterey Institute of International Studies

In April 2005, a Washington, DC, federal grand jury unsealed an indictment handed down against Pakistani businessman Humayun Khan for violating U.S. export control laws, conspiring to violate federal laws, and aiding and abetting the violation of federal laws. If convicted, Khan, who lives in Islamabad and is not in U.S. custody, could face a maximum penalty of 35 years in prison, although, based on federal sentencing guidelines, a period of incarceration ranging from 78 to 97 months is more likely. [1,2]

The federal indictment followed earlier action taken by U.S. authorities against Humayun Khan. On January 31, 2005, the U.S. Department of Commerce's Bureau of Industry and Security (BIS) issued a temporary order denying exports to Khan and his Islamabad-based company Pakland PME for at least six months. According to the BIS, a "Temporary Denial Order (TDO) is needed to give notice to persons and companies in the United States and abroad that they should cease dealing with [Khan and Pakland] in export transactions involving items subject to the EAR [the U.S. Export Administration Regulations]." [3]

Both the denial order and indictment were based on evidence implicating Khan, his company, and "others, known and unknown" in the illegal export from the United States to Pakistan of items controlled by EAR. According to BIS, the accused "caused and attempted to cause exports of items controlled for nuclear non-proliferation reasons to Pakistan with knowledge that violations of the EAR would occur, and that [the accused] took actions intended to evade the EAR." [3]

According to U.S. authorities, Khan conspired to purchase an unspecified number of oscilloscopes and 200 triggered spark gaps from U.S. companies. [3] Khan allegedly arranged for the transfers of the spark gaps and oscilloscopes to Pakistan with the assistance of Asher Karni, an Israeli citizen based in South Africa. Karni's company, Top-Cape Technology, specializes in acquiring military and aviation equipment for customers. According to media reports, Top-Cape appeared to be working as a middleman for individuals in a number of countries interested in buying sensitive military and dual-use items. [4,5]

U.S. federal prosecutors first convened the grand jury that issued the 2005 indictment in October 2003 in order to examine the activities of Karni and Khan. Karni was arrested by U.S. authorities in January 2004. [4] He pled guilty in U.S. federal court to conspiracy and to violating U.S. export control regulations. His plea was announced shortly before the Khan indictment was released. [2] The case against Khan appears to have been strengthened by information provided by Karni after his arrest. [6]

Khan and his family business have worked closely with the Pakistani military for decades, according to press reports, and investigators suspect that the items in question were meant for Pakistan's nuclear program.

These reports indicate that the Khan family business has been helping supply the Pakistani nuclear program for a number of years, with one source noting that its work began as early as 1975. [7,8] After the issuing of the BIS denial order, Khan gave an interview to the *New York Times*, in which he claimed that his company supplied civilian companies and laboratories, and that it only rarely worked with the Pakistani military. However, according to the same *New York Times* report, evidence produced by Khan to show the non-military purpose of his dealings, such as letters from civilian companies requesting items such as oscilloscopes, appeared to have been fabricated when the newspaper checked them further. [8]

Bypassing U.S. Export Controls: Use of Brokers and False End-User Information

According to the federal indictment, Khan, with full knowledge that the items would require export licenses, engaged the services of Karni to procure nuclear dual-use items from U.S. companies. [1] U.S. prosecutors claim that in August 2002, Khan contracted with Karni to have him to acquire oscilloscopes, and, in an email presented to the court, Khan warned Karni to “approach these cases carefully as all items are controlled.”[2] *[Editor’s Note. Although U.S. export controls for most oscilloscopes were liberalized in 1997, sophisticated oscilloscopes—such as those that were the subject of the Khan indictment—that can be used to measure nuclear weapons yields and assist with improving warhead designs remain under export controls, particularly to countries where concerns about diversion to nuclear weapons facilities are present—such as Pakistan. Such oscilloscopes can also be used for testing telecommunications equipment, computers, and consumer electronic equipment repair and maintenance.]* In December 2002, Khan sent Top-Cape a purchase order for a Model TDS 3054B oscilloscope, produced by the Oregon-based firm Tektronix. *[Editor’s Note: Pakland Corporation is the official distributor of Tektronix products in Pakistan. Tektronix’s website lists oscilloscopes as one of the products in which Pakland specializes. However, according to the Tektronix’s spokesperson, shipments to the company are on hold pending the outcome of Khan’s criminal investigation.]*[8,9] A month later, Khan arranged for Karni to receive payment for the single oscilloscope, and in February 2003, Karni had “a broker in Israel with an affiliate in Plainview, New York,” order the item. Karni’s broker shipped the oscilloscope “and related items” to Top-Cape in Cape Town, which Karni, in turn, forwarded on to Pakistan. [1]

