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Countering Nuclear Commodity Smuggling: A System of Systems

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The views expressed in this study are solely those of the authors and do not represent those of the James Martin Center for Nonproliferation Studies, the Monterey Institute of International Studies, or Middlebury College.

List of Acronyms and Abbreviations

AEO - Authorized Economic Operator
AEOI - Atomic Energy Organization of Iran
ASEAN - Association of Southeast Asian Nations
BAFA - Federal Office of Economics and Export Control of Germany
CISADA - Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010
CBP - U.S. Customs and Border Protection
C-PTAT - Customs-Trade Partnership Against Terrorism
E2C2 - Export Enforcement Coordination Center
EAR - Export Administration Regulations
ECO - UK Export Control Organisation
E.O. - Executive Order
FATF - Financial Action Task Force
FINCEN - Financial Crimes and Enforcement Network
HSI - U.S. Homeland Security Investigations
IAEA - International Atomic Energy Agency
ICE - U.S. Immigration and Customs Enforcement
IEEPA - International Emergency Economic Powers Act
IFCA - Iran Freedom and Counter-Proliferation Act of 2012
IFS - Instrument for Stability (EU)
INKSNA - Iran, North Korea, and Syria Nonproliferation Act
IRGC - Islamic Revolutionary Guard Corps
IRISL - Islamic Republic of Iran Shipping Lines
NNWS - Non-Nuclear-Weapon-State as defined in the NPT, namely any state other than an NWS (see below)
NPT - The Treaty on the Non-proliferation of Nuclear Weapons
NSG - Nuclear Suppliers Group
NWS - Nuclear Weapon State as defined in the NPT (a state that detonated a nuclear device prior to January 1, 1967, namely, China, France, Russia, the United Kingdom and the United States)
OEG - Operational Experts Group (under PSI)
OFAC - U.S. Department of Treasury Office of Foreign Assets Control
OPDAT - U.S. Department of Justice Overseas Prosecutorial Development, Assistance, and Training program
PSI - Proliferation Security Initiative
P5+1 - The group of states negotiating with Iran regarding its nuclear program, consisting of the five permanent members of the Security Council (China, France, Russia, the United Kingdom, and the United States) plus Germany.

SUA – Convention on the Suppression of Unlawful Acts against the Safety of Maritime Navigation

TRA/ITRA - Iran Threat Reduction Act of 2012

UNSCR – United Nations Security Council Resolution

WCO – World Customs Organization

WTO – World Trade Organization

WMD – Weapons of Mass Destruction

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EXECUTIVE SUMMARY

Overview - Purpose and Scope of Study

Since the dawn of the nuclear age, states seeking to acquire nuclear weapons or to advance existing nuclear weapon arsenals have relied to a greater or lesser degree on equipment, material, or technology acquired from other states. Given this virtually universal reliance on outside assistance, restricting transfers of nuclear commodities and technology has become a foundational component of national and international efforts to halt the proliferation of nuclear arms, and these concerted efforts are widely credited with slowing the advance of national nuclear programs of concern.

This study seeks to provide a comprehensive overview of current U.S. and international mechanisms for combating *trade in nuclear-weapon-relevant goods intended to support national nuclear weapon programs*, referred to below as “nuclear commodity smuggling.” By consolidating and examining all major components of this wide-ranging and multifaceted nonproliferation effort in a single report, the study aims to provide U.S. officials and other readers with a better understanding of this complex undertaking and identify opportunities to further strengthen it. (The study does not examine the somewhat related but distinct subject of protecting nuclear and radioactive materials against diversion by non-state actors.)

At present, the states most active in illicit nuclear commodity procurement transactions are Iran (suspected of developing capabilities that would permit it to build nuclear weapons rapidly); North Korea (which is thought to have several nuclear weapons and is expanding its capacity to build more); and, to a lesser degree, Pakistan (with an arsenal of at least 80 nuclear weapons and an expanding nuclear infrastructure).

Such transactions typically involve multiple actors: a national program to develop nuclear weapons or the capacity to do so; a domestic organization that initiates the illicit procurement transaction; a lead intermediary based abroad closely tied to the those originating the transaction; additional intermediaries helping to obtain the goods being sought; the producer or possessor of these items; the government of the state where the goods are produced that imposes controls on their transfer; a financial operation arranging payment for the goods in question; a transportation operation to move the goods in question to the originating country; a number of jurisdictions, usually with weak controls, where re-exports, transits, or related financial transactions can be undertaken; and assorted brokers, freight forwarders, and other intermediaries.

The most salient modes of intervention to block such transactions are targeted (entity- or activity-based) sanctions; measures focused on the commodities being sought (e.g., export licensing, interdiction of suspect cargoes); private sector internal compliance programs; measures focused on ancillary supporting services (e.g., finance, shipping); enforcement actions (criminal and administrative proceedings); and capacity-building in states with weak controls. Intelligence and diplomatic activities cut across all of these.

Efforts to combat nuclear commodity smuggling take place on multiple levels within the international system, including: international treaties and institutions, such as the UN Security Council and the World Customs Organization (WCO); multi-state institutions and arrangements, such as the European Union and the Nuclear Suppliers Group (NSG); and national level actions, where some measures have considerable international reach.

Each of these many modes of intervention, implemented at various levels, against different elements of nuclear commodity smuggling operations, is complex in its own right, and all operate simultaneously to create the multi-tiered, multi-faceted, and interlinked anti-nuclear-commodity-smuggling enterprise – a system of systems that is explored in this study.

Based on enforcement actions in the United States and abroad, and statements by U.S. and foreign officials, 75 or more investigations nuclear commodity smuggling may be underway in the United States at any time, and within the EU, such investigations could well number in the hundreds. When illicit procurement efforts in other advanced industrialized states are taken into account, along with the fact that the number of investigations does not reflect undetected cases, the scale of illicit nuclear procurement activity appears to be quite substantial.

As detailed in reports of the Panels of Experts assisting UN Security Council committees that oversee the implementation of sanctions against Iran and North Korea, the nuclear commodities being sought today are dual-use items, rather than more heavily regulated commodities especially designed or prepared for nuclear use, whose export supplier states have largely terminated except for trusted recipient states. Procurement networks are also seeking items similar to those on international and national lists of controlled dual-use items, but with attributes below the threshold of control.

Illicit nuclear procurement networks utilize ploys that have been used for decades to defeat export control systems, including front companies, multiple intermediaries, false end-use and end-user information in licensing and shipping documents, exploitation of states with weak export and/or transshipment controls, and elaborate financing and transportation arrangements to disguise the identity of procuring parties. Many of those involved are legitimate, unwitting businesses.

Mapping the System of Systems

Eight specific systems contributing to the anti-nuclear-commodity-smuggling enterprise are discussed in the body of this study.

Many of these systems are commodity-focused, such as export controls and customs inspections. Other measures are initiatives that have a wider focus than nuclear commodity smuggling but create significant obstacles to such activities, such as bans on financial transactions with Iranian and North Korean banks and the denial of Iranian access to the SWIFT electronic payment transfer system.

SYSTEM 1: MEASURES AGAINST ORIGINATING PARTIES

At the international level, UNSCR 1929 (2010) and UNSCR 2094 (2013), sanctioning Iran and North Korea, respectively, impose asset freezes and ban the international travel of a number of listed individuals and entities closely linked to the nuclear programs of both countries, including a number persons linked to nuclear commodity smuggling, a category specifically targeted by the resolutions. The total number of parties designated for sanctions is limited, however.

At the multi-state level, the EU has adopted similar sanctions, under Council Decision 2010/413/CFSP (regarding Iran) and Council Decision 2013/183/CFSP (regarding North Korea), but has significantly expanded the list of individuals subjected to asset freezes and denied entry into the EU zone. A number of sanctioned parties were targeted specifically because of their illegal procurement activities.

At the national level, through the Iran-North Korea-Syria Nonproliferation Act (INKSNA) and two executive orders, E.O. 12938 and E.O. 13382, the United States imposes penalties on originators of nuclear commodity smuggling transactions. The most potent is E.O. 13382, which blocks the property of persons materially contributing to WMD programs – and bans all U.S. persons from any dealings with sanctioned parties, thereby denying them access to the U.S. financial and commercial systems. The

United States has designated many individuals and entities under these various instruments, including many associated with illicit nuclear procurements.

Although sanctions imposed on originators of illicit procurement transactions do not appear to have curtailed nuclear commodity smuggling, naming these individuals and organizations exposes their home governments to added pressure to constrain such activities and forces these parties to operate through front organizations, adding to the complexity of procurement transactions.

SYSTEM 2: EXPORT LICENSING AND CONTROL LISTS

At the international level, UN Security Council Resolution (UNSCR) 1540 (2004) requires all states to adopt appropriate effective controls over WMD materials and commodities, including export controls, and UN Security Council resolutions imposing nuclear embargoes on Iran and North Korea also, implicitly, require states to have such controls in place.

The NSG is the key multi-state organization shaping nuclear export licensing and controls. The 48-member group negotiates lists of items to be controlled, used by all participating governments and adopted by a number of others. UN Security Council resolutions also use the NSG lists for their nuclear embargoes against Iran and North Korea.

At the national level, the more industrially advanced states are thought to have the most complete export control systems, but even within the NSG and the EU, implementation of these measures varies greatly from state to state. Concerns have also been raised repeatedly regarding Chinese and Turkish implementation of strategic trade controls. One control tool, post-export inspections verifying that exported dual-use goods are being used in line with export licensing provisions, is actively used by the United States, but few if any others employ this practice.

As of early 2011, only 60 percent of the UN's 193 member states had enacted domestic laws restricting exports of nuclear-specific and dual-use nuclear goods, only 50 percent used commodity control lists, and only 50 percent had export licensing systems. Some states lacking basic laws in this domain are in regions of proliferation concern, in particular, the Middle East. In some other cases, the implementation of such laws is poor. A further challenge is that the NSG has not effectively addressed the illicit procurement of dual-use goods in violation of member-state laws.

SYSTEM 3: CUSTOMS CONTROLS AND INSPECTIONS

Modern customs practices, including intelligence-enabled risk-based selection of cargoes for inspection and the use of electronic records to expedite screening against lists of suspect persons and destinations, have been mandated through the 2006 Revised Kyoto Convention on the Simplification and Harmonization of Customs Procedures and promoted through the widely adopted SAFE Framework of Standards to Secure and Facilitate Global Trade, promulgated by the World Customs Organization. UNSCR 1540 includes customs functions as part of the WMD controls that states must implement, and UN Security Council resolutions imposing nuclear embargoes against Iran and North Korea implicitly require such customs capabilities to enforce these embargoes. Also, the UN Security Council's Iran and North Korea sanctions resolutions provide for states to inspect suspect cargoes going to or from these countries, principally a customs function.

Under the multi-state Proliferation Security Initiative (PSI), some 102 countries have agreed to a set of Interdiction Principles, promising to cooperate in efforts to block transfers of WMD commodities to destinations of concern. Most actual PSI interdictions take place in ports and are executed by customs authorities. Customs practices in the multi-state EU setting are complex: less sensitive nuclear commodities can be transferred within the EU without an export license but require one for transfers outside the EU; more sensitive nuclear commodities require intra-EU transfer licenses, in addition to export licenses for extra-EU transfers. Although this framework is established at the level of the EU Council, individual licensing decisions/customs activities are implemented by individual member states, creating a patchwork of regulations and enforcement practices.

At the national level, in the United States, the Customs and Border Protection division of the U.S. Department of Homeland Security monitors outbound cargoes and verifies shipping documents against export licenses. A unit within the Department's Inspections and Customs Enforcement division contains the Homeland Security Investigations Directorate, which carries a substantial caseload, pursuing nearly 1,800 criminal investigations into possible export violations of all types in 2011.

The scale of international commerce, the pervasiveness of containerized cargo, and pressures to expedite customs clearance processes worldwide, among other challenges, create enormous obstacles to successful interdictions and enforcement activities. Electronic documentation still falls prey to falsified end-use and end-user entries. At the multi-state level, flaws in the EU customs system highlighted in a 2011 "Green Paper," have yet to be addressed, including poor information sharing and varying

levels of control, that allow potential proliferators to exploit the EU space for procurements by accessing it through states with the weakest controls. At the national level, customs activities at transshipment hubs (such as Dubai, Hong Kong, or Singapore), as well as at the China-North Korea border, remain problematic, but progress is being made. The failure of many states to implement basic laws controlling exports of nuclear and other WMD commodities, however, limits the ability of their customs authorities to interrupt illicit nuclear procurement activities.

SYSTEM 4: SUPPLIER STATE PRIVATE SECTOR INTERNAL COMPLIANCE PROGRAMS

Alert private sector firms with systematic programs for complying with relevant regulations can serve as a crucial first line of defense in preventing successful illegal procurements. Internal compliance programs are rarely legally required: instead, guidelines issued by a variety of authorities identify best practices for voluntary implementation by firms that may be at risk of penalty if they violate relevant trade prohibitions – principally in the manufacturing, financial, insurance, and transport sectors. A key compliance tool is to screen all pending transactions against government-issued lists of suspect parties and destinations, and to identify “red flag” anomalies in licensing and shipping documentation.

At the international level, key UN Security Council sanctions resolutions and UNSCR 1540 (2004) do not mention private sector internal compliance programs, and the committees established to monitor implementation of these resolutions do not track progress in this area. Somewhat ironically, multinational corporations are the one source of authority with the ability to require internal compliance programs in the international sphere by imposing this requirement on their foreign subsidiaries and suppliers.

At the multi-state level, the NSG has issued suggestions for internal compliance program good practices, but the suggestions contain fewer details than comparable guidelines issued by bodies in other fields.

A number of national agencies have issued detailed voluntary guidelines regarding effective internal compliance programs. National enforcement actions, such as the massive fines imposed by the United States on international banks that violate bans on dealing with Iran, create strong incentives for private firms to have robust internal compliance programs in place so as to protect themselves from such risks. An emerging trend is to make compliance with nonproliferation rules an element of corporate social responsibility programs.

Small and medium-size enterprises may lack the resources for adopting robust internal compliance programs, and it is these firms that appear to be the most frequent targets of nuclear procurement efforts. In addition, compliance programs are part of a nation's overall strategic trade management effort; where this larger effort suffers from major gaps, private-sector anti-proliferation measures will also be weak.

SYSTEM 5: FINANCIAL MEASURES

International, multi-state, and national measures to interrupt proliferation financing have focused principally on two tools: the freezing, or blocking, of the assets of individuals and entities closely involved in proliferation-relevant transactions and, for financial institutions supporting such transactions, denying them access to the Western financial system by prohibiting their maintaining correspondent accounts with Western banks.

At the international level, UNSCR 1540 (2004) requires states to control the provision of funds and services related to the export and trans-shipment of WMD commodities and materials. Also, as noted, UN Security Council resolutions sanctioning Iran and North Korea impose asset freezes on parties supporting proscribed nuclear activities in those two countries. In addition, Iran sanctions resolutions require all states to ban the provision of financial services to support transfers of embargoed items to Iran and call upon states to limit the provision of financial and insurance services to Iran, to limit business with Iranian entities, and to limit the activities of Iranian banks in their territories. The most recent North Korea sanctions resolution, UNSCR 2094 (2013), goes somewhat further, requiring states to prevent the provision of financial services or the transfer of any financial or other assets or resources – including bulk cash – to the DPRK that could contribute to its nuclear or other proscribed programs. None of the resolutions provide penalties, however, for states that do not comply with these strictures.

At the multi-state level, the 34-state Financial Action Task Force (FATF), established in 1989 to preserve the integrity of the international financial system, expanded its mandate in 2008 to encompass measures against proliferation financing. In 2012, it issued a new recommendation as part of its guidelines instructing member states to implement asset freezes against parties designated under the UN Security Council Iran and North Korea sanctions resolutions. Because the FATF conducts peer reviews of member state performance and publicizes non-compliance, the new recommendation could intensify pressure on FATF members to implement the UN Security Council

requirements. The multi-state EU has instituted far-reaching financial measures in support of nonproliferation, blocking the assets of the Iran Central Bank and banning all transactions with Iranian financial institutions unless specifically authorized. In addition, at the EU's request, in mid-2012 the Society of Worldwide Interbank Financial Telecommunications (SWIFT) electronic funds transfer system terminated services for the Iran Central Bank and other Iranian financial institutions. The EU has also blocked the assets of a number of other Iranian banks, many of which have challenged this action in EU courts, as discussed below.

National-level U.S. financial measures include asset freezes pursuant to E.O. 13382, under which a number of additional Iranian and North Korean parties were sanctioned in 2012 and 2013. The United States has also frozen the assets of the Iran Central Bank and a substantial number of other Iranian financial institutions because of their links to proscribed Iranian programs. Under the Comprehensive Iran Sanctions and Divestment Act (CISADA), the Iran Threat Reduction and Syria Human Rights Act, and the Iran Freedom and Counter-Proliferation Act, an expanding range of foreign financial institutions are subject to the denial of access to the U.S. banking system, including banks dealing with parties sanctioned for materially assisting Iranian WMD and missile programs, or with any Iranian person against whom U.S. financial sanctions have been imposed for any reason. These secondary sanctions have led many foreign banks to cease doing business with Iranian financial institutions. There have been comparatively fewer U.S. legislative and executive branch initiatives to address the nuclear programs in North Korea or Pakistan.

Overall, financial measures appear to have been a powerful tool in creating obstacles to nuclear commodity smuggling, forcing Iran and North Korea to disguise transactions through elaborate chains of front companies and related bank accounts and/or bulk cash transfers. On the other hand, as of early 2011, only 25 percent of states had adopted proliferation-related financial controls. As mentioned, moreover, a number of Iranian banks and other entities have challenged the legality of the EU's blocking of their assets as part of its sanctions program. The lawsuits have succeeded at the level of the EU General Court and also in the UK Supreme Court on the grounds that the targets were not able to defend themselves because they were denied access to the intelligence information on which their designations were based. The EU cases are on appeal and the UK government is considering how it will proceed in that instance; in the interim, the sanctions remain in effect. No similar challenges have been decided in U.S. courts.

The November 23, 2013, interim agreement between the P5+1 (the permanent members of the UN Security Council – China, France, Russia, the United Kingdom and the

United States – plus Germany) and Iran provides partial relief from some of the U.S. and EU financial sanctions, although the core measures directed against WMD proliferation and the denials of access to the Western banking system remain intact.

SYSTEM 6: ENFORCEMENT MEASURES

Most enforcement activities with respect to nuclear commodity smuggling take place at the national level with a focus on two areas: export controls and financial sanctions.

At the international level, UNSCR 1540 (2004) does not contain provisions to enforce its requirement that states adopt comprehensive controls over WMD materials and commodities, but the resolution does require states to adopt coercive enforcement measures, including civil and criminal penalties for export control violations. The Iran and North Korea sanctions resolutions, however, require that states engage in specific enforcement activities to implement embargoes on transfers of nuclear and other sensitive items to both states. They also include asset freezes and travel bans against individuals and entities designated in each of the resolutions and restrictions (some mandatory) on the banking activities of the two states.

The multi-state NSG does not impose penalties for violations of its rules, but its Guidelines state that member governments should have in place legal measures to enforce the Guidelines, including penalties for violations. The EU has seen a number of recent prosecutions in Germany, Spain, and Sweden for nuclear export control violations, all conducted at the national level. In the financial sanctions area, a number of EU banks were in discussions during 2013 with national banking authorities concerning possible violations of various EU Iran sanctions rules.

At the national level, in the United States enforcement for both export controls and financial sanctions, usually takes place in a two-tiered environment. First, governmental agencies, applying rules established in laws or executive orders, determine the individuals and entities against whom these rules will be applied and publish the names of these parties. Then the private sector is directed to comply with these regulatory decisions. For export controls, the requirement imposed on the private sector is to obtain a license for the export of certain goods to certain persons or destinations. Where financial sanctions are involved, the role of the private sector is more direct because the blocking of assets of parties identified by the government or denying such parties correspondent or payable-through accounts are actions executed by financial institutions. If a private sector party makes an export without a required license or extends financial services to a banned individual or entity, the second tier of

enforcement is brought to bear, as the government acts against that private party. Some 18 federal agencies are involved in enforcing export controls; their work is coordinated through the Export Enforcement Coordination Center. Enforcement of financial sanctions is undertaken by the Treasury Department's Office of Foreign Assets Control (OFAC). Penalties in export control cases frequently include prison terms, though these are relatively short. The limited number of convictions obtained, the modest penalties imposed, and the scant publicity they receive does not appear to serve as an effective deterrent for others. Penalties imposed against financial institutions for violating financial sanctions, however, can carry fines running to hundreds of millions of dollars, receive extensive publicity, and appear to have a significant deterrent effect on other banking institutions.

In addition to the deterrence issue, there has been great difficulty in prosecuting proliferators for export control violations because of issues such as lack of jurisdiction over the perpetrators, witnesses, and documents involved; the difficulties of extradition; and challenges in utilizing classified evidence in court proceedings – as evidenced by the complex and protracted attempts to prosecute the members of the A.Q. Khan network in Europe. If the EU General Court decisions in the related area of sanctions designations have wide application, difficulties surrounding the use of classified information may have become more pronounced. One current European case, involving Germany, Turkey, and India may well face many of the difficulties encountered in prosecuting the multi-national A.Q. Khan network.

SYSTEM 7: INTERNATIONAL OUTREACH AND CAPACITY BUILDING

Uneven adoption and implementation of strategic trade controls, even within the NSG and the EU, has led to a wide range of capacity-building efforts on the part of international organizations and several interested states.

At the international level, the UNSCR 1540 (2004) Committee acts as a coordinator for such capacity building efforts, channeling the requests (or third-party referrals) for technical or legal assistance it receives from member states to appropriate international bodies or to other UN member states that are willing to offer such assistance. In addition, the WCO is generally active in building capacity of participating customs organizations, particularly at the regional level. Outreach efforts focused on the trafficking of dual-use commodities of proliferation concern form part of its supply chain management effort and are at the core of its Strategic Trade Enforcement Initiative. The latter will eventually lead to a concerted global targeting campaign

focusing on dual-use goods, much like WCO's Project Global Shield, which has targeted the components required to manufacture improvised explosive devices.

At the multi-state level, one active grouping is the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, with 26 member countries, which was originally established in 2002, as a response to the risks of WMD terrorism. At the group's Deauville Summit in 2011, it expanded its portfolio to include support for implementation of the UNSCR 1540 (2004). The Partnership has also expressed its support for the Proliferation Security Initiative. Separately, the NSG also engages in outreach activities to promote compliance with its Guidelines. At its plenary meeting in June 2013, the NSG agreed on the need to strengthen and expand its outreach program, particularly regarding regulation and curbing of illicit brokering and transit activities. For its part, the EU has contributed to capacity-building on countering nuclear commodity smuggling led by Germany's Federal Office of Economics and Export Control (BAFA), as part of the EU's long-term outreach program of Cooperation in Export Control of Dual-Use Goods. The program is focused on states that are not EU members and is designed to promote the standards set out by UNSCR 1540 (2004). Further outreach efforts are undertaken by the Proliferation Security Initiative to encourage additional states to adopt the grouping's Statement of Interdiction Principles and by the Asian Regional Forum under the Association of Southeast Asian Nations to build strategic trade control capacity in this region.

The United States, at the national level, runs multiple programs focused on various components of capacity-building. These include the Department of State's Export Control and Related Border Security program; the National Nuclear Security Administration's International Nonproliferation Export Control Program; and the Defense Threat Reduction Agency's International Counter-Proliferation Program; as well as programs led by Customs and Border Protection, the Commerce Department, and the Justice Department. Also at the national level, the UK and Japan have active programs focused on building capacity to counter illicit procurement activities.

Given the number of states with weak strategic trade controls, including many in the Middle East and Sub-Saharan Africa that lack basic laws governing this area, the scale of outreach and assistance efforts appears insufficient to address the level of need. Coordination of assistance also needs further attention: notwithstanding the efforts of the UNSCR 1540 (2004) Committee and the G-8 Global Partnership, no overarching coordinating mechanism among the various outreach programs noted above exists, resulting in overlaps of functions and the failure of one effort to capitalize on progress made by another. Time lag is also a concern. Assistance programs often are launched

only after nuclear commodity smuggling networks have exploited a state's weak export control system for a number of years. A final challenge is lack of political will. Even in countries with adequate legal regulatory frameworks, effective implementation and enforcement are often lacking.

SYSTEM 8: TRANSPORTATION AND INTERDICTIONS

Nuclear commodity smuggling networks have resorted to increasingly sophisticated modes of routing to concealing their activities. Counter measures have also evolved, however.

UNSCR 1540 (2004) sets out the broad requirement for all states to establish appropriate effective controls over WMD-relevant commodities, including with respect to logistical activities that would contribute to proliferation. The resolution does not specify how this obligation should be fulfilled, however. The UN Security Council resolutions sanctioning Iran and North Korea, on the other hand, specify four mechanisms for meeting this challenge: a broad proscription against providing assistance to proliferation efforts, including the provision of means of transport or granting passage of embargoed nuclear goods through the territory of member states; a mandate for the inspection of suspect cargoes; the denial of bunkering services to vessels reasonably believed to be carrying such cargoes; and the freezing of assets of firms, including transportation companies, materially assisting proliferation activities.

At the multi-state level, the Proliferation Security Initiative has undertaken a number of maritime interdiction exercises and, according to press accounts, several actual interdictions at sea, which have interrupted the movement of contraband cargoes. Equally important, the PSI includes among its members 15 of 32 states with open registries that permit the easy reflagging of vessels, and several of them have subsequently signed ship boarding agreements with the United States, which could make these open registry states less attractive to Iran and North Korea as they seek to disguise their ownership of individual ships to evade various sanctions. Separately, the EU has frozen the assets of the Islamic Republic of Iran Shipping Lines (IRISL) and 30 affiliates (actions now embroiled in the EU court cases noted above), required member states to inspect suspect cargoes going to or from Iran, banned Iranian cargo planes from landing in the EU zone, and banned the provision of services for Iranian owned or contracted vessels and cargo aircraft. It has also banned sales of jet fuel for Iranian passenger aircraft using EU airports.

