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Outlawing State-Sponsored Nuclear-Procurement Programs and Pursuing Recovery of Misappropriated Nuclear Goods

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Cover image: Photo taken during a tour by Iranian President Mahmoud Ahmadinejad of the Natanz uranium-enrichment plant, showing one of more than 1,000 illegally acquired US-made pressure transducers at the facility. Source: Website archive of the president of Iran, www.president.ir (as accessed by the Institute for Science and International Security, 2014).

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Executive Summary

State-sponsored illicit nuclear-procurement activities have played a crucial role in advancing the nuclear programs of Iran and North Korea and will undoubtedly be used by the next country that seeks to pursue a nuclear-weapon capability. Such repeated state-sponsored abuse of other states' export-control systems undermines a key objective of UN Security Council Resolution (UNSCR) 1540, which requires all states to adopt such controls. However, as this study details, this dangerous conduct has never been condemned as a distinct offense against international norms and rules sufficient to trigger sanctions or other punitive action against the offending state.

This study proposes to outlaw state-sponsored illicit nuclear-procurement programs through the accretion of declarations by international and multilateral bodies condemning this conduct and expressing the intention to consider punitive measures in future cases where this conduct is observed. Even if consensus on such a declaration cannot be reached in every relevant forum, repeated, well-publicized demands for such action by a group of diplomatically influential aggrieved states can have a significant deterrent effect. Importantly, with illicit procurement activities often serving as an early indication of a clandestine nuclear-weapon program, establishing this activity as an offense against international norms would set the stage for early, concerted action against the next offending state, well before its nuclear program might approach its goal.

Establishing this conduct as an international wrong would also create a solid foundation for the second major proposal set out in this study: **the development of a carefully crafted set of measures to pursue the recovery of illegally acquired nuclear goods**, beginning with parallel demands by aggrieved states and including an international registry of illegally acquired nuclear goods.

In support of this approach, the study highlights several past cases of such “nuclear recovery” and points out that the concept is embedded in the Convention on the Physical Protection of Nuclear Material, in US agreements for nuclear cooperation, and, implicitly, in the 2015 Iran nuclear agreement. Moreover, demands for restitution of illegally acquired goods are the standard approach in many other inauspicious settings.

Even if unsuccessful, the study argues, demanding the return of purloined nuclear goods would underscore the gravity of such illegal activity; vindicate the principles embodied in UNSCR 1540, the Treaty on the Non-Proliferation of Nuclear Weapons, and the Guidelines of the Nuclear Suppliers Group; and delegitimize the nuclear program of the offending state.

Outlawing State-Sponsored Nuclear-Procurement Programs and Pursuing Recovery of Misappropriated Nuclear Goods

Introduction

For the past decade and a half, if not longer, Iran and North Korea (the Democratic People's Republic of Korea, or DPRK) have advanced their nuclear-weapon ambitions by acquiring needed commodities in violation of the export controls of multiple UN member states.¹ Given their relative success in pursuing this course, there is good reason to anticipate that the next state to seek such weapons will also resort to this strategy.

One deeply distressing aspect of these two states' illegal acquisition of nuclear-related goods has been the reluctance of victimized supplier states to confront Tehran and Pyongyang over their continued possession and use of these items.² Even when outsiders have observed such

¹ Although this study is focused on illegally acquired nuclear goods, most of the initiatives proposed could be readily adapted to address illegal acquisition of missile-related items, as well.

This analysis will use Iran and North Korea as case studies, with a view toward developing additional strategies for addressing potential future cases of state-sponsored smuggling of nuclear-related goods. Iran's procurement activities have been addressed in its July 2015 agreement with China, France, Germany, Russia, the United Kingdom, and the United States, known as the Joint Comprehensive Plan of Action (JCPOA), which restricts the Iranian nuclear program in return for lifting UN Security Council sanctions and sanctions imposed unilaterally by the European Union, United States, and a number of other states. Under the JCPOA, Iran's nuclear procurement efforts are to be monitored by a Joint Commission of representatives of the parties to the agreement and overseen by the Security Council. See Joint Comprehensive Plan of Action (Vienna, July 14, 2015), Operative Paragraph 17 and Annex IV, US Department of State, <http://www.state.gov/e/eb/tfs/spi/iran/jcpoa/>; UN Security Council Resolution (UNSCR) 2231 (2015), Operative Paragraphs 10-13. North Korea is the subject of sanctions, focused in part on restricting its illicit procurement activities. The sanctions were intensified significantly in 2016 through UNSCR 2270 <http://www.un.org/press/en/2016/sc12267.doc.htm> and the US North Korea Sanctions Enforcement Act (P.L. 114-122) <https://www.congress.gov/bill/114th-congress/house-bill/757/text>.

² To be sure, certain states were not "victimized" when nuclear goods were exported from their territory to Iran, North Korea, or other proliferant states after 2000, either because these supplier states deliberately promoted such exports, as was the case of North Korean exports to support the construction of the al-Kibar reactor in Syria from 2001 to 2007, or because they were prepared to turn a blind eye to such exports, possibly the explanation for multiple nuclear- and missile-related exports from China to Iran and North Korea over many years. But few would argue that the United States, states in Western Europe, and Japan, South Korea, and Taiwan opposed the development of nuclear arms by Iran and North Korea and were aggrieved by the repeated violation of their relevant export controls at the hand of networks sponsored by those proliferant states. China, it may be noted, implicitly portrays itself as a victimized party, unable to control the outflow of sensitive goods because of the scale of the Chinese economy, despite its best efforts to prevent such commerce. (Comment regarding China based on conversations with multiple US officials, Washington, DC, 2014-2016. See also, Mark Holt, Paul Kerr, and Mary Beth Nikitin, "U.S.-China Nuclear Cooperation Agreement," Congressional Research Service, report RL33192, August 18, 2015, pp. 11-13.)

goods in use in sensitive nuclear facilities (see cover photo) or when Iranian and North Korean individuals and entities have been prosecuted or sanctioned for their illicit procurement activities, victimized states have remained silent about the status of the tainted goods in the hands of the proliferant country, assuming, it appears, that there is nothing to be gained from raising a complaint.

This supine behavior is wrong on two counts. First, as discussed below, it departs dramatically from the aggressive posture of the United States and other governments demanding the return of wrongfully held goods of other types in many equally unpromising circumstances—demands that not infrequently have been successful. Indeed, though not widely known, there have been a number of successful demands for post-export redress involving nuclear-related goods dating back to the mid-1980s, as discussed below. Second, and as also discussed below, demanding the return of ill-gotten items—even if ultimately unsuccessful—sustains pressure on state sponsors of trafficking in nuclear goods, stigmatizing their conduct, and delegitimizing their nuclear programs.

Nonetheless, it is hard to deny that pursuing the recovery of misappropriated nuclear goods will always be an uphill fight. One reason is that *state sponsorship of illicit procurement programs has never been outlawed*. If it were recognized as an international wrong that exposed an offending government to possible punishment—by the Security Council, by other international and multistate organizations, and by leading individual states—the pursuit of ill-gotten goods by aggrieved states would take on the status, not of a hollow gesture, but of an obvious and appropriate remedy that could be enforced with an array of powerful tools. This would greatly help to even the odds in confronting the proliferating government over return of the goods.

To increase the practicality and likelihood of success in challenging the continued possession and use of illegally obtained nuclear goods, an essential first step, therefore, would be to establish state sponsorship of procurement programs as an international offense. Indeed, this initiative would be of considerable value in its own right, most importantly because it would create a basis for international diplomatic intervention in the next proliferation case at an early stage. The analysis below will follow this progression, first examining measures to outlaw such procurement efforts and then turning to how recovery, destruction, or sequestration of illicitly acquired goods might be pursued in this reframed legal and policy environment. As will be seen, many practical steps are available that can advance this agenda and prepare the ground for confrontation with the next would-be nuclear-weapon state.

Outlawing State-Sponsored Illicit Nuclear-Procurement Programs

BACKGROUND

Iran and North Korea, the states of greatest recent nuclear proliferation concern, have developed significant indigenous capabilities to support their nuclear programs. Nonetheless, they have been dependent on the importation of certain nuclear dual-use goods from advanced industrial states in Europe, North America, and East Asia.

Under the widely adopted regulatory scheme developed and promoted by the forty-eight-member Nuclear Suppliers Group (NSG), commodities needed for a nuclear-weapon program fall into three categories:

- Nuclear-specific items (equipment “especially designed or prepared” for use in nuclear applications), which require licenses for their export from supplier states and, when destined for a country that is a non-nuclear-weapon state under the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT), must be used only in a facility subject to inspection by the International Atomic Energy Agency (IAEA);³
- Dual-use goods (meaning, in this context, goods suitable for nuclear and non-nuclear uses), which also require export licenses; and
- Dual-use items that fall below control thresholds and do not, for most destinations, require export licenses (unless the exporter knows or has reason to know that the item is destined for a nuclear end-use).⁴

The members of the NSG appear to have successfully controlled leakage of nuclear-specific goods to states of concern. As a result, Iran and North Korea turned to acquiring goods in the latter two categories described above. Essential, illegally garnered dual-use goods have included high-strength aluminum, steel, and carbon fiber needed for Iranian and North Korean uranium enrichment centrifuges; pressure transducers for managing the flow of

³ Treaty on the Non-Proliferation of Nuclear Weapons, July 1, 1968, <http://www.un.org/en/conf/npt/2005/npttreaty.html>. The NPT divides parties into two categories, nuclear-weapon states and non-nuclear-weapon states. The former are the states that detonated a nuclear explosive device prior to January 1, 1967 (China, France, the Soviet Union/Russia, the United Kingdom, and the United States); all other states are considered to be non-nuclear-weapon states for the purposes of the treaty. Nuclear-weapon states are permitted to possess nuclear weapons, but must pursue negotiations toward nuclear disarmament and facilitate the peaceful uses of nuclear energy by non-nuclear weapon states. North Korea, India, Pakistan, and Israel also possess nuclear weapons though the latter three have never joined the treaty; North Korea joined the treaty in 1985, but announced its withdrawal in 2003.

⁴ Nuclear Suppliers Group, “Guidelines for Nuclear Transfers” INFCIRC/254/Rev.12/Part 1, November 13, 2013, <https://www.iaea.org/sites/default/files/publications/documents/infircs/1978/infirc254r12p1.pdf> and “Guidelines for Transfers of Nuclear Related Dual-Use Equipment, Materials, Software, and Related Technology,” INFCIRC/254/Rev.9/Part 2, November 13, 2013 <https://www.iaea.org/sites/default/files/publications/documents/infircs/1978/infirc254r9p2.pdf>.

uranium gas during the enrichment process; various corrosion-resistant pumps and valves; and special lubricants.⁵ These dual-use goods are subject to export controls in their countries of origin, under which licenses for the export of these goods to these two states would normally be denied.⁶ In addition, since 2006, Security Council resolutions have prohibited the export of dual-use goods on the NSG control list to North Korea, and from 2008 to mid-2015, the Security Council also prohibited their export to Iran.⁷

Both states repeatedly and systematically violated these restrictions as they smuggled out this nuclear contraband, disguising transactions through the use of front companies, intermediaries, false documentation, circuitous transit routes, and deliberately obscure banking arrangements.⁸ This history has been well documented in reports to the UN Security Council by the committees monitoring the implementation of sanctions against the two countries; in multiple prosecutions of those involved in such procurement activities; in documentation supporting the imposition of sanctions by the Security Council, the United States, and the European Union on parties involved in such illegal procurement activities;

⁵ For detailed descriptions of items being sought by the two countries in recent years, see “Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010),” June 3, 2013, UN Security Council document S/2013/331 (hereafter, “June 2013 UNSCR 1929 Panel of Experts Report”), https://www.un.org/sc/suborg/en/sanctions/1718/panel_experts/reports; “Final Report of the Panel of Experts Established Pursuant to Resolution 1874 (2009),” UN Security Council document, S/2013/337, June 11, 2013, <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N13/331/74/PDF/N1333174.pdf?OpenElement> (hereafter, “June 2013 UNSCR 1874 Panel of Experts Report”).