South Africa is a member of the NSG, and therefore many dual-use items, such as those Karni procured for Khan, do not require licenses from the U.S. government—if South Africa is the end destination. In regard to the oscilloscope transfers—and similarly with the spark gap transfers discussed below—since the U.S.-based broker that Karni used exported the items to South Africa, and there was no indication given by Top-Cape that the final destination was Pakistan, the transfers of the oscilloscopes did not require an export license. Therefore the initial part of these transactions—the shipment of the oscilloscopes from the United States to South Africa—did not violate U.S. export control regulations. The regulations were violated, however, once Karni and Khan conspired to re-export of these items to Pakistan

With this first transaction completed, Karni and Khan repeated the subterfuge of routing controlled goods bound for Pakistan through South Africa. In May 2003, Khan, U.S. investigators claim, contacted Karni to arrange for the transfer of additional oscilloscopes manufactured by Tektronix. According to the federal indictment, Khan asked Karni to procure “22 Model TDS 7154 oscilloscopes, 14 Model TDS 784D oscilloscopes, and related components, purportedly on behalf of a Pakistani company known as M/S Matrix Telecom Technologies.”[1]

Karni directly contacted Tektronix’s Austrian representative about acquiring some of the oscilloscopes, noting that the end user would be Matrix in Pakistan. Tektronix appeared to be suspicious of Karni’s request. According to U.S. government accounts, Khan was contacted via email by a representative of Tektronix asking him if he knew of the company Karni was purchasing for—Matrix—and if he was aware of any attempt by this company to purchase oscilloscopes. *[Editor’s Note: As noted above, Pakland is a certified distributor of Tektronix products in Pakistan.]* Khan replied that he was unaware of the deal, and that he “would know if there is any telecom business in the air, but again there is no such demand that we know of.”[1] *[Editor’s Note: According to Tektronix, the oscilloscopes Khan wanted could be used in the telecommunications industry to identify the sources of “jitter” in modern high-speed digital communications.]*[10]

Tektronix reportedly sent Karni an export license application and an end-user certificate, noting that Karni had to guarantee that the equipment would not “be used in nuclear explosive activities; unsafeguarded nuclear activities; safeguarded or unsafeguarded nuclear fuel cycle activities or be directly employed in the design, development, production, stockpiling, or use of missiles or chemical and biological weapons.”[4] Karni did not reply to Tektronix correspondence and, on May 30, 2003, Khan sent Karni an email stating: “You’re (sic) friends exposed our country, pls see that this does not get further, like our name, customer name, etc. Appreciate it if you can play it ‘safe’ or we may lose this great opportunity.”[1,4] Karni then contacted Giza Technologies in New Jersey to obtain assistance with acquiring the requested equipment. [Editor’s Note: The indictment against Khan does not specifically list Giza but does mention that Karni worked with a broker in Secaucus, New Jersey. However, earlier media reports and recently released emails, which are available at <<http://www.pbs.org/frontlineworld/stories/nuclear/conversation.html>>, point to Giza as the broker Karni worked through in New Jersey.] In late August 2003, the oscilloscopes were sent to Top-Cape, then forwarded to Khan’s customer in Pakistan. [1]

Thanks to information provided by a still-unknown individual in South Africa, authorities at the BIS Office of Export Enforcement (OEE) and U.S. Immigration and Customs Enforcement (ICE), under the Department of Homeland Security, became aware of Karni’s activities in July 2003. OEE and ICE agents, reportedly with the assistance of South African authorities, were able to track his dealings with Khan, including their email correspondence. [3] Many familiar with the case agree that without this tipster the transactions between Karni and Khan would not likely have been detected by authorities.