At the national level, the United States has also frozen the assets of IRISL and numerous affiliates under E.O. 13382. In addition, three aspects of the 2012 the Iran Threat Reduction and Syria Human Rights Act also require the freezing of assets of persons that provide shipping or insurance services with respect to goods that could support Iranian proliferation activities; denies access to the U.S. banking system of foreign financial institutions that do business with any party, such as IRISL, that has been designated by the United States for supporting Iranian proliferation activities; and applies a range of sanctions to persons determined to have engaged in exporting, transferring, or transporting contraband WMD-relevant goods who know or should know that the goods are destined for Iran. The Iran Freedom and Counter-Proliferation Act of 2012 denies correspondent accounts to foreign financial institutions that engage in financial transactions in connection with Iran's shipping or ship-building sectors and freezes the assets of persons determined to be part of Iran's shipping or ship-building sectors. OFAC made a number of designations under both laws in the first half of 2013, and a number of international shipping lines ended port calls to Iran as the sanctions came into force. It is not yet clear how aggressively these relatively new sanctions will be applied in light of the November 23, 2013, P5+1 interim agreement with Iran.

Recent developments, such as decisions of international shipping firms to cease conducting business in Iran and the decisions of a number of open-registry states not to extend privileges to Iran, suggest the above measures are having an impact on Iran's ability to transport illicitly procured nuclear goods. The extensive attention given to shipments of nuclear and other contraband (including Iranian crude oil) by sea has created sufficient impediments to this mode of transportation, however, that nuclear commodity smugglers appear to be turning increasingly to land and air transportation alternatives.

Conclusions and Recommendations

Numerous synergies can be found among the work of the many institutions and legal instruments catalogued above involved in the anti-nuclear-commodity-smuggling enterprise. Indeed, over the past decade, the international environment in which illicit nuclear procurement activities take place has been transformed, with virtually every dimension of such transactions involving originators, brokers, bankers, shippers, and many others now subject to continuous scrutiny. For procurement networks, there is virtually no avenue that is not strewn with obstacles. To be sure, these networks have identified pathways through this thicket, but at significant cost, both in terms of the additional time and financial resources needed to accomplish such pursuit. Moreover, a

number of stratagems procurers have used to defeat controls have themselves been defeated, at least in part, as seen in the reluctance of an increasing number of open-shipping-registry states to reflag Iranian vessels and in the improved capabilities of a number of transit states to block the diversion of goods to Iran and North Korea.

Despite its accomplishments, the system of systems that comprises the anti-nuclear-commodity-smuggling enterprise is far from perfect. Indeed, virtually every system suffers from weak links. In particular, around the world, and even within the EU, states with weak export controls can still be easily found, even though the performance on a global basis is slowly improving. Coordination among the multiplicity of actors is another area needing attention, and intelligence sharing is a separate challenge that appears in multiple settings within the system of systems.

It is well recognized that technology denial, standing alone, cannot halt an emergent nuclear weapon program, but it can play a crucial role in slowing it down to provide time for other, more disruptive and/or political level nonproliferation tools to take effect. In early 2014, both of these dynamics could be observed. On the one hand, despite the far-ranging efforts described in this report to curtail nuclear commodity smuggling, Iran's nuclear program has continued to grow, bringing Iran closer to the time when it might be able to rapidly field a small number of nuclear weapons, if it chose to do so.

On the other hand, the interim agreement reached in Geneva on November 23, 2013, will create a pause in sensitive elements of Iran's nuclear program in return for limited sanctions relief. Subsequent negotiations hold the promise of ultimately limiting the Iranian nuclear program more significantly and on a long-term basis, and will also provide the opportunity for Iran to prove itself to be a state unambiguously committed to the exclusively peaceful uses of nuclear energy. In this case, the crucial contribution made by the anti-nuclear-commodity smuggling system of systems will be clear.

Detailed recommendations for strengthening the eight systems described above are presented in Chapter 4 of this study.

CHAPTER 1: INTRODUCTION AND OVERVIEW

Study Purpose and Scope

Since the advent of the nuclear age, states seeking to acquire nuclear weapons or to advance existing nuclear weapon arsenals have relied to a greater or lesser degree on equipment, material, or technology acquired from other states. In some instances, such assistance has been freely given, for example, to a strategic ally; in others, needed items have been acquired against the wishes of the supplying state, through stealthy, illicit transactions. Given this virtually universal reliance on outside assistance, restricting transfers of nuclear commodities and technology to prevent their use in nuclear weapon programs has become a foundational component of national and international efforts to halt the proliferation of nuclear arms.

Over the years, the mechanisms used in the attempt to thwart the movement of such goods to states aspiring to develop and expand nuclear capabilities have multiplied and grown increasingly sophisticated. This trend has accelerated in the past decade, driven, in part, by the concern following the terrorist attacks of September 11, 2001, that new nuclear powers might share nuclear weapons with non-state actors.

This study seeks to provide a comprehensive overview of current U.S. and international mechanisms for combatting trade in *nuclear-weapon-relevant goods intended to support national nuclear weapon programs*, a category of items that, for convenience, will sometimes be referred to herein as “nuclear commodities.” By consolidating and examining all major components of this wide-ranging and multifaceted nonproliferation effort in a single, condensed report, the study hopes to provide U.S. officials and other readers with a better understanding of this complex undertaking and identify opportunities to further strengthen it.

The nuclear commodities at issue include, in summary terms, (1) items especially designed or prepared for nuclear use, such as nuclear reactors and uranium enrichment centrifuges; (2) export controlled nuclear-related dual-use items that could contribute significantly to a nuclear weapons program; and (3) items whose specifications exempt them from lists of export controlled goods but which, though inferior, might nonetheless be substituted for controlled items.¹ Although missile programs of recent

¹ See annexes to “Guidelines” issued by the 48-member Nuclear Suppliers Group (“NSG”), listing “especially designed or prepared” and “nuclear dual-use” items of concern, http://www.nuclearsuppliersgroup.org/A_test/01-eng/09-guide.php?%20button=9. Exploitation of

or aspiring nuclear states also typically rely on acquisition of foreign goods and technology, and sometimes use the same or similar procurement mechanisms as those used by related nuclear programs, a comprehensive examination of efforts to curb missile-relevant transfers is beyond the scope of this study, and this subject will be addressed only in passing, when directly linked to nuclear procurement efforts.² Procurement efforts directed at acquiring advanced military technology from foreign states will be treated similarly.

The smuggling of nuclear commodities for national nuclear programs poses challenges that are distinct from the smuggling of nuclear materials directly usable for nuclear weapons (namely, highly enriched uranium and plutonium), which is being sought by some non-state groups. The great proportion of commodities being sought by states, for example, high-strength steel, carbon fiber, high-end electronic components, and natural uranium concentrate (yellowcake), would be of little or no use to terrorist organizations. It may be added that the specialized smuggling networks employed by states seeking nuclear commodities, which involve measures to defeat export controls and mask transactions through multiple intermediaries and complex financial and transportation arrangements, are distinct from, and far more sophisticated than, the networks used by non-state organizations seeking to acquire weapon-usable nuclear material. In addition, the tools employed to combat the two challenges are quite dissimilar in many respects, with control of commodities focused principally on export licensing and customs enforcement of licensing regulations, while control of nuclear materials is concentrated on securing the materials at their points of origin and in transit, as well as on the detection of their radiological signatures at border crossing points. Given these distinctions, the present study will only incidentally touch upon managing the dangers posed by weapons-usable nuclear materials.³

commodities below control list thresholds has been identified by UN monitors as a tactic currently used by Iran. See *Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010)*, S/2013/331, May 2013, http://www.un.org/ga/search/view_doc.asp?symbol=S/2013/331, and Colum Lynch, "Hidden Report Reveals How Iran Dodges Nuclear Watchdogs," *Foreign Policy*, June 17, 2013, http://turtlebay.foreignpolicy.com/posts/2013/06/17/heres_how_iran_dodges_nuclear_watchdogs_from_shady_front_companies_to_false_ids. For further discussion, see Chapters 2 and 3, below.

² Missile collaborations between North Korea and Syria, for example, raise the possibility that the two states might share nuclear-weapon relevant information or equipment. See Leonard Spector and Egle Murauskaite, "Sensitive Trade among Outlier States," Office of Strategic Research and Dialogues, Defense Threat Reduction Agency, September 2012 (unpublished).

³ To be sure, some tools for combatting the two threats overlap, such as efforts to interdict WMD-related cargoes, prosecute export control violations, and build capacity in less developed states. As a rule, however, the two fields are distinct, and, indeed, in the U.S. government, at least, the officials and governmental units responsible for the two areas are quite separate and rarely undertake joint activities.

As of early 2014, only a limited number of states were known to be seeking to advance their nuclear capabilities by acquiring nuclear commodities from abroad. As evidenced by national and international enforcement actions and the imposition of restrictive legal measures (such as embargoes adopted by the United Nations Security Council), Iran and the Democratic Peoples' Republic of Korea (DPRK or North Korea) are the sources of greatest international concern.⁴ The former is developing capabilities that will permit it to build nuclear weapons; although it has declared that its nuclear program is intended exclusively for peaceful purposes, the circumstances surrounding the program, including the clandestine construction of key nuclear facilities and Iran's failure to resolve concerns raised by the International Atomic Energy Agency (IAEA) about possible military aspects of this program, have raised deep suspicions on the part of a number of governments that its true goal is the development of nuclear arms. North Korea has declared its possession of nuclear weapons and conducted three nuclear test detonations. In addition, enforcement actions in the United States and a number of other states indicate that Pakistan, which declared its possession of nuclear weapons and conducted series of nuclear tests in 1998, continues to engage in the illicit acquisition of nuclear-relevant goods from abroad.⁵ There are some concerns about Syria potentially partaking in similar efforts in the future.⁶

⁴ U.S. Department of Justice, "Summary of Major U.S. Export Enforcement, Economic Espionage, Trade Secret and Embargo-Related Criminal Cases – January 2007 to Present (updated February 14, 2013)," (hereinafter "Justice Department Compilation of Cases"), <http://www.pmdtc.state.gov/compliance/documents/OngoingExportCaseFactSheet022013.pdf>; UN Security Council Resolutions 2094 (2013) regarding North Korea, <http://www.un.org/News/Press/docs/2013/sc10934.doc.htm>, and 1929 (2010) regarding Iran, <http://www.un.org/News/Press/docs/2010/sc9948.doc.htm>.

⁵ See "U.S. Technology to Pakistani Nuclear Facilities," September 9, 2011, and "Specialty Coatings to Pakistani Nuclear Facility," December 3, 2012, Justice Department Compilation of Cases, op. cit. India and Israel also engaged in this practice in the past, but cases involving them have not received attention in recent years.

⁶ According to the U.S. Central Intelligence Agency, between 2001 and 2007, Syria, with assistance from North Korea, secretly built a nuclear reactor apparently designed to support a nuclear weapon program. The reactor, which the CIA believed was nearing operational capability, was allegedly destroyed by Israel in September 2007. (See, generally, "CIA Footage in Full," *BBC*, April 28, 2008, http://news.bbc.co.uk/2/hi/in_depth/7366235.stm.) If the regime of Bashar al-Assad were to prevail in the civil war now engulfing Syria, it is possible that this program might be restarted and that Syria would again be seeking assistance from abroad to advance the effort. In addition, U.S. officials, among others, have expressed concern that should Iran acquire nuclear weapons, additional states in the Middle East might seek to follow suit, initiatives that also would likely entail resort to the acquisition foreign nuclear-weapon relevant goods and technology. (See, e.g., Conversations on Diplomacy Moderated by Charlie Rose: joint interview with Hillary Rodham Clinton and James Baker III, June 20, 2012, <http://www.state.gov/secretary/rm/2012/06/193554.htm>; Secretary of State John Kerry Interview with Martha Raddatz from Doha Transcript, March 5, 2013, <http://abcnews.go.com/Politics/TheNote/secretary-state-john-kerry-interview-martha-raddatz-doha/story?id=18655479>; also see "H.R.850 - Nuclear Iran Prevention Act of 2013," 113th Congress (2013-2014), passed House July 31, 2013.)

Russia and China, declared nuclear weapon states and recognized as such under the Nuclear Nonproliferation Treaty (NPT),⁷ have been accused of illicitly acquiring advanced military technology from the United States.⁸ In the recent past, however, such Russian and Chinese acquisition activities appear to have focused on advanced conventional weapons, rather than on goods and technologies directly relevant to the development and production of nuclear weapons, themselves.⁹ A more recent concern with respect to China is that nuclear-relevant U.S. technology, which Chinese firms acquire legitimately (under conditions of non-retransfer) or illicitly, is subsequently finding its way into Iran and North Korea.¹⁰ The other nuclear weapon possessing states, France, the United Kingdom (both declared nuclear weapon states and recognized as such under the NPT), as well as India (which declared possession of nuclear weapons and conducted a series of tests in 1998) and Israel (which is widely understood to possess an unacknowledged nuclear weapon arsenal) have not been identified as actively engaged recently in the pursuit of nuclear-weapon-relevant goods and technology from other countries, although Israel and India remain the target of a number of national and international nuclear-related export control restrictions. The United States is also subject, as a destination, to export control restrictions in a number

⁷ Under Article IX of the NPT, states that detonated nuclear explosives prior to January 1, 1967, are considered “nuclear weapon states” and are not obligated to renounce nuclear weapons if they join the treaty, although they are obligated to pursue negotiations in good faith toward nuclear disarmament. Other states are deemed non-nuclear-weapon states and are required to renounce such arms and to accept inspections on all relevant nuclear activities within their borders. See Nuclear Nonproliferation Treaty, Article III and IX,

<http://www.iaea.org/Publications/Documents/Infocircs/Others/infocirc140.pdf>.

⁸ See Justice Department Compilation of Cases, op. cit.

⁹ In 1995, U.S. intelligence services feared that through spying activities, China had learned the design details of an advanced U.S. nuclear warhead. See Shirley Kan, *China: Suspected Acquisition of U.S. Nuclear Weapon Secrets* (Washington, DC: Congressional Research Service, updated 2006), <http://www.fas.org/sgp/crs/nuke/RL30143.pdf>. More recently, however, Chinese cyber-spying, considered to be very extensive by U.S. officials, has focused on advanced U.S. conventional capabilities. Ellen Nakashima, “Confidential Report Lists U.S. Weapons System Designs Compromised by Chinese Cyberspies,” *Washington Post*, May 27, 2013, http://articles.washingtonpost.com/2013-05-27/world/39554997_1_u-s-missile-defenses-weapons-combat-aircraft.

¹⁰ A representative case, currently under investigation, is the alleged diversion of thousands of pressure transducers – a U.S. export controlled item – to unauthorized end-users, allegedly from the Chinese subsidiary of a U.S. company, MKS Instruments, to Iran, through front companies and false end-user certificates (for details see the Affidavit of Special Agent Catherine L. Donovan, filed May 15, 2012, http://www.exportlawblog.com/docs/us_v_hu.pdf, and David Albright and Andrea Stricker, “Case Study - Chinese Salesman Arrested in Pressure Transducer Case,” Institute for Science and International Security (ISIS), January 18, 2013, http://isis-online.org/uploads/isis-reports/documents/Hu_illicit_trade_case_18Jan2013.pdf).

of states, as the possessor of the world's most advanced nuclear arsenal, although it is in many settings the most active promoter of strict controls on nuclear transfers.¹¹

With this background in mind, examples of efforts to acquire nuclear items from foreign sources that are cited in this study will most often involve Iran and North Korea, and to a lesser extent Pakistan.

Finally, as mentioned earlier, transfers by some states to emergent nuclear weapon programs may be deliberate and thus not considered by the transferring state to be violations of its export control laws. Nonetheless, such transfers may violate international law as set forth in the NPT and relevant UN Security Council resolutions. North Korean nuclear transfers to Syria, for example, that were not placed under IAEA monitoring prior to Pyongyang's withdrawal from the NPT in January 2002 would have violated its commitments under that treaty, and any such transfers after the Security Council's adoption of Resolution 1718 (2006) would have violated that instrument's prohibition of such exports from the DPRK.¹²

Organizing Principles: Elements of Transactions; Modes of Intervention; National, Multi-State, and International Measures

Given the considerable array of activities aimed at combatting illicit nuclear commodity transfers, designing a comprehensive overview of these efforts, in itself, is a significant challenge. This study will use three recurring organizing principles: **elements of nuclear commodity smuggling transactions, modes of counterproliferation intervention, and national, multi-state, and international countersmuggling measures**. As highlighted below, the three are closely related and intertwined.

ELEMENTS OF NUCLEAR COMMODITY SMUGGLING TRANSACTIONS

Nuclear commodity smuggling transactions involve a recurrent pattern of activities and actors:

- A **national program** to develop nuclear weapons or the capability to produce them rapidly;

¹¹ The United States was a leading exponent for the establishment of the IAEA, a leading champion of the NPT, the organizer of the NSG, and, more recently, of the Proliferation Security Initiative, and UN Security Council Resolution 1540, among other initiatives.

¹² UN Security Council Resolution 1718, paragraph 8 (b), adopted October 14, 2006, <http://www.un.org/News/Press/docs/2006/sc8853.doc.htm>.

- A **domestic organization that initiates the illicit procurement transaction**, usually an organization that works closely with those responsible for managing the state's nuclear weapon program and receives "orders" from them for needed goods;
- A **lead intermediary based abroad** that is closely tied to the initiator and oversees the acquisition of the items in question, often working through sub-intermediaries and front companies;
- **Additional intermediaries**, usually motivated by financial gain and in some cases operating as "domestic" companies inside the supplier state, but in some cases also linked to the originating state by nationality or ideology;
- An industrial/commercial **producer or possessor of the items being sought**, an actor which (1) may be actively attempting to prevent the smuggling of its products but whose efforts are defeated; (2) may be a knowing facilitator of such transactions; or (3) may lack the awareness and/or capacity to prevent such transactions;
- The **government of the state hosting the producer/possessor** of the items in question – referred to here as the "supplier" or "source" state – which (1) may be actively attempting to prevent smuggling of controlled items, but whose efforts are defeated; (2) may be a knowing facilitator of such transactions; or (3) may lack the awareness and/or capacity to prevent them;
- A **financial operation** that enables the purchasing organization to pay the producer/possessor for the goods, and usually involves front companies and the movement of funds through multiple accounts at foreign banks, banks that, in turn, (1) may be actively attempting to prevent such financing transactions, but whose efforts are defeated; (2) may be knowing facilitators of such transactions; or (3) may lack the awareness and/or capacity to prevent them;
- A **transportation operation** to move the items from the source state to the state seeking the items, a process that often involves multiple intermediate destinations and multiple front companies and shipping firms, organizations that (1) may be attempting to prevent the transport of such proliferation-relevant goods, but whose efforts are defeated; (2) may be knowing facilitators of such transactions; or (3) may lack the awareness and/or capacity to prevent them;
- A number of **jurisdictions**, where illicit exports, transits, and/or related financial transactions can be undertaken, either because the host government (1) may be actively attempting to prevent such actions, but whose efforts are defeated; (2) is a knowing facilitator of such actions; or (3) lacks the awareness and/or capacity to prevent them, and

- Assorted **brokers, freight forwarders, and other intermediaries** who facilitate various elements of the foregoing and who, again, (1) may be actively attempting to prevent such actions, but whose efforts are defeated; (2) is a knowing facilitator of such actions; or (3) lacks the capacity to prevent them.

As highlighted in this listing, parties involved include national governments, governmental units, private firms, and individuals. Figure 1.1 summarizes this framework for analyzing nuclear commodity smuggling transactions.

Figure 1.1

**Key Components of Nuclear Commodity Smuggling
Transactions and Parties Involved**

State promoting suspect nuclear program

Organization initiating transaction

Lead intermediary

Additional intermediaries

Commodity producer/possessor

- Opposed to transaction, preventive measures defeated
- Facilitating transaction
- Lacking capacity

State hosting commodity producer/possessor

- Opposed to transaction, preventive measures defeated
- Facilitating transaction
- Lacking capacity

Financial institutions

- Opposed to transaction, preventive measures defeated
- Facilitating transaction
- Lacking capacity

Transportation operation

- Opposed to transaction, preventive measures defeated
- Facilitating transaction
- Lacking capacity

Intermediate jurisdictions

- Opposed to transaction, preventive measures defeated
- Facilitating transaction
- Lacking capacity

Brokers, Freight Forwarders

- Opposed to transaction, preventive measures defeated
- Facilitating transaction
- Lacking capacity

MODES OF COUNTERPROLIFERATION INTERVENTION

A wide variety of tools are used to combat nuclear commodity smuggling, many of which seek to constrain a number of different actors described just above. U.S. sanctions on parties found to have materially assisted nuclear programs of concern, for example, target originators of procurement transactions and various middlemen, as

well as banks and shipping firms supporting them. The principal modes of intervention are listed below and described in greater detail in Chapter 3.

Targeted (Entity-Based or Activity-Based) Sanctions. These sanctions, including asset freezes, restrictions on international travel, and denials of access to controlled commodities, among other penalties, are focused on individuals and entities engaged in nuclear commodity smuggling, including those responsible for implementing nuclear programs of concern. They are distinct from dissuasive sanctions targeting national governments in Iran and North Korea – such as a global ban on purchases of Iranian crude oil – that seek to weaken the economies of these countries as a means of pressuring their leaders to halt nuclear activities of concern. (Initiatives of this kind go well beyond efforts to combat nuclear commodity smuggling, itself. For this reason, though a highly important component of overall nonproliferation efforts by the United States and others, these national-level sanctions will be addressed only in passing in this study.)

Measures Focused on the Commodities Being Sought. Central to combatting nuclear commodity smuggling is regulating the physical export/transfer of relevant items in the source country through the use of lists of items controlled for export (“controlled items”), export licensing procedures, customs inspections, and post-export monitoring in recipient states. Interdicting suspect cargoes after export, usually through diplomatic interventions calling on transit states to seize suspect cargo, is another element of commodity-focused anti-nuclear-smuggling efforts.¹³

Internal Compliance Programs. Voluntary internal compliance programs at manufacturing, financial, and other organizations to ensure conformity with relevant laws form another increasingly important barrier to suspect nuclear commodity transfers and, in some instances, may be the first to identify suspect procurement attempts.

Measures Focused on Ancillary Services Supporting the Illicit Procurement of Nuclear Commodities. In the recent past, regulatory efforts have extended to the banking, insurance, and shipping industries with the adoption and implementation of rules prohibiting the facilitation of unlawful nuclear commodity transfers. Penalties for non-

¹³ Within the U.S. government the term “interdiction” is sometimes used include pre-export diplomatic interventions with states where illicit transactions are unfolding to block an export through denial of the necessary license, seizure of the goods in question, or other action. In this study, the term “interdiction” will refer to post-export measures to block illicit transactions, while diplomatic intervention prior to export will be considered as part of “active diplomatic engagement.”

compliance include asset freezes and denials of access to the Western banking system, U.S. insurance market, and EU, U.S., and other ports. Such sanctions can extend not only to parties facilitating procurement transactions, but also to those doing business with such parties (secondary sanctions).

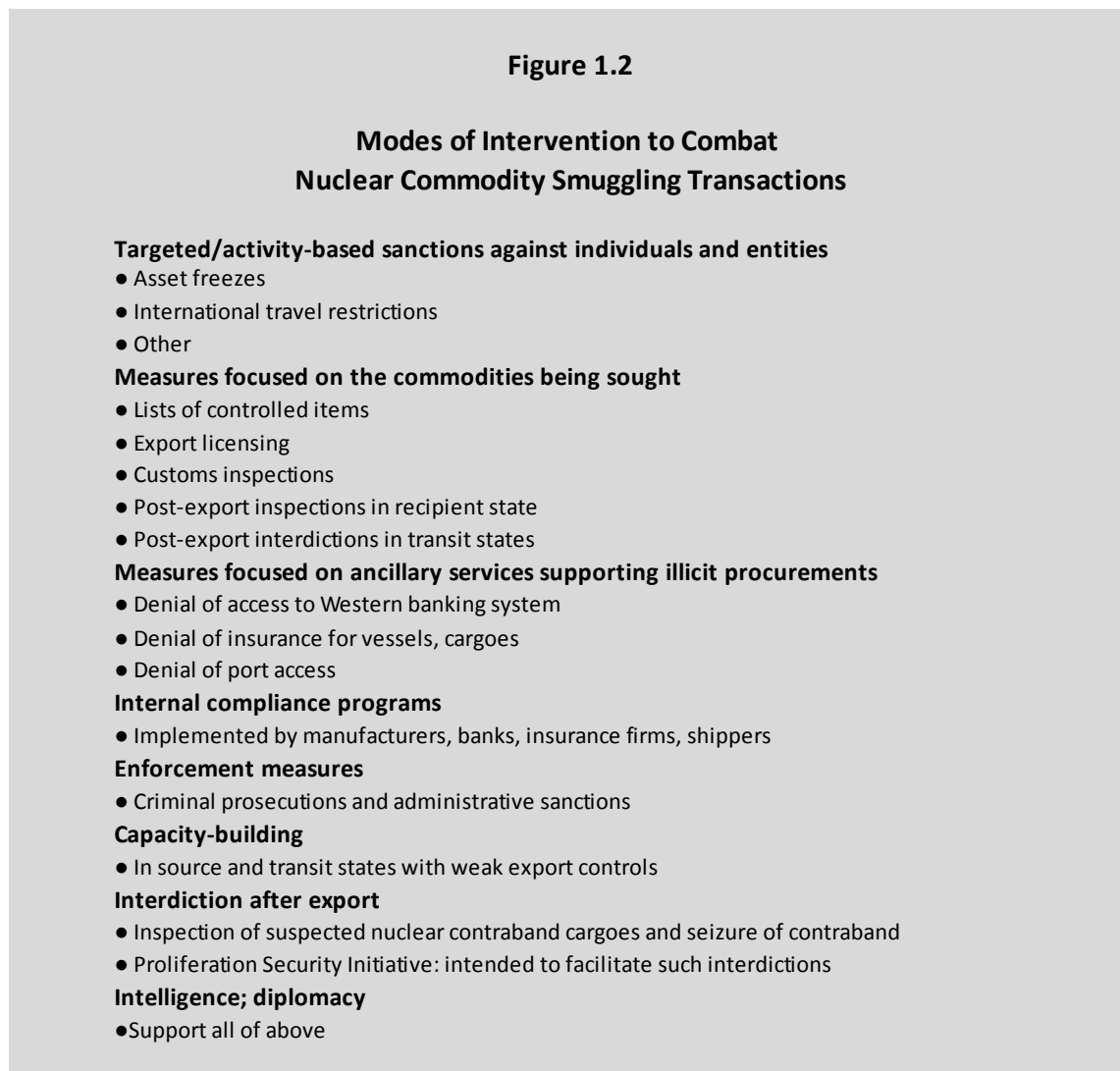
Enforcement Measures: Criminal Prosecutions and Administrative Sanctions. All of the above regulatory efforts are backed up by criminal or administrative enforcement actions, which punish individual offenders and, more broadly, seek to deter through the threat of punishment nuclear commodity manufacturers, financial institutions, insurers, brokers, and transportation firms from participating in illicit nuclear transfers.