⁶ Dual-use goods with specifications below the regulatory thresholds in Part 2 of the NSG Guidelines are subject to “catch-all” provisions adopted by all NSG members and many other states, under which exports would require a license, which would be denied, if the supplier company or supplier state knew or had reason to know they were going to a nuclear program of concern.

This discussion focuses on reducing the demand for controlled nuclear goods by deterring state sponsorship of illegal procurement programs. It should be stressed, however, that numerous national laws and national, multilateral, and international initiatives seek to control the supply of such goods. For a comprehensive review of such measures, see Leonard S. Spector and Egle Murauskaite, “Countering Nuclear Commodity Smuggling: A System of Systems,” James Martin Center for Nonproliferation Studies Occasional Paper 20 (2014), http://www.nonproliferation.org/wp-content/uploads/2014/10/cns_occasional_paper_no_20_web.pdf.

⁷ The UN embargo on transfers of nuclear dual-use items to North Korea was adopted in UNSCR 1718 (2008). The embargo on transfers of such goods to Iran was adopted in UNSCR 1803 (2008). UNSCR 2231 (2015) lifted the latter embargo following the adoption of the JCPOA. Under that agreement, however, a joint commission composed of parties to the agreement must approve all nuclear dual-use transfers to Iran, and any approved transfers are subject to review by the Security Council.

⁸ See June 2013 UNSCR 1929 (2010) Panel of Experts Report; US Department of Justice, “Summary of Major U.S. Export Enforcement, Economic Espionage, Trade Secret and Embargo-Related Criminal Cases – January 2010 to Present (updated June 27, 2016)” (hereafter “Justice Department Compilation of Cases”), https://www.justice.gov/nsd/files/export_case_list_june_2016_2.pdf/download; North Korea also employed diplomatic pouches for the transfer of illicitly obtained goods. June 2013 UNSCR 1874 (2009) Panel of Experts Report.

and in numerous press accounts and academic studies.⁹ Intelligence services have far more information regarding such networks that has not been released to the public.

The scale of this export control abuse by other UN members is quite startling. In June of 2013, Under Secretary of Commerce for Industry and Security Eric Hirschorn, the US official responsible for enforcing dual-use export controls, testified that the Commerce Department had 749 open enforcement cases, 300 of which involved Iran as the ultimate recipient of diverted items. He added that much of the department's enforcement activity and analysis concentrated on the diversion of items to Iran via transshipment hubs in the Middle East and Southeast Asia. Although the Commerce Department did not publish statistics on what proportion of these cases involved nuclear dual-use items (as opposed to goods used in other weapon-of-mass-destruction, missile, or conventional-armament programs), if only a 10 percent of the total involved such commodities, some thirty nuclear investigations involving Iran would have been open when Hirschorn spoke.¹⁰

Hirschorn made no similar statistics available for North Korea. However, the UN Security Council Resolution (UNSCR) 1874 Panel of Experts noted in 2013 that North Korean officials and diplomats had been involved in illicit procurement activities for many years, with those diplomats based in North Korean embassies in Vienna and Berlin as particularly active.¹¹ The report goes on to note: "It is highly likely that similar activities are conducted out of the country's other embassies, diplomatic missions and commercial and trade missions abroad."¹² An appendix to the report notes that the DPRK has embassies in forty-three states, along with three permanent missions and five trade offices in various

⁹ See note 8. Regarding sanctions documentation, see, e.g., European Commission Regulation (EC) No 219/2008, of March 11, 2008, entries 5, 13, and 26 <http://www.iranwatch.org/sites/default/files/eu-commissionregulation2192008-031108.pdf>; "UN Security Council Committee Established Pursuant to UNSCR 1718, Narrative Summaries of Reasons for Listing [as subject to sanctions]," Namchongang Trading Company, <https://www.un.org/sc/suborg/en/sanctions/1718/materials/summaries/entity/namchongang-trading-corporation>. See also entries for Second Academy of Natural Sciences and Korean Tangun Trading Corporation; "Additional Sanctions Imposed by the Department of State Targeting Iranian Proliferators," US Department of State Media Note, August 29, 2014, entry for Jahan Tech Rooyan Pars and Mandegar Baspar Kimiya Company, <http://www.state.gov/r/pa/prs/ps/2014/231159.htm>; Louis Charbonneau, "Exclusive – Britain told U.N. monitors of active Iran nuclear procurement: panel," Reuters, April 30, 2015, <http://www.reuters.com/article/us-iran-nuclear-idUSKBN0NL09220150430>.

¹⁰ US Senate Committee on Banking, Housing, and Urban Affairs, Statement of Eric L. Hirschhorn Under Secretary of Commerce for Industry and Security before the Committee on Banking, Housing and Urban Affairs, United States Senate, June 4, 2013, <http://iipdigital.usembassy.gov/st/english/texttrans/2013/06/20130604275469.html#axzz2iqhonoCG>. Hirschorn went on to note that "In FY 2012, BIS's [the Bureau of Industry and Security's] Office of Enforcement Analysis (OEA) issued 160 leads to Office of Export Enforcement (OEE) field offices (a 46 percent increase over FY 2011) to identify suspect transactions and parties. More than 65 percent of these leads focused on Iranian procurement efforts. OEA already has exceeded this number of leads in the first seven months of FY 2013."

¹¹ June 2013 UNSCR 1874 Panel of Experts Report, paragraph 49.

¹² Ibid.

locations.¹³ Thus, it is not hard to imagine North Korean networks pursuing dozens, or conceivably hundreds, of illicit acquisitions of controlled nuclear commodities annually.¹⁴

It should be added that these figures cover actual enforcement cases and investigations, that is, procurement attempts that have been detected. Since many procurement cases presumably elude detection—perhaps as many as 90 percent according to some estimates—the scale of overall nuclear-procurement activities goes well beyond the numbers discussed above.¹⁵ Moreover, even when law-enforcement efforts close down a procurement node, the parties involved may have engaged in successful smuggling activities for years before being apprehended. For example, in one 2012 US prosecution, involving nuclear-relevant and other controlled goods transferred to Iran, the defendants operated from October 9, 2007, to June 15, 2011. Before their arrest, the defendants obtained or attempted to obtain from companies worldwide over

¹³ Ibid., Appendix XI.

¹⁴ One example of DPRK procurement efforts is a scheme by a Taiwanese father and son indicted by the US Department of Justice: the son set up a firm in Illinois to procure US-made advanced machine tools and export them to Taiwan in 2009-10, from where the father, a prominent figure with KOMID (a major DPRK procurer designated by the UN in 2009), is thought to have re-exported them to North Korea. See Andrea Stricker, “Case Study - United States Busts Likely North Korean Transshipment Scheme,” IISS Report, May 24, 2013, <http://isis-online.org/isis-reports/detail/case-study-united-states-busts-likely-north-korean-transshipment-scheme/>. Another example of the DPRK engaging expatriates to gain access to foreign technology of proliferation concern is the Korean Association of Science and Technology (KAST): this organization unites over 1,200 North Korean scientists (mostly physicists and engineers) living in Japan, who work in local research institutes and manufacturing companies, and, under direct orders from the external relations division of Korean Workers Party in North Korea, have been systematically providing the DPRK with know-how on missile technology and possibly uranium enrichment. See Katsuhisa Furukawa, “Japanese Authorities Target Illicit North Korean Technology Procurement,” *WMD Insights No. 20* (2007), pp. 23-29, http://cns.miis.edu/wmd_insights/WMDInsights_2007_11.pdf; James A. Russel and Jack Boureston, “Illicit Trafficking Challenges: Fighting the Good Fight Against Illicit Trafficking Networks,” PASC Report No. 2012012, October 2012, pp. 8-10, <http://www.hsdl.org/?view&did=726763>. See also, Robin Wright and Joby Warrick, “Purchases Linked N. Korean to Syria,” *Washington Post*, May 11, 2008, http://www.washingtonpost.com/wp-dyn/content/article/2008/05/10/AR2008051002810_pf.html.

For examples of an Iranian procurement network seeking a wide range of nuclear commodities, see “Materials for Gas Centrifuges and Other Nuclear-Related Goods to Iran,” Justice Department Compilation of Cases. See also, June 2013 UNSCR 1929 Panel of Experts Report, paragraph 60.

Another indication of the scale of illicit proliferation procurement activities was provided by a senior Austrian enforcement official in 2013, who stated that his government had twenty-four “suspicious” proliferation cases and six “concrete investigations” under way. “Austria Checks Suspected WMD Proliferation Cases,” Reuters, September 10, 2013, <http://in.reuters.com/article/2013/09/10/austria-nuclear-idINL5N0H621C20130910>. Although he gave few details of the procuring states or the nature of the goods at issue, if the pattern were replicated among even half of EU member states, it would signify that roughly one hundred “concrete” procurement cases could well have been under way in Europe at that time. If the situation is similar in other advanced industrialized states—Australia, Canada, Japan, and South Korea—the global scale of this activity would appear to be quite substantial.

¹⁵ Estimate by a former foreign customs official at Wilton Park Conference on Meeting the Challenge of Emerging Nuclear Commodity Smuggling, September 19-22, 2013.

105,000 parts valued at a cost of some \$2,630,800, involving more than 1,250 transactions—including 599 transactions with sixty-three different US companies.¹⁶

The geographic reach of nuclear-procurement networks is also noteworthy. As suggested above, the vast majority of procurement transactions undertaken by Iran and North Korea violate the export-control laws of the supplier state and/or additional states through which the goods are moved in transit to disguise their ultimate destination. Supplier states identified in the open sources noted above include Austria, Belgium, China, Germany, India, Russia, Spain, South Korea, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom, and the United States, while transit states include Bahrain, China, Malaysia, Singapore, Taiwan, Thailand, Turkey, the United Arab Emirates, and Vietnam. The number of victimized states is undoubtedly considerably larger, if those known to intelligence agencies but not made public are taken into account, and larger still, when considering that most illicit trade in nuclear goods goes undetected.

When the data above is taken as a whole, a most troubling pattern can be observed. Iran and North Korea each set in motion and maintained a continuous assault on the nuclear-technology controls of numerous UN member states, lasting more than fifteen years and involving many hundreds of attempts to acquire goods for their respective nuclear programs.

Unfortunately, this onslaught proved all too successful, despite important new efforts to curtail this activity, including:

- The 2003 Proliferation Security Initiative (PSI) aimed at interdicting WMD-related cargoes;
- UNSCR 1540, adopted in 2004, requiring all states to adopt controls, including export controls, over WMD and related materials, including dual-use goods; and
- The Security Council embargoes on transfers to these countries of nuclear-related goods, noted earlier.

Telling evidence of the success of illicit procurement programs can be seen in the increase in the number of centrifuges at Iran's Natanz uranium enrichment facility, which increased from zero operating centrifuges when the facility was exposed in 2002 to 10,000 operating centrifuges and 9,000 additional centrifuges ready for use in 2016. As highlighted by the Panel of Experts supporting the UNSCR 1737 Committee, these centrifuges incorporate special materials illegally acquired from abroad.¹⁷

¹⁶ Justice Department Compilation of Cases, "Military-Sensitive Parts to Iran."

¹⁷ "Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010)," June 3, 2014, UN Security Council document S/2014/394 (hereafter, June 2014 UNSCR 1929 Panel of Experts Report), photograph and annotation, p. 16/54.

Similarly, North Korea's completion of an enrichment facility more advanced than Iran's, which it revealed in 2010, also relied heavily on foreign-made components and materials.¹⁸

FAILURE TO OUTLAW STATE-SPONSORED ILLICIT NUCLEAR-PROCUREMENT NETWORKS

At present, if one surveys the applicable elements of the nuclear nonproliferation regime at the international, multinational, and national levels, state sponsorship of illicit procurement networks, with one possible exception, is not explicitly identified as an offense or violation that might expose the offending state to some form of disciplinary response.