While Top-Cape was still working on acquiring various oscilloscopes for Pakland and its customers, Khan asked Karni to purchase another nuclear dual-use item. In June 2003, according to U.S. government charges, Khan contacted Karni regarding the proposed purchase of a large number of triggered spark gaps (Model GP-20B) from the Massachusetts-based PerkinElmer Optoelectronics, noting that Karni should “not disclose the end destination.” After an initial inquiry by Karni to its affiliate in France, PerkinElmer representatives informed Karni that the items would require export licenses, an end-user certificate, and assurances that the triggers would not be re-exported. [11] Karni emailed Khan that he would not proceed with the purchase under these circumstances. [Editor’s Note: Triggered spark gaps are used in medical equipment for the treatment of kidney stones and gallstones, but can also be used as triggers for nuclear weapons. Triggered spark gaps that have an anode delay time of 15 microseconds or less and are rated for a peak current of 500 amperes or more are controlled under the guidelines of the Nuclear Suppliers Group (NSG) and also under the E.A.R.. Spark gaps with capacity below these guidelines—which include Model GP-20B—may also require an export license if the exporter has reason to suspect the item could be diverted for use in a nuclear weapons program. This “catch-all” provision seems to have been the reasoning for PerkinsElmer to have informed Karni of the requirement for an export license in the initial stages of this transaction.]

In response to Karni’s email, Khan pressed him to proceed with procuring the triggered spark gaps. In an email to Karni, Khan asked him “to re-negotiate [the purchase] from any other source, we can give you an end user information [sic] as it is genuinely medical requirement [sic].”[11] Karni agreed to acquire the spark gaps for Khan, and, in July 2003, he contacted Giza Technologies to arrange for Giza to broker the deal. [1] In August 2003, a representative of Giza wrote Karni that no export license would be required since the items were heading for South Africa. However, a few weeks later the representative wrote back that PerkinElmer would require some end-user information before completing the sale. Since South Africa was the given end destination for the items, the request for extra end-user information appeared to be an attempt by PerkinElmer to assure that they had carried out due diligence in assuring the item would not be diverted for illegal activities. [11] In response, an associate of Karni’s from Top-Cape identified the end-user as “Baragwath Hospital, Soweto, South Africa.” [Editor’s Note: In an interview with U.S. news program Frontline, administrators of Baragwath—South Africa’s largest hospital—stated that the hospital never ordered this equipment.][12]

In September 2003, Karni’s broker in New Jersey sent 66 triggered spark gaps to Cape Town. Since U.S. authorities had been tracking Karni’s actions for a number of months, they were aware of this transaction and convinced PerkinElmer to render the spark gaps in this shipment unusable. After arrival in Cape Town, the shipment of spark gaps was then sent to Pakistan, via the United Arab Emirates. [2]

Armed with the information provided by the still unnamed tipster, U.S. and South African authorities, who had been working together in this investigation, searched Asher Karni's house in December 2003, removing electronic records and files. Despite the search, Karni flew to Denver, Colorado, less than a month later for a family ski vacation, where he was arrested by U.S. authorities as he disembarked. [13]

In September 2004, investigators from the IAEA visited South Africa to investigate the nuclear smuggling revelations. According to Abdul Samad Minty, head of the South African Council for the Nonproliferation of Weapons of Mass Destruction, the South African government was cooperating fully with the IAEA in its investigation. South African investigators have also worked closely with U.S. authorities in building a case against Karni and Khan. [14]