Capacity-Building. Capacity-building in source and transit states that lack the necessary legal frameworks and trained personnel for combatting nuclear commodity smuggling is also crucial. While not a form of intervention itself, it enables intervention of the types described in this list in states where this would otherwise not be possible.

Intelligence and diplomacy cut across all of these modes of intervention. All, for example, rely crucially on information provided by intelligence services and law enforcement authorities to monitor developments within nuclear programs of concern and identify the key individuals responsible for them, as well as to detect and interrupt suspect transactions. Intelligence also supports covert operations, which according to press accounts, have included recruitment of agents within nuclear smuggling networks, tampering with contraband goods prior to export to render them unusable for their intended purpose, and cyber-attacks against suspect nuclear facilities.¹⁴ Virtually all forms of intervention, except perhaps covert action, also rely on intensive diplomatic engagement to gain the cooperation of other states in adopting export control practices, developing common standards, and interdicting cargoes.

¹⁴ David Albright and Paul Brannan, *CIA Recruitment of the Three Tinnars: A Preliminary Assessment*, ISIS, December 21, 2010; Jacob Blackford, "Asher Karni Case Shows Weakness in Nuclear Export Controls," September 8, 2004, ISIS, <http://isis-online.org/publications/southafrica/asherkarni.html>. In the past, there have been cases in which would-be purveyors of nuclear goods for national nuclear programs have been intimidated and, in at least one instance, assassinated. See Weissman, Steve and Herbert Krosney, *The Islamic Bomb: The Nuclear Threat to Israel and the Middle East* (New York: Times Books, 1981); *Bull's Eye: The Assassination and Life of Gerald Bull* (London: Crown Books, 1992).

Figure 1.2 summarizes these modes of intervention.



INTERNATIONAL, MULTI-STATE, AND NATIONAL MEASURES

Efforts to combat nuclear commodity smuggling rely on a web of formal and informal measures that have been adopted at the international, multi-state, and national levels. On the international level, these measures include widely adopted agreements and treaties, as well as mandates promulgated by the UN Security Council, most commonly through Council resolutions; on the multi-state level, these include arrangements, recurrent activities, parallel actions, and more formal agreements adopted by groups of like-minded states; and on the national level, laws that can have substantial international reach.

International Measures: Nonproliferation Treaty, International Atomic Energy Agency, UN Security Council Resolutions, Other Specialized Agencies. Measures that seek to curb commerce in nuclear contraband that are widely adopted carry the greatest legitimacy in the eyes of the international community, when compared to national or multi-state measures. However, international measures inevitably reflect compromises that are necessary to achieve broad acceptability and are, therefore, sometimes narrower or less forceful than national or multi-state measures. The principal international measures relevant to this study are the NPT, the activities of the IAEA, and a number of key resolutions adopted by the UN Security Council.

The NPT, with 189 parties,¹⁵ enjoys near-universal adherence, with only India, Israel, North Korea, and Pakistan currently refusing to join the pact. Its parties are classified in two categories: nuclear-weapon states (NWS)—consisting of the United States, Russia, China, France, and the United Kingdom—and non-nuclear-weapon states (NNWS). Under the treaty, the five NWS commit not to in any way assist any other state to acquire nuclear weapons, while the NNWS agree to forgo developing or acquiring nuclear weapons. The NWS, as part of the bargain in the treaty, also agree to pursue general and complete disarmament.

The treaty plays a crucial role with respect to nuclear commodity smuggling, first, because the broad adherence to these commitments has arguably underwritten the emergence of a strong international norm against the spread of nuclear arms. This norm underpins virtually all efforts to combat such smuggling, facilitating international cooperation to address a widely shared concern.

Secondly, the treaty effectively requires all parties to develop export control systems for nuclear-specific items, because it requires them to ensure that any exports of specified nuclear materials or goods “especially designed or prepared” for nuclear use be placed under IAEA audit and inspection procedures (known as “safeguards”) in the recipient state so that they cannot be diverted to nuclear weapon programs. The items to be placed on the control list are decided by a group of experts, the NPT Exporters’ Committee (also known as the Zangger Committee, after its original Swiss chairman),

¹⁵ In April 2003 North Korea announced its withdrawal from the NPT, bringing the number of parties down from 190 to 189. However, there are differing views regarding the legal force that announcement carries, relating to whether the DPRK satisfied the procedural requirements for withdrawal. See, e.g., Frederic L. Kirgis, “North Korea’s Withdrawal from the Nuclear Nonproliferation Treaty,” *ASIL Insights*, American Society of International Law, January 2003, <http://www.asil.org/insigh96.cfm>; and George Bunn and John Rhinelander, “The Right to Withdraw From the NPT: Article X Is Not Unconditional,” Acronym Institute for Disarmament and Diplomacy, May 1, 2005, <http://www.acronym.org.uk/dd/dd79/79gbjr.htm>.

which in recent years has adopted the multi-state Nuclear Suppliers Group (NSG) list of commodities “especially designed and prepared” for nuclear use. (The NSG lists, as discussed below, now also cover nuclear dual-use items, requiring that these be subject to export licensing, but not to IAEA safeguards, as such). The NSG, though lacking the formal connection to the NPT, has somewhat displaced the Zangger Committee, and it is notable that the UN Security Council has adopted the former’s lists in its resolutions embargoing nuclear transfers to Iran and North Korea, adding to the NSG’s international legitimacy.¹⁶

The IAEA is a second element of efforts to curb nuclear commodity smuggling at the international level. The IAEA is an autonomous international organization with more than 150 member states.¹⁷ 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, namely, those commodities especially designed or prepared for nuclear use come under IAEA monitoring in NNWS parties to the treaty.¹⁸ Also, historically, the Agency considered its role to be limited to verifying the peaceful use of declared facilities and materials. However, when, following the first Gulf War in 1991, Iraq, a NNWS party to the NPT, was found to have built numerous undeclared nuclear facilities during the 1980s, the agency expanded the scope of its activities and now seeks to confirm that any NPT NNWS party it is inspecting has no undeclared nuclear assets.¹⁹

In principle, investigations of this kind could expose nuclear activities related to nuclear weapons in the inspected state. As part of this expanded monitoring, since the early 2000s, responding to revelations regarding the nuclear smuggling network operated by Pakistani scientist A.Q. Khan, the Agency has also sought information regarding procurement efforts in the inspected state that have been pursued by external parties.

¹⁶ See UN Security Council Resolutions 2087 (2013), 2094 (2013), and 1929 (2010).

¹⁷ For more information on the IAEA, see <http://www.iaea.org/>.

¹⁸ The agency also applies safeguards to some individual facilities in three non-NPT states, namely Israel, India, and Pakistan, pursuant to arrangements made between the supplier and purchaser governments.

¹⁹ The authority for this expanded scrutiny is contained in documents known as Additional Protocols (based on a Model Additional Protocol that the Agency issued in 1997) that 72 states have adopted, amending their original safeguards agreements with the Agency to grant it greater powers. This includes authority to obtain information about nuclear research and development activities, nuclear-related manufacturing activities (even though no nuclear material may be present in such manufacturing facilities, which was the traditional trigger for IAEA involvement), and exports of nuclear-specific items. For Additional Protocols in force as of September 24, 2013, see http://www.iaea.org/safeguards/documents/AP_status_list.pdf. Some NPT parties of proliferation concern, namely Iran and Syria, have not signed Additional Protocols to their safeguards agreement with the Agency, limiting the latter’s ability to probe for undeclared activities. The IAEA safeguards and verification functions are effectively established under the IAEA Statute Article III 5a.

Such information, it is hoped, could provide early warning of nuclear weapons development in another state and of a procurement network attempting to support such a program.²⁰

The UN Security Council is the third major international element that acts to constrain nuclear commodity smuggling. UN Security Council resolutions, beginning with the adoption of UNSCR 1540 in 2004, have created a parallel set of international rules and obligations that build upon, and in some respects go beyond, those in the NPT and IAEA safeguards arrangements. UNSCR 1540 (2004), adopted in part to reduce the threat of WMD terrorism by non-state parties, requires states to adopt “appropriate effective” controls (including export controls) over materials, equipment, and technology relevant to nuclear, chemical, and biological weapons and related missile delivery systems.²¹ States are required to report their progress towards this goal, which is monitored by a special committee established by the Security Council. UN member states able to do so are called upon to help other states build the capacity necessary to meet the resolution’s goals. It appears that progress is being made to implement the resolution, although important gaps remain.²²

Separately, the UN Security Council has adopted a series of resolutions sanctioning Iran and North Korea because of their nuclear activities. The Security Council first imposed sanctions against Iran in December 2006, under UNSCR 1737, several months after Iran resumed enriching uranium, contrary to the demands of UNSCR 1696 adopted earlier that year; the Council had taken up the issue of Iran’s nuclear program after the IAEA referred the matter to it in March 2006, following a determination that Iran was not in compliance with the requirements of its safeguards agreement with the Agency. The first such resolution imposing sanctions against North Korea, UNSCR 1695, was

²⁰ Matti Tarvainen, Unit Head, Nuclear Trade and Analysis Unit, Department of Safeguards, International Atomic Energy Agency, “Additional Protocol and Voluntary Information Sharing,” Conference on Strategic Trade in the 21st Century: The 11th International Export Control Conference, Kyiv, Ukraine, June 8-10, 2010, http://exportcontr.web123.discountasp.net/library/conferences/2706/09_Day_2-Policy-Ses_I-Pres_3-Tarvainen.pdf

²¹ UNSCR 1540 does not define what constitute “appropriate effective” control measures, leaving this to individual states to decide. However, in conjunction with meeting their obligations under UNSCR 1540 (2004), many states are adopting control lists based on those of the NSG and, for chemical and biological and missile commodities, those of the relevant multilateral export control organizations dealing with these areas, namely the Australia Group and the Missile Technology Control Regime, respectively.

²² Regarding progress made, see “The 1540 Matrix,” webpage of the UN Security Council 1540 Committee, <http://www.un.org/en/sc/1540/national-implementation/matrix.shtml>; see also, *Panel of Experts Established Pursuant to Resolution 1929 - Final Report*, May 2013, op. cit., commenting on the widespread awareness of governments of the need for controls over WMD commodities.

Notwithstanding the progress evidenced by these sources, in one key region, the Middle East, only a small proportion of states have strategic trade control laws in place.

adopted in July 2006 as a response to that country's test of a long-range missile, and was rapidly followed by UNSCR 1718, adopted in late October 2006, just weeks after the DPRK's first nuclear test. The Iran and North Korea resolutions, among other requirements, prohibited certain nuclear, missile, and conventional arms transfers to the two countries; imposed asset freezes on certain individuals and entities associated with their nuclear and missile programs, and called on states to block travel by the individuals; and also called for inspections of suspect cargoes going to and from these two states. The resolutions were adopted under Chapter VII of the UN Charter, making them binding on all UN member states.

Because of defiance of these resolutions, which included advances in Iran's uranium enrichment and plutonium production programs – programs that could provide Iran with the material for nuclear weapons – and additional nuclear and long-range missile tests by North Korea, sanctions against both countries have been intensified in a series of subsequent Council resolutions. Although the details of the sanctions applicable to the two countries vary somewhat, in the subsequent resolutions the nuclear embargoes were expanded to cover both nuclear-specific and nuclear dual-use items; the conventional arms embargoes were expanded to cover all arms transfers to or from the two countries; lists of sanctioned individuals and entities were expanded (to include, among other parties, a number of domestic banks); and the requirements for inspections of suspect cargoes were strengthened.²³ The most recent resolution imposing sanctions on Iran is UNSCR 1929 (2010) and the most recent resolution imposing sanctions on North Korea is UNSCR 2094 (2013) – adopted after its February 12, 2013, nuclear test.²⁴

The sanctions imposed by these resolutions are not as stringent as those imposed unilaterally by the United States, the EU, and a number of other states. On the other hand, they carry the imprimatur of the UN Security Council, giving them greater legitimacy internationally. In addition, the resolutions in some areas give added legitimacy to unilateral measures.²⁵

²³ Resolutions sanctioning North Korea because of its nuclear and missile activities are: UNSCRs 1695 (2006), 1718 (2006), 1874 (2009), 2087 (2013), and 2094 (2013).

²⁴ Victor Cha and Ellen Kim, "UN Security Council Passes New Resolution 2094 on North Korea," Center for Strategic and International Studies, March 7, 2013, <http://csis.org/publication/un-security-council-passes-new-resolution-2094-north-korea>.

²⁵ While in some of their provisions the resolutions merely "call upon" states to take certain actions rather than "deciding" they must do so, this language is seen by UN member states as encouraging and authorizing such measures, which might otherwise meet domestic opposition. In a number of instances, this has led governments to make optional UN requirements mandatory. In its July 2010 sanctions measures, for example, the EU made the inspection of cargoes suspected of containing contraband destined for Iran a mandatory measure for all EU states, even though Resolution 1929 merely called upon states to take such actions.

A number of other specialized agencies, although not specifically tasked with countering proliferation related traffic, bring significant contributions to fostering an international environment where such activities are increasingly problematic to carry out.

The World Customs Organization (WCO), consisting of 179 national customs administrations, works to enhance their effectiveness through the development of harmonized and simplified procedures, and offers training in this regard. Its Harmonized Commodity Description and Coding System, for example, is used by customs officials worldwide to identify items crossing their borders for the purpose of assessing duties. In 2005, WCO adopted the SAFE Framework of Standards, which in its language recognized the importance of consistently addressing proliferation risks posed by transfers of dual-use goods along the supply chain, as well as the importance of building the capacity of its members to implement the agreed measures.²⁶ This non-binding set of technical standards advises WCO members on best practices in supply chain management, balancing export control practices (such as suspect cargo screening) with trade flow continuity.

The International Maritime Organization (IMO) is the United Nations specialized agency tasked with improving shipping safety and security through adoption of international treaties and standards of conduct for the industry. One such legal instrument of relevance here is the 1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA).²⁷ In support of the efforts to counter illicit nuclear commodity procurements under the UN Resolution 1540, a Protocol to SUA was adopted in 2005 (entering into force in 2010); its nonproliferation provision, which makes knowingly transporting WMD and related equipment on the high seas a punishable SUA offense, is the first legal text criminalizing such activity.²⁸ The SUA 2005 Protocol allows its signatories to board and inspect a suspect vessel flying the flag of another SUA 2005 Protocol signatory – although even under these circumstance flag state consent is required. The SUA 2005 Protocol only applies to the

²⁶ See “WCO SAFE Package” for the 2012 edition of the Framework of Standards and corresponding documents, http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/safe_package.aspx. Also see Will Robinson, “New Border and Customs Controls for Implementing UNSCR 1540,” in Olivia Bosch and Peter van Ham (eds.), *Global Non-proliferation and Counter Terrorism: the Impact of UNSCR 1540* (Brookings Institution Press, 2007), pp. 136-152.

²⁷ For a brief summary of its key aspects, see Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, <http://www.imo.org/OurWork/Facilitation/SUAConvention/Pages/Default.aspx>.

²⁸ Protocol of 2005 to the Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation, Article 3bis.

states that have ratified it, and it is up to its adherents to implement its provisions through national legislation. While the original SUA has been ratified by 161 states (covering 95 percent of the world's shipping traffic), as of October 2013, the 2005 SUA Convention, although it had entered into force, had only 27 ratifications.²⁹ The SUA 2005 Protocol is an important step towards creating a broader legal base for interdictions on the high seas, as well as momentum for prosecuting nuclear commodity trafficking in this environment through signatories' national institutions.

The International Civil Aviation Organization (ICAO) is a UN specialized agency in charge of setting safety standards and regulations for air traffic in comparable manner. In 2010, an ICAO diplomatic conference in Beijing adopted the Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation (subsequently known as the Beijing Convention), which requires its signatories to criminalize the transporting, and facilitation thereof, aboard an aircraft of any items that could significantly contribute to manufacturing nuclear, radiological, chemical or biological weapons.³⁰ The Beijing Convention was designed as a response to the acts of terrorism on board or involving aircraft, and as of October 2013 had not yet entered into force.³¹ Nonetheless, its nonproliferation provision is important in driving member state national legislation to broaden the scope of interdictions and prosecutions – particularly as tighter maritime anti-proliferation measures lead to additional attempts to reroute procurement activities through air transit.

Multi-State Level: The European Union, Nuclear Suppliers Group, Proliferation Security Initiative, Financial Action Task Force, ad hoc coalitions. Multi-state initiatives include actions by the EU, a multi-state organization that has adopted uniform export control standards and sanctions measures against Iran and North Korea to be implemented by all EU states. The sanctions measures against Iran expand upon those of the Security Council, designating additional individuals for their participation in, or support for, Iran's nuclear program, and making a number of non-binding Security Council measures, such as inspection of suspect cargoes, mandatory.

The NSG is a 48-member arrangement of states that have the ability to manufacture and export nuclear-specific and nuclear dual-use commodities. The group has negotiated a common set of export control rules and lists (which are periodically updated), known as

²⁹ See Status of conventions and Ratifications by state:

<http://www.imo.org/About/Conventions/StatusOfConventions/Pages/Default.aspx>.

³⁰ Article 1 (i).

³¹ It will enter into force after 22 states have acceded to or ratified the Convention; presently, 8 states have done so.

the NSG Guidelines, which all members agree to adopt domestically. Although the group, itself, seeks only to ensure the adoption of its Guidelines among its members, in recent years, as noted above, the control lists developed by the NSG have been incorporated into UN Security Council resolutions that impose embargoes on nuclear trade with Iran and North Korea. The Guidelines are also widely used as a model for non-NSG states implementing UN Security Council Resolution 1540 (2004), which requires all states to adopt measures to control WMD goods and related missile delivery systems.

The Proliferation Security Initiative (PSI), whose participants have adhered to a Statement of Interdiction Principles and conduct exercises on an ad hoc basis, characterizes itself as an “activity,” rather than organization. Involving 102 states at various levels of participation, it focuses on interdicting nuclear and other WMD relevant contraband while in transit, after it has left its country of origin and prior to its arrival at its end-use destination. Although much information about PSI activities is classified, U.S. officials have testified that the effort has interrupted at least 30 would-be transfers of commodities destined for emerging WMD and missile programs.³²

The Financial Action Task Force (FATF) is an intergovernmental organization whose 34 member states, together with the Gulf Cooperation Council and the European Commission, are the leading banking states in the international system; for many years, its members have adopted recommendations for countering money laundering and the financing of terrorist activities. The FATF recently added measures to counter proliferation financing to its guidelines, which all member states agree to apply to their respective banking systems. The FATF has regional “FATF-like” organizations that promote the FATF requirements among their respective member states, giving the parent body’s recommendations considerable international reach and stature. The recommendations are informally enforced by peer reviews of FATF members’ banking procedures by experts from member states under the auspices of the FATF. The peer reviews, whose results are published as a means for encouraging compliance, are undertaken both within the FATF, itself, and within its auxiliary bodies.

Ad hoc coalitions of “the willing” or of “like-minded states” are a further mode of multi-state action to combat nuclear commodity smuggling. For example, during the summer of 2010, after the UN Security Council adopted Resolution 1929 (2010), expanding sanctions against Iran, in short succession the United States, the European

³² Mary Beth Nikitin, *Proliferation Security Initiative (PSI)*, Congressional Research Service, June 15, 2012, <http://www.fas.org/sgp/crs/nuke/RL34327.pdf>; “The Proliferation Security Initiative at a Glance,” Arms Control Association website, updated June 2013, <http://www.armscontrol.org/factsheets/PSI>.

Union, Australia, Canada, Japan, and South Korea also adopted strengthened sanctions against Tehran, many directed at constricting its access to nuclear-weapon-relevant goods.³³

National Level: Export Controls and Sanctions Laws. At the national level, two types of measures play central roles today: export control laws (and related enforcement actions) and laws sanctioning certain actions related to suspect nuclear programs, including the procurement and supply of goods for such programs and the financing of such procurement-supply transactions. As noted above, under UN Security Council Resolution (UNSCR) 1540, all states are required to adopt export controls over nuclear and other WMD- and missile-related goods, but, while many states have robust control systems, a larger number of states lack capacity to meet this requirement. Sanctions, though they may be imposed by a single state, can have substantial international reach, for example, by denying foreign persons privileges available in the country enacting the sanctions laws – such as access to banking systems, the right to import or export goods, or the right to participate in government contracts. The United States has adopted the greatest array of sanctions laws, with particular focus on Iran and North Korea; other actors who have also adopted a number of sanctions measures that go beyond what is required by the Security Council directed at these states include Australia, Canada, Japan, South Korea, and the EU (adopted at the EU level and binding on EU member states).³⁴

Figure 1.3 summarizes these international, multi-state, and national measures.

³³ UN Security Council Resolution 1929 was passed on June 9, 2010 (see UNSC Department of Public Information, “Security Council Imposes Additional Sanctions on Iran, Voting 12 in Favor to 2 Against, with 1 Abstention,” June 9, 2010 <http://www.un.org/News/Press/docs/2010/sc9948.doc.htm>). Subsequently, the U.S. adopted tighter sanctions measures on July 1 (see Peter Baker, “Obama Signs into Law Tighter Sanctions on Iran,” *New York Times*, July 1, 2010, <http://www.nytimes.com/2010/07/02/world/middleeast/02sanctions.html>); the EU and Canada followed suit on July 26 (see BBC, “EU Tighten Sanctions over Iran Nuclear Programme,” July 26, 2010, <http://www.bbc.co.uk/news/world-europe-10758328>, and the Office of the Prime Minister of Canada, “Sanctions Against Iran Special Economic Measures Act (SEMA),” July 26, 2010, <http://www.pm.gc.ca/eng/news/2010/07/26/sanctions-against-iran-special-economic-measures-act-sema>); Australia – on July 29 (see the Office of the Australian Minister for Foreign Affairs and Trade, “Australia Imposes New Broad Ranging Sanctions Against Iran,” July 29, 2010, <http://foreignminister.gov.au/releases/2010/fa-s100729.html>); Japan – on September 2 (see Takashi Hirokawa and Sachiko Sakamaki, “Japan Suspends Iran Energy Investments, Freezes Assets in New Sanctions,” *Bloomberg*, September 2, 2010, <http://www.bloomberg.com/news/2010-09-03/japan-suspends-iran-energy-investments-freezes-assets-in-new-sanctions.html>); and South Korean – on September 8 (see Choe Sang-Hun, “South Korea Aims Sanctions at Iran,” September 8, 2010, *New York Times*, <http://www.nytimes.com/2010/09/09/world/asia/09korea.html>).

³⁴ These measures are discussed in detail in Chapter 3.

Figure 1.3**International, Multi-State, and National Measures to Combat Nuclear Commodity Smuggling****International Measures (Wide adherence)**

- Nonproliferation Treaty (norm underpinning all counter-nuclear commodity smuggling efforts; requires export controls on nuclear-specific items)
- International Atomic Energy Agency (monitors commerce in/use of nuclear-specific goods; authority in some states to monitor nuclear manufacturing, nuclear-dual use goods; attempting to track suspect nuclear procurement activities)
- UNSCR 1540 (requires appropriate effective controls, including export controls, on WMD and missile commodities)
- UNSCR 2094 (2013) and predecessors - North Korea (binding on all states; nuclear embargo; inspection of suspect cargoes; sanctions on nuclear program officials)
- UNSCR 1929 (2010) and predecessors - Iran (binding on all states; nuclear embargo; inspection of suspect cargoes; sanctions on nuclear program officials and procurement facilitators)
- World Customs Organization
- Other specialized international organizations (IMO, ICAO, WCO)

Multi-State Measures

- European Union (EU-wide export controls and sanctions)
- Nuclear Suppliers Group (Control lists, nuclear trade rules; lists used by UNSC for Iran and North Korea nuclear embargoes)
- Proliferation Security Initiative (Collaboration on post-export inspections/seizures; exercises)
- Financial Action Task Force (Banking rules to counter proliferation financing)
- Ad hoc coalitions of the willing/of like-minded states (Parallel implementation of unilateral sanctions)

National Measures

- Export controls (lists, licensing, criminal and administrative enforcement)
- Primary sanctions for participating or materially assisting suspect nuclear programs (asset freezes, travel bans, exclusion from Western banking system)
- Secondary sanctions for doing business with individuals and entities subject to primary sanctions
- State-level economic sanctions (to dissuade leaders from pursuing nuclear programs)

Elements of Transactions; Modes of Intervention; and National, Multi-State, and International Measures: Overlapping, Intertwined, and Simultaneous

The foregoing review makes clear how complex the multifaceted efforts of the United States and many other actors to combat nuclear commodity smuggling have become. Adding to this complexity is that virtually all components described above are in play at once.

An element of a transaction – for example, the purchase and export to Iran of a controlled high-tech dual-use measuring device – might be subject to licensing under a national law and its transfer to Iran, prohibited by a UN Security Council resolution; the agent of the originator of the transaction who is seeking to purchase the item might be barred from making exports from the selling country under that country's domestic laws because of prior export control violations; the end-user might be barred from receiving exports of the type in question by the supplying country's national law and by a UN Security Council resolution; transit state customs authorities could target the

measuring device in collaboration with the supplier state under the Proliferation Security Initiative, taking advantage of training assistance received pursuant to UNSCR 1540 (2004); and the organization manufacturing the device might refuse to sell it to the would-be purchaser after questions about the sale's legality were raised by a corporate internal compliance program. Banks, shipping firms, and insurance companies might also be at risk of substantial penalties for facilitating the transaction under national laws, in some cases enacted to implement UN Security Council resolutions. In the background, intelligence specialists, licensing officials, customs agents, prosecutors, military officers, diplomats, and private sector personnel must all simultaneously work on their respective parts of the enterprise.