UN Security Council resolutions have not sanctioned state-sponsored illicit nuclear-procurement programs. Although both Iran and North Korea have been subject to UN Security Council sanctions, these were not a response to the two states' widely known pattern of illegal procurement. Rather, in the case of Iran, they were imposed due to its failure to comply with IAEA safeguards requirements and, in the case of North Korea, they were imposed for its defiant disregard of international norms by conducting nuclear and long-range missile tests and continuing to advance its nuclear and missile programs. Indeed, the pattern of illicit procurements by the two states is not directly mentioned, as such, in any of the resolutions the Security Council has adopted since 2006 that address their weapon and missile programs. Both states, to be sure, were subject to embargoes on nuclear-relevant goods as part of the UN sanctions regimes, but the embargoes, to reiterate, were not adopted as a penalty for illicit procurement activities, but to restrict their nuclear programs for the reasons given above.

Similarly, the Security Council sanctioned individual Iranian parties because of their "involvement in the procurement of prohibited items, goods, equipment, materials and technology," and it has sanctioned North Korean parties for "being engaged in or providing support for, including through other illicit means, the DPRK's nuclear-related, other weapons of mass destruction-related and ballistic missile related programmes."¹⁹ The two states' sustained sponsorship of extensive procurement networks, however, was never explicitly deplored or censured.

Nonetheless, as seen in the previous section, the investigations authorized by the resolutions and certain designations of parties to be sanctioned have established the *fact* of state-sponsored procurement programs.²⁰ Moreover, such sanctions, along with the embargoes and other

¹⁸ "Report of the Panel of Experts established pursuant to resolution 1874 (2009)," UN Document S/2012/422, June 14, 2012, p. 12, https://www.un.org/sc/suborg/en/sanctions/1718/panel_experts/reports.

¹⁹ Iran: UNSCR 1737, OP 10; UNSCR 1747(2007), OP 2. North Korea: UNSCR 1718 (2006), OP 8, UNSCR 2094 (2013) OP 8.

²⁰ For an example of the sanctioning process contributing to establishing the fact of illicit procurement networks, see UNSCR 2094 (2013), Annex II, Second Academy of Natural Sciences, which "... is primarily

measures implemented by the sanctions resolutions, have created significant obstacles to the operation of such programs. Importantly, in both the Iran and North Korea cases, these sanctions were imposed years after illicit procurement activities were observed.²¹ Had illicit nuclear-procurement activities been outlawed at the time, earlier intervention in these cases might have been more aggressively pursued.

The NPT does not address state-sponsored illicit nuclear-procurement programs. The NPT, which requires non-nuclear-weapon state parties to renounce nuclear weapons and accept IAEA inspections and accounting procedures (“safeguards”) on all of their nuclear activities, does not expressly address the illicit procurement of the nuclear dual-use commodities under discussion here. Rather, the treaty focuses on nuclear goods “especially designed or prepared for nuclear use” and, as noted, requires that transfers of such goods be made only to facilities that are under IAEA safeguards. As also noted, the states able to supply such goods have generally controlled them effectively, leading Iran and North Korea to focus on the acquisition of dual-use commodities.

Although the NPT does not set specific rules or contain specific prohibitions regarding nuclear dual-use goods, under Article I of the treaty, nuclear-weapon states pledge “not to assist, encourage, or induce any non-nuclear weapon State to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices,” and under Article II, the non-nuclear-weapon states pledge “not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.” Iran has been a non-nuclear-weapon state party to the treaty since 1970 and has consistently asserted that it is pursuing nuclear energy exclusively for peaceful purposes. It is possible that Iran violated the Article II stricture through the procurement of certain dual-use items specifically relevant to the production of nuclear weapons (a matter discussed further below), but it has never been charged with this possible offense. North Korea was a party from 1985 until 2003, when it announced its withdrawal from the accord.

responsible for the procurement of commodities and technologies to support DPRK’s defence research and development programmes, including, but not limited to, weapons of mass destruction and delivery system programmes and procurement, including materials that are controlled or prohibited under relevant multilateral control regimes.”

²¹In the case of North Korea, published sources indicate that the first signs of a clandestine uranium-enrichment program were detected through monitoring of its illicit nuclear-procurement activities by US and other intelligence agencies, with important evidence surfacing in 2002. Although the US intelligence community stated at the time that it was only moderately confident that North Korea was pursuing an enrichment program based on this evidence, their estimate was proven correct: in 2010, Pyongyang disclosed a completed, advanced enrichment facility, which it showed to foreign visitors. See Mary Beth Nikitin, “North Korea’s Nuclear Weapons: Technical Issues,” report 34256, December 16, 2009, pp. 7-9; and Mary Beth Nikitin, “North Korea’s Nuclear Weapons: Technical Issues,” Congressional Research Service, report RL34256, April 3, 2013, p. 8. <https://www.fas.org/sgp/crs/nuke/RL34256.pdf>. Iran engaged in extensive procurement activities before the exposure of its uranium enrichment plant at Natanz and certain heavy-water-related facilities in 2002. Many of these activities appear to have been observed before that date. David Albright and Corey Hinderstein, “The Centrifuge Connection,” *Bulletin of the Atomic Scientists*, March April 2004, pp. 61-66, <https://faculty.maxwell.syr.edu/rdenever/PPA%20730-11/Albright%20and%20Hinderstein.pdf>.

The International Atomic Energy Agency takes no action to address state-sponsored illicit nuclear-procurement programs. The IAEA is an autonomous international organization with more than 150 member states. Traditionally, its core responsibilities with respect to nuclear-commodity transfers have been to ensure compliance with the safeguards rules of the NPT governing such transfers, but, as noted earlier, only goods “especially designed or prepared” for nuclear use come under such IAEA monitoring. Also, historically, the IAEA considered its role limited to verifying the exclusively peaceful use of declared facilities and materials. However, following the 1991 Persian Gulf War, Iraq, a non-nuclear-weapon state party to the NPT, was found to have built numerous undeclared nuclear facilities during the 1980s. This led to the expansion of the scope of IAEA activities, and the agency now seeks to confirm that NPT non-nuclear-weapon state parties have no undeclared nuclear assets and thus all nuclear activities in these countries are being used only for peaceful purposes.²²

Unfortunately, this new mandate does not include monitoring to detect the use in an inspected facility of illicitly acquired dual-use equipment. The IAEA Board of Governors has established mechanisms for tracking clandestine nuclear-procurement activities, using information provided by member states and open-source materials. But the agency’s board has interpreted the IAEA Statute as allowing use of this information solely as a tool to confirm whether a state’s facilities are being used exclusively for declared peaceful purposes. Thus the agency does not censure or take other action against states that are systematically engaged in nuclear-related illicit procurement activities.²³

Because IAEA monitoring has never found diversion to be taking place at Iran’s sensitive nuclear facilities, such as Natanz, the agency has consistently given these facilities an unconditional seal of approval. This posture permitted Iran to use illegally acquired dual-use materials to dramatically increase the number of centrifuges at Natanz, as noted earlier, and to make significant advances at other sensitive facilities without violating IAEA rules.²⁴

²² “IAEA Safeguards Overview,” <https://www.iaea.org/publications/factsheets/iaea-safeguards-overview>.

Note: The “sensitive nuclear technologies” referred to in the overview are items “especially designed or prepared” for nuclear use, not nuclear dual-use goods.

²³ Discussions with former senior IAEA safeguards official, Washington, DC, 2015.

²⁴ Significant expansions also occurred at other sensitive Iranian facilities using illicitly acquired goods, including the Arak reactor (apparently designed for the production of plutonium for nuclear weapons) and Iran’s second enrichment facility, at Fordow.

In a narrow departure from this pattern, as part of its years-long investigation of the possible military dimension of Iran’s nuclear activities, the agency did take note of Iran’s acquisition of certain nuclear dual-use goods of direct relevance to the production of nuclear weapons. These items included “... high speed electronic switches and spark gaps (useful for triggering and firing detonators); high speed cameras (useful in experimental diagnostics); neutron sources (useful for calibrating neutron measuring equipment); [and] radiation detection and measuring equipment (useful in a nuclear material production environment).” See “Implementation of the NPT Safeguards Agreement and Relevant Provisions of Security Council Resolutions in the Islamic Republic of Iran,” Report of the Director General, GOV/2011/65, November 8, 2011, Annex paragraph 24, <https://www.iaea.org/sites/default/files/gov2011-65.pdf>. The agency cited the acquisition of these items as one of several pieces of evidence indicating that Iran pursued a nuclear-weapon program

Given the categories of states established by the NPT and membership in the treaty, the next would-be nuclear-weapon state will necessarily be a non-nuclear-weapon state, subject to the panoply of IAEA inspections.²⁵ But if current arrangements prevail, from the standpoint of the agency, that country will have a free hand to build the most sensitive nuclear facilities with illegally acquired nuclear-relevant goods, while using those facilities to create the option to withdraw from the treaty and manufacture a nuclear arsenal within months.

The Nuclear Suppliers Group gives low priority to state-sponsored illicit nuclear-procurement programs. The 48-nation NSG has established widely adopted principles regarding nuclear transfers, including transfers of nuclear dual-use goods, and its control lists have been used by the UN Security Council as the basis for nuclear embargoes against Iran and North Korea. Thus, the assault on these principles through the systematic abuse of member state export controls based on NSG guidelines, in effect, constitutes an attack on the NSG itself.

The NSG, however, has never publicly condemned state-sponsored procurement programs that seek to acquire nuclear dual-use items through such illegal means, and the NSG Guidelines treat the matter as a secondary threat, even though for the past fifteen years or longer, such programs have represented the principal engine for proliferation.²⁶

The lesser attention to dual-use items can be seen in the way the NSG Guidelines treat violations of restrictions on the use of NSG-regulated goods. Part I of the Guidelines provides a series of triggers for consultation among Participating States—with a view toward considering the imposition of penalties—if a recipient state violates restrictions on transferred nuclear-specific goods. But Part II of the Guidelines, which deals with nuclear dual-use goods, offers only the broad statement that the Participating States shall consult, as needed; it does not indicate that state-sponsored trafficking in dual-use goods should be a trigger for such consultations or that penalties might be imposed for such conduct.

through at least 2009, a finding that the agency made as a basis for pursuing inquiries into whether Iran possessed undeclared nuclear materials or facilities.

The agency, however, never addressed whether the above items had been acquired illegally. Nor, at any point in the investigation, did it probe into Iran's use of illegally acquired items for its declared fuel-cycle facilities and associated export-control violations of multiple UN member states. See "Final Assessment on Past and Present Outstanding Issues Regarding Iran's Nuclear Programme," Report by the Director General, GOV/2015/68, December 2, 2015, <https://www.iaea.org/sites/default/files/gov-2015-68.pdf>.

Under the JCPOA, Iran's ability to acquire foreign nuclear goods has been substantially restricted. See note 1.

²⁵ See note 3.

²⁶ A notable exception is North Korea's building of a nuclear reactor in Syria designed to produce plutonium for nuclear weapons. The project was launched in 2000; in 2007, an Israeli air strike destroyed the reactor, which was reaching operational capability. To achieve this level of completion, however, the facility required not only nuclear-specific items provided by North Korea, but also clandestinely obtained dual-use goods. See "CIA Footage in Full," BBC, April 28, 2008, (accesses CIA video discussing the facility and its destruction) <http://www.bbc.co.uk/news/world-middle-east-13530945>; Robin Wright and Joby Warrick, "Purchases Linked N. Korean to Syria," *Washington Post*, May 11, 2008, <http://www.washingtonpost.com/wp-dyn/content/article/2008/05/10/AR2008051002810.html>.