Karni/ Khan Investigation Continues

Shortly after the release of the indictment against Khan by U.S. authorities, the deputy chief of mission in Pakistan's Washington embassy, Mohammed Sadiq, stated that Khan "was not involved in procuring triggers or other equipment for Pakistan's nuclear program." Sadiq continued that the case was being exploited by "the dirty tricks department of certain lobbies who look for excuses to malign Pakistan." [15] He also pointed to the fact that, although Karni is reported to have also had dealings with elements in India, no Indian had yet to be indicted. [16, 17]

With the recent indictment of Khan, U.S. authorities are currently trying to obtain his extradition from Pakistan. This process is likely to be long and difficult, as Pakistani authorities do not appear anxious to admit to another nuclear smuggling ring within its borders after the revelations of the network headed by Pakistani scientist A.Q. Khan. Conflict within the U.S. government also appears to have slowed the earlier investigation. With Pakistan an important partner in the war on terrorism, some officials in Washington are hesitant to antagonize Pakistan. [5]

Since his arrest, Karni has assisted investigators by providing further information about individuals in a number of countries he has assisted with illicitly procuring nuclear-related items. While the most prominent "co-conspirator" appears to be Humayan Khan, U.S. authorities are also investigating several other individuals. [13]

How the Abdul Qadeer Khan Network Circumvented Export Controls

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Ongoing investigations by the United States, other governments, and the IAEA into the nuclear smuggling network led by Pakistani nuclear scientist Abdul Qadeer Khan have revealed a complicated and seemingly ever-expanding web of manufacturers, middlemen, and customers that extends to more than 30 countries. The A.Q. Khan network supported the nuclear weapons program of Libya, which that country renounced in December 2003, and clandestinely supplied sensitive nuclear technology to Iran and North Korea.

One of the striking aspects that the ongoing investigations have revealed is the ability of the A.Q. Khan network to evade national export control systems and exploit weaknesses in international export control regimes, regimes designed to stem the flow of illicit nuclear technology. A key technique used by Khan to avoid detection was to spread out production and distribution of nuclear equipment among many countries with no history of seeking nuclear weapons themselves or of actively supporting proliferation by others. According to IAEA General Director Mohamed ElBaradei, "Nuclear components designed in one country could be manufactured in another, shipped through a third (which may have appeared to be a legitimate user), assembled in a fourth, and designated for eventual turnkey use in a fifth." [18]

Turkey was one of the numerous countries exploited by the network. A May 2004 IAEA report revealed that components for uranium enrichment centrifuges shipped to Libya via Dubai (United Arab Emirates) in March 2004 were assembled in Khan network workshops based in Turkey. The centrifuges can be used to improve natural uranium to highly enriched uranium, suitable for use in nuclear weapons. The Turkish workshops imported subcomponents from Europe and elsewhere, and, after assembly, shipped assembled components to Dubai under false end-user certificates for repackaging and shipment to Libya. [19] *[Editor's*

Note: During the 1970s and 1980s, the United States was aware of shipments of electrical components—many of them manufactured in the United States—from Turkey to Pakistan, at a time when the A.Q. Khan network was illicitly importing nuclear goods into Pakistan to support that country's nuclear weapons program. According to a March 2005 article in Arms Control Today, the United States issued dozens of demarches to Ankara during this period, but Turkish officials claimed their country's export control laws were too weak to allow the government to interfere with such trade. Although Turkey subsequently adopted more stringent controls, Turkish authorities have not enforced them effectively, according to the Arms Control Today article.][20]