That enterprise, in effect, is a "system of systems," with each individual system complex in its own right and facing its distinctive challenges, while also closely interlinked with the others. While this makes careful coordination a difficult challenge, a loosely linked network may have certain advantages in dealing with the networks of nuclear commodity traffickers. At the moment, with Iran and North Korea, as well as Pakistan, continuing to advance their nuclear programs with the help of commodities obtained from others, the effort to combat such procurement activities is far from a complete success, although it has unquestionably slowed these programs to a degree. This study, by scrutinizing the panoply of efforts currently under way to combat this phenomenon hopes to identify approaches for strengthening these activities. Whether or not new approaches may be needed, even incremental improvements in a range of existing programs could have a significant cumulative impact in curbing nuclear commodity smuggling.

CHAPTER 2: CURRENT PATTERNS AND TRENDS IN NUCLEAR COMMODITY SMUGGLING

As described in Chapter 1, Iran and North Korea are the states most actively engaged in the illicit procurement of commodities from abroad needed to support nuclear programs of proliferation concern, and Pakistan also pursues such activities. Drawing on publicly available information, this chapter will examine the overall scale of these activities, the commodities being sought, the venues where they are being sought, and the principal stratagems that Iran, North Korea, and Pakistan appear to be using to bypass strategic trade controls and other measures designed to counter such commerce.

The Scale of Illicit Nuclear Procurement Efforts

EXPANDING PROGRAMS

A starting point for assessing the magnitude of nuclear commodity smuggling today is to appreciate the scale of the nuclear programs such procurements are supporting. All three countries of concern have important nuclear construction projects under way and must also maintain a number of existing facilities, some of which, depending on the state involved, are also being expanded or upgraded.

Briefly, Iran is a non-nuclear-weapon state party to the NPT, and all of its known nuclear activities are all under IAEA monitoring. However, the history of secrecy surrounding its nuclear program, its construction of facilities that can be used to produce material for nuclear arms, and its failure to clarify certain related activities to the satisfaction of the IAEA have created suspicions that it is seeking the capacity to produce nuclear weapons. This has led the UN Security Council to impose sanctions on Iran until it suspends activities at its Natanz and Fordow uranium enrichment facilities, potentially usable to produce highly enriched uranium for nuclear weapons, and also suspends the construction of a reactor at Arak suitable for the production of plutonium for such weapons. Notwithstanding the demands of the Security Council, Iran has been expanding its uranium enrichment capacity at Natanz and Fordow, by increasing the number of centrifuges there and beginning to install more efficient models. It has also continued construction of the Arak reactor, and may be planning to build an associated reprocessing (plutonium separation) plant at that site.³⁵ In a November 23, 2013,

³⁵ For a review of Iran's nuclear program see "IAEA and Iran – IAEA Reports," http://www.iaea.org/newscenter/focus/iaea/iran/iaea_reports.shtml. Iran is not known to have begun construction of a reprocessing plant for processing fuel from the Arak reactor.

agreement with Germany and the permanent members of the Security Council (China, France, Russia, the United Kingdom, and the United States), known as the P-5+1, Iran agreed to freeze certain sensitive elements of its nuclear program for six months, in return for limited relief from U.S. and EU sanctions. Further negotiations during the interim will address the future direction of that program.

North Korea, which withdrew from the NPT and which has no facilities under IAEA safeguards, has conducted three nuclear tests and possesses a small number of nuclear weapons. It is thought to be producing weapons-grade uranium at a uranium enrichment plant, located at its Yongbyon nuclear complex, using high-speed centrifuges, and some observers believe it may have built or may be building a second such facility. It is also constructing a 25-30 megawatt (electric) reactor at the Yongbyon complex, the Experimental Light Water Reactor, which will be able to produce electricity and, possibly, plutonium for nuclear weapons; extracting the plutonium from spent fuel irradiated in that reactor, however, will require reconfiguration of North Korea's existing reprocessing plant.³⁶ In addition, it has declared that it will restart a smaller reactor at Yongbyon, which produced the plutonium for the devices detonated in at least two of the three North Korean nuclear tests and presumably for several additional nuclear devices; that facility had been disabled pursuant to a 2007 agreement with the United States, and its associated reprocessing plant appears to be inactive.³⁷ With a declared nuclear weapon program, North Korea would also presumably be in need of certain dual-use components, such as triggered spark gaps, used in detonating nuclear explosives.

Pakistan, which conducted a series of nuclear tests in 1998 and is estimated to possess 80 or more nuclear weapons, has not joined the NPT, and its nuclear-weapon-related facilities are not under IAEA inspection. It is constructing a fourth reactor for the production of weapons plutonium at Khushab and may be enlarging or upgrading its uranium enrichment facility at Kahuta. It has also entered the illicit procurement market to obtain materials for its IAEA-safeguarded civilian nuclear power program, which is subject to an embargo under the Guidelines of the Nuclear Suppliers Group.³⁸

³⁶ Siegfried S. Hecker, "A Return Trip to North Korea's Yongbyon Nuclear Complex," Center for International Security and Cooperation, Stanford University, November 20, 2010, Summary, <http://iis-db.stanford.edu/pubs/23035/HeckerYongbyon.pdf>.

³⁷ "North Korea Yongbyon Reactor Work 'Nearing Completion,'" *BBC News Asia*, June 4, 2013, <http://www.bbc.co.uk/news/world-asia-22763278>.

³⁸ Nuclear Suppliers Group Guidelines, paragraph 4(a), <http://www.nuclearsuppliersgroup.org/Leng/PDF/infirc254r11p1.pdf>. The Guidelines ban transfers of nuclear-specific commodities, even if intended for civilian nuclear power programs, to Israel, North Korea, and Pakistan because they have not placed all nuclear materials and related facilities on their

As a nuclear weapon possessor, it, like North Korea, may also be seeking dual-use items needed for the fabrication of nuclear arms.

All three states are able to produce much of the material and equipment needed for these projects domestically, but remain reliant on outside sources for certain commodities, as detailed below.

EVIDENCE OF PROCUREMENT EFFORTS

For obvious reasons, intelligence regarding procurement activities and efforts to thwart them is closely held. Nonetheless, unclassified sources provide some indication of the tempo of activity. According to knowledgeable officials, one U.S. interagency group, for example, meets three times per week to work on pending illicit nuclear procurement cases involving states of concern, suggesting the portfolio of cases is sizeable.³⁹

At a July 2012 conference, moreover, then FBI Director Robert Mueller noted that the bureau's Counterproliferation Center was pursuing "more than 1,500 pending cases" involving the illegal export of "protected U.S. goods," a broad category that includes, in addition to nuclear-weapon-relevant items, classified military technology, conventional armaments, chemical- and biological-weapon goods, and missile-related commodities. Nuclear smuggling cases thus represent only a fraction of the Counterproliferation Center's total caseload. Nonetheless, an official from a related agency estimated they comprised five to ten percent of the total – which would mean the Bureau was working on 75 to 150 nuclear-related cases. This is a significant number in absolute terms and suggests that nuclear procurers are very active in the United States. The number seems consistent with a recent comment by a senior Austrian enforcement official, who stated that his government had 24 "suspicious" proliferation cases and six "concrete investigations" under way.⁴⁰ If the pattern were replicated among even half of the other EU member states, it would signify that roughly one hundred "concrete" cases of procurement efforts could well be under way in Europe. If the situation is similar in other advanced industrialized countries – Australia, Canada, Japan, and South Korea –

territory under IAEA safeguards. This status is also to be considered under NSG rules when deciding on issuing licenses for nuclear-relevant dual-use items, a standard that has created a de facto embargo on transfers of such dual-use commodities to these states. Regarding attempts by Pakistan to obtain materials for its civilian nuclear program by illicit means, see U.S. Department of Justice, "Summary of Major U.S. Export Enforcement, Economic Espionage, Trade Secret and Embargo-Related Criminal Cases (January 2007 to the present: updated Feb. 14, 2013)" (hereafter "Justice Department Compilation of Cases") and note "Specialty Coatings to Pakistani Nuclear Facility," (a dual-use item), <http://www.pmddtc.state.gov/compliance/documents/OngoingExportCaseFactSheet022013.pdf>

³⁹ Interviews with current and former U.S. officials, Washington, DC, January 2013.

⁴⁰ "Austria Checks Suspected WMD Proliferation Cases," *Reuters*, September 10, 2013, <http://in.reuters.com/article/2013/09/10/austria-nuclear-idINL5N0H621C20130910>.

the global scale of this activity would appear to be quite substantial. Moreover, these figures cover actual investigations, that is, procurement attempts that have been detected. Since Iran, North Korea and Pakistan all continue to advance their nuclear programs with commodities obtained from abroad, many procurement cases presumably elude detection, enlarging still further the scale of overall nuclear procurement activities.⁴¹

Information from other sources reinforces this picture of an illicit procurement bazaar involving hundreds of transactions annually, some stymied and some successful. The June 11, 2013, report of the Panel of Experts established under UN Security Council Resolution 1874 (2009) to support the Committee established to monitor implementation of Council resolutions sanctioning North Korea, notes that North Korean officials and diplomats have been involved in illicit procurement activities for many years, with DPRK personnel based in the country's embassies in Vienna and Berlin, being particularly active.⁴² The report goes on to note that, "It is highly likely that similar activities are conducted out of the country's other embassies, diplomatic missions and commercial and trade missions abroad."⁴³ An appendix to the report notes that the DPRK has embassies in 43 countries, along with three permanent missions, and five trade offices in various locations.⁴⁴ With purchasing agents often responsible for acquiring a variety of commodities and sometimes querying multiple supplier companies for the same item, it is not hard to imagine that the North Korean networks, alone, pursue 100-200 attempted purchases of controlled nuclear commodities annually.⁴⁵ Iran may be exerting a similar level of effort,⁴⁶ and Pakistan is also still active, although likely to a lesser degree.

⁴¹ A procurement operation exposed in March 2013, for example, involved some 900 shipments to Iran from Germany and India via Turkey that apparently eluded detection for a number of years (see "Nuclear Materials Smugglers Arrested," *UPI.com World News*, March 11, 2013, http://www.upi.com/Top_News/World-News/2013/03/11/Nuclear-materials-smugglers-arrested/UPI-80861362997303/).

⁴² *Report of the Panel of Experts Established Pursuant to Resolution 1987 (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 (2009) Panel of Experts Report"), paragraph 49. The Panel of Experts supports the Committee established under UNSCR 1718 (2006); both the Panel of Experts and the Committee, itself, issue reports. For clarity, the notation above will be used to refer to this report and the Panel of Experts will be referred to as the UNSCR 1874 ((2009) Panel of Experts.

⁴³ *Ibid.*

⁴⁴ June 2013 UNSCR 1874 (2009) Panel of Experts Report, Appendix XI.

⁴⁵ A recent example of DPRK's procurement efforts is a scheme by a Taiwanese father and son recently indicted by the U.S. Department of Justice: the son set up a firm in Illinois to procure American-made advanced machine tools and export them to Taiwan over 2009-2010, from where the father, a prominent figure with KOMID (a major DPRK procurer designated by the UN in 2009), may have re-exported them to North Korea (see Andrea Stricker, "Case Study - United States Busts Likely North Korean

Commodities Being Sought

Although classified data provides the most complete and up-to-date picture of the commodities targeted by illicit procurement efforts, considerable information on this issue is available publicly from a variety of official sources. Most useful are recent UN Security Council resolutions; the reports of the Panels of Experts supporting the committees established pursuant to UN Security Council Resolution (UNSCR)1737 (2006) and UNSCR 1718 (2006); compilations of U.S. and foreign law enforcement actions (arrests, indictments, etc.); actions by the Nuclear Suppliers Group (NSG); and certain other official issuances, such as notifications that individuals or entities have been sanctioned for engaging in procurement activities in support of proscribed nuclear programs. One caveat in using data from these documents is that they most often refer to events that transpired a year or more prior to the document's release, and, as a result the picture presented by these sources can never be completely current.

Information on procurement patterns becomes available from these sources, which are closely interlinked, as the result of information sharing to a group of official recipients that is gradually enlarged until it includes the public. Information is initially obtained through national intelligence or law enforcement channels. It is then shared, as the

Transshipment Scheme," IISS Report, May 24, 2013). Another example of 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 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," PASCC Report No. 2012012, October 2012, pp. 8-10, <http://www.hsdl.org/?view&did=726763>).

⁴⁶ 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, op. cit. See also "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 (2010) Panel of Experts Report)

http://www.un.org/ga/search/view_doc.asp?symbol=S/2013/331, paragraph 60. The Panel of Experts supports the Committee established under UNSCR 1737 (2006); both the Panel of Experts and the Committee, itself, issue reports. For clarity, the notation above will be used to refer to this report and the Panel of Experts, itself, will be referred to as the UNSCR 1929 (2010) Panel of Experts. As suggested earlier, nuclear-commodity smuggling comprises only small portion of much more substantial North Korean and Iranian efforts to obtain contraband goods. The Justice Department Compilation of Cases, op. cit., for example, includes four cases in 2012 dealing specifically with illicit nuclear exports to Iran. However, the 2012 list also contains some 16 cases in which Iranian networks sought to obtain non-nuclear military hardware, computers, or other embargoed goods from the United States. In effect, the United States and other technically advanced countries are under constant assault from multi-pronged illicit procurement activities directed from Tehran and Pyongyang.

need to protect sources and methods allows, with close allies and, potentially, states directly involved in particular transactions. At a later stage, at least some of this information is shared with the members of the Security Council committees overseeing the implementation of sanctions against Iran and North Korea, and with the Nuclear Suppliers Group. (In the latter case, this sharing is sometimes done in the form of “watch lists,” based on observed illicit procurement activities; eventually some items from the watch lists may be added to the formal NSG nuclear-specific and dual-use lists.)⁴⁷

UN SECURITY COUNCIL RESOLUTIONS SANCTIONING NORTH KOREA

The two resolutions, one adopted after North Korea’s first successful launch of a space satellite on December 12, 2012, (UNSCR 2087), and the second, after its third test of a nuclear device on February 12, 2013 (UNSCR 2094), respectively, provide insight into current procurement priorities. Based on concerns regarding North Korean procurement activities, the former resolution designated additional persons and entities to be subject to travel bans and asset freezes, and the latter added a number of items to the embargo of nuclear-related items imposed on that country. In particular, Resolution 2094 (2013) added special lubricants and certain corrosion protected bellow valves, both usable in uranium enrichment and also recently included on the NSG dual-use lists (see below).⁴⁸ (There has been no similar action in recent years with respect to Iran inasmuch as the Security Council has not adopted a resolution with respect to sanctioning that country since Resolution 1929 (2010)).⁴⁹

JUNE 2013 REPORTS OF PANELS OF EXPERTS SUPPORTING SECURITY COUNCIL IRAN AND NORTH KOREA SANCTIONS RESOLUTIONS

These reports contain information about investigations of specific transactions conducted by the panels and a number of conclusions the panels have drawn regarding illicit nuclear procurement activities based on these investigations and other information received from various (unnamed) governments. The panels note that despite growing indigenous capabilities, Iran and North Korea continue to rely on commodities obtained from abroad to advance their nuclear programs. The panels then identify short lists of commodities the two states have been seeking, respectively, in recent years.

⁴⁷ See discussion of the NSG control lists in Chapter 3.

⁴⁸ See Annex III of UNSCR 2094, March 2013; and Nuclear Suppliers Group, “Guidelines for Nuclear Transfers” and “Guidelines for Transfers of Nuclear Related Dual-Use Equipment, Materials, Software, and Related Technology,” June 2013.

⁴⁹ See Annex I of 1718 Committee Panel of Experts Report.

June 2013 UNSCR 1929 (2010) Panel of Experts Report on Iran Sanctions. In the section of its report entitled, “Summary,” the Panel of Experts supporting the UNSCR 1737 Committee concluded:

The Islamic Republic of Iran continues to seek items for its prohibited activities from abroad using multiple and increasingly complex procurement methods, including front companies, intermediaries, false documentation and new routes.

The issue of below-control-threshold procurement poses challenges to States seeking to maintain legitimate trade with the Islamic Republic of Iran while not contributing to its prohibited activities.

The report goes on to list specific targets of recent Iranian procurement activities. These included procurement of high-quality valves, intended for use in the IR-40 reactor at Arak, items that fell below NSG control thresholds. The panel also reported that “process control equipment, including pressure transducers, electro-pneumatic positioners, a programmable logic controller and related equipment and software were intercepted en route to the Islamic Republic of Iran.” The equipment could be used to control reactor operations or uranium enrichment cascades. Again the panel noted that the technical specifications of the items placed them below the established control thresholds. Also listed were carbon fiber, stainless steel bellows, ring magnets, very small diameter stainless steel tubes, high-strength aluminum alloys, inverters, and semi-hard magnetic alloy, in thin-strip or tape form. All of these dual-use items could make specific contributions to uranium enrichment activities.

June 2013 UNSCR 1874 (2006) Committee Panel of Experts Report on North Korea Sanctions. In the section of its June 2013 report entitled “Summary,” the UNSCR 1874 (2009) Panel of Experts concluded:

The trend in the incidents of non-compliance investigated by the Panel has remained stable. The Democratic People’s Republic of Korea has continued its efforts to import and export items relevant to missile and nuclear programmes and arms. There was no major change in either the number or the nature of the incidents investigated by the Panel over the reporting period, compared with the previous reporting periods.⁵⁰ (Spelling as in original.)

⁵⁰ UNSCR 1718 Committee Panel of Experts Report, op. cit., Summary.

Later in the report, the Panel proposed to expand the list of commodities embargoed to North Korea by reducing the specifications (parameters) for a number of desired commodities to encompass those that are below the current control level, but potentially useful to North Korea's nuclear program. The commodities identified were:

- (a) Maraging steel;
- (b) Frequency changers (also known as converters or inverters);
- (c) High-strength aluminum alloy;
- (d) Fibrous or filamentary materials, and prepregs;
- (e) Filament winding machines and related equipment;
- (f) Ring magnets;
- (g) Semi-hard magnetic alloys in thin strip form.⁵¹ (Spelling as in original.)

Annex VIII to the report specifies the new, more encompassing parameters for these items and their potential uses within the North Korean nuclear program.⁵² (As discussed below, the Nuclear Suppliers Group has implemented similar changes to its nuclear dual-use commodity control list.) A later part of its report also describes recent enforcement actions with respect to transactions through which North Korea sought computer numerically controlled (CNC) machine tools with potential missile and nuclear uses from companies in Taiwan from 2009 to 2011 and export controlled machine tools from a company in the United States in 2008-2009.⁵³

Although the analysis by the Iran sanctions expert panel is considerably more detailed than that of the panel of experts on North Korea sanctions, the overlaps between the two lists are notable, with both including carbon fiber, ring magnets, inverters, high-strength aluminum, and semi-hard magnetic alloys in strip form. Maraging steel is also a concern of both panels, though not listed specifically in the report of the Iran sanctions Panel of Experts.⁵⁴ All of these items are needed for the construction and operation of centrifuge-based uranium enrichment plants, which are part of the nuclear infrastructure of both states. The fact that both states are in the market for these materials would seem to indicate that neither can produce them indigenously.

⁵¹ UNSCR 1874 (2009) Panel of Experts Report, op. cit., paragraph 28.

⁵² UNSCR 1874 (2009) Panel of Experts Report, op. cit., Annex VIII.

⁵³ UNSCR 1874 (2009) Panel of Experts Report, op. cit., paragraphs 60 and 61.

⁵⁴ Interview with specialist on UN sanctions affairs, New York, June 2013. It was noted that maraging steel had been highlighted in the panel's 2012 report and was the subject of illicit procurement efforts in one of the cases the panel investigated as part of its 2013 report.

One divergence between the two high-priority procurement lists is that Iran is intensively seeking sophisticated valves for its Arak reactor but North Korea does not appear particularly focused on obtaining advanced valves for its Experimental Light Water Reactor at Yongbyon. The discrepancy suggests one of the three possibilities: first, that the valves for the latter facility are less complex, permitting Pyongyang to manufacture them domestically; second, that the DPRK is obtaining the valves clandestinely from an ally or another source; or third, that the Yongbyon reactor has not reached the phase of construction where their installation is required.⁵⁵

ACTION BY THE NUCLEAR SUPPLIERS GROUP

At its 2012 and 2013 plenary meetings, the NSG made additions and adjustments to its control lists of nuclear-specific and nuclear dual-use items. A comprehensive review of these modifications is beyond the scope of this study, but a number of changes adopted at the 2012 plenary lowered control thresholds for commodities, such as maraging steel, inverters, and filament winding machines, reflecting the concern – also noted by the UN Security sanctions committees’ Panels of Experts – that Iran and North Korea have attempted to defeat existing controls by procuring items just below existing control parameters.⁵⁶ Nevertheless, it is important to appreciate that this trend of continually lowering the threshold for controlled items touches a spectrum of goods usable in an increasingly broader spectrum of industries, making it ever more challenging to balance the maintenance of international trade flow volumes and processing speeds with the management of proliferation concerns.

U.S. AND OTHER NATIONAL ENFORCEMENT ACTIONS

A review of U.S. Department of Justice and Department of Commerce cases of the past two years involving illicit nuclear commodity procurement activity by Iran, North Korea, and others, is consistent with the analysis above. With one exception, all of the cases involve efforts to acquire one or more of the commodities previously identified.⁵⁷ The exception is a case involving the attempt to export radiation detection devices, resins for coolant water purification, calibration and switching equipment, attenuators,

⁵⁵ Note that Pakistan has also sought valves through illicit procurement channels to support its nuclear reactor projects. In September 2011 a Pakistani national pleaded guilty in the United States for attempting to export valves, among other items, for use in Pakistan’s Chashma nuclear power plant, currently under construction, and/or in a research reactor operated by the Pakistani Atomic Energy Commission. See Justice Department Compilation of Cases, *op. cit.*, “U.S. Technology to Pakistani Nuclear Facilities.”

⁵⁶ Further details on the NSG list changes are provided in Chapter 3.

⁵⁷ Department of Justice Criminal Export Enforcement Cases list, *op. cit.*; “Press Releases,” Bureau of Industry and Security, U.S. Department of Commerce, <http://www.bis.doc.gov/news/index.htm#prs>.

and surface refinishing abrasives to the Pakistan Atomic Energy Commission and other restricted end-users in that country.⁵⁸

A review of foreign prosecutions and enforcement actions for 2012-2013 gave similar results. Two prosecutions in Spain were launched in 2012, for example. One involved the export of seven multi-ton machine tools to Iran, manufactured by ONA Electrerosion, SA, and the second involved the attempt to export 44 high-resistance, non-corrosive valves to Iran, manufactured by Fluval Spain S.L.⁵⁹

Target Countries and Transshipment Points

As highlighted by the UNSCR 1929 Panel of Experts, Iran appears to seek high-quality goods when it shops abroad and thus turns to the advanced industrialized states, a pattern that also appears to be followed by North Korea and Pakistan.⁶⁰ The fact that most of the source states also maintain sophisticated and actively enforced export control systems appears not to have deterred procurement attempts, although the controls do seem to have made illicit procurement efforts more difficult.

Drawing on the cases discussed above, illicit procurement activities have targeted commodities in the following states in the recent past, in transactions associated with a variety of transit countries, as summarized in Figure 2.1:

Figure 2.1. States involved in Recent Nuclear Commodity Smuggling Enforcement Actions

State of Origin	Transit State (s)
Germany	Turkey, Azerbaijan
India	Turkey
Japan	
Spain	Turkey, UAE
Sweden	UAE
Switzerland	Taiwan
Taiwan	
United States	China, Philippines, Taiwan
	<i>Other transit states of concern in earlier nuclear or non-nuclear cases</i>
	Malaysia, Singapore, Vietnam

⁵⁸ "Pakistani National Sentenced in Scheme to Illegally Export Restricted Nuclear Materials to Pakistan," U.S. Department of Justice, U.S. Attorney for the District of Maryland, January 6, 2012, http://www.bis.doc.gov/news/2012/akhtar_nadeem_sentence_pr_02292012.pdf.

⁵⁹ "Spain Raids Company Over Suspected Iran Exports," *Wall Street Journal*, November 26, 2012; Harold Heckle, "Spain Arrests 2 Over Suspected Iran Nuclear Export," *Associated Press*, January 11, 2013, <http://bigstory.ap.org/article/spain-arrests-2-over-suspected-iran-nuclear-export>.

⁶⁰ June 2013 UNSCR 1929 Panel of Experts Report, op. cit., paragraph 78.

Transit states are typically selected because, historically, they have had have weak export control systems. U.S. officials state, however, that considerable progress has been made in a number of these countries, including China, Malaysia, Singapore, and the UAE, although significant implementation challenges remain.⁶¹

Procurement Stratagems

The tools used by those procuring controlled nuclear commodities parallel those that have been used over the decades; indeed, patterns seen today were used by A. Q. Khan in the 1970s, as he acquired goods for Pakistan's nuclear weapons program and by Saddam Hussein in the 1980s to support Iraq's WMD programs. What has changed, however, is that supplier countries have generally become far more disciplined in expanding and implementing their export licensing authorities and less likely to allow pressures for export profits to overshadow nonproliferation principles, which was a serious problem in the past. The fact that Iran and North Korea are perceived by many states as threats to regional and global stability and as having side-stepped international nonproliferation rules has likely contributed to this trend.