The Group of Seven Global Partnership Against the Spread of Weapons and Materials of Mass Destruction has not condemned state-sponsored illicit nuclear-procurement programs or threatened punitive action in response to such programs. Launched in 2002 under the auspices of the Group of Eight (Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and the United States), the Global Partnership began as a ten-year, \$20 billion initiative to prevent terrorists, or states that support them, from acquiring or developing weapons of mass destruction, with a focus initially on improving the security of nuclear weapons and materials in Russia. Russia was expelled from the grouping in March 2014 following its annexation of Crimea. Today, the Group of Seven Global Partnership has twenty-nine partner countries and has expanded its mandate to cover a broad range of anti-proliferation activities.²⁷

The Global Partnership works closely with key nonproliferation institutions, including the IAEA, the NSG, and the UN Security Council committee established to oversee implementation of UNSCR 1540 (discussed below), which requires all states to adopt controls over WMD and related materials. Recent Global Partnership Summit declarations have emphasized the importance of controlling the flow of goods, including dual-use goods, to nuclear programs of concern and have endorsed the broad adoption of the NSG Guidelines as the standard for controlling nuclear and nuclear-dual use exports.²⁸ However, the Global Partnership has not condemned the conduct of states that sponsor illicit nuclear-procurement programs designed to circumvent these controls, nor has it set the stage for possible punishment in future cases.

The Proliferation Security Initiative does not target state behavior. The PSI is a loose cooperative effort involving some 100 participating states that seeks to coordinate interdictions of WMD and missile-relevant cargoes moving to or from states and non-state actors of proliferation concern. States join the initiative by agreeing to a set of interdiction principles.²⁹ Its tools, to the extent consistent with domestic and international law, are the inspection of vessels and aircraft thought to be carrying suspect cargoes and seizure of such cargoes when relevant goods are found. A smaller group of twenty-one endorsing states, known as the Operational Experts Group (OEG), helps coordinate activities of the larger constellation of participants, and includes Russia, but not China.³⁰

²⁷ The White House, “Fact Sheet: U.S. Participation in the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction,” April 1, 2016, <http://www.presidency.ucsb.edu/ws/?pid=118126>.

²⁸ “G7 Statement on Non-Proliferation and Disarmament, Lübeck, Germany” April 15, 2015, paragraph 25, http://www.auswaertiges-amt.de/EN/Infoservice/Presse/Meldungen/2015/150415_G7_NPDG.html?nn=683456; “G-7 Declaration on Non-Proliferation and Disarmament for 2014, Brussels, Belgium,” June 5, 2014, paragraph 22, <http://iipdigital.usembassy.gov/st/english/texttrans/2014/06/20140610301019.html#axzz4RPkEBzCC>.

²⁹ “Statement of Interdiction Principles,” US Department of State, Office of the Press Secretary, September 4, 2003, <http://www.state.gov/t/isn/c27726.htm>.

³⁰ “Operational Experts Group,” Proliferation Security Initiative website, <http://www.psi-online.info/Vertretung/psi/en/04-Operational-Experts-Group/0-operational-experts-group.html>.

In the words of one of the most active governments, Australia, the members “aim to impede illicit WMD-related trade to and from states of proliferation concern and terrorist groups.”³¹ It undertakes this mission, however, by interfering with individual transfers as information comes to hand that permits such action. It does not seek to take action against the state sponsors of such illegal trade, nor do its principal documents identify or condemn this specific challenge, although clearly, the *raison d'être* of the enterprise is to thwart the work of such programs.

US sanctions laws have not targeted state-sponsored illicit nuclear-procurement programs. At the national level, matters are somewhat more complex. Although individuals and entities are not infrequently prosecuted for export violations, there appear to be no attempts to denounce and penalize states for illicit procurement activities.

The United States, for example, has imposed broad trade embargoes on Iran and North Korea due to overarching national-security concerns, rather than because of their illicit trafficking *per se*. Similarly, the United States has had programs to sanction individuals and entities in Iran and North Korea engaged in procurement activities and those that assist them, wherever situated, under such laws as the Iran-North Korea-Syria Nonproliferation Act (INKSNA);³² the Comprehensive Iran Sanctions and Divestment Act (CISADA);³³ the National Defense Authorization Act of 2012;³⁴ the Iran Threat Reduction and Syria Human Rights Act of 2012;³⁵ the Iran Freedom and Counter-Proliferation Act of 2012;³⁶ and a series of executive orders, especially, E.O. 12938,³⁷ E.O. 13382,³⁸ E.O. 13599,³⁹ and E.O. 13645.⁴⁰ However, the illegality of the transactions in which the sanctioned party has engaged is not the trigger for the sanction; all that is needed to apply these penalties is establishing that the party at issue materially assisted a program of concern or helped others to do so. Thus, in the United States, state-sponsored illicit trafficking in nuclear commodities has not been the trigger for highly punitive economic sanctions, that is, sanctions that seek to weaken the economy of the target state, such as past restrictions on purchases of Iranian crude oil or the denial of access of the Central Bank of Iran to the US financial system.

³¹ “Proliferation Security Initiative,” Australian Government, Department of Foreign Affairs and Trade (undated, accessed August 18, 2016), <http://dfat.gov.au/international-relations/security/non-proliferation-disarmament-arms-control/psi/pages/proliferation-security-initiative-psi.aspx>.

³² Iran-North Korea-Syria Nonproliferation Act, P.L. 106-178, as amended.

³³ Comprehensive Iran Sanctions and Divestment Act, P.L. 111-195, as amended.

³⁴ National Defense Authorization Act of 2012, P.L. 112-81.

³⁵ Iran Threat Reduction and Syria Human Rights Act of 2012, P.L. 112-158.

³⁶ The Iran Freedom and Counter-Proliferation Act of 2012, P.L. 112-239.

³⁷ Issued November 14, 1994, original text, <http://www.archives.gov/federal-register/executive-orders/pdf/12938.pdf>; as amended by E.O. 13094 (July 28, 1998), <http://www.treasury.gov/resource-center/sanctions/Documents/13094.pdf>, and E.O. 13382 (June 28, 2005), <http://www.treasury.gov/resource-center/sanctions/Documents/whwmdeo.pdf>.

³⁸ Issued June 28, 2005, <http://www.treasury.gov/resource-center/sanctions/Documents/whwmdeo.pdf>.

³⁹ Issued February 5, 2012, <http://www.gpo.gov/fdsys/pkg/FR-2012-02-08/pdf/2012-3097.pdf>.

⁴⁰ Issued June 3, 2013, <http://www.treasury.gov/resource-center/sanctions/Programs/Documents/13645.pdf>.

Indeed, a brief review of the laws and executive orders noted above indicates that only CISADA makes mention of state-directed procurement activities in violation of supplier state export controls, and that act only tangentially links them to its imposition of sanctions. Lack of attention to this issue may also be true in the case of EU sanctions law and that of other like-minded states, although a full review of this issue is beyond the scope of this study.

In the context of Iran and North Korea, it is understandable that nuclear trafficking might be not be a leading trigger for sanctions, considering the underlying hostility between the United States and these two states and the broader agenda of US concerns. Relations with the next state seeking nuclear weapons could well be quite different, making an early response to nuclear trafficking important both to vindicate US sovereignty and to deter the offending state from taking further steps toward nuclear arms.

UNSCR 1540 uniquely addresses illicit procurement of nuclear dual-use goods and threatens responsive action. As noted, UNSCR 1540 requires all states to implement controls, including export controls, over WMD and WMD-relevant dual-use goods. The latter are referred to in the resolution as “related materials.”⁴¹ The requirement that all states implement export controls would seem to lead inescapably to a crucial—if implicit—corollary: that all UN member states are also enjoined by the resolution to respect the WMD controls of other UN members.⁴²

If states were free to disregard other states’ controls, it would gravely weaken the entire system promoted by UNSCR 1540 and severely undermine the resolution’s objectives. Viewed from this perspective, state-sponsored illicit procurement programs represent a direct assault on the resolution and, as such, on the authority of the Security Council, more broadly.

Importantly, the resolution sets the stage for responding to such challenges, declaring in the ninth paragraph of its preamble that trafficking in WMD, missile delivery systems, and related materials “poses a threat to international peace and security.”⁴³ Under Chapter VII of the UN Charter, the Security Council is given specific authority to meet such threats through the imposition of sanctions or other measures. Thus, this phrasing in the resolution’s preamble makes clear that, in egregious trafficking cases, it will be appropriate to raise the matter at the Security Council for further action under Chapter VII.

⁴¹ UNSCR 1540 (2004), first preambular paragraph.

⁴² UNSCR 1540 imposes numerous requirements for states to adopt restrictions on the supply of sensitive goods, including the requirement for export licensing systems, criminalization of violations, and limitations on financing and transporting such goods.

⁴³ UNSCR 1540 (2004), ninth preambular paragraph. According to one US official, the term “trafficking” in that paragraph was adopted with reference to the illicit trade in nuclear-related goods pursued by the private network operated by Pakistani nuclear scientist A.Q. Khan. But if a non-state network can pose a threat to international peace and security because it assists a state to acquire nuclear arms, a network sponsored by the state that is seeking nuclear arms would presumably pose a greater threat. Moreover, A.Q. Khan’s nuclear commerce was undertaken at the behest of states, making him little different from other middlemen in more recent state-sponsored illicit-procurement programs.

STEPS TO OUTLAW STATE-SPONSORED ILLICIT NUCLEAR-PROCUREMENT PROGRAMS

State-sponsored illicit nuclear-procurement efforts undermine the objectives of UNSCR 1540, tarnish the image of the IAEA, subvert the control system of the NSG, undermine key objectives of the PSI and the G7 Global Partnership, and abuse the sovereignty of individual states. Practical measures are available in each of these settings, however, to transform this environment and turn the tables on the next state hoping to engage in this pernicious conduct. The goal is to affirm in as many settings as possible that this behavior is an unacceptable derogation from international rules and respect for state sovereignty and will be met with a powerful international riposte. The collective impact of the proposed initiatives, many of which have been foreshadowed above, would be to create a strong deterrent to future illicit procurement programs and the basis for early international intervention in the next emerging proliferation case.

Security Council action. The committee established to monitor the implementation of UNSCR 1540 is completing a “comprehensive review” of the resolution’s accomplishments and examining how the resolution and implementation might be strengthened. The result is expected to be a final report and, it appears, a new Security Council resolution codifying the results of the review. Important steps could be taken toward outlawing state-sponsored illicit nuclear procurement programs by including language in the committee’s report or a new resolution text to establish that:

- All UN member states have the obligation to respect the controls over WMD and related materials adopted by other UN members;
- State-sponsored illicit nuclear-procurement programs threaten the objectives of UNSCR 1540 and violate international law as embodied in that resolution;
- The Security Council deplores such programs; and
- Such programs pose a threat to international peace and security (thereby exposing states conducting such program to possible sanctions and other punitive measures).

The most desirable outcome, but the most politically difficult to achieve, would be to have such points addressed in the operative portion of a new resolution—introduced by phrases such as “the Council *finds that*” or “*decides that*.” Even placement in the preamble of a new resolution using more hortatory language, however—introduced by phrases such as the “Council *takes note of*” or “the Council *deplores*” —could be quite effective in putting the next potential offending state on notice that its conduct may lead to a punitive response. And, indeed, even the concerted request for the inclusion of these points by the group of twenty or so victimized states, whether or not successful, could have a deterrent effect, implying that they might seek sanctions in a future case, irrespective of whether the Security Council endorses the approach in the course of the UNSCR 1540 Comprehensive Review.

Unfortunately, as this report goes to press, it appears that this valuable opportunity to start a process of outlawing state-sponsored illicit nuclear-procurement programs will not be

exploited, and language along the lines of that just described will not be included in the new resolution. Nonetheless, the Security Council has made multiple adjustments to the original resolution outside the context of a comprehensive review of the document. Thus, the Security Council will have further opportunity to address this issue in the future, and concerned states will have the opportunity to call for such action, with its implicit warning of a punitive response, by these states, at the least, to future illicit nuclear-procurement programs.

International Atomic Energy Agency action. At the IAEA, the crucial step would be for the agency to formally recognize that facilities permeated with illegally acquired equipment and materials that are tendered for IAEA monitoring inevitably raise suspicions and should be treated differently from facilities with untainted pedigrees. Why, after all, would a country choose to acquire key goods through clandestine networks if it did not have an ulterior military objective in mind? While placing the facility under IAEA safeguards is an essential step to help ensure it is not used for non-peaceful purposes, a facility built on violations of the laws of many states must raise doubts as to the host country's commitment to comply with the agency's nonproliferation rules.