Malaysia was also involved in a string of transactions orchestrated by the A.Q. Khan nuclear supply network intended to provide Libya with centrifuges. A Malaysia-based engineering company, Scomi Precision Engineering (SCOPE), manufactured centrifuge components that were shipped to a Khan middleman in Dubai for later shipment to Libya. According to the Malaysian investigation, SCOPE staff was under the impression that the components were intended for the petroleum and gas industry. When shown photographs of the components, experts from the Malaysian Institute of Nuclear Technology Research and the Malaysian Energy Licensing Board noted that the “parts could easily be fitted into many industrial or home components” and suggested one would have to know the existence of a secret nuclear network before concluding the parts were intended for a nuclear centrifuge. The 14 different types of components manufactured by SCOMI could not have been assembled into a complete centrifuge; rotors, for one, were missing, according to the Malaysian police report. SCOPE produced the following components: casings, molecular pumps, top spacers, positioners, top ends, crash rings, stationary tubes, clamp holders, and flanges. A Swiss engineer, Urs Tinner, was brought in at the suggestion of Khan network operative Buhari Sayed Abu Tahir, to oversee production of the components and manage the project. The Malaysian police report into SCOPE concluded that the company and Malaysian authorities did not violate any national laws or Malaysia's obligations under the nuclear Nonproliferation Treaty, which requires parties, such as Malaysia, to control exports of highly specialized nuclear equipment. [21] Tinner, currently being held by German authorities, is awaiting extradition to Switzerland, where he will be charged for his role in the endeavor. According to the German newsmagazine *Der Spiegel*, Tinner will face reduced charges because of his agreement to provide information to U.S. intelligence services about the network. [22]

South Africa was also used by the Khan network. An investigation led by South African authorities in cooperation with the IAEA and a number of other countries uncovered at least two companies—Trade Fin Engineering and Krisch Engineering—with alleged connections to the Khan network. As a result of the investigation, 11 containers filled with uranium enrichment components intended for Tripoli's nuclear weapons program were seized by South African authorities outside Johannesburg in September 2004.

Even advanced Western countries were not immune to exploitation by the Khan network, as revealed in a March 2005 article in the trade newsletter *NuclearFuel* discussing an episode in the Netherlands. [23] In 1999, according to the report, the Dutch firm Slebos Research shipped six U.S.-produced absolute capacitance manometers to Pakistan. Officials cited in the article suggest that the manometers—dual-use equipment used to monitor the uranium hexafluoride (UF₆) gas flow in uranium enrichment plants—may have been reverse engineered and sold by the recipient, Khan Research Laboratories, to other parties, including Iran, Libya, and North Korea. Although manometers are featured on the NSG dual-use list and Dutch customs intelligence had been tracking Slebos since 1985 and had warned the company about exporting dual-use items to Pakistan, Dutch customs authorities did not question the shipment, labeled as transducers, when it left Amsterdam's Schiphol Airport in 1999. The U.S. manufacturer, MKS Instruments of Wilmington, Massachusetts, did not know that its German subsidiary had sold the equipment to Slebos until two years later.

In spite of President George W. Bush's February 2004 assessment that the Khan network “is being dismantled,”[24] there is evidence to suggest parts of it or other networks like it continue to circumvent export controls and operate as before. One IAEA official quoted by the *New York Times* in December 2004 said, “It may be more like Al Qaeda, where you cut off the leadership but new elements emerge.”[25] The IAEA is still looking for additional suppliers and customers and a separate U.S. investigation has so far failed to unravel Khan's web of suppliers. [26]

Moreover, while the Pakistani government may be cooperating in closing down elements of the A.Q. Khan network involved in supporting nuclear programs in other states, Islamabad continues to rely on elements of the network to support its own nuclear weapons program. Press accounts from the March 2005 report, for example, that Pakistani agents had been recently caught trying to make illicit purchases of specialized steel and nuclear triggers. [5] “General procurement efforts (by Pakistan) are going on. It is a determined effort,” said a diplomat from a member of the NSG. Nuclear experts say these channels involve new middlemen not involved in previous transactions. [27] And a source close to Khan Research Laboratories in Islamabad told *Time* magazine earlier this year that “nothing has changed”—the network has not stopped. [28]

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