As noted above, the June 2013 report of the UNSCR 1929 (2010) Panel of Experts highlighted Iran's use of the classic tools employed to pursue its procurement goals. The report noted how Iran is attempting to use these ploys with increasing sophistication. Looking across all of Iran's procurement activities, not solely at their nuclear dimension, the report notes that Iran had in one case set up a trading company in a supplier state solely for the purpose of procuring embargoed goods. In another case a business was established in a third country designed to serve as an intermediate consignee to hide the ultimate end-user of the commodity in question. Some front companies were mere shells, set up in jurisdictions that offer rapid, low-cost registration procedures that could be used to hide legal ownership of an asset and to conduct a variety of business transactions, while disguising the actual beneficiary. Indeed, the report noted, "Front companies could also be short-term businesses set up for the purposes of carrying out a single procurement operation before being closed down."⁶²

⁶¹ For a discussion of trends in emerging proliferators and likely future supplier and transit states for nuclear relevant commodities, see David Albright, Andrea Stricker, and Houston Wood, "Future World of Illicit Nuclear Trade: Mitigating the Threat," ISIS, Washington, DC, July 29, 2013.

⁶² Ibid, paragraph, 114

The report also pointed out that Iran sometimes used multiple legitimate brokers and freight forwarders to obscure the true nature of its acquisition activities. On one occasion a freight forwarder agreed to alter shipping documents after they were reviewed by customs authorities to reroute a cargo to Iran. Front companies were also used within Iran to disguise the ultimate end-user of goods.⁶³ Finally, the report highlighted Iran's use of the internal EU market to move goods to member states with less rigorous export control enforcement practices than those of the original supplier country.

North Korea utilizes many of the same techniques. In addition, the June 2013 UNSCR 1874 (2006) Committee Panel of Experts report highlighted North Korea's use of containerized cargo for moving contraband goods and how it employed falsified shipping documents in major transit hubs in the Far East to bring the goods to the DPRK. Because bills of lading include scant information about the contents of containers, changes to shipping documents during transit leave maritime carriers in the dark about the nature of their cargoes.⁶⁴ This, the panel stressed, makes post-export interdiction extremely difficult.

Both North Korea and Iran also seek to obscure the financial arrangements surrounding their procurement efforts. The UNSCR 1874 (2009) Panel of Experts highlighted that tracking the financial aspects of transactions could be a highly valuable complement to export control measures in combatting illicit nuclear commodity procurement.

Bank vigilance is the first line of defence against deception, especially know-your-customer practices that are integrated into overall compliance procedures. In one case, the Panel learned that a bank became aware of account activity inconsistent with its customer's business; it filed a suspicious transaction report which tipped off authorities in time to prevent a major illicit transaction.⁶⁵ (Spelling as in original.)

The report went on to state:

Even so, most Member States' investigations of incidents of alleged non-compliance do not try to "follow the money" but rely on evidence

⁶³ The carbon fiber, for example, was sought by a construction company in Iran and by a trading company known principally for dealing in consumer goods, neither of which would have been obvious customers for the commodity. Ibid. note 46.

⁶⁴ UNSCR 1718 Committee Panel of Experts Report, op. cit., paragraphs 114 and 115.

⁶⁵ Ibid, paragraph 143.

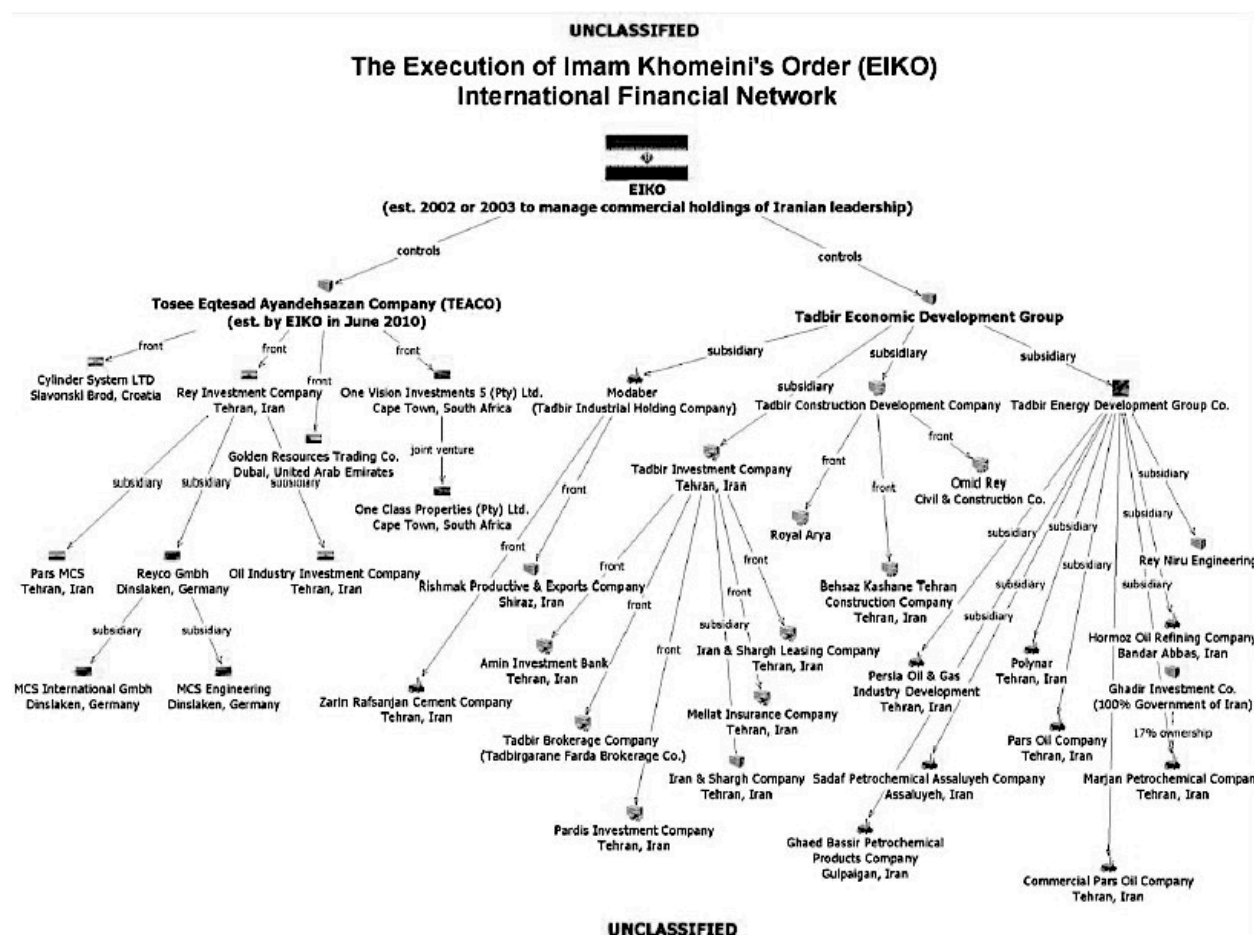
collected about violations of export controls. Dual-track investigations, a recommended best practice, are indispensable in detecting and shutting down illicit financial networks involving the Democratic People's Republic of Korea.⁶⁶

Iran appears to be aware of this challenge to its procurement and sanctions evasion efforts. The U.S. Office of Foreign Assets Control has highlighted, by publishing a diagram of Iranian banking organizations, the lengths to which Iran has gone to insulate its banking activities from being observed. Figure 2.2 shows the relationships among key Iranian banking organizations, known as the "Execution of Imam Khomeini's Order (EIKO).⁶⁷ The various measures that have been developed to combat these procurement activities are further discussed in the next chapter.

⁶⁶ Ibid.

⁶⁷ The financing dimensions of nuclear procurement transactions and tools used to block them are discussed in Chapter 3.

Figure 2.2 Relationships among Key Iranian Banking Organizations



Source: U.S. Department of Treasury, http://www.treasury.gov/resource-center/sanctions/Programs/Documents/eiko_chart.pdf.

CHAPTER 3: MAPPING THE SYSTEM OF SYSTEMS

National, multi-state, and international efforts to combat nuclear commodity smuggling form a multi-layer, highly interconnected network of mutually reinforcing nodes. With many of the individual nodes having considerable complexity, in themselves, the totality may be thought of, as suggested in Chapter 1, as a “system of systems.” This chapter will examine 11 key systems contributing to this overall effort, using the elements-of-transactions framework described in Chapter 1.

Background: Overarching Issues

At present, at least two broad categories of measures contribute to suppressing illicit nuclear procurements.

- The first consists of commodity-focused anti-procurement efforts, such as export controls, customs inspections, and post-export interdictions of contraband nuclear goods before they reach their ultimate destination. These efforts are reinforced by sanctions imposed on those engaged in procurement transactions and by secondary sanctions on those dealing with or assisting the first tier of sanctioned parties.⁶⁸
- A second category of measures consists of initiatives that have a wider focus than nuclear commodity smuggling but strongly affect the environment in which such procurement transactions unfold, creating significant obstacles to such activities. This category of measures includes bans on financial transactions with Iranian and North Korean banks, the denial of Iranian access to the SWIFT electronic payment transfer system, and restrictions on providing insurance to Iranian flagged vessels thereby limiting their port access. Although some of these measures may have been adopted in an effort to weaken the overall Iranian and North Korean economies, their impact in complicating illicit procurement activities across-the-board can be pronounced.⁶⁹

⁶⁸ See, e.g., Executive Order (E.O.) 13382 (June 28, 2005), Blocking Property of Weapons of Mass Destruction Proliferators and Their Supporters, <https://www.fas.org/irp/offdocs/eo/eo-13382.htm>.

⁶⁹ Numerous additional measures have been imposed on Iran and North Korea aimed predominantly at weakening their economies, with the goal of dissuading these states from continuing with their suspect nuclear programs. Measures of this kind that have little connection to nuclear commodity smuggling activities, such as U.S. legislation penalizing states the purchase Iranian crude oil, are not included in the analysis that follows.

Not all actors seeking to suppress illicit nuclear commodity procurement employ all of the above tools, and actors adopting those tools that are widely employed do so with different degrees of aggressiveness. The Security Council, which must accommodate the cautious approach of veto-wielding China and Russia, has never, for example, encouraged SWIFT to expel Iran, and to date, the council has utilized targeted “activity-based sanctions,” rather than the broader-gauged economic sanctions used, in addition to targeted, activity-based sanctions, by the United States, the EU, and several other like-minded states. Thus, the Security Council has imposed sanctions on only a handful of Iranian banks that are directly tied to supporting the Iranian nuclear program, and it has required only that UN member states exercise vigilance in their transactions with these organizations to ensure that these transactions do not contribute to proliferation.⁷⁰ The United States and EU, conversely, have sanctioned a larger number of Iranian banks, now including the Iranian Central Bank, and have prohibited banks under U.S. and EU jurisdiction from engaging in any dealings with them, under threat of severe penalties.⁷¹ The same pattern can be seen in sanctions imposed on the Iran’s Islamic Revolutionary Guard Corps (IRGC) and the Islamic Republic of Iran Shipping Lines (IRISL), where the Security Council has sanctioned only the units within those organizations that have identifiable links to the Iranian nuclear and missile programs, while the United States and EU have effectively sanctioned the two organizations in their entirety.⁷²

⁷⁰ UN Security Council Resolution (UNSCR) 1803 (2008), paragraph 10, http://www.iaea.org/newscenter/focus/iaeaairan/unsc_res1803-2008.pdf.

⁷¹ Iran’s Central Bank was designated by the United States under Section 1 of E.O. 13599 (February 5, 2012) and by the EU, under Council Implementing Regulation 945/2012 of 15 October 2012. Other Iranian banks sanctioned by the United States and the EU, but not the UN, including all branches and subsidiaries, are Ansar Bank, Bank Mellat, Bank Melli, Bank Refah Kargaran, Bank Sederat Iran, Sina Bank, Trade Capital Bank, Export Development Bank, Bank of Industry and Mines, and Mehr Bank. For EU legal instruments designating these banks see Council Implementing Regulation 668/2010, July 26, 2010; Council Implementing Regulation 503/2011, May 23, 2011; and Council Implementing Regulation 945/2012, October 15, 2012. For U.S. designations of these banks see the U.S. Treasury Specially Designated Nationals (SDN) List, last updated October 7, 2013. Notably, EU and UK courts have recently voided some of these designations in those jurisdictions, but they remain in place there while the cases are going through the process of appeal (as of November 2013). For detailed discussion of U.S. and EU measures, see **System 5: Financial Measures**, pp. 120-125; the impact of reversals of the EU designations is discussed further on p. 126.

⁷² For instance, in case of IRISL, UNSCR 1929 (2010) ordered the freezing of the assets of three of its affiliated entities that had been directly linked to the Iranian nuclear program, namely, Irano Hind Shipping Company, IRISL Benelux NV, and South Shipping Line Iran. In contrast, the U.S. Treasury’s Office of Foreign Assets Control (OFAC) has frozen the assets of IRISL, itself, and 17 affiliated entities, ranging from shipping companies to financial and insurance service providers. Similarly, the EU had passed legislation implementing the three UNSCR 1929 (2010) designations, but further sanctioned IRISL and over 30 additional affiliates by May 2011. International, multi-state, and U.S. national measures against IRISL are discussed in detail in **System 8: Transportation**.

In the following discussion, it is also useful to bear in mind that, as noted in abbreviated form in Chapter 1, multiple categories of nuclear commodities have been the subject of illicit nuclear procurements over the years. These are:

- Equipment, material, or technology “especially designed or prepared” for the use, production or processing of nuclear materials (hereinafter sometimes referred to as “nuclear-specific” goods). Included in this category are (i) nuclear material (predominantly uranium in various forms and plutonium); (ii) nuclear reactors and equipment therefor; (iii) non-nuclear material for reactors; (iv) plant and equipment for the enrichment, reprocessing, and conversion of nuclear material and for fuel fabrication and heavy water production; and (v) technology associated with each of the above items.⁷³
- A subset of “especially designed or prepared” goods, generally referred to as “sensitive” facilities, equipment, and technology, i.e., those that can be used in the production of highly enriched uranium or plutonium, materials directly usable as the cores of nuclear weapons. This category includes goods supporting uranium enrichment, plutonium separation (reprocessing), and the production of heavy water (used in reactors especially suited to the production of plutonium). Highly enriched uranium and plutonium, directly usable for nuclear weapons, also fall into this category.⁷⁴
- Nuclear-related dual-use equipment, material, or technology with nuclear, as a well as non-nuclear applications. (Includes dual-use items usable in sensitive activities.)⁷⁵
- Certain items, which are treated in the United States as military hardware, directly related to the non-nuclear components of nuclear weapons, themselves, such as fuses and special high explosives.⁷⁶
- Items in any of the above categories with specifications below the thresholds listed on commodity control lists but which are of sufficient quality or capability to permit the items to be substituted for superior, but regulated versions.

⁷³ See, Nuclear Supplier Group, Guidelines for Nuclear Transfers, updated June 2013, http://www.nuclearsuppliersgroup.org/A_test/01-eng/documents/NSG%20Part%201%20Rev.12_clean.pdf (hereinafter “NSG Guidelines, Part I”). Reprocessing is the separation of plutonium from irradiated nuclear reactor fuel by chemical means.

⁷⁴ Ibid.

⁷⁵ See NSG Guidelines, INFCIRC/254, Part II, updated June 2013, http://www.nuclearsuppliersgroup.org/A_test/01-eng/documents/NSG%20Part%202%20Rev.%209_clean.pdf (hereinafter “NSG Guidelines, Part II”).

⁷⁶ See The United States Munitions List, Part 121.12 Military Explosives, <http://www.fas.org/spp/starwars/offdocs/itar/p121.htm>.

Currently, transfers to Iran and North Korea of all items on the Nuclear Suppliers Group (NSG) especially designed and prepared and dual-use control lists have been prohibited by UN Security Council resolutions. In addition, UNSCR 2094 (2013) also embargoed for North Korea two items relevant to uranium enrichment before they were added to the updated NSG control lists.⁷⁷ Certain national laws also seek to prohibit exports of items not yet on these lists, but of potential interest to Iran and North Korea.

The U.S. Iran-North Korea-Syria Nonproliferation Act (INKSNA), for example, imposes sanctions on individuals and entities that transfer to these states not only items on the NSG and other multilateral control lists, but also “below-threshold” commodities of the type noted in the final category on the bulleted list above.⁷⁸ Israel and Pakistan are also ineligible for especially designed and prepared commodities under NSG rules because they possess nuclear facilities not under International Atomic Energy Agency (IAEA) inspection, and this factor is also to be taken into account in licensing the transfer to them of items on the NSG dual-use list. (The United States effectively prohibits transfers of nuclear dual-use items to Israel and Pakistan by reviewing export licenses for these items with a “presumption of denial.”)

Because of the Security Council requirements, states with export licensing systems (roughly 50 percent of all states, as discussed under **System 2: Export Licensing**, below) must incorporate embargoes on transfers of these goods to those two states in their domestic strategic trade regulations.⁷⁹ Separately, the United States and a number of other countries have also enacted laws or issued regulations that independently prohibit trade in nuclear-specific and nuclear-related dual-use goods with Iran and North Korea; these would remain in effect, unless rescinded, even if the Security Council were to end its embargoes.⁸⁰

⁷⁷ UNSCR 2094 (2013), Annex. The items are perfluorinated lubricants and uranium-hexafluoride corrosion resistant bellow-sealed valves, both needed for uranium enrichment facilities. Such valves were later included in the NSG Guidelines Part I, updated in June 2013, op. cit., (p. 29 Section 5.2.3 Special shut-off and control valves).

⁷⁸ Iran-North Korea-Sanctions Act, P.L 106-178, as amended. The law was originally named the Iran Nonproliferation Act. It also penalizes transfers of items on U.S. control lists that are not on the multilateral lists, as discussed in the text below.

⁷⁹ In case of the EU, for example, the European Council passes decisions implementing UN sanctions. See, e.g., Council Decision of July 26, 2010, implementing UNSCR 1929 (2010) designations, discussed in note 72 above. (In some instances, individual EU states must thereafter adopt domestic regulations implementing the UN rules.)

⁸⁰ See e.g. Ali Vaez, “Iran Sanctions: Which Way Out?,” *Iran Primer*, United States Institute of Peace, August 5, 2013, <http://iranprimer.usip.org/blog/2013/aug/05/iran-sanctions-which-way-out>; or Kaveh Wadell, “Unwinding Sanctions on Iran is Going to be Really Hard,” *The Atlantic*, September 30, 2013,

As discussed in Chapter 2, at the present time, it appears that nuclear commodity smuggling is focused predominantly on the final category of goods in the bulleted list above, although nuclear-related dual-use items are also being sought. Acquisitions by Iran, North Korea, and other states of concern of especially designed or prepared items appear to have been relatively rare in recent years.⁸¹ An important factor explaining why procurement efforts have targeted less regulated goods, according to a well-placed former U.S. official, is that supplier state export controls on especially designed or prepared goods and on important dual-use goods have become increasingly effective in curtailing emerging-nuclear-weapon state access to these classes of commodities.⁸² Post-export control measures in transit and end-user states have also seen improvement. Thus, in examining the systems that contribute to controlling the movement of nuclear-related commodities, it is important to appreciate not only the role of mechanisms that control transfers of nuclear-relevant goods currently being sought, but also those mechanisms that have gradually placed certain other classes of goods (e.g. especially designed or prepared for nuclear use) largely beyond the reach of illicit procurement activities.⁸³

With these overarching points in mind, the analysis that follows will review the following systems:

- Measures against parties originating nuclear procurements;
- Export licensing and control lists;
- Customs controls and inspections;

<http://www.theatlantic.com/international/archive/2013/09/unwinding-sanctions-on-iran-is-going-to-be-really-hard/280111/>.

⁸¹ See, e.g., “Covert Iranian Nuclear Dealings via Turkey Revealed,” *Daily Zaman*, March 12, 2013, <http://www.todayzaman.com/news-309539-covert-iranian-nuclear-dealings-via-turkey-revealed.html>; “U.S. Department of Justice, Summary of Major U.S. Export Enforcement, Economic Espionage, Trade Secret and Embargo-Related Criminal Cases (January 2007 to the present: updated Feb. 14, 2013)” (hereinafter “Justice Department Compilation of Cases”) and note “Specialty Coatings to Pakistani Nuclear Facility” (dual-use item), <http://www.pmddtc.state.gov/compliance/documents/OngoingExportCaseFactSheet022013.pdf>; “Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010),” May 2013, S/2013/331, paragraph 77 et seq., http://www.un.org/ga/search/view_doc.asp?symbol=S/2013/331 (hereinafter, “May 2013 UNSCR 1929 (2010 Panel of Experts Report)”; “Report of the Panel of Experts Established Pursuant to Resolution 1987 (2009),” UN Security Council document, S/2013/337, June 11, 2013, paragraph 49, <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N13/331/74/PDF/N1333174.pdf?OpenElement>, (hereinafter, “June 2013 UNSCR 1874 (2009) Panel of Experts Report”).

⁸² Interview, Washington, DC, June 2013.

⁸³ A glaring exception to this overall pattern was North Korea’s clandestine transfer to Syria between 2001 and 2007 of a nuclear reactor apparently designed to produce plutonium for nuclear weapons. Israel allegedly destroyed the reactor in September 2007, and there appear to have been no additional transfers by North Korea of especially designed or prepared nuclear goods since that time.

- Supplier-state private sector internal compliance programs;
- Financial measures to disrupt procurement transactions;
- Enforcement efforts against procurement activities and sanctions evasion;
- International outreach and capacity-building in supplier and transit states with weak controls; and
- Measures to restrict the transport of illicitly procured nuclear commodities and to interdict them after export but prior to their arrival in the end-user state.

Targets for the first of these systems are found today within the state pursuing a suspect nuclear program. Going down the list, systems from export licensing through enforcement activities focus on actions taking place within supplier, or “source” states,⁸⁴ where articles to be procured are found. The systems attempting to prevent misuse of financial and transportation systems, to block the movement of goods after export, and to build capacity in states with weak controls operate within a more international framework. The final item on the list, as a rule, takes place in transit states that are the recipient of goods legitimately transferred to it, but goods that are at risk of being subsequently diverted to a destination of concern.

A final and critically important overarching dimension of anti-nuclear-commodity-smuggling efforts is the pervasive role of intelligence, a thread that links many dimensions of the network of activities focused against nuclear programs of concern and related clandestine procurement efforts. U.S. intelligence-gathering and carefully controlled sharing of information play the most important role, but similar activities by Germany, Israel, South Korea, the UK, and a number of other governments make significant contributions.

Within the United States, intelligence, including that gathered through law enforcement activities and from monitoring financial transactions, is the trigger for an interagency process focused on specific cases. That process begins with decisions on what tools will be brought to bear to obstruct the particular smuggling attempt, with options that include:

- Further monitoring;
- Alerts to U.S. licensing authorities and U.S. law enforcement agencies (if the activity is taking place in the United States);
- Approaches to foreign governments to deny export licenses or take other action to interrupt the procurement;

⁸⁴ See Bruno Gruselle, *Proliferation Networks and Financing*, Foundation pour la Recherche Strategique (Paris, March 2007).

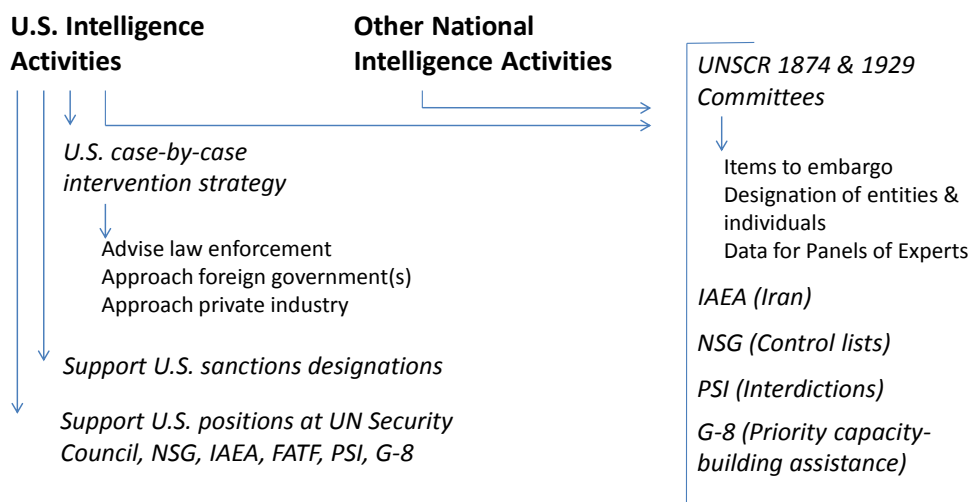
- Initiatives to interdict the commodity in question if it has already been exported from its country of origin; and
- Approaches to private firms to alert them to the particular threat, to work with them to obtain further intelligence about the procurement network in question, or to modify the item being sought to render it unusable after sale.

One interagency group is said to meet three times per week to review and manage procurement cases. Although self-reporting by industry and leads from law enforcement authorities can sometimes trigger this process, the considerable majority of cases arise from intelligence gathering. Intelligence also supports U.S. decisions on designations under various sanctions laws and executive orders.

In addition, U.S. intelligence is shared with other players in the overall anti-nuclear-commodity-smuggling network. U.S. intelligence information is used to support the identification and sanctioning of individuals and entities by the Committees established to implement UNSCR 1737 (2006) and UNSCR 1718 (2006), leading to asset freezes and travel bans, and also to identification of nuclear and other goods to place under embargo. In addition, the Panels of Experts supporting these committees receive “information from governments” to support their investigations, of which declassified U.S. intelligence data is a part. It also infuses “information from member states” that is made available to the IAEA with respect to its monitoring of developments in Iran. U.S. positions at the NSG regarding what items should be placed on the group’s control lists are also informed by intelligence data, which may be shared with other governments to gain consensus in the group. Activities under the Proliferation Security Initiative (PSI) – the U.S.-initiated global effort to halt trafficking in WMD materials and equipment to and from states of proliferation concern, with a particular focus on interdiction – also begin with intelligence alerts. In addition, intelligence plays a role in U.S. decisions and those of international groups, such as the G-8 Global Partnership, as to which states should be given priority in receiving assistance for building export control capacity.

Figure 3.1 illustrates these relationships.

Figure 3.1 Intelligence Gathering and Sharing: Pervasive Influence within Anti-Nuclear Commodity Smuggling Network



While intelligence plays all of these important roles, as will be discussed below in examining various systems, lack of intelligence sharing can impinge on the effectiveness of some counter-nuclear-commodity-smuggling efforts.