Iran's three most sensitive facilities—the Natanz enrichment plant, the still-to-be completed Arak reactor, and the Fordow enrichment plant—not only are contaminated with illegally acquired nuclear goods, but they were initially built in secret. The first two of these were exposed in 2002, and the third in 2009. Iran placed all of them under appropriate IAEA monitoring soon after they came to light and, today, under the 2015 Joint Comprehensive Plan of Action (JCPOA), they and all other elements of Iranian activities will be monitored under a specially enhanced IAEA safeguards regime. Still, Iran commenced the secret construction of Fordow after it accepted inspections on Natanz and Arak, a stark reminder that apparent compliance with normal IAEA rules is by no means a guarantee of good behavior across the board.

It is also worth noting that, of the 700 facilities under the IAEA system, only Iran's were built with components and materials that were acquired by fraud and misrepresentation in violation of national export-control laws and a UN Security Council embargo.⁴⁴

In parallel with action at the UN Security Council, the IAEA needs to single out and condemn the inclusion of illicitly procured goods in facilities submitted for inspection and

⁴⁴ The only other facilities under IAEA inspection that are widely considered to have been built using purloined technology or goods are Brazil's ARAMAR and Resende enrichment plants, believed to be based on secretly acquired German centrifuge technology, and the Indian CANDU reactors (added to the IAEA roster as part of a complex 2008 US-India nuclear accord) that replicated the Canadian-provided Rajasthan 1 and 2 reactors without authorization. (See John R. Redick, "Nuclear Illusions: Argentina and Brazil," Henry L. Stimson Center Occasional Paper, no. 25, December 1995, <http://www.acamedia.info/politics/IRRef/StimsonC/redick.pdf>; Dinshaw Mistry, *The US-India Nuclear Agreement: Diplomacy and Domestic Politics* (Cambridge: Cambridge University Press, 2014).) In these cases, however, the components were not acquired in violation of a UN Security Council embargo.

announce the intention to subject any such facilities to added transparency measures.⁴⁵ As at the Security Council, politics must again be taken into account. But a more modest resolution of the IAEA Board of Governors—or a declaration by the agency’s director general—condemning illicit nuclear trade and stating that the agency will *consider* possible special transparency measures in future cases would be a valuable step forward. And, again, as at the Security Council, even a well-publicized request for such actions at the agency by the roughly twenty states previously victimized by illicit procurement—whether or not the request was successful—would put the next would-be nuclear procurer state on notice that these parties, at the least, will seek to impose consequences for its conduct.

Nuclear Suppliers Group action. In 1992, soon after the discovery of Saddam Hussein’s illicit nuclear dual-use goods procurement program, the NSG significantly strengthened its guidelines by adopting a control list covering such goods. The group has subsequently updated the lists, but despite the clear evidence of the crucial importance of dual-use goods to the Iranian and North Korean nuclear programs, the NSG, as noted earlier, has continued to treat this issue as a lesser concern.

The NSG should have a profound concern regarding how its rules have been deliberately and repeatedly circumvented by would-be nuclear-weapon states. Rather than merely tightening its rules and promoting their more effective implementation, the group also needs to focus on offending states themselves and prepare an effective response to the next egregious violation of the NSG rules. At a minimum, the group should denounce state-sponsored illicit procurement programs and declare that evidence of such behavior will trigger a special meeting of the organization to consider appropriate responsive action, such as imposing a collective nuclear embargo on the offending state or seeking the imposition of sanctions at the UN Security Council. Again, if, the internal politics of the group prevent a consensus to adopt such a declaration at this time, the very request for one by a group of aggrieved participating states would send a clear warning that there will be pressure within the NSG for a strong response to any future state-sponsored threat to the group’s rules.

Group of Seven Global Partnership action. A declaration by this group that explicitly condemned state-sponsored illicit nuclear-procurement programs and announced that a punitive response would be considered the next time this pattern is observed would be a natural outgrowth of the group’s strong endorsement of controls over transfers of nuclear goods. Importantly, among the international groupings discussed here, the Global Partnership may be where consensus can be most readily achieved, creating a nucleus around which further consensus-building in other fora could be pursued.

Proliferation Security Initiative action. As noted, the PSI is predominantly focused on countering state-sponsored illicit procurement programs by means of interdicting goods in transit. Gaining the support of all 100-plus endorsing states for a statement condemning such state

⁴⁵ Although not framed in these terms in the JCPOA, this was the ultimate outcome of the Iran case under that agreement. See JCPOA, *passim*.

procurement practices and threatening collective responsive action might prove difficult. However, gaining the support of the OEG for such a statement would appear more manageable. The OEG is composed of the states most committed to the PSI mission and presumably most opposed to state-sponsored illicit nuclear-procurement programs. Moreover, the OEG members, with the possible exception of Russia, are generally aligned on proliferation issues.

Action by like-minded states. Given the central role of the United States in nonproliferation matters at the UN Security Council, IAEA, NSG, the Global Partnership, and in the PSI, all of the above-proposed actions will require Washington to take the initiative. Washington could likely count on permanent Security Council members France and the United Kingdom to support the proposed measures in that forum and elsewhere, and, judging from their coordination on unilateral economic sanctions on Iran beginning in 2010, the EU (and its member states), Australia, New Zealand, Japan, and South Korea would likely also endorse these measures. Support might also be expected within the Global Partnership and the OEG.

The United States and other like-minded states might also consider legislation declaring state-organized procurement efforts a threat to national security and authorizing the designation of offending states as “State Sponsors of Nuclear Smuggling,” subject to a range of powerful sanctions on this basis. This would provide an additional layer of deterrence against future state-sponsored illicit procurement programs.

Obtaining consensus at international organizations and arrangements. Russia has opposed any changes to UNSCR 1540 or to the NSG Guidelines.⁴⁶ Nonetheless, if the proposals suggested here can be moved by a group of prominent states and framed in a fashion that does not intrude directly on Russian interests, progress may be possible.

These proposals have been kept relatively modest, in the hope that this would make them more readily accepted by Russia, China, and other states not part of the proposing coalition. All of these initiatives are future-focused, with the goal of deterring the next state-sponsored illicit procurement program. Thus these initiatives can be framed to target newly launched procurement programs, thereby exempting Russian and Chinese procurement activities, and perhaps deflecting objections from less-developed states protective of their right to enjoy the peaceful benefits of nuclear energy.⁴⁷ In addition, the proposals do not seek the imposition of multilateral punitive measures at the current time. Nor would they require the imposition such multilateral measures when a future

⁴⁶ Statement of the Russian Federation at the Open Consultation on the Fundamental Review of UN Security Council Resolution 1540, June 21, 2016. Information regarding the NSG based on interview with European official, Brussels, July 2016.

⁴⁷ Regarding less-developed states (members of the Non-Aligned Movement and certain other non-nuclear-weapon-state parties to the NPT), it would be hard for them to oppose the possibility of taking responsive measures against states violating the export controls they have put (or are required to put) in place. Moreover, the right to enjoy the peaceful benefits of nuclear energy hardly can be said to include the right to attain those benefits by illegal means.

procurement program were observed. Rather, they merely establish this as a potential threat and set the stage for the consideration of such measures as circumstances warrant. The imposition of unilateral sanctions by one or more aggrieved supplier states, of course, would not require the consent of other governments.

Even if it is not possible to achieve consensus at the Security Council, IAEA, or the NSG immediately, having the United States and close partners jointly put this suite of initiatives forward can serve important goals. Most importantly, such concerted action can unambiguously affirm the principle that state-sponsored procurement programs are an offense to the international community, to be deterred through the threat of future punishment, and can launch a process of engagement leading to a broader consensus over time.⁴⁸

The United States and its close partners have used such a process to considerable advantage in the past. The PSI, for example, was launched with eleven core members and now has over 100 participating states, and its principle of interdiction is now enshrined in key UN Security Council resolutions.⁴⁹ This tool was also used at the 2014 Nuclear Security Summit, where thirty-five states subscribed to the Strengthening Nuclear Security Implementation Initiative, under which they agreed to make IAEA recommendations for nuclear-security measures mandatory components of their respective national laws. Since its launch, active efforts have been made to build on the initial core of supporters and broaden the number of subscribing states.⁵⁰ At the 2015 Lubek Summit, the Global Partnership announced that its members would make recipient state acceptance of enhanced IAEA safeguards (known as the Additional Protocol) a condition for the future supply of nuclear-specific goods, although this rule has not been adopted by the NSG due to a lack of consensus. It is envisioned that action by such a core group can create momentum toward a broader agreement, as has been seen previously in this forum.⁵¹

Finally, even as steps toward building consensus on outlawing state-sponsored nuclear procurement programs continue, concerted efforts by the United States and its close

⁴⁸ The history of using agreement by a core of like-minded states on a new policy or initiative as the foundation for building a broader consensus was brought to the author's attention by Daniel Horner.

⁴⁹ See, e.g., UNSCR 2276 (2016), OP 18.

⁵⁰ "The Strengthening Nuclear Security Implementation Initiative: Evolution, Status and Next Steps," Nuclear Security Governance Experts Group, October 2015, <http://www.nsgeg.org/TSF-StrengtheningNS1015.pdf>; Jordan joined the initiative in 2015, and efforts to enlarge membership continue. "Fact Sheet: Update on Joint Statement on Strengthening Nuclear Security Implementation (INFCIRC 869)," The White House, April 6, 2016, <http://www.nss2016.org/document-center-docs/2016/4/5/fact-sheet-update-on-joint-statement-on-strengthening-nuclear-security-implementation-infcirc-869>.

⁵¹ "G7 Statement on Non-Proliferation and Disarmament, Lübeck, Germany," *op. cit.* Regarding a previous episode in which action by Global Partnership paved the way for building consensus at the NSG, see Mary Beth Nikitin, Anthony Andrews, and Mark Holt, "Managing the Nuclear Fuel Cycle: Implications for Expanding Global Access to Nuclear Power," Congressional Research Service, report RL 43234, March 5, 2010, <https://www.fas.org/sgp/crs/nuke/RL34234.pdf>.

partners to establish this offense can, in themselves, serve as a warning. If effectively publicized, the joint effort can make clear that the next country to begin down this path will face early intervention from a group of powerful states, even if such intervention has yet to be adopted as policy in the international fora discussed here.

Outlawing by accretion. Each of the measures described above represents a modest step in the relevant forum, but their cumulative impact would be quite substantial:

- The Security Council—if not in its current comprehensive review of UNSCR 1540, then in another setting—would have singled out and deplored state-sponsored illicit procurement programs and reiterated that the next one might be subject to responsive action under Chapter VII of the UN Charter.
- The IAEA would have singled out and deplored such conduct as tainting nuclear facilities placed under its safeguards system, potentially requiring added verification measures.
- The NSG would have singled out and deplored such conduct and declared that the group will convene and consider concerted punitive action in future cases.
- The Global Partnership and the PSI's OEG would also have singled out and deplored such conduct and indicated the readiness of its members to respond to it.
- Individual states, depending on the specifics of new legislation, would have threatened powerful economic sanctions when a determination was made that a state is sponsoring a nuclear-procurement program.

Putting such a framework in place today, using international, multilateral, and individual state measures, would not entail an extraordinary expenditure of diplomatic effort, such as might be required, for example, in drafting and bringing into force an international treaty to address this challenge.⁵² Nonetheless, the above measures would serve as a strong warning that the international community will not tolerate a future assault on the global technology-control system without responding. It is also worth reiterating a point noted above: putting this framework in place encourages intervention in the next proliferation case at an early stage, as soon as a pattern of illicit procurement activities is observed, well before a violation of IAEA safeguards (the trigger for intervention in the case of Iran) or a nuclear detonation (the trigger for intervention in the case of North Korea) may have taken place.

Making state-sponsored illicit procurement programs a *de facto* international offense also sets the stage for taking measures to challenge the continued possession and use of illegally acquired goods. When the facts are clear, as in the case of the US-manufactured pressure transducers at Natanz—where the goods have been observed in the offending country and the perpetrators have been brought to justice—there would be no question that the aggrieved

⁵² As part of this project, former State Department official and consultant to the UN Security Council Victor Comras prepared a paper examining more formalized approaches to outlawing illicit procurement programs, finding that such efforts were not likely to be practicable. Victor Comras, "Heightening the Salience of the Crime of Illicit Nuclear Procurement," June 2016, unpublished.

state or states had suffered an internationally recognized wrong.⁵³ In this context, seeking the recovery, destruction, or sequestration of illegally acquired nuclear booty would be perceived as a fitting and appropriate remedy.

Pursuing Recovery of Misappropriated Nuclear Goods

Pursuing the recovery of misappropriated goods is a well-established practice in international relations. Where illegally acquired nuclear dual-use goods are concerned, however, the approach is virtually never used today, although it has been successfully employed in a number of past cases, and several international instruments expressly call for recovery of other classes of nuclear goods in certain circumstances.

If one reviews the numerous initiatives that have been adopted by the United States and internationally to combat illicit commerce in nuclear dual-use goods, mechanisms are in place to counter virtually every element of these illegal transactions—except the continued possession and use of ill-gotten goods.

To constrain illegal procurement efforts, supplier states have implemented export-licensing systems and customs controls to block exports to states and programs of concern; middlemen, brokers, freight forwarders, and transportation companies in transit states are subject to sanctions (fines and denials of access to Western markets and financial services) for aiding in transactions that circumvent such controls; goods in transit are subject to interdiction, facilitated by the 2003 Proliferation Security Initiative; and banks must monitor all financial flows and block the movement of funds to support illegal nuclear transactions and the related movement of goods. In the proliferating country, finally, sanctions (in the form of asset freezes and, for individuals, travel bans) have been imposed on individuals and entities that are the originators of these transactions, although not on the country itself, as explained above.

Once the goods arrive in the ultimate end-user country, however, interventions to control the goods in question or their movement cease, leaving the recipient free to use the goods as it wishes. Closing this gap in international efforts to combat trafficking in nuclear-relevant goods

⁵³ The pressure transducers were manufactured by MKS Instruments of Andover, MA. See “Chinese Man Convicted on Charges of Exporting U.S.-Origin Pressure Transducers to Iran,” *Iran Watch*, February 9, 2016, <http://www.iranwatch.org/our-publications/international-enforcement-actions/chinese-man-convicted-charges-exporting-us-origin-pressure-transducers-iran>; Ian J. Stewart, Andrea Stricker, and David Albright, “Chinese Citizen’s Involvement in the Supply of MKS Pressure Transducers to Iran: Preventing a Reoccurrence,” Institute for Science and International Security and King’s College London’s Project Alpha, (2014) http://isis-online.org/uploads/isis-reports/documents/MKS_China_30Apr2014-final.pdf. For a case where illegally acquired goods were observed at a North Korean site, see “Japanese Firms Investigated Over Parts Found in North Korean Nuclear Plants,” *New York Times*, June 12, 2008, http://www.nytimes.com/2008/06/12/world/asia/12iht-japan.1.13659375.html?_r=0.

would place significant new obstacles in the path of the next would-be nuclear power, as discussed more fully below.

PURSUIT OF MISAPPROPRIATED GOODS ROUTINE PRACTICE IN MANY NON-NUCLEAR SETTINGS

This gap in counter-nuclear-technology trafficking efforts is surprising because where misappropriated property of virtually any other variety is concerned, recovery of the asset at issue is always a goal, the more so where the misappropriation involves items of unusual importance or value. The United States has gone to considerable lengths, for instance, to recover military goods that have fallen into the wrong hands, including an EP-3 surveillance plane successfully recovered after its forced landing on Hainan Island, China, in 2001; stolen man-portable air defense systems (MANPADS) in Libya following the fall of Muammar Qaddafi, in 2011, two thousand of which anti-aircraft systems were recovered; three 747s improperly in use by Iran; and, most recently, a Hellfire missile that had been improperly transferred to Cuba and was returned in early 2016. The United States also sought the return of an RQ-170 Sentinel surveillance drone that crashed in Iran in 2011, although this effort was not successful.⁵⁴

Washington has also expended considerable effort, sometimes over the course of decades, to obtain the restitution of expropriated property following regime change in Iran and Cuba.⁵⁵ In addition, as part of its attempts to protect US intellectual-property

⁵⁴ Elizabeth Rosenthal with David Sanger, “U.S. Plane in China After It Collides with Chinese Jet,” *New York Times*, April 2, 2001, <http://www.nytimes.com/2001/04/02/world/us-plane-in-china-after-it-collides-with-chinese-jet.html?pagewanted=all>; Paul Eckert, “Dismantled Spy Plane Flown Out of China,” ABC News, July 2, 2001, <http://abcnews.go.com/international/story?id=80826>.

Regarding the Libyan MANPADS, the United States offered cash rewards and other inducements for the return of such missiles looted from Libyan arms caches. Some 2,000 missiles out of a much larger inventory were recovered, with the remainder presumed to be in the hands of armed groups or for sale on the black market. Sharyl Attkisson, “Thousands of Libyan Missiles from Qaddafi Era Missing in Action,” CBS News, March 25, 2013, <http://www.cbsnews.com/news/thousands-of-libyan-missiles-from-qaddafi-era-missing-in-action/>.

Regarding the 747s, see “Action Affecting Export Privileges; Balli Group, et. al.,” *Federal Register*, March 25, 2009, <https://www.federalregister.gov/articles/2009/03/25/E9-6607/action-affecting-export-privileges-balli-group-plc-balli-aviation-balli-holdings-vahid-alaghband>. The planes were grounded at US request when undergoing servicing in a third country and were ultimately repossessed by the lender holding mortgages on the planes.

“U.S. Hellfire Missile Mistakenly Shipped to Cuba,” Associated Press, January 7, 2016, <http://www.theguardian.com/us-news/2016/jan/08/dummy-us-hellfire-missile-mistakenly-shipped-cuba>; Devlin Barrett and Gordon Lubold, “Missing Hellfire Missile Shows Up in Cuba,” *Wall Street Journal*, January 7, 2016, <http://www.wsj.com/articles/missing-u-s-missile-shows-up-in-cuba-1452213667>.

“Barack Obama Demands Iran Return Downed U.S. Drone,” *Guardian*, December 12, 2011, <http://www.telegraph.co.uk/news/worldnews/middleeast/iran/8952147/Barack-Obama-demands-Iran-return-downed-US-drone.html>.

⁵⁵ “Iran-U.S. Claims Tribunal,” US Department of State, n.d., <http://www.state.gov/s/1/3199.htm>; Frances Robles, “Cuba and U.S. to Discuss Claims on Property,” *New York Times*, December 4, 2015,

rights, Washington has also repeatedly sought—and obtained—the destruction of pirated DVDs in multiple countries.⁵⁶ Interventions to obtain the return of Nazi-looted art to rightful owners are an additional, widely publicized example of *post hoc* efforts to recover improperly acquired goods.⁵⁷

TREATIES AND LAWS CALLING FOR PURSUIT OF CERTAIN MISAPPROPRIATED NUCLEAR GOODS

Importantly, the terms of certain important legal instruments also provide for efforts to regain control of improperly acquired nuclear materials and equipment.

Under the Convention on the Physical Protection of Nuclear Material, parties are enjoined to maintain adequate physical security over nuclear materials with the aim of protecting against theft or other unlawful taking and “ensuring the implementation of rapid and comprehensive measures to locate and, where appropriate, recover missing or stolen nuclear material.” The convention requires other states to assist in the recovery process, as needed.⁵⁸

All new US agreements for cooperation in the peaceful uses of atomic energy, which cover transfers of nuclear-specific but not dual-use goods, are required by statute to contain a stipulation providing for the return of previously transferred nuclear goods “if the cooperating party detonates a nuclear explosive device or terminates or abrogates an agreement providing for IAEA safeguards.”⁵⁹

Legislation introduced in the US House of Representatives in 2012 and reintroduced in 2014 (but never enacted) would also have required the return of US-supplied nuclear goods in the

<http://www.nytimes.com/2015/12/05/world/americas/cuba-and-us-to-discuss-settling-claims-on-property.html>.

⁵⁶ Zaid Haidar, “Protecting Intellectual Property Means Investment, Jobs, and Creativity,” U.S. Department of State, May 3, 2016, <https://blogs.state.gov/stories/2016/05/03/protecting-intellectual-property-means-investment-jobs-and-creativity>; “USTR Releases Special 301 Report on Protection of US intellectual Property Rights Around the World,” Office of the US Trade Representative, April 2016, <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/april/ustr-releases-special-301-report#>.

⁵⁷ See, e.g., Nina Totenberg, “After Nazi Plunder the Quest to Bring Home ‘The Lady in Gold,’” National Public Radio, April 2, 2015, <http://www.npr.org/2015/04/02/396688350/after-nazi-plunder-a-quest-to-bring-the-woman-in-gold-home>.

⁵⁸ Convention on the Physical Protection of Nuclear Material and Nuclear Facilities, INFCIRC/274/Rev.1/Mod.1, May 9, 2016, Article 2A, <https://www.iaea.org/sites/default/files/infirc274r1m1.pdf>.

⁵⁹ Atomic Energy Act of 1954, as amended, Section 123 (a)(4). See also, Agreement for Cooperation Between the Government of the United States of America and the Government of the Socialist Republic of Vietnam Concerning Peaceful Uses of Nuclear Energy, with agreed minute, (signed at Hanoi May 6, 2014. Entered into force October 3, 2014) T.I.A.S. 14-1003: “If either Party... does not comply with the provisions or terminates, abrogates or materially violates a safeguards agreement with the IAEA; the other Party shall have the rights to cease further cooperation... and to require the return of any material, equipment and components transferred under this Agreement and any special fissionable material produced through their use.”

event that the cooperating party withdraws from the NPT under Article X of the treaty. Indeed, the return or destruction of previously acquired nuclear equipment and materials has also been raised in international discussions as a measure to be pursued in the event that a state withdraws from the NPT; France, in particular has pursued this approach.⁶⁰

The United States employs post-export verifications with respect to potentially sensitive goods that have been licensed for export as a means of ensuring that they are being used for the purposes allowed under the license. The program involves Commerce Department attachés and specialized export-control officers assigned to US embassies in locales with substantial trade activities, including Abu Dhabi, Beijing, Hong Kong, Moscow, New Delhi, and Singapore. Well over 1,000 inspections are carried out annually. The Department has a range of remedies that it can use to cure license violations, including the right of “redelivery,” discussed below.⁶¹ Through 2015, only the United States conducted such post-export verification activities, although France and Canada were starting such programs.

It is also worth noting that under the 2015 Joint Comprehensive Plan of Action, Iran must grant supplying states the right to verify the end-use and end-use location of nuclear and nuclear dual-use goods transferred to Iran under the procedures set out in that agreement. While not specifying what is to occur if the supplying state determines that its goods have been misused, the provision implies that the situation must be remedied lest Iran face accusations of breaching the agreement. Presumably, the remedies would include terminating the improper use of the item at issue; rendering the item unusable; relocating it to its appropriate venue; and, possibly, repatriation of the item in question to the supplier country. The details may be less important than establishing the principle of post-export inspections and, implicitly, the need for remedial action where misuse of imported goods is found, which creates an important precedent for redressing the possession and use of illegally acquired nuclear goods.⁶²

⁶⁰ See, “France: TNP – Other themes: withdrawal from the NPT,”

<http://www.francetnp.fr/spip.php?article99>; Paul K. Kerr and Mary Beth D. Nikitin, *Nuclear Cooperation with Other Countries: a Primer* (Congressional Research Service, May 14, 2014), p. 10, <http://fas.org/sgp/crs/nuke/RS22937.pdf>; Dieter Fleck, “State Responsibility: Consequences of Termination of or Withdrawal from Non-proliferation Treaties,” in Daniel H. Joyner and Marco Roscini, eds., *Nonproliferation Law as a Special Regime: a Contribution to Fragmentation Theory in International Law* (Cambridge: Cambridge University Press, 2012), pp. 250-69; Daniel H. Joyner, “What If Iran Withdraws from the Nuclear Nonproliferation Treaty? Part II: What Would the Legal Implications Be?” European Society of International Law website, December 12, 2012, <http://www.esil-sedi.eu/sites/default/files/ESIL%20Reflections%20-%20Joyner%20II.pdf>.