System 1: Measures against Originating Parties

BASIC FRAMEWORK

At present, with rare exceptions, illicit nuclear commodity procurements originate in the ultimate end-user state, that is, the state seeking to pursue a suspect nuclear program in which the commodity at issue will be used. This appears to be true for North Korea and Iran (as well as Pakistan) today. It is possible that, at an earlier time, Pakistani scientist A.Q. Khan, who helped North Korea and Iran launch their respective nuclear programs, may have undertaken some procurement efforts for them. It is generally thought, however, that Khan provided lists of potential suppliers to enable the two countries to establish procurement networks of their own. In contrast, Khan took on the procurement task for Libya, since he had contracted to provide that country a turn-key uranium enrichment facility.⁸⁵ Similarly, it appears that from 2001 to 2007 North Korea utilized its procurement network to acquire equipment for the al-Kibar reactor that North Korea was providing Syria.⁸⁶ Thus the situation today, where procurements originate in the end-user state, could change in the future, in particular, if North Korea and/or Iran decide to assist nuclear programs in other countries.

For indigenous programs relying on the procurement of commodities from abroad, several sets of actors in the end-user country are typically involved. One or more high-level political figures sometimes oversee the procurement effort, arranging for the resources and bureaucratic authority needed for that effort to succeed; in some instances, such a figure also leads the procurement effort on a day-to-day basis. In North Korea, CHUN Byun-ho is reported to have taken on these roles; no similar figure with such dual responsibilities appears to have emerged in Iran.⁸⁷ Senior technocrats, working with more specialized scientists and engineers, plan, design, and build the component facilities of the nuclear program. When it becomes obvious that the program's requirements cannot be fully met domestically, a procurement apparatus is established. At this point, the technical group begins to identify goods that must be obtained abroad and, in effect, places orders with procurement element.⁸⁸ In the cases

⁸⁵ *Nuclear Black Markets: A.Q. Khan and the Rise of Proliferation Networks – A Net Assessment*, International Institute of Strategic Studies (London, 2007), <http://www.iiss.org/en/publications/strategic%20dossiers/issues/nuclear-black-markets--pakistan--a-q-khan-and-the-rise-of-proliferation-networks---a-net-assessmen-23e1>.

⁸⁶ "Syria's Covert Nuclear Facility at Al Kibar," U.S. Central Intelligence Agency briefing, April 24, 2008, available at BBC News, "CIA Footage in Full" http://news.bbc.co.uk/2/hi/in_depth/7366235.stm; Robin Wright and Joby Warrick, "Purchases Linked N. Korean to Syria," *Washington Post*, May 11, 2008.

⁸⁷ Jay Solomon, "North Korean Pair Viewed as Key to Secret Arms Trade," *Wall Street Journal*, August 31, 2010, <http://online.wsj.com/article/SB10001424052748704741904575409940288714852.html>

⁸⁸ Gruselle, op. cit.

of Iran and North Korea, multiple technical groups are operating in parallel to implement various dimensions of the these nations' nuclear programs and many appear to work with separate, specialized domestic procurement entities focused on supplying the needs of the particular technical group.⁸⁹

Over time, the international organizations and states seeking to constrain such procurement efforts have identified the key figures and entities pursuing procurement-related activities in Iran and North Korea and have then taken steps to put pressure on these players to halt these transactions. The anti-nuclear-commodity-procurement measures take the form of "activity-based" sanctions, targeted specifically at these individuals and entities (rather than at the North Korean or Iranian economies, at large), typically freezing the assets of these parties held abroad and, for individuals, also restricting their international travel. Measures are also in place sanctioning additional parties who contribute to these first-tier designees' procurement efforts or, in some cases, who merely do business with any entity designated as being engaged in proliferation- or procurement-related activities.

In a series of increasingly punitive resolutions, the UN Security Council has imposed such sanctions, which all states are required to implement, and the United States, the European Union, a number of other states have imposed additional sanctions against individuals and entities supporting North Korean and Iranian nuclear programs, including those initiating procurement activities.

UN SECURITY COUNCIL RESOLUTIONS⁹⁰

Under UNSCR 1737 (2006), the first in the Security Council's series sanctioning Iran, a number of top-level managers and organizations within the Iranian nuclear program were listed in the resolution's Annex and subjected to asset freezes and, for individuals, the close scrutiny (but not the prohibition) of international travel. Although the resolution, itself, did not specifically mention procurement activities as a basis for sanctions, virtually all of the individuals and entities listed would have had a role in originating procurement activities, given their centrality to the Iranian program. Individuals designated included, for example, Mohammad Qannadi (Vice President for Research and Development, Atomic Energy Agency of Iran (AEOI)), Behman

⁸⁹ See discussion of U.S. unilateral sanctions, below.

⁹⁰ The UN Security Council resolutions discussed here set forth several categories of measures to curb nuclear commodity smuggling activities. In addition to measures directed at the originators of such transactions, the resolutions also include embargoes on transfers of nuclear-specific and nuclear dual-use goods, restrictions on the transport of such goods (including inspection of suspect cargoes), and restrictions on the financing of smuggling transactions, all of which are discussed in later sections of this chapter.

Asgarpour, (Operational Manager of the Arak heavy water reactor project), and Dawood Agha-Jani (head of the Pilot Fuel Enrichment Plant at Natanz); organizations sanctioned included the AEOI, itself, Kalaye Electric (provider for Pilot Fuel Enrichment Plant at Natanz), and the Defense Industries Organization.

In the second such resolution, UNSCR 1747 (2007), the Security Council required that all states freeze the assets of individuals and entities listed in the Annex to UNSCR 1737 (2006) and in Annex I of UNSCR 1747 (2007) as being “engaged in, directly associated with or providing support for Iran’s proliferation sensitive nuclear activities or for the development of nuclear weapon delivery systems, *including through the involvement in procurement of the prohibited items, goods, equipment, materials and technology ...*” (emphasis added).⁹¹ Annex I of UNSCR 1747 (2007) then lists additional high-level individuals and entities in Iran’s nuclear program, such as Seyed Jaber Safdari (Manager of the Natanz Enrichment Facilities), all likely involved in originating procurement activities given their responsibilities; one Iran-based entity is specifically identified as being involved in procurement activities, Kavoshyar Company, a subsidiary company of the AEOI, “which has sought glass fibres, vacuum chamber furnaces and laboratory equipment for Iran’s nuclear programme)”⁹² (spelling as in original). The resolution also called on all states to “exercise vigilance and restraint regarding the entry into or transit through their territories” of individuals listed in Annex I and in the annex to UNSCR 1737 (2006).

The third Security Council Iran sanctions resolution, UNSCR 1803 (2008) expands the list of individuals and entities subject to these penalties, designating multiple additional figures running important parts of the Iranian nuclear program, as well as a single Iran-based procurement entity, Barzagani Tejarat Tavanmad Saccal, “a company that attempted to purchase sensitive goods for an entity listed in resolution 1737 (2006).”⁹³

The most recent resolution, UNSCR 1929 (2010), in addition to freezing the foreign assets of individuals and organizations listed in the resolution’s Annexes I and II, formally bans the foreign travel of all individuals designated on those annexes (as well as of individuals designated on the relevant annexes to UNSCRs 1737 (2006), 1747 (2007), and 1803 (2008)). Annex I of UNSCR 1929 (2010) again designates multiple

⁹¹ UNSCR 1747 (2008), paragraph 2, incorporated by reference in paragraph 4 (which imposes the asset freeze by referring to the asset freeze paragraph in the previous UNSCR 1737 (2006)).

⁹² Although Safdari is listed because he is running a part of the nuclear program, which was ordered to be suspended by the Security Council, presumably he or his subordinates are the individuals placing orders with the Iranian procurement enterprise. Thus, in effect, the sanctions target both elements of the procurement activity in the originating state, those placing orders and those attempting to fulfill them.

⁹³ UNSCR 1803 (2008), Annex.

additional senior officials in the Iranian nuclear program, along with two organizations specifically listed because of their procurement activities. The first of these organizations is Modern Industries Technique Company (MITEC), which “is responsible for design and construction of the IR-40 heavy water reactor in Arak and has spearheaded procurement for the construction of the IR-40 heavy water reactor.”⁹⁴ The second is Amin Industrial Complex, which “sought temperature controllers, which may be used in nuclear research and operational/production facilities.”⁹⁵

Importantly, UNSCR 1929 (2010) also mandates that states require businesses subject to their jurisdiction to “exercise vigilance when doing business with” any entity incorporated in Iran if the external business has “reasonable grounds to believe that such [Iranian] business could contribute to Iran’s proliferation-sensitive nuclear activities....” This provision, in effect, discourages all dealings with entities previously designated by the various Iran sanctions resolutions. No penalties are imposed, however, on external businesses who disregard these cautions.⁹⁶

The Security Council resolutions sanctioning North Korea take a similar, but not identical approach. The Security Council has imposed an embargo on transfers of all nuclear-specific and nuclear-dual use goods to North Korea controlled under the Nuclear Suppliers Group Guidelines and has also imposed an embargo on luxury goods, intended to penalize North Korea’s political and military elites, including those designated for their involvement in the country’s military program.⁹⁷ With respect to originators of nuclear procurement activities, the first Council resolution UNSCR 1718 (2006), adopted shortly after North Korea’s first nuclear test, freezes the assets of individuals and entities designated as being “engaged in or providing support for,

⁹⁴ UNSCR 1929 (2010), Annex I.

⁹⁵ UNSCR 1929 (2010), Annex I. The annex notes that Amin Industrial Complex is owned or controlled by, or acts on behalf of, the Defense Industries Organization (DIO), which was designated in resolution 1737 (2006). For a consolidated list of all individuals and entities designated by the UNSCR 1737 Committee, see <http://www.un.org/sc/committees/1737/consolist.shtml>. None of the resolutions, it may be noted, sanctions the individual serving, at the time of the resolution’s passage, as the director of the AEOI. Fereidoun Abbasi-Davani, head of the Atomic Energy Organization of Iran from February 2009 until August 2013, was designated, prior to his assuming this position, under UNSCR 1747 (2007) reportedly because of his involvement in the military aspects of the Iranian nuclear program. See David Albright, Paul Brannan, and Andrea Stricker, “Will Fereydoun Abbasi-Davani Lead Iran to Nuclear Weapons? (Rev. 1),” June 24, 2011, ISIS-OnLine, <http://isis-online.org/isis-reports/detail/will-fereydoun-abbasi-davani-lead-iran-to-nuclear-weapons/>.

⁹⁶ The Iran sanctions resolutions also seek to constrain banking and transportation activities that support the country’s illicit nuclear commodity procurement efforts. These aspects of the resolutions and similar provisions in the North Korea sanctions resolutions are discussed in subsequent sections of this chapter.

⁹⁷ UNSCR 1874 (2009), paragraph 23, and successor resolutions (nuclear embargo linked to NSG nuclear-specific and nuclear dual-use lists); UNSCR 1718 (2006), paragraph 8 (a)(iii) and successors (embargo on luxury goods).

including through other illicit means, DPRK's nuclear-related, other weapons of mass destruction-related and ballistic missile related programmes, or by persons or entities acting on their behalf or at their direction..."⁹⁸ (emphasis added, spelling as in original). Although less explicit regarding procurement than the language in the Iran sanctions resolutions, the phrase italicized in the passage above is intended as a reference to procurement activity. The Security Council under UNSCR 1718 (2006) and successor resolutions (UNSCR 1874 (2009), UNSCR 2087 (2013), UNSCR 2094 (2013)) has sanctioned a number of individuals and entities directly linked to the North Korean nuclear program, such as the General Bureau of Atomic Energy, which is responsible for the country's nuclear program and runs the Yongbyon nuclear complex; RI Je-Son, Director of the General Bureau of Atomic Energy (GBAE), the chief agency directing the DPRK's nuclear program; HWANT Sok-Hwa, Director in the GBAE; and RI Hong-Sop, former director, Yongbyon Nuclear Research Center.⁹⁹ Given their roles, all are likely responsible for initiating North Korean procurement activities.

The committee also designated three North Korea-based entities and one individual specifically for procurement work:

- The Second Academy of Natural Sciences, a national-level organization responsible for research and development of the DPRK's advanced weapons systems, including missiles and probably nuclear weapons. The Second Academy of Natural Sciences uses a number of subordinate organizations, including Tangun Trading Corporation, to obtain technology, equipment, and information from overseas for use in the DPRK's missile and probably nuclear weapons programs.
- Korean Tangun Trading Corporation, "which is subordinate to DPRK's Second Academy of Natural Sciences and is primarily responsible for the procurement of commodities and technologies to support DPRK's defense research and development programs, including, but not limited to, WMD...."¹⁰⁰
- Namchongang Trading Corporation, which has been involved in the procurement of "Japanese origin vacuum pumps that were identified at a DPRK nuclear facility, as well nuclear-related procurement associated with a German individual...[and] in the purchase of aluminum tubes and

⁹⁸ UNSCR 1718 (2006) paragraph 8(d).

⁹⁹ See "Consolidated List of Entities and Individuals," UNSCR 1718 Committee, http://www.un.org/sc/committees/1718/pdf/List_Entities_and_Individuals.pdf.

¹⁰⁰ Ibid.

other equipment specifically suitable for a uranium enrichment program....”¹⁰¹

The individual designated by the UNSCR 1718 Committee is YUN Ho-Jin, Director of Namchongang Trading Corporation, who, according to the designation, oversees the import of items needed for the North Korean uranium enrichment program.¹⁰²

MULTI-STATE EU MEASURES

The EU measures intended to curb nuclear commodity smuggling in the cases of Iran or North Korea follow and implement UN Security Council resolutions, and in some instances, go beyond them.¹⁰³ Procedurally, the relevant EU Council “Common Positions” outline the prohibited activities and list controlled commodities, as well as designated entities and individuals, in the document’s annexes; the EU Council’s subsequent Decisions and Regulations (and Implementing Regulations issued by the EU Commission) update these annexes with some regularity. However, it is up to the member states to determine the “proportionate, effective and dissuasive” penalties for listed violations using national legislation.¹⁰⁴

At present, the core EU instrument prohibiting export and import activities that could potentially assist the Iranian nuclear program is Council Decision 2010/413/CFSP of 26 July 2010 Concerning Restrictive Measures against Iran and Repealing Common Position 2007/140/CFSP, which has been modified by a number of later decisions and regulations.¹⁰⁵ Decision 2010/413/CFSP prohibits transfers to Iran of:

¹⁰¹ Ibid.

¹⁰² See “Consolidated List of Entities and Individuals,” UNSCR 1718 Committee, op. cit.

¹⁰³ The general EU legislation outlining the rules for exports and imports of dual-use items are set out in the Council Regulation No 1334/2000 of 22 June 2000, Setting up a Community Regime for the Control of Exports of Dual-Use Items and Technology, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:159:0001:0001:EN:PDF>, and “Council Regulation No 428/2009 Setting Up a Community Regime for the Control of Exports, Transfer, Brokering and Transit of Dual-Use Items,” <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:134:0001:0269:en:PDF>.

¹⁰⁴ Council Regulation No 423/2007 of 19 April 2007 Concerning Restrictive Measures against Iran, Article 16.

¹⁰⁵ Council Decision 2010/413/CFSP of 26 July 2010 Concerning Restrictive Measures against Iran and Repealing Common Position 2007/140, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2010D0413:20120123:EN:PDF#page=1&zoom=auto,0,849>. The original set of measures was further elaborated in Council Regulation 423/2007 of 19 April 2007, Concerning Restrictive Measures against Iran. Subsequent amendments to Council Decision 2010/413/CFSP are: Council Decision 2010/644/CFSP of 25 October 2010; Council Decision 2011/299/CFSP of 23 May 2011; Council Decision 2011/783/CFSP of 1 December 2011; Council Decision 2012/35/CFSP of 23 January 2012; and Council Decision 2012/635/CFSP of 12 October 2012.

- a. Items, materials, equipment, goods and technology contained in the Nuclear Suppliers Group and Missile Technology Control Regime lists;
- b. Any additional items, materials, equipment, goods and technology, determined by the Security Council or the [UNSCR 1737] Committee, which could contribute to enrichment-related, reprocessing or heavy water-related activities;
- c. Certain other items, materials, equipment, goods and technology that could contribute to enrichment-related, reprocessing or heavy water-related activities; and
- d. Other dual-use goods and technology listed in Annex I to Council Regulation (EC) No 428/2009.¹⁰⁶

The principal EU mechanisms targeting originators of procurement efforts are asset freezes and travel bans. Continuing measures initiated in Council Common Position 2007/140/CFSP, the more recent Decision 2010/413/CFSP freezes the assets of individuals and entities designated by the Security Council (listed in Annex I of the Decision) and of

other persons not covered by Annex I that are engaged in, directly associated with, or providing support for Iran's proliferation-sensitive nuclear activities or for the development of nuclear weapon delivery systems, *including through the involvement in procurement of the prohibited items, goods, equipment, materials and technology*, or persons acting on their behalf or at their direction, or persons that have assisted designated persons or entities in evading or violating the provisions of UNSCR 1737 (2006), UNSCR 1747 (2007), UNSCR 1803 (2008) and UNSCR 1929 (2010) or this Decision as well as other senior members of the IRGC and IRISL and persons and entities owned or controlled by them or acting on their behalf, as listed in Annex II... (emphasis added).¹⁰⁷

The Decision also denies entry into the EU of individuals (also listed in Annex I of the Decision) subject to travel bans under the various UN Security Council sanctions resolutions and to other individuals meeting the above criteria (except those linked to IRISL, which is not mentioned).¹⁰⁸

Among those currently designated by the EU but not by the UN Security Council as subject to asset freezes and travel bans are a number of individuals and entities that are

¹⁰⁶ Council Decision 2010/413/CFSP, Article 1.

¹⁰⁷ Council Decision 2010/413/CFSP, Article 20.

¹⁰⁸ Council Decision 2010/413/CFSP, Article 19.

likely procurement originators, given their roles in the Iranian nuclear program. This group includes:

- Reza Aghazadeh, former head of the AEOI;
- Hosein Faqihian, Deputy and Director-General of the Nuclear Fuel Production and Procurement Company;
- Mahmood Jannatian, Deputy Head of the AEOI;
- Said Esmail Khalilipour, Deputy Head of the AEOI;
- Ebrahim Mahmudzadeh, Managing Director of Iran Electronic Industries (described above);
- Iran Centrifuge Technology Company (TESA) (described above);
- Javadan Mehr Toos, an engineering firm that procures for the AEOI;
- RAKA, a department of Kalaye Electric Company responsible for construction of the Fordow enrichment plant;
- Machine Sazi Arak, a company involved in the construction of the Arak heavy-water reactor; and
- Fajr Aviation Composite Industries, an entity linked to the development of carbon fiber capabilities for nuclear and missile applications.¹⁰⁹

Separately, Council Decision 2010/413/CFSP also prohibits EU individuals and entities states from providing any financial or technical assistance to individuals or entities in Iran related to or engaged in the activities listed above – in this way targeting the originators of the nuclear commodity smuggling. (It does not, however, go as far as E.O. 13382, which bars all dealings by U.S. persons with designated parties.)

Some noteworthy individuals and entities are found on the EU list, but not on the U.S. lists of sanctioned persons. Of the parties listed immediately above, for example, none appears to have been sanctioned by the United States, except for Reza Aghazadeh, Machine Sazi Arak, and TESA. Sayed Shamsuddin Borborudi is another example. On the EU list, he is identified as:

Deputy Head of UN designated Atomic Energy Organisation of Iran, where he is subordinate to UN designated Feridun Abbasi Davani. Has been involved in the Iranian nuclear programme since at least 2002, including as the former head of procurement and logistics at AMAD, where he was responsible for using front companies such as Kimia Madan

¹⁰⁹ Entities providing financial assistance to the Iranian effort (e.g. Bank Mellat and subsidiaries) and facilitating transport and transshipment (IRISL and subsidiaries) are also listed.

to procure equipment and material for Iran's nuclear weapons programme.¹¹⁰ (Spelling as in the original.)

As shown in this excerpt from the EU designation list, the EU Council publishes the grounds for its designations. This is a requirement of Council Decision 2010/413/CFSP and associated Council mandates, which also require the establishment of a mechanism enabling sanctioned parties to challenge the basis for their designation.¹¹¹ Indeed, in late 2012, the Council de-listed several individuals and entities in light of new information (presumably provided by the designated parties), a group that includes Pouya Controls, designated in 2011 for alleged involvement in procuring inverters for the Iranian enrichment program.¹¹²

UK and EU courts have also ordered the delisting of several individuals and entities, including several Iranian banking organizations that challenged the basis for their designations.¹¹³ Although none of these modifications affected individuals and entities originating illicit procurement efforts, the potentially binding judicial decisions, unlike the discretionary internal Council delisting decisions, could provide a precedent for wide-scale challenges to the EU designation process. The EU sanctions remain in effect during the pendency of the appeal of these cases.¹¹⁴

The EU's approach to North Korean nuclear procurement activities is quite similar to its actions vis-à-vis Iran, starting with relevant Security Council resolutions and then expanding upon them in certain areas. Currently, the leading EU instrument embodying efforts to address the North Korean nuclear challenge, including its

¹¹⁰ Council Decision 2010/413/CFPS, Annex II.

¹¹¹ The United States often does not provide this information when it makes designations.

¹¹² Council Decision 2012/635/CFSP of October 12, 2013; note that Pouya Controls remains subject to U.S. sanctions. See Office of Foreign Assets Control, U.S. Department of the Treasury, Specially Designated Nationals and Blocked Persons List, August 22, 2013, <http://www.treasury.gov/ofac/downloads/t11sdn.pdf>.

The newest additions to the list of designated entities and individuals can be found in the Annexes of Commission Implementing Regulation 370/2013 of 22 April 2013, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:111:0043:0045:EN:PDF> and Commission Implementing Regulation 137/2013 of 18 February 2013, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:046:0019:0024:EN:PDF>.

¹¹³ Jon Matonis, "EU Court Strikes Down SWIFT's Blockade against Iranian Banks," *Forbes*, February 8, 2013; European Sanctions: Law and Practice blog, "UK Supreme Court Quashes Order against Bank Mellat," <http://europeansanctions.com/2013/06/20/uk-supreme-court-quashes-order-against-bank-mellat/>; *Bank Mellat vs. Her Majesty's Treasury*, [2013] UKSC 38, http://www.supremecourt.gov.uk/decided-cases/docs/UKSC_2011_0040_Judgment.pdf.

¹¹⁴ For further discussion, see System 5: Financial Measures, p. 126.

procurement efforts, is European Council Decision 2013/183/CFSP.¹¹⁵ The measure continues and builds upon earlier Council Decisions that prohibited exports to North Korea of a wide range of goods relevant to WMD and related missile programs, imposed asset freezes on individuals and entities supporting these programs, and banned the designated individuals and their families from entering the EU.¹¹⁶ Specifically, the EU embargo currently covers all items on the NSG nuclear-specific and nuclear-dual use lists;¹¹⁷ additional nuclear dual-use items not covered by the NSG that are listed in UNSCR 2094 (2013) related principally to uranium enrichment;¹¹⁸ and additional nuclear dual-use commodities covered by EU control lists.¹¹⁹ In addition, consistent with Security Council sanctions resolutions, exports of luxury goods to North Korea are banned, with the goal of penalizing the country's political and military elites.¹²⁰

Under Decision 2013/183/CFSP, asset freezes are imposed on individuals and entities designated by the UN Security Council Committee established pursuant to UNSCR 1718 or by the Security Council, itself,

as being engaged in or providing support for, *including through illicit means*, the DPRK's nuclear-related, ballistic missiles-related or other weapons of mass destruction-related programmes, or persons or entities acting on their behalf or at their direction, or entities owned or controlled

¹¹⁵ Council Decision 2013/183/CFSP of 22 April 2013 Concerning Restrictive Measures against the Democratic People's Republic of Korea and Repealing Decision 2010/800/CFSP, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:111:0052:0074:EN:PDF>. The Decision implements UNSCR 2094 (2013), with certain modifications.

¹¹⁶ The principal predecessor measures are Decision 2010/800/CFSP, December 22, 2010, which, inter alia, implemented UNSCR 1718 (2006) and 1874 (2009), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:341:0032:0044:EN:PDF>; Decision 2011/860/CFSP, December 19, 2011, which amended Decision 2010/800/CFSP, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:338:0056:0060:EN:PDF>; and Decision 2013/88/CFSP, February 18, 2013, which amended Decision 2010/800/CFSP and inter alia implemented UNSCR 2087 (2013), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:338:0056:0060:EN:PDF>.

¹¹⁷ NSG Guidelines, op. cit.

¹¹⁸ These items include perfluorinated lubricants and bellows-sealed valves, both resistant to corrosion by uranium hexafluoride, the form of uranium used in enrichment centrifuges. For a comprehensive list, see http://www.un.org/sc/committees/1718/xportimport_list.shtml.

¹¹⁹ Annex I to Council Regulation (EC) No 428/2009 of 5 May 2009 Setting up a Community Regime for the Control of Exports, Transfer, Brokering and Transit of Dual-Use Items, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:134:0001:0269:en:PDF>.

¹²⁰ Article 4 of Council Decision 2013/183/CFSP of 22 April 2013; Article 3 of Decision 2010/800/CFSP, December 22, 2010; and Annex III of the Council Regulation (EC) No 329/2007 of 27 March 2007 Concerning Restrictive Measures against the Democratic People's Republic of Korea, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:088:0001:0011:EN:PDF>.

by them, *including through illicit means...*¹²¹ (emphasis added, spelling as in original).