⁶¹ For a discussion of US post-export inspections, see Leonard Spector and Egle Murauskaite, *Combating Nuclear Commodity Smuggling: A System of Systems* (Monterey, CA, and Washington, DC: James Martin Center for Nonproliferation Studies, 2014), pp. 76 ff.

⁶² JCPOA, Annex IV, paragraph 6.8; UNSCR 2231 (2015), paragraph 22. Initial steps toward establishing the principle of end-use inspections were taken under the first Iran sanctions resolution, UNSCR 1737, which declares that for nuclear transfers permitted under that resolution, a category that included dual-use items, states shall have obtained and be able to effectively exercise the right of end-use inspections. See UNSCR 1737 (2006), paragraph 5 (b). The JCPOA takes this a step further by requiring Iran to grant such a right with respect to nuclear and nuclear dual-use goods transferred under that accord.

In light of these precedents in related areas, pressing for recovery of illicitly obtained nuclear dual-use goods, far from being a novel approach, is an extension of a practice that is required or has been actively considered in closely related settings.

SUCCESSFUL PURSUIT OF MISAPPROPRIATED NUCLEAR-RELATED GOODS

US demands for measures to prevent the misuse of improperly obtained nuclear-relevant goods have been pursued in a number of important past cases with a measure of success.

- After the United States obtained intelligence in the mid-1970s indicating that Taiwan was apparently pursuing a nuclear-weapon program, Washington demanded and obtained the return of a small quantity of separated plutonium it had provided to Taiwan in 1974 and gained agreement for the removal to the United States of hundreds of kilograms of plutonium-bearing spent fuel produced in a Taiwanese research reactor (which used US-supplied heavy water to operate).⁶³
- In 1990, Israel agreed to return 10.5 tons of heavy water to Norway to resolve a controversy over Norway's right to inspect how the material was being used.⁶⁴
- In the mid-1980s, Washington obtained the return of the majority of some 800 krytrons, usable as nuclear-weapon triggers, which Israel had smuggled from the United States.⁶⁵
- In the late 1990s, the United States obtained the return of a Sun Microsystems supercomputer diverted by China to military uses.⁶⁶
- Also in the late 1990s, the United States gained Russia's agreement to place US supercomputers Moscow had improperly obtained under US monitoring, to ensure the units would be used only for non-weapon purposes.⁶⁷

⁶³ David Albright and Corey Gay, "Taiwan: Nuclear Nightmare Averted," *Bulletin of the Atomic Scientists*, January/February 1998, <http://bit.ly/2fejKkn>.

⁶⁴ Gary Milhollin, "Israeli A-Bombs and Norwegian Heavy Water: Arms Control Through Public Pressure," Wisconsin Project on Arms Control, June 17, 1993; Robinson Freytag, "Film shows how Israel got heavy water from Norway," *Jerusalem Post*, December 7, 2005, <http://www.jpost.com/Israel/Film-shows-how-Israel-got-heavy-water-from-Norway>.

⁶⁵ Four hundred and sixty-nine of 810 krytrons were returned. See, "Israel's Nuclear Weapon Capability: An Overview," *The Risk Report*, July-August 1996; "Israeli Illicit Procurement of Krytron Tubes," Project Alpha External Website, King's College London, undated (accessed July 21, 2014), <http://www.kcl.ac.uk/sspp/departments/warstudies/research/groups/csss/alpha/About-proliferation/Case-Studies/Electronics/Krytrons.aspx>; Thomas Friedman, "Israel Offers to Return to U.S. the Trigger Devices It Has Not Used," *New York Times*, May 17, 1985, <http://www.nytimes.com/1985/05/17/world/israel-offers-to-return-to-us-the-trigger-devices-it-has-not-used.html>.

⁶⁶ The two exports were licensed, but the exports were illegal because the declared end-use in each case was false. See Testimony of Gary Milhollin, before the Senate Committee on Foreign Relations, October 8, 1997, <http://www.wisconsinproject.org/pubs/testimonies/1997/10-8.html>.

⁶⁷ "U.S., Russia Seek Compromise Over Disputed Computers," *Arms Control Today*, October 1997, https://www.armscontrol.org/act/1997_10/compoct.

- In 2004, under the pressure of US sanctions, Muammar Qaddafi terminated his long-standing program to develop a nuclear-weapon capability using illegally imported equipment and material and allowed the United States and the United Kingdom to remove all relevant all of these from Libya.⁶⁸
- In 2012, as an element of a plea bargain concluding a criminal prosecution, US authorities obtained the repatriation of certain advanced computers that had been acquired by Iran under false pretenses.⁶⁹

In some of these cases, the demanding party had unusual leverage over the country exploiting the ill-gotten goods at issue, but in others this was lacking, and the demanding party obtained relief nonetheless, using a variety of diplomatic tools.⁷⁰ This history indicates that *post hoc* remedies for the recovery or sequestration of misappropriated nuclear dual-use goods can, at least in some cases, achieve the desired result. There are, however, certainly many more instances known in official circles, but not made public, where a positive outcome was not achieved or where pursuit of purloined goods was deemed so unlikely to succeed that it was not attempted.⁷¹

MULTIPLE GOALS OF RECOVERY STRATEGY

Pursuing illegally obtained nuclear goods serves a number of important objectives.

- If successful, the strategy would place significant obstacles in the path of a suspect nuclear program. Many items that have been illegally acquired by Iran and North Korea were *essential* for the construction of their sensitive nuclear plants and/or for their work on nuclear weapons. Thus, if multiple aggrieved states demanded the return of such essential items that had been unlawfully acquired from them, the impact of a successful intervention could be quite substantial. But even if the evidence of malfeasance and any responsive enforcement action were sufficient to compel the disgorging or sequestration

⁶⁸ David Sanger, “In U.S.-Libya Nuclear Deal, a Qaddafi Threat Faded Away,” *New York Times*, March 1, 2011, http://www.nytimes.com/2011/03/02/world/middleeast/02arms.html?_r=0.

⁶⁹ Elaine Silvestrini, “Iran Plot Snares Tampa Man,” *Tampa Tribune*, March 9, 2014, <http://tbo.com/news/crime/iran-plot-snares-tampa-man-20140309/>; United States District Court for the Middle District of Florida: Tampa Division, Superseding Indictment: *United States of America v. John Alexander Talley*, et al., case no. 8:13-cr-00028-SCB-TBM, filed September 12, 2013; United States District Court for the Middle District of Florida: Tampa Division, Plea Agreement: *United States of America v. John Alexander Talley*, case no. 8:13-cr-00028-SCB-TBM, filed September 17, 2013. See also, US District Court, Middle District of Florida (Tampa), Criminal Docket for Case #: 8:12-cr-00177-VMC-TGW All Defendants, Plea Agreements 5/2/2012. Information on the return of certain computers by defendant Hajian provided during interview with a Department of Justice official familiar with the case, Washington, DC, May 2014.

⁷⁰ All of these cases involved nuclear dual-use goods, although nuclear-specific goods predominated in the Libyan case.

⁷¹ One US official has indicated that, in the case of Iran, pursuit of unlawfully obtained nuclear goods was not attempted because it was thought any such attempt would be futile in the context of the intense, ongoing clash between the United States and Iran over the latter’s nuclear program. (Interview, Washington, DC, May 2016.) One specific episode, not yet public, was brought to the author’s attention in which the attempt to recover illegally acquired nuclear goods from another country was made, but rebuffed.

of only one or two substantial shipments of such key items, the projects where they were to be used could be stalled for some time.⁷²

- Under the two-phase concept proposed here, the concerted demand for the return of illicitly obtained goods by multiple states would underscore in concrete terms the magnitude of a state-sponsored assault on the international technology-control system. In this context, the demand for return of purloined goods would greatly reinforce calls for punitive action against the state at the UN Security Council, IAEA, NSG, the Global Partnership, and OEG.
- The concerted demand for goods would sustain pressure on the offending state to cease its violations of the export controls of other UN members and negate its claims that its program should be considered above suspicion and the product solely of national technological prowess.

Thus, even an unsuccessful demand for restitution can serve important diplomatic ends.⁷³

Some US officials have stated that, in the midst of the major efforts to curtail the Iranian nuclear program—which included not only the imposition of UN and unilateral sanctions, but also certain covert measures including the use of the Stuxnet computer virus targeting Iranian uranium enrichment centrifuges at Natanz—it would be unrealistic to imagine a high-level, US-led initiative seeking the return of nuclear dual-use hardware illegally acquired by Tehran.⁷⁴ This is a thoughtful point, but deserves further discussion.

First, in many historical cases, as said earlier, the illicit acquisition of nuclear-relevant goods is a leading indicator of a clandestine nuclear-weapon program. Thus in the next case that might arise, the effort to recover ill-gotten nuclear goods could well represent the first major intervention to slow the suspect nuclear program at issue, rather than a secondary initiative that might seem overshadowed by other, previously launched curtailment efforts. Second, even in a case such as Iran, pressing for restitution of illegally obtained goods at a later stage would provide an added instrument in the nonproliferation armory, stigmatizing the would-be nuclear state, delegitimizing its nuclear program, and reinforcing the appropriateness of sanctions and other potent measures that had previously been brought to bear.⁷⁵

⁷² Once purloined goods are embedded in a larger piece of equipment—or many such pieces of equipment—or become contaminated with radioactivity, obtaining their destruction or sequestration may become more difficult. Depending on the circumstances, however, mechanisms should be available to achieve these remedies, such as taking facilities or portions of them off line; securing contaminated equipment in-country under IAEA monitoring; or allowing current use to continue under added transparency rules, while destroying unused replacement stocks.

⁷³ Assuming that the states most likely to come together to pursue the demand for return of illicitly acquired goods would be the United States and its traditionally like-minded partners, the example set by this grouping might encourage Russia and China to pursue recovery of goods that have been transferred from their territories through illegal mechanisms.

⁷⁴ Interviews, March 2016, Washington, DC.

⁷⁵ This need not detract from the efforts of top officials to take the lead in pursuing these other measures, as the restitution initiative could still be effective if pressed by somewhat less senior enforcement officials of the aggrieved state or states.

ESTABLISHING RECOVERY PRINCIPLE BY ACCRETION

Establishing state-sponsored illicit acquisition of nuclear goods as an international wrong, together with the various precedents described above, provides an ample predicate for pursuing recovery, destruction, or sequestration of such goods once in the hands of proliferant states. Nonetheless, enshrining the principle of such pursuit more formally would greatly reinforce the credibility of such efforts.

As in the case of outlawing state-sponsored procurement programs, this could be accomplished through the accretion of supportive declarations in multiple international fora.

- The UNSCR 1540 Committee, for example, could adopt language recognizing the rights of aggrieved states to seek redress from offending states for violations of controls over transfers of nuclear goods and calling on all UN members to facilitate efforts to achieve such redress;
- The NSG might also add similar text to its Guidelines;
- The G7 Global Partnership might issue a statement declaring the intention of its members to seek the return of illicitly acquired nuclear goods;
- The PSI, in turn, might add language to its Statement of Interdiction Principles to the effect that, where interdiction fails, participating states will lend their good offices to support recovery efforts; and
- The IAEA, whose mission is not focused on enforcement of export controls *per se*, could declare the intention to continue its practice of reporting on foreign supplied goods in the nuclear facilities it visits in states subject to UN nuclear embargoes.

It should be noted that the US Department of Commerce has the authority to demand the “redelivery” to the United States of illegally exported items.⁷⁶ It appears that, historically, it has used this authority to regain control over goods *before* they arrive in their country of destination. The case of the recovered 747s noted earlier is one of only two examples that research has identified where this authority was used to attempt to recover goods that were already in the hands of the ultimate end-user.⁷⁷ Nonetheless, that episode not only reinforces the general principle of recovery as a remedy for illicit procurement of controlled goods, but also highlights the current availability of a legal basis for pursuing this avenue in the case of purloined nuclear items. A future statement by the Commerce Department that it is prepared to utilize its redelivery authority more expansively to pursue the recovery of nuclear

⁷⁶ “OEE [Commerce Department’s Office of Export Enforcement] Special Agents are sworn federal law enforcement officers with authority to bear firearms, make arrests, execute search warrants, serve subpoenas, detain and seize items about to be illegally exported, and order the redelivery to the United States of the items exported in violation of U.S. law,” *Don’t Let This Happen to You*, US Department of Commerce, Bureau of Industry and Security, Office of Export Control Enforcement, July 2015, p. 4, http://www.bis.doc.gov/index.php/forms-documents/doc_view/1005-don-t-let-this-happen-to-you-071814; interview with senior Commerce Department official, November 2015.

⁷⁷ The details of the second case, which was not successful, have not been made public.

goods would be a valuable complement to the aforementioned proposed initiatives in international fora.

IMPLEMENTATION

As a practical matter, the United States and other like-minded nuclear-supplier states are in frequent consultation regarding illicit trafficking matters, sharing information, and seeking to block transactions of concern in a variety of settings. As the activities of a state-sponsored illicit procurement program unfold and are recognized as part of a wholesale assault on national export controls, these suppliers will be able to assemble information as to which goods have been sought and obtained, which states' export controls have been bypassed, and where the goods may currently be employed.

To be most effective, this dossier should be based on information that can be widely shared, a goal that must be balanced against the need to protect intelligence sources and methods. The latter requirement should not, however, pose an insurmountable obstacle to developing a persuasive case file. Recent years have seen extensive sharing of information with Security Council sanctions committees to establish the basis for sanctioning individuals and entities involved in the Iranian and North Korean nuclear programs, including individuals and entities involved in procuring goods for those programs. In addition, there has been considerable information sharing with the IAEA on such sensitive matters as the possible military dimension of Iran's nuclear program. Thus, developing a compelling case showing that a state-sponsored illegal procurement network has enabled the sponsoring state to acquire certain specific nuclear goods from specific supplier countries should be a manageable, and familiar, task.⁷⁸

Once in hand, the dossier compiled by the group of like-minded states would be sufficient to serve as the foundation for several initiatives by these states acting collectively. The order in which these initiatives might be taken, at what point some or all should be made public, and what other states should be approached to participate would need to be decided by the circumstances, but one sequence might be:

- Approach the offending state and demand that it desist from illicit procurement activities;

⁷⁸ It may be assumed that the malefactor state will claim that it came into possession of the nuclear goods at issue by legal means. Once the accusation against it is made, however, it would have the burden of demonstrating this with appropriate documentation. As for the challenge that might be posed when illegally obtained materials lose their distinct identity once incorporated into various pieces of equipment, it appears that, at least in some cases, this may be a manageable problem. The Panel of Experts that supported the Security Council Iran Sanctions Committee was able to identify components of Iranian centrifuges made from materials not available in Iran. See, June 2014 UNSCR 1929 Panel of Experts Report, photograph and annotation, p. 16/54. In some settings, moreover, where all known manufacturers carefully control the material and it is found in a state of proliferation concern, the fact that it was illegally acquired would be manifest.

- Advise the chair of the UNSCR 1540 Committee in a public note of the group's concerns and the impact on the offending state's conduct on the objective of the resolution to establish a universal system of export controls;
- Begin informal discussions at the Security Council on possible responsive measures (e.g., sanctions) against the offending state;
- Call for special meetings of the NSG, Global Partnership, and OEG to consider what measures, if any, the groups might take to address the matter;
- Prepare to impose unilateral sanctions to address state sponsorship of nuclear trafficking (or similar formulation, which will vary among the aggrieved states);
- Prepare a package of cases with strong evidence of numerous states' export-control violations by a single state and the continuing use of illegally acquired goods in the offending state; and
- As pressure mounts on that state, demand the return of the goods involved in these cases.

As negotiations unfold, the victimized supplier states would have a spectrum of unilateral sanction tools available to enforce their demands. The Iran case demonstrates that, at their most powerful, sanctions can cripple the economy of the targeted state. How far the aggrieved supplier states may wish to proceed down this path will depend on the circumstances, including, in no small part, their pre-existing relations with the malefactor state. A number of US laws are framed to give the president a menu of sanctions from which he must choose once he has determined that the relevant triggering conduct has occurred. Such an approach, which permits careful calibration of the pressure to be placed on the target, might be used here.

ASSOCIATED MEASURES

A number of additional steps can be taken to reinforce these efforts.

Registry of illicitly acquired goods. One means for underscoring the magnitude of the affront to international rules posed by state-sponsored illicit procurement programs would be to establish a registry of goods these programs have illegally procured for use in their sponsoring countries. The registry could be maintained at three levels, with a highly classified version to be shared only with close security partners; a confidential version to be shared more widely among diplomats and international organizations; and a third version that might be available to the public and incorporate information from nongovernmental publications and individuals. The latter two versions would provide data for the dossier described above and set the stage for recovery demands. Finally, the establishment of the registries would put the offending state on notice that its activities were being monitored and, implicitly, that responsive actions were under consideration, creating an additional measure of deterrence.

Aligning prosecution strategies. Virtually all of the victimized supplier states noted above, as well as a number of transit states, have prosecuted individuals and entities engaged in illicit procurement activities. Such prosecutions sometimes fail because of the inability to obtain

evidence and/or witnesses located in foreign jurisdictions. The situation is ameliorated through bilateral extradition treaties and mutual legal-assistance treaties, but coverage among states most involved in countering illegal nuclear commerce is incomplete. Although many NSG participating states have mutual legal-assistance treaties with the United States, for example, thirty-one other states, including China, do not.

The Convention on Transnational Organized Crime has strong provisions requiring parties—which include all NSG participating states—to provide the “widest measure of mutual legal assistance” and creates a legal basis for extradition with respect to crimes covered by the convention if no other extradition treaty exists between the requesting and requested parties.⁷⁹ The treaty covers any crime with a potential penalty of four or more years, committed by a group of three or more persons, and involving more than one country. Although the convention has not been invoked routinely in the prosecution of export-control crimes, doing so would not only offer expanded mutual legal assistance and extradition opportunities, but also would also tar state-sponsored illicit procurement programs with the brush of organized crime and place such programs in the category of such internationally reviled conduct as trafficking in persons and narcotics smuggling.

Separately, to reinforce the principle of seeking redress following the illicit acquisition of nuclear-relevant goods, it would be valuable for prosecutions worldwide to routinely include the return of purloined goods as one of the remedies sought. Return of such goods should also be pursued when negotiating with defendants regarding the mitigation of possible imprisonment or fines, the approach taken in at least one US case that led to the return of certain computers illegally sent to Iran.⁸⁰

The contribution of industry. Industry is the first line of defense in thwarting state-sponsored illicit nuclear-procurement networks, and internal export-control compliance programs have gained recognition as an important component of international nonproliferation efforts. The added visibility to the challenge posed by such networks that would flow from the activities in various international and national settings discussed above would help focus industry on the importance of such programs and reinforce this positive trend.

Even firms strongly committed to adhering to export-control requirements, however, can be deceived in the face the numerous practices procuring states have used to obscure their activities. Once their goods fall into the wrong hands, these firms, no less than their home governments, have a stake in trying to obtain their return. Surely no CEO wants to confront the possibility that his company, despite its best efforts, has contributed to the advent of the next nuclear-armed Iran or North Korea. In this context, manufacturers have good reason both to press their home governments to pursue the recovery of illegally acquired nuclear goods and to champion the implementation of the related strategies suggested here.

⁷⁹ Convention on Transnational Organized Crime and Protocols thereto, New York, November 15, 2000, Articles 16 and 18. The potential utility of this convention was brought to the author’s attention by Victor Comras.

⁸⁰ See Talley/Hajian case, note 64.

Concluding Matters

Historically, when proliferant states have exploited flaws in the nuclear nonproliferation regime, the international community has responded by devising and implementing new countermeasures to strengthen the regime and pre-empt a repetition of past abuses. Without going into detail, the pattern may be seen, for example, in the establishment of the NSG in 1978 (and its inclusion of controls over nuclear dual-use goods in 1992), in the strengthening of IAEA safeguards in the late 1990s, in the 2003 launch of the PSI, and in the adoption of UNSCR 1540 in 2004.

If one looks back at the period 2000-15, it is not hard to discern that a major, continuing weakness in nonproliferation efforts has been the inability to stanch the illegal flow of nuclear dual-use goods to states of concern. Following the historical pattern, this study has proposed a set of measures to deter future state-sponsored illicit procurement programs and, to the extent practicable, deny offending states the fruits of their labors.

These measures have the additional value of addressing another shortcoming of past nonproliferation efforts: the delay in bringing international pressure to bear on emerging proliferant states. As noted at several points in the foregoing discussion, stigmatizing state-sponsored illicit nuclear-procurement programs as an offense against international law and norms can provide a crucial focal point for rallying global nonproliferation efforts to interrupt suspect nuclear programs far earlier in the proliferation cycle than existing tools have allowed.

The study has also identified an important mechanism to achieve such stigmatization, namely through the accretion of actions at multiple international and multilateral fora to condemn state-sponsored illicit nuclear-procurement programs and threaten action in future cases. As actions by the Global Partnership and in other multilateral groupings have demonstrated, moreover, where consensus at some international fora may be difficult to achieve, concerted action by concerned states can create the foundation for broader consensus at a later time, and have a deterrent effect on would-be proliferants.

Outlawing state-sponsored illicit nuclear-procurement programs through the measures proposed above to condemn this conduct and lay a foundation for future punitive responsive measures would be an important achievement in itself. But it would also set the stage for what might be termed a “full-court press” strategy, to borrow a phrase from basketball.

Not only would the offending state be harried in international fora with the threat of multilateral sanctions because of its internationally unacceptable conduct, but such pressure would also create a favorable political environment for a drive on the part of multiple aggrieved supplier states to demand the return, sequestration, or destruction of their purloined goods. Such a drive, by exposing specific misdeeds, would, in turn, intensify the pressure on the malefactor state to cease its illegal activities. In this setting, and given the

precedents within and outside the nuclear sphere, the right to reclaim ill-gotten nuclear goods could be established as an important component of the nonproliferation regime.

Regaining control of unlawfully procured goods will never be easy. However, joint demands by affected states, in the context of supportive action in multilateral fora and coupled with the threat of potentially powerful unilateral sanctions, will confront holders of these goods with an unprecedented riposte to their assault on national and multinational nuclear export-control rules. Moreover, even if the demand for restitution fails, much can be accomplished in the attempt: putting the law-breaking state on the defensive, changing international perceptions of its nuclear program, and upholding the mandates of key international instruments and organizations.

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Mr. Spector, who has worked in the field of nuclear nonproliferation for nearly four decades, joined CNS from the US Department of Energy, where he served as an assistant deputy administrator for arms control and nonproliferation at the National Nuclear Security Administration (NNSA). His portfolio at the NNSA included the agency's work on nuclear export controls and International Atomic Energy Agency safeguards. Previously, Mr. Spector led the Nuclear Nonproliferation Project at the Carnegie Endowment for International Peace and served as chief counsel of the Senate Energy and Nonproliferation Subcommittee and as a special counsel at the Nuclear Regulatory Commission.

Mr. Spector is the author or co-author of eight books and numerous articles on nonproliferation and comments frequently on this subject in the media. Mr. Spector's recent work includes *Combatting Nuclear Commodity Smuggling: A System of Systems* (Monterey, CA, and Washington, DC: James Martin Center for Nonproliferation Studies, 2014), co-authored with Egle Murauskaite, and, with co-editors Matthew Bunn, Martin Malin, and William Potter, *Countering Black Market Nuclear Technology Networks* (Cambridge University Press, forthcoming). He is a graduate of Williams College and Yale Law School.

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