These parties are listed in Annex I of the Decision. The EU has also designated additional individuals and entities meeting this criterion, which are listed in Annex II of the Decision. Prohibitions on travel in the EU are applied to individuals and their family members who meet a similar criterion (although this does not use the phrase “including through illicit means”),¹²² and who are also listed in the two annexes. Originators of procurement activities designated by the UNSCR 1718 Committee, as noted earlier, include Namchongang Trading Corporation, Korean Tangun Trading Corporation, the Second Academy of Natural Sciences, and YUN Ho-Jin, Director of Namchongang Trading Corporation.¹²³ Additional individuals and entities designated by the EU who appear to have roles that include initiation of procurement activities are:

- CHON Chi Bu, Member of the General Bureau of Atomic Energy, former technical director of Yongbyon;
- O Kuk-Ryol, Deputy Chairman of the National Defense Commission, supervising the acquisition abroad of advanced technology for nuclear and ballistic programs;
- RYOM Yong, Director of the General Bureau of Atomic Energy (entity designated by the United Nations), in charge of international relations;
- PAK To-Chun, Member of the National Security Council, reported to command the office for nuclear energy, an institution decisive for DPRK’s nuclear and rocket launcher program;
- The Second Economic Committee, a national-level organization responsible for research and development of North Korea’s advanced weapons systems, including missiles and probably nuclear weapons, which uses a number of subordinate organizations to obtain commodities from overseas, including Korea Tangun Trading Corporation, for use in North Korea’s missile and probably nuclear weapons programs;

¹²¹ Council Decision 2013/88/CFSP, Article 15(a).

¹²² The travel ban applies to “the persons designated by the Sanctions Committee or by the Security Council as being responsible for, including through supporting or promoting, the DPRK’s policies in relation to its nuclear-related, ballistic missile-related or other weapons of mass destruction-related programmes, together with their family members, or persons acting on their behalf of or at their direction....” Council Decision 2013/88/CFSP, Article 13(a).

¹²³ See pp. 48-49.

- Yongbyon Nuclear Research Center, which has taken part in the production of military-grade plutonium. The Center is maintained by the General Bureau of Atomic Energy (an entity designated by the United Nations, July 16, 2009); and
- Munitions Industry Department (a.k.a.: Military Supplies Industry Department), responsible for overseeing activities of North Korea's military industries, including the Second Economic Committee.

It appears that two of these individuals and one entity on this list have not been designated by the United States: CHON Chi Bu, RYOM Yong, and the Yongbyon Nuclear Research Center.¹²⁴

UNILATERAL U.S. MEASURES

By means of statutes and executive orders,¹²⁵ the United States has promulgated a variety of measures to combat nuclear commodity smuggling, targeting both the originators of smuggling transactions under discussion here, as well as the parties supporting them, which will receive further attention below. Three instruments form the core of U.S. efforts aimed at procurement originators, the Iran-North Korea-Syria Nonproliferation Act (INKSNA) and two executive orders (E.O.'s), E.O. 12938¹²⁶ and E.O. 13382.¹²⁷ (The United States also enforces wide-ranging trade embargoes against Iran and North Korea, including, in the case of the latter, a ban on transfers of luxury goods.)¹²⁸

¹²⁴ The newest additions to the list of designated entities and individuals can be found in "Commission Implementing Regulation 370/2013 of 22 April 2013," <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:111:0043:0045:EN:PDF> and "Commission Implementing Regulation 137/2013 of 18 February 2013," <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:046:0019:0024:EN:PDF>.

¹²⁵ Executive orders do not create new legal authorities, but are instructions from the president to executive branch agencies regarding how existing statutory or constitutionally based authorities are to be executed. An executive order might, for example, instruct the U.S. Department of Commerce to use its authority to regulate exports to deny export licenses for dual-use commodities to a particular country or might instruct the Treasury Department to use its authority to regulate the banking industry to deny the banks of a particular country the ability to open branches in the United States or to freeze the assets of certain persons.

¹²⁶ 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>.

¹²⁷ Issued, June 28, 2005, <http://www.treasury.gov/resource-center/sanctions/Documents/whwmdeo.pdf>.

¹²⁸ Regarding U.S. sanctions focused on Iran, see, generally Kenneth Katzman, "Iran Sanctions," Congressional Research Service, July 26, 2013, <http://www.fas.org/sgp/crs/mideast/RS20871.pdf>; regarding U.S. and other sanctions focused on the North Korea, see Congressional Research Service, "Memorandum to Richard J. Lugar, Implementation of UN Security Council Resolution 1874," October 8, 2010, <http://fpc.state.gov/documents/organization/152630.pdf>.

The three instruments have the same basic structure: a description of proliferation-related actions that trigger sanctions; a mechanism for the U.S. government to determine through an interagency process that an individual or entity has engaged in the prohibited activity; and a list of penalties to be imposed after this determination is made.

Iran-North Korea-Syria Nonproliferation Act. INKSNA is focused directly on procurements. It imposes penalties on foreign individuals and entities for the transfer to or acquisition from Iran, North Korea, and Syria of goods or technology controlled under multilateral control lists, including specifically the NSG lists; it also sanctions transfers or acquisitions of goods that are not on these lists but are on the U.S. national control list or that have the potential to make a material contribution to the development of weapons of mass destruction, including items of the same kind as those on multilateral lists but falling below the control list parameters. Penalties are a prohibition on U.S. government contracts with the sanctioned party; a prohibition on providing U.S. government assistance to the sanctioned party; and a prohibition on U.S. exports of dual-use items and military equipment to that party.

Individuals and entities sanctioned under INKSNA include predominantly individuals and firms operating outside Iran, North Korea, and Syria, but also include a number of Iran- and North Korea-based entities that are initiating procurement efforts. This group includes the IRGC and Iran Electronics Industries, as well as the North Korean Tangu Trading.¹²⁹

*Executive Order 12938, as amended.*¹³⁰ E.O. 12938 penalizes proliferation-relevant activities supporting WMD programs of any state, not merely those of the states

¹²⁹ The IRGC is said to control important elements of the Iranian nuclear program; for background on Iran Electronics Industries, see Iran Watch website, <http://www.iranwatch.org/iranian-entities/iran-electronics-industries-iej>. For the complete list of individuals and entities sanctioned under INKSNA, see U.S. Department of State website, <http://www.state.gov/t/isn/inksna/c28836.htm>.

¹³⁰ The original text of E.O. 12938 focused on chemical and biological weapon proliferation and sanctioned foreign parties materially contributing to such programs. See Executive Order 12938 of November 14, 1994, Proliferation of Weapons of Mass Destruction, *Federal Register*, Presidential Documents, Vol. 59, No. 220, p. 55099, November 16, 1994, <http://www.archives.gov/federal-register/executive-orders/pdf/12938.pdf>. The text was amended by E.O. 13094 to expand its coverage to all weapons of mass destruction and to augment the penalties on persons materially contributing to such programs to include those discussed in the text below. See Executive Order 13094 of July 28, 1998, Proliferation of Weapons of Mass Destruction, Section 1, *Federal Register*, Presidential Documents, Vol. 63, No. 146, p. 40803, July 30, 1998, <http://www.gpo.gov/fdsys/pkg/FR-1998-07-30/pdf/98-20590.pdf>. E.O. 13094 was further amended by

E.O. 13382, to require the Secretary of State to consult with the Secretary of Treasury in determining whether a foreign person is subject to sanctions under the order and includes as sanctionable actions that

targeted by INKSNA. Sanctions are to be imposed on any foreign person (that is, an individual or entity not under U.S. jurisdiction) that is determined by the Secretary of State, in consultation with the Secretary of the Treasury:

to have engaged, or attempted to engage, in activities or transactions that have materially contributed to, or pose a risk of materially contributing to, the proliferation of weapons of mass destruction or their means of delivery (including missiles capable of delivering such weapons), including any efforts to manufacture, acquire, possess, develop, transport, transfer or use such items, by any person or foreign country of proliferation concern.¹³¹

The prohibited activities are considerably more extensive than those proscribed in INKSNA and penalize activities beyond the simple transfer of controlled commodities and also activities that may merely “pose a risk” of materially contributing to proliferation. The sanctions to be imposed are a prohibition on U.S. government contracts with the sanctioned person; a prohibition on the provision of U.S. government assistance to the sanctioned person; and a prohibition on the importation into the United States of goods, technology, or services produced or provided by the sanctioned person.¹³² Among persons that have been designated and are currently subject to sanctions are numerous individuals and entities that contributed to nuclear programs in Iran, North Korea, and Libya from outside those countries, including participants in the A. Q. Khan network, but few, if any, that originated nuclear procurement efforts from within these states.¹³³

Executive Order 13382. The most powerful and far-reaching of the three U.S. measures, however, is E.O. 13382, which, as a sanction, blocks the property in the United States of specially designated WMD proliferators and members of their support networks. Like E.O. 12938, E.O. 13382 is applicable to the proliferation-relevant activities of all states, and it begins with the same sanctions trigger as E.O. 12938, imposing them on any foreign person determined by the Secretary of State in consultation with the Secretary of the Treasury, the Attorney General, and other relevant agencies to have engaged in

“pose a risk” of materially contributing to proliferation. Executive Order 13382 of June 28, 2005, Blocking Property of Weapons of Mass Destruction Proliferators and Their Supporters, Section 4, *Federal Register*, Presidential Documents, Vol. 70, No. 126, p. 38567, July 1, 2005, <http://www.treasury.gov/resource-center/sanctions/Documents/whwmdeo.pdf>.

¹³¹ E.O. 12938, Section 4, as amended by E.O. 13382.

¹³² E.O. 12938, as amended (see note 130, above, for amendment chain).

¹³³ For a list of individuals and entities sanctioned under E.O. 12938, see U.S. Department of State, Executive Order 12938, as amended, <http://www.state.gov/t/isn/c15233.htm>.

activities that have materially contributed to the proliferation of weapons of mass destruction or that pose a risk of doing so. But E.O. 13382 also sanctions all persons – including U.S. citizens and enterprises – “determined by the Secretary of the Treasury, in consultation with the Secretary of State, the Attorney General, and other relevant agencies, to have provided, or attempted to provide, financial, material, technological or other support for, or goods or services in support of any [such] activity or transaction....”¹³⁴ Of particular importance, all U.S. persons are prohibited from all dealings or transactions with a designated foreign person, a ban which, according to the U.S. Treasury Department summary of the order, “effectively denies those [sanctioned] parties access to the U.S. financial and commercial systems.”¹³⁵

Under E.O. 13382, multiple enterprises responsible for implementing elements of the Iranian and North Korean nuclear programs – and presumably for determining the direction of procurement efforts – have been sanctioned, as have a number of trading operations based in those countries. In Iran, for example, the Atomic Energy Agency of Iran was designated in June 2005, shortly after the executive order was issued. Other sanctioned Iranian procurement initiating organizations include:

- Esfahan Nuclear Fuel Research and Production Center (NFRPC), which produces key raw materials for various Iranian nuclear facilities;¹³⁶
- Kalaye Electric Company, associated with possible work on designing a nuclear explosive device and testing certain components;¹³⁷
- The IRGC, (described above)
- Iran Electronics Industries (described above);
- Defense Industries Organization, linked to Iran’s uranium centrifuge production;
- The Iran Centrifuge Technology Company (TESA), which produces centrifuges used at Iran’s Natanz enrichment facility;¹³⁸ and
- The Nuclear Reactors Fuel Company (SUREH), which produces fuel for Iran’s Arak reactor, associated with program for the production of plutonium.¹³⁹

¹³⁴ E.O. 13382, sections 1(a)(iii) and 1(a)(iv). Entities owned or controlled by any sanctioned person are also subject to sanctions established by the executive order.

¹³⁵ “Executive Order 13382, ‘Blocking Property of Weapons of Mass Destruction Proliferators and Their Supporters’; the Weapons of Mass Destruction Trade Control Regulations (Part 539 of Title 31, C.F.R.); and the Highly Enriched Uranium (HEU) Agreement Assets Control Regulations (Part 540 of Title 31, C.F.R),” U.S. Treasury Department, <http://www.treasury.gov/resource-center/sanctions/Programs/Documents/wmd.pdf>.

¹³⁶ “Iran Sanctions Designations; Non-Proliferation Sanctions Designations; Iran Sanctions Designations Updates,” Department of the Treasury, Office of Foreign Assets Control, May 9, 2013, <http://www.treasury.gov/resource-center/sanctions/OFAC-Enforcement/Pages/20130509.aspx>.

¹³⁷ Ibid.

¹³⁸ “Executive Order 13382 Designations on Iran,” U.S. Department of State, November 21, 2011, <http://www.state.gov/r/pa/prs/ps/2011/11/177608.htm>.

For North Korea, the General Bureau of Atomic Energy (GBAE) is sanctioned, as are Namchongang Trading Corporation, Korean Tangun Trading Corporation, the Second Academy of Natural Sciences, and YUN Ho-Jin all, as noted above, active in procurement efforts. In addition, the United States has also sanctioned under E.O. 13382 O Kuk-Ryol, identified in EU sanctioning decisions as “Deputy Chairman of the National Defense Commission, supervising the acquisition abroad of advanced technology for nuclear and ballistic programs;”¹⁴⁰ PAK To-Chun, identified in EU sanctioning decisions as “member of the National Security Council, reported to command the office for nuclear energy, an institution decisive for DPRK’s nuclear and rocket launcher programs;”¹⁴¹ and the Second Economic Committee, identified in EU sanctioning decisions as “a national-level organization responsible for research and development of North Korea’s advanced weapons systems, including missiles and probably nuclear weapons, which uses a number of subordinate organizations to obtain commodities from overseas, including Korea Tangun Trading Corporation, for use in North Korea’s missile and probably nuclear weapons programs.”¹⁴²

Although E.O. 12938 and E.O. 13382 cover additional states of nonproliferation concern, including in particular India, Israel, and Pakistan, no entities in those states (including originators of illicit procurement efforts) have been sanctioned under these instruments. Other U.S. laws and regulations, however, restrict trade in nuclear-specific goods with Israel and Pakistan and require licenses for all such exports to India. In addition, the Export Administration Regulations require that no regulated nuclear dual-use commodities may be exported to certain entities in all three states without a license, including the Pakistani Atomic Energy Commission; the Israeli Nuclear Research Center at Negev Dimona; and several key entities under the Indian Department of Nuclear Energy.¹⁴³ A number of these entities have served as originators of illicit

¹³⁹ Ibid.

¹⁴⁰ Council Decision 2013/183/CFSP of 22 April 2013 Concerning Restrictive Measures against the Democratic People's Republic of Korea and Repealing Decision 2010/800/CFSP, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:111:0052:0074:EN:PDF>.

¹⁴¹ Ibid.

¹⁴² Commission Implementing Regulation 370/2013 of 22 April 2013, Amending Council Regulation (EC) No 329/2007 Concerning Restrictive Measures against the Democratic People’s Republic of Korea, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:111:0043:0045:EN:PDF>. This description is virtually identical to that seen above with respect to the Second Academy of Natural Sciences (see p. 48), but the organizations are treated as distinct in the U.S. Treasury Specially Designated Nationals list. It is difficult to identify additional originators of illicit procurement activities that have also been so penalized under E.O. 13382, because U.S. authorities have provided little information about sanctioned parties.

¹⁴³ See Bureau of Industry and Security, Department of Commerce, “Electronic Code of Federal Regulations: Supplement No. 4 Part 774 - Entity List,” As of October 1, 2013, <http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=1&SID=9ae4a21068f2bd41d4a5aee843b63ef1&ty=HTML&h=L&n=15y2.1.3.4.28&r=>

procurement activities, and a number of U.S. prosecutions have been pursued since 2010 for the export or attempted export of controlled nuclear dual-use goods to designated Pakistani entities.¹⁴⁴ (See discussion of Commerce Department Entity List on next page.)

INKSNA and both E.O. 12938 and E.O. 13382 impose sanctions extraterritorially, that is, on foreign persons beyond U.S. jurisdiction, but the benefits these legal instruments deny to sanctioned parties all derive from regulatory or other discretionary actions under U.S. government control, such as issuing of licenses for the exportation and importation of goods and the regulation of the U.S. banking system.¹⁴⁵ As discussed in a later section, most multinational banks have become increasingly cautious about dealings with Iran and North Korea for fear of triggering sanctions under E.O. 13382 and suffering reputational damage, and a number that have persisted in such dealings have been forced to pay hundreds of millions of dollars in fines.¹⁴⁶ Thus, although unilateral U.S. and EU measures do not have the same international legitimacy or universality as UN Security Council sanctions resolutions, they appear to have international influence rivaling actions by the UN, because they contain significant potential penalties for noncompliance.

Department of Commerce Entity List. A fourth unilateral U.S. measure also deserves brief mention, the Entity List maintained by the Department of Commerce. The Department requires that export licenses be obtained for transfers of all dual-use goods on the Department's list of controlled commodities, but for listed entities all licenses but those for the most innocuous goods are reviewed with a presumption of denial. In effect, this denies such entities access to U.S. dual-use commodities. Entities are placed on the list, according to the Department, because those parties "present a greater risk of diversion to weapons of mass destruction (WMD) programs, terrorism, or other activities contrary

[PART#15:2.1.3.4.28.0.1.23.42](#). For a number of such entities, the Commerce Department reviews licenses for the least sensitive dual-use commodities with a "presumption of approval." Ibid.

¹⁴⁴ See generally, Justice Department Compilation of Cases, op. cit. See entries entitled, "U.S. Technology to Pakistani Nuclear Facilities" and "Specialty Coatings to Pakistani Nuclear Facility."

¹⁴⁵ As a rule, however, the sanctioned parties, though incorporated overseas, have a nexus to the United States, either because they do business in the United States or because they have correspondent accounts with U.S. banks. Interview with former U.S. official, Wilton Park, UK, September 2013.

¹⁴⁶ See "Significant Sanctions Enforcement Actions and Other Financial Crimes Developments," SIFMA [Securities Industry and Financial Markets Association] AML [Anti-Money Laundering] and Financial Crimes Conference, February 27, 2013, compiling cases with links to associated news stories, http://www.sifma.org/uploadedfiles/events/2013/anti-money_laundering_and_financial_crimes_conference/significant%20sanctions%20enforcement%20actions%20and%20other%20financial%20crimes%20developments.pdf.

to U.S. national security or foreign policy interests.”¹⁴⁷ In the case of Iran and North Korea, OFAC requires that a Treasury Department license be obtained for virtually all goods going to these countries (except for humanitarian goods) and, under E.O. 13382, Treasury has also frozen the assets of many parties in those states, in effect, overshadowing the Commerce Department list. However, the latter list also effectively denies dual-use exports to a number of entities that are not sanctioned by Treasury in three regional states that have announced their possession of nuclear weapons or are presumed to possess them, India Israel, and Pakistan. The Entity List will be referred to a number of times in this report, but is not at this moment a leading factor in U.S. efforts to take steps against originators of nuclear commodity smuggling transactions.

Figures 3.2 and 3.3 summarize and illustrate, respectively, the various UN Security Council, EU, and U.S. measures sanctioning originators of illicit nuclear commodity smuggling transactions.¹⁴⁸

¹⁴⁷ U.S. Department of Commerce, Bureau of Industry and Security, “Lists of Parties of Concern,” <http://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern>.

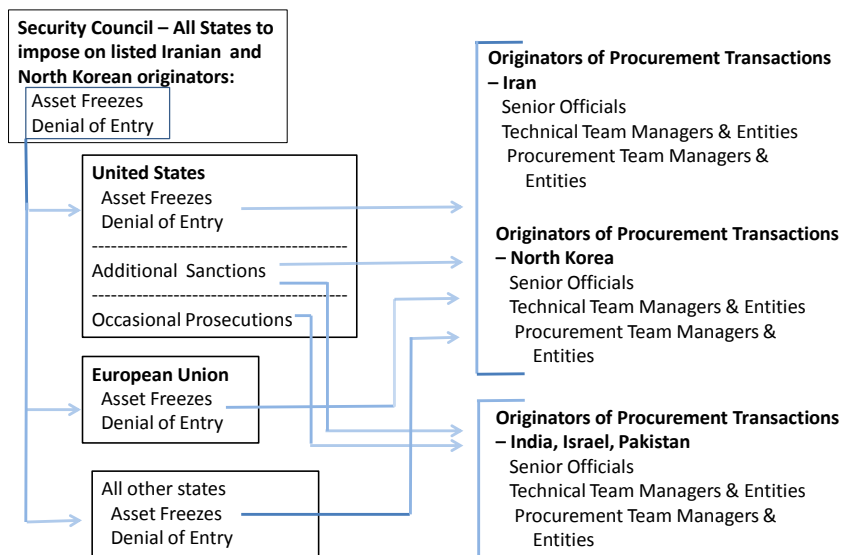
¹⁴⁸ For a useful preliminary compilation of references regarding sanctions imposed on Iran by other states, including Australia, Japan, South Korea and others, see “Sanctions Against Iran, Non-UN-Mandated Sanctions,” Wikipedia, http://en.wikipedia.org/wiki/Sanctions_against_Iran.

Figure 3.2

**Principal Measures Against Individuals and Entities Originating
Illicit Nuclear Commodity Procurements**

Instrument	Target Country(ies)	Trigger	Sanction
UN Security Council			
UNSCR 1929 (2010) and predecessors	Iran	Individual or entity designated as engaged in, directly associated with, or providing support for Iran's proliferation sensitive nuclear activities	Asset freeze and travel ban - Decides all states shall freeze the assets under their jurisdiction of such individual or entity and refuse entry to any designated individual Exercise vigilance in doing business with designated entities - Calls upon states to require businesses subject to their jurisdiction to "exercise vigilance when doing business with" any entity incorporated in Iran if the external business has "reasonable grounds to believe that such [Iranian] business could contribute to Iran's proliferation-sensitive nuclear activities"
UNSCR 2094 (2013) and predecessors	North Korea	Individual or entity designated as being engaged in or providing support for... DPRK's nuclear-related...programs	Asset freeze and travel ban - Decides all states shall freeze assets under their jurisdiction of such individual or entity and refuse entry to any designated individual
United States			
Iran-North-Korea-Syria Nonproliferation Act (INKSNA)	Iran, North Korea, Syria	Foreign person determined to have provided any commodity to Iran, North Korea, or Syria controlled under Nuclear Suppliers Group guidelines or other multilateral control regimes, and certain similar items below threshold of control	Ban on U.S. government contracts with individual or entity Ban on U.S. assistance to individual or entity Ban on U.S. exports to individual or entity of controlled U.S. dual-use goods and military articles
Executive Order (E.O.) 12938	All states	Foreign person determined to have engaged, or attempted to engage, in activities or transactions that have materially contributed to, or pose a risk of materially contributing to , the proliferation of weapons of mass destruction	Ban on U.S. government contracts with individual or entity Ban on U.S. assistance to individual or entity Ban on imports into the U.S. of goods, technology or services produced or provided by the designated individual or entity
E.O. 13382	All states	Foreign person determined to have engaged, or attempted to engage, in activities or transactions that have materially contributed to, or pose a risk of materially contributing to , the proliferation of weapons of mass destruction Any person determined to have provided...financial, material, technological or other support for, or goods or services in support of above activity or transaction....	All designated foreign person assets blocked in U.S. All U.S. persons prohibited from dealings or transactions with persons whose assets have been blocked under E.O. 13382. (Denies blocked party access to U.S. financial and commercial systems.)
European Union			
EU Council Decision 2010/413	Iran	Individual or entity designated as engaged in, directly associated with, or providing support for Iran's proliferation sensitive nuclear activities, and items that could contribute to such activities	Asset freeze and denial of entry into or transit through EU for designated individuals and entities EU nationals to exercise vigilance when doing business with all Iranian entities , to ensure such business does not contribute to Iran's proliferation-sensitive nuclear activities or to violations of Iran sanctions resolutions
EU Council Regulation 329/2007	North Korea	Individual or entity designated as engaged in, directly associated with, or providing support for North Korea's nuclear weapons program, and items (technical components and luxury goods) that could contribute its advancement	Asset freeze and denial of entry into or transit through EU for designated individuals and entities

Figure 3.3

Measures Against Originators of Nuclear Commodity Procurement Transactions**RECENT DEVELOPMENTS**

The principal developments regarding originators of illicit procurement transactions have been the sanctioning of additional parties under the various authorities described above. The Security Council made no additional designations during 2013 regarding Iran.¹⁴⁹ It did, however, impose asset freezes and travel bans on multiple North Korean parties after that country's December 2012 test of a long-range rocket and February 2013 nuclear test, under resolutions 2087 (2013) and 2094 (2013), respectively.¹⁵⁰ Only one new entity, the Second Academy of Natural Sciences, noted above, appears to be an initiator of nuclear procurement transactions. In addition, in its June 11, 2013, report the panel of experts established under UNSCR 1874 recommended that two entities be added to the list of sanctioned parties because of their role in the North Korean nuclear weapons program: the Ministry of Atomic Energy Industry and the Minister of Atomic Energy Industry (upon nomination). Both of these appear to fall into the category of North Korean originators of illicit nuclear commodity procurements.

¹⁴⁹ The consolidated list of parties sanctioned under the various Iran sanctions resolutions can be accessed on the website of the Security Council Committee established pursuant to UNSCR 1737 (2006), <http://www.un.org/sc/committees/1737/consolist.shtml>. The most recent designation of parties took place on December 20, 2012. None in this group appeared to be originators of procurement transactions.

¹⁵⁰ The consolidated list of parties sanctioned under the various North Korea sanctions resolutions can be accessed on the website of the Security Council Committee established pursuant to UNSCR 1718 (2006), http://www.un.org/sc/committees/1718/pdf/List_Entities_and_Individuals_English.pdf. These Security Council resolutions also strengthened requirements for the inspection of cargoes going to or from North Korea and several other measures, which are discussed in subsequent sections of this chapter.

Since the beginning of 2013, the United States has made numerous additions to its lists of individual and entities sanctioned because of their involvement with the Iranian and North Korean nuclear programs. These included one Iranian individual and one entity identified above as being likely to act as originators of nuclear procurement transactions, Farhad Bujar (Managing Director of TESA),¹⁵¹ and Iran Electronics Industries.¹⁵² Bujar was sanctioned under E.O. 13382 resulting in his U.S. property being blocked.¹⁵³ Iran Electronics Industries was sanctioned under INKSNA and barred from receiving U.S. government contracts, receiving any form of U.S. assistance, and purchasing U.S. defense articles, and no U.S. licenses will be granted allowing him to receive strategic dual-use goods (including nuclear dual-use goods).¹⁵⁴ Another Iranian individual sanctioned in 2013 under E.O. 13382, Reza Mozaffarinia, Deputy Defense Minister and Dean of Malek Ashtar University, may also fit the procurement originator profile.

U.S. North Korea designations during 2013 include several parties mentioned earlier as known or likely originators of illicit procurements, O Kuk-Ryol¹⁵⁵ and PAK To-Chun, all of whose U.S. property has been blocked under E.O. 13382.¹⁵⁶ SON Mun San, External Affairs Bureau Chief, General Bureau of Atomic Energy, who was also designated during 2013 under E.O. 13382 may also be an originator of procurement transactions; no explanation was given as to the basis for his designation or whether the role he plays in the North Korean nuclear program has involved him in nuclear procurements.¹⁵⁷

¹⁵¹ Government of Iran Listings; Non-proliferation Designations; Iranian Financial Sanctions Regulations Identifications, 5/23/2013, Office of Foreign Assets Control Specially Designated Nationals Update <http://www.treasury.gov/resource-center/sanctions/OFAC-Enforcement/Pages/20130523.aspx>

¹⁵² U.S. Department of State, "Iran, North Korea, and Syria Nonproliferation Act: Imposed Sanctions," Updated: May 29, 2013, <http://www.state.gov/t/isn/inksna/c28836.htm>.

¹⁵³ Department of the Treasury, Office of Foreign Assets Control, Actions Taken Pursuant to Executive Order 13382, *Federal Register*, Volume 78, Number 107, pp. 33471-33472, June 4, 2013, <http://www.gpo.gov/fdsys/pkg/FR-2013-06-04/html/2013-13168.htm>.

¹⁵⁴ Ibid. Iran Electronics Industries was sanctioned under E.O. 13382 in 2008. See Department of the Treasury, Office of Foreign Assets Control, Additional Designation of Entities Pursuant to Executive Order

13382, *Federal Register*, Volume 73, Number 209, p. 64008, October 28, 2008, <http://www.gpo.gov/fdsys/pkg/FR-2008-10-28/html/E8-25600.htm>.

¹⁵⁵ Iran Sanctions Designations; Non-Proliferation Sanctions Designations; Iran Sanctions Designations Updates, May 9, 2013, Office of Foreign Assets Control, Specially Designated Nationals Update, <http://www.treasury.gov/resource-center/sanctions/OFAC-Enforcement/Pages/20130509.aspx>.

¹⁵⁶ Non-proliferation Sanctions Designations (DPRK) March 11, 2013, Office of Foreign Assets Control Specially Designated Nationals List Update, <http://www.treasury.gov/resource-center/sanctions/OFAC-Enforcement/Pages/20130311.aspx>.

¹⁵⁷ *Federal Register*, Vol. 78, No. 134, July 12, 2013, p. 41966, <http://www.gpo.gov/fdsys/pkg/FR-2013-07-12/pdf/2013-16755.pdf>.

During 2013 the EU designated one additional party thought to be initiating procurement activities, the Second Academy of Natural Sciences described above.¹⁵⁸

GAPS AND CHALLENGES

There is little evidence to suggest that the sanctions imposed on originators of illicit procurement transactions have affected the behavior of such individuals and entities. Few, if any, states are known to have actually frozen the assets of these parties. According to a press account, however, in 2013, authorities in the United States and South Korea found numerous of overseas bank accounts worth hundreds of millions of dollars that were linked to North Korean leaders Kim Jong-un and Kim Jong-il, but were unable to persuade China to add these accounts to UN sanctions lists.¹⁵⁹

On the other hand, naming the individuals and organizations exposes their home governments to added pressure to curtail such activities and forces these parties to operate through front organizations and take other precautions that disguise the identity of the ultimate beneficiary of procurement transactions. This, in itself, adds a degree of complexity to procurement efforts and, combined with many other such complications, including those in finance and shipping, adds to the difficulty of acquiring needed goods from abroad, ultimately slowing clandestine acquisition efforts.

In addition, given the efforts of the United States and its allies to pursue sanctions along a number of tracks, individuals and entities that might deal with identified procurement originators must weigh the costs of such actions. Legitimate businesses and financial organizations have shown growing caution in this regard, leaving nuclear procurement originators a contracting field of potential partners.

¹⁵⁸ Commission Implementing Regulation (EU) No 370/2013 of 22 April 2013 amending Council Regulation (EC) No 329/2007 Concerning Restrictive Measures against the Democratic People's Republic of Korea, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:111:0043:0045:EN:PDF>.

¹⁵⁹ "Kim Jong-un's Slush Funds Found," *Chosun Ilbo*, March 11, 2013, http://english.chosun.com/site/data/html_dir/2013/03/11/2013031101105.html, cited in Bruce Klingner, "Time to Get North Korean Sanctions Right," Heritage Foundation, November 4, 2013, http://www.heritage.org/research/reports/2013/11/time-to-get-north-korean-sanctions-right#_ftnref43.

System 2: Export Licensing and Control Lists

BASIC FRAMEWORK

Domestic laws in roughly 60 percent of the UN's 193 member states restrict exports of nuclear-specific and dual-use nuclear goods; roughly 50 percent of member states use national commodity control lists, and roughly 50 percent require exporters to obtain licenses from a designated governmental agency as a condition for the export of such items.¹⁶⁰ Such laws and related regulations usually differentiate among classes of nuclear goods, with nuclear-specific goods receiving particular attention, and sensitive goods within this category or nuclear dual-use goods with the potential for use in sensitive facilities receiving the greatest scrutiny. These laws and regulations also sometimes differentiate among recipient states in approving licenses, applying more liberal policies to friendly states with strong nonproliferation credentials and more restrictive policies to others, which sometimes, as in the case of North Korea and Iran, amount to comprehensive embargoes on all nuclear transfers.

Control regulations also often identify individuals and organizations that are barred from receiving nuclear exports, wherever situated, because of past export-control-related infractions or because of their links to suspect, proliferation-related activities, such as materially contributing to a nuclear program of concern.

Although practices vary considerably, ministries of economics and/or trade and specialized nuclear regulatory bodies are typical licensing authorities. In the United States, for example, nuclear materials and equipment especially designed or prepared for nuclear use are licensed by the Nuclear Regulatory Commission; related technology, by the National Nuclear Security Administration; nuclear-dual use goods, by the Department of Commerce; and related military equipment by the Department of State.

UN Security Council Resolution 1540 (2004), a Security Council action adopted under Chapter VII of the UN Charter and therefore binding on all UN member states, requires all states to adopt appropriate effective controls over the transfer of nuclear-specific and nuclear dual-use goods. The committee established to monitor implementation of the resolution (the 1540 Committee) has identified a number of key components of effective nuclear export licensing systems, which go well beyond enacting the necessary

¹⁶⁰ Richard T. Cupitt (Member 1540 Committee Panel of Experts), "The Challenge of Opportunity: Implementing UNSCR 1540 (2004)," presentation at the 18th Asian Export Control Seminar, Tokyo, Japan, February 2011.

legislation.¹⁶¹ As abbreviated on the implementation matrices used by the committee, the key system components are:

- Export control legislation in place
- Licensing provisions
- Individual licensing
- General licensing
- Exceptions from licensing
- Licensing of deemed export (transfers of technological information within the source country to foreign individuals)
- National licensing authority
- Interagency review for licenses
- Inclusion of technologies
- Inclusion of means of delivery
- End-user controls
- Catch-all clause (provisions requiring the licensing of items not on control lists if the exporter knows or has reason to know they are destined for a suspect WMD or missile program)¹⁶²
- Inclusion of intangible transfers (transfers of know-how and technological information)

The committee also identifies as desired export licensing system components “Control lists” and the “Updating of lists,” and separately covers related border control and customs activities, topics that are discussed separately, under **System 3: Customs Controls and Inspections** later in this chapter.

As observed in the 1540 Committee’s implementation matrices, many states have adopted only some of these export licensing system components, and a good number

¹⁶¹ “1540 Committee, Committee-Approved Matrices,” (herein after, 1540 Committee Matrices) 1540 Committee website, <http://www.un.org/en/sc/1540/national-implementation/1540-matrix/committee-approved-matrices.shtml>.

¹⁶² A “catch-all,” “end-user,” or “end-use/end-user” control is a category of control that applies to a non-listed item, not identified on any of the multilateral control lists, but that may be destined for an end-user or end-use of proliferation concern. The control requires that a license be sought before the item is exported if the exporter knows or has reason to know it is destined for an end-use or end-user of concern. The Nuclear Suppliers Group Guidelines include the requirement that members adopt catch-all controls regarding non-listed items. Both the U.S. and the EU, have a catch-all control in their strategic trade control legislation, as do many additional countries. The U.S. catch-all control can be found in the U.S. Export Administration Regulations in Section 744. The EU catch-all control is found in Article Four of EU Regulation 1334/2009.

have not adopted any.¹⁶³ States self-report their 1540 implementation efforts on voluntary basis, and at present no international mechanism exists to verify whether the reports accurately reflect the realities on the ground. Nonetheless, the growing number of states filing such reports and requesting international assistance to improve their export control systems indicates an increasing readiness to implement the resolution's mandates.

Although it is beyond the scope of this study to review the programs of individual countries, it is possible to categorize the reporting states along the spectrum of compliance into five broad clusters.

First, at the high end of the spectrum is a cluster of states with well-established nuclear export controls and substantial implementation efforts. Japan and Germany are often cited as exemplary cases, and many of the 48 members of the Nuclear Suppliers Group states fall into this category. Nonetheless, the advanced technological and manufacturing base in these countries makes them frequent targets of illicit procurement networks, despite a high level of compliance with UNSCR 1540. Over 2010-2012, for example, Iranian smugglers managed to move to Iran 100 separate shipments of dual-use nuclear commodities from Germany via Turkey, destined for the heavy-water reactor in Arak.¹⁶⁴

A second category of states have strong strategic trade control measures in place, but have a history of inadequate enforcement. China is a case of particular concern. Although U.S. officials indicate that China has acted to interrupt a number of cases of nuclear commodity procurements destined for Iran or North Korea, Beijing's overall history of implementation has been weak, and certain Chinese individuals and entities have been repeatedly sanctioned by the United States for assisting suspect nuclear programs.¹⁶⁵ Turkey, too, has had difficulties implementing its well-developed export control system.¹⁶⁶

¹⁶³ See 1540 Committee Matrices, op. cit.

¹⁶⁴ "Nuclear Materials Smugglers Arrested," *World News*, March 11, 2013, http://www.upi.com/Top_News/World-News/2013/03/11/Nuclear-materials-smugglers-arrested/UPI-80861362997303/.

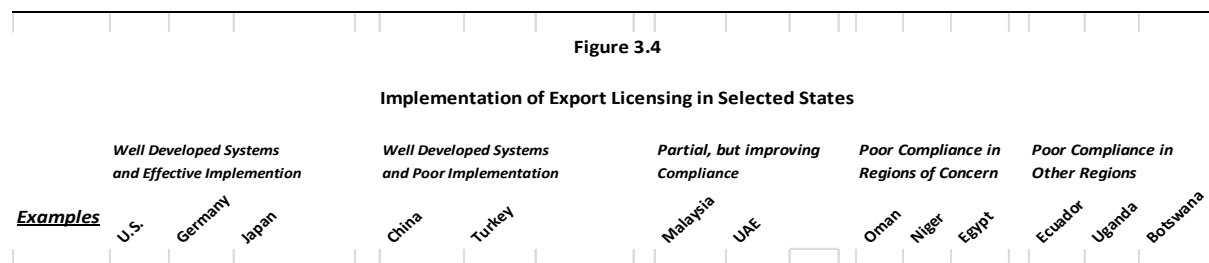
¹⁶⁵ See Project on U.S. Middle East Nonproliferation Strategy, *U.S. Nonproliferation Strategy for the Changing Middle East*, January 2013, p. 46 ("Overview of Non-Compliance by Chinese Entities"), <http://isis-online.org/uploads/isis-reports/documents/FinalReport.pdf>; Shirley A. Kan, "China and Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues," Congressional Research Service, Report RL31555 (March 11, 2013), pp. 7-9, <http://www.fas.org/sgp/crs/nuke/RL31555.pdf>.

¹⁶⁶ See "U.S. Nonproliferation Strategy for the Changing Middle East," op. cit. p. 51 and notes thereto.

A third category of states includes those with partial and improving compliance, with demonstrable progress in recent years. Typical examples in this cluster are Malaysia¹⁶⁷ and the UAE¹⁶⁸ - previously hubs of illicit procurement transshipment activities that have recently tightened domestic trade controls significantly and begun to reverse these trends.

A fourth category consists of states that have reported adopting relatively few of the 1540 export control components and are situated in geographic areas of proliferation concern, identified on the basis observable procurement patterns and transit routes such as the Middle East and sub-Saharan Africa, e.g. Oman. Given the well-developed arms and drug smuggling networks operating in their vicinity,¹⁶⁹ weak trade controls or inadequate implementation practices could make these states attractive transit points for nuclear-relevant commodities as regulatory efforts tighten elsewhere.

Finally, a fifth category of states includes countries that may have similarly low levels of compliance, but are in regions of low proliferation activity. In this environment, their lax trade controls may pose a less immediate international concern, at least until interest in these states is shown by procurement networks. Figure 3.4 summarizes these categories of strategic trade control implementation.



¹⁶⁷ See, e.g., Togzhan Kassenova, "1540 in Practice: Challenges and Opportunities for Southeast Asia," Stanley Foundation, March 2011,

<http://www.stanleyfoundation.org/publications/pab/KassenovaPAB611.pdf>; and Nuclear Threat Initiative (NTI), "East Asia and the Pacific 1540 Reporting," January 28, 2013,

<http://www.nti.org/analysis/reports/east-asia-and-pacific-1540-reporting/>.
¹⁶⁸ See, e.g., Aaron Dunne, "Strategic Trade Controls in the United Arab Emirates: Key Considerations for the European Union," EU Nonproliferation Consortium Paper No. 12, March 2012,

http://www.sipri.org/research/disarmament/eu-consortium/publications/dunne_eunpc12.
¹⁶⁹ There is an ongoing debate among the experts of smuggling networks as to whether criminal networks that have sprung up carrying drugs or small arms are likely to participate in procurement efforts to equip existing or emerging nuclear weapons programs. See, e.g., Michael Miklaucic and Jacqueline Brewer (eds.), *Convergence: Illicit Networks and National Security in the Age of Globalization* (Washington, DC: National Defense University Press, 2013).

Tightening export controls may force structural and geographic shifts in operational patterns of procurement networks, altering the landscape described above. Nonetheless, this categorization is a helpful starting point for identifying key points of vulnerability where diplomatic efforts and the available resources for strategic trade control assistance are most urgently needed. Efforts to assist states build capacity in this sphere are discussed separately under **System 7: International Out-Reach and Capacity Building** later in this chapter.

INTERNATIONAL OBLIGATIONS

In a pattern introduced in Chapter 1 and seen in a number of other systems discussed below, virtually all states must take at least four external mandates into account as they shape their domestic export licensing systems. As just noted, UNSCR 1540 requires the adoption of such systems, and the UNSCR 1540 Committee monitors compliance with this demand, although the resolution contains no penalties for states that fail to implement its requirements. Secondly, UNSCR 1929 (2010) and UNSCR 2094 (2013), which, respectively, impose comprehensive nuclear embargoes against Iran and North Korea, implicitly require states to adopt such control systems in order to effectuate these embargoes. Third, the nuclear Nonproliferation Treaty (NPT), with 189 members, separately prohibits parties from exporting especially designed or prepared nuclear items unless they are to be placed under IAEA monitoring (“safeguards”) in the recipient state; only by tracking such exports via a licensing or equivalent system could a state be confident that this treaty requirement were being met. Fourth, the Convention on the Physical Security of Nuclear Materials, with 148 parties,¹⁷⁰ requires states, *inter alia*, not to export or authorize the export of nuclear material unless the State Party has received assurances that such material will be protected during international transport at the levels described in an annex to the treaty.¹⁷¹ Again, an export licensing or equivalent system would appear to be a precondition for satisfying this requirement.

In addition to these four international mandates, U.S. sanctions laws and executive orders penalize foreign individuals and entities that transfer to Iran, North Korea, or Syria items on the NSG and other multilateral control lists, as well as commodities of the same type as on these lists, but with specifications below control thresholds.¹⁷² Although the U.S. laws are not formal international instruments, they have an extraterritorial impact that gives them an international reach. When entities within a state are sanctioned under such laws, the reputation of the state, itself, is sullied –

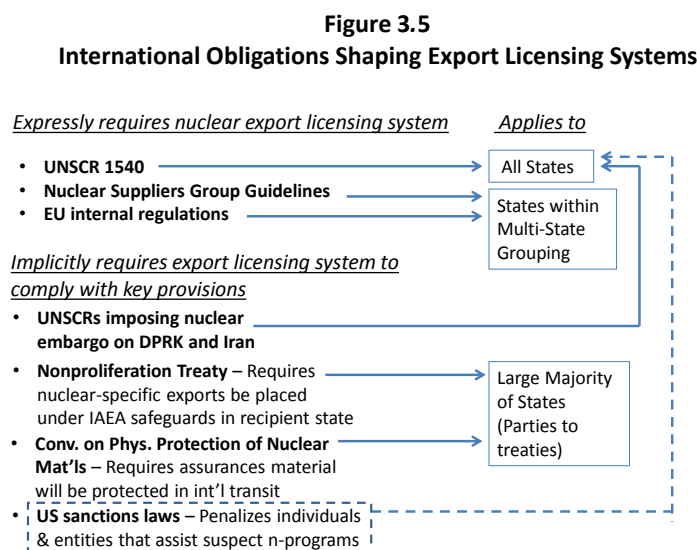
¹⁷⁰ “International Conventions and Legal Agreements – Convention on the Physical Protection of Nuclear Material,” IAEA website, <http://www.iaea.org/Publications/Documents/Conventions/cppnm.html>.

¹⁷¹ Convention on the Physical Protection of Nuclear Material, Article 4.

¹⁷² See discussion of the Iran-North Korea-Syria Nonproliferation Act, above.

particularly where repeated episodes are at issue – because of the state’s implicit failure to block individuals and entities under its jurisdiction from providing support for suspect nuclear programs. As noted, China has been subject to such criticism because of its failure to halt transfers to Iran and other states by firms within its jurisdiction.¹⁷³

In addition to these measures with broad international influence, states that are members of or adherents to the Nuclear Suppliers Group are committed to implement export licensing regimes and apply the group’s export licensing rules.¹⁷⁴ Similarly, members of the EU are obliged to comply with relevant export rules adopted by the EU Commission. Figure 3.5 illustrates these relationships.



NUCLEAR SUPPLIERS GROUP CONTROL LISTS

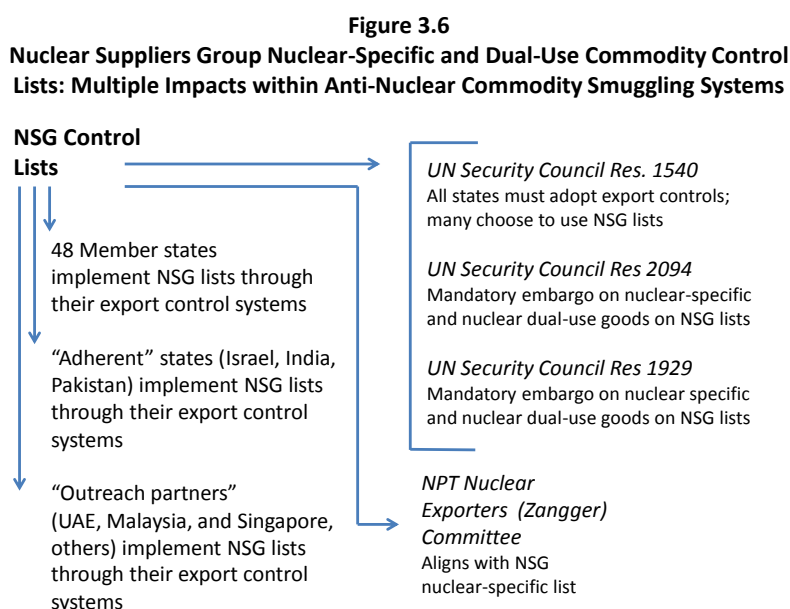
The nuclear-specific and dual-use control lists of the Nuclear Suppliers Group have a significant presence within this web of activities. Most directly, the lists set the parameters for the national nuclear-related export licensing systems of the group’s 48 member states, within which the group’s guidelines, adopted by consensus, are made mandatory on persons operating within these states. The lists are also adopted by a second cluster of states that have announced that they are voluntarily “adhering” to the guidelines, even though they are not NSG members, namely, Israel, India, and Pakistan. A third group of states adopting the lists are U.S. “outreach partners,” states with whom the United States is working closely to improve their export control capabilities,

¹⁷³ See Kan, “China and the Proliferation of Weapons of Mass Destruction and Missiles: Policy Issues,” op. cit., Summary and Table I, <http://www.fas.org/sgp/crs/nuke/RL31555.pdf>.

¹⁷⁴ See NSG Guidelines, Parts I and II.

including the UAE, Malaysia, and Singapore. Finally, a fourth group of states have adopted these lists independently, as part of their efforts to comply with the export control requirements of UNSCR 1540 (2004).

Separately, as noted, the Security Council has used the NSG lists to define the nuclear component of the embargoes it has imposed, respectively, on Iran and North Korea under UNSCR 1929 (2010) and UNSCR 2094 (2013) and their predecessors. Finally, the Zangger Committee of NPT nuclear exporter parties has adopted the NSG nuclear-specific list as defining nuclear materials and equipment “especially designed or prepared for nuclear use” that must be subject to IAEA monitoring when transferred to non-nuclear-weapon state members of the NPT. Figure 3.6 illustrates these relationships.



RECENT DEVELOPMENTS¹⁷⁵

The interconnectedness of the many systems contributing to combatting nuclear commodity smuggling makes it difficult in many cases to associate a particular development with a single system, because it will almost certainly impact other systems, as well. The cross-cutting aspects of various developments will be discussed together in a later section of this chapter. Individual sections describing various

¹⁷⁵ Further examination of U.S. and EU export licensing policies and practices are further examined in several other systems below, including **System 3: Customs Controls and Inspections**, and **System 6: Enforcement Measures**.

systems will identify developments closely associated, in the first instance, with the system under discussion.

National Adoptions of Fundamental Laws on Export Controls. Developments of the past twelve months most closely linked to export licensing, per se, are the enactment by additional states of export control licensing laws, related capacity building activities, and notable improvements in the performance of individual states. These are discussed in connection with **System 7: International Outreach and Capacity Building**, below.

NSG Fundamental Review; Watch Lists. In addition, in 2013, the Nuclear Suppliers Group completed the “Fundamental Review” of its control list of items especially designed or prepared for nuclear uses and its control list of nuclear-relevant dual-use items. Twenty-eight changes were made at the group’s Prague Plenary in 2013; 26 had been made at the 2012 Plenary in Christchurch, New Zealand, bringing the total number of changes resulting from the Fundamental Review to 54. Among the 2013 changes were the addition to the dual-use list of: high explosive containment vessels, chambers, and containers designed for the testing of high explosives, which are potentially useful in testing the non-nuclear triggering components of nuclear weapons; hollow cylinders made from alloys containing rhenium, potentially useful in nuclear reactors; and, in an effort to address Iranian and North Korean attempts to avoid controls by seeking goods just below pre-existing control thresholds, lowered thresholds for controlling filament winding machines and maraging steel, both needed for manufacturing uranium enrichment centrifuges.¹⁷⁶

In parallel with the fundamental review, the United States and others have attempted to address the problem of below-threshold procurements by issuing watch lists and “choke point” lists of items that Iran, North Korea, and others appear to need to advance their programs. These lists can be circulated within the NSG to heighten attention given to exports of these commodities without the need for formal changes to the NSG control lists, which require consensus among all NSG participating governments.

Export Control Reform Initiative. The U.S. Export Control Reform Initiative has focused predominantly on easing export controls on a wide range of dual-use goods and technology with potential non-nuclear military applications by reclassifying the items in

¹⁷⁶ Steven Clagett, “Update on BIS Nuclear Controls and Licensing,” U.S. Department of Commerce, BIS Update Conference, July 2013 and Richard Goorevich, “Multilateral Supplier Policy Program and Global Regimes Program,” both available at http://www.bis.doc.gov/index.php/forms-documents/doc_view/787-nuclear-technology-policy-nuclear-technology-policy-licensing-issues-trends.

question as strategic dual-use goods, rather than munitions, a change that will move the licensing of such exports from the Department of State to the Department of Commerce. Little impact is expected on especially designed or prepared nuclear commodities or nuclear-related dual-use goods; a limited number of the nuclear-weapon related items currently licensed by the Department of State may be transferred to Commerce for licensing.

Indian Membership in NSG. In 2008, India was granted an exemption from the general NSG rule that bans nuclear-specific exports to states classified as non-nuclear-weapon-states under the NPT – states that had not detonated a nuclear explosive device prior to January 1, 1967 – that have not placed all of their nuclear activities under IAEA monitoring. More recently, India has sought to obtain membership in the group, in an effort to enhance its status as a responsible contributor to international nonproliferation efforts and rectify its historical image as a state of proliferation concern. The NSG has remained divided on the issue, with a bloc including France, Russia, the UK, and the United States favoring membership, and another cluster of states, led by China opposing. China has tied Indian membership to the inclusion of Pakistan, an option opposed by the United States among others, because of the past transfers from Pakistan of nuclear-weapons related, materials, and technology to North Korea, Iran, and Libya, through the network led by Pakistani nuclear scientist A.Q. Khan. At the 2013 NSG Plenary in Prague, a number of Western states also voiced concerns regarding Indian membership and urged conditioning this on India agreeing to adopt additional nonproliferation controls, such as ratifying the Comprehensive Test Ban Treaty.¹⁷⁷

Currently, although India is eligible to receive transfers of nuclear commodities for its civilian nuclear program (which is subject to IAEA monitoring), NSG rules continue to deny transfers that might contribute to its nuclear weapon program. The inclusion of India in the group, which operates by consensus, could enable it to veto future changes to NSG rules aimed at limiting transfers useful for nuclear weapon activities, such as lowering control thresholds, as was approved for certain items at the Prague plenary, noted earlier.

China's construction of a third and fourth nuclear power plant at the Chashma site in Pakistan (to be placed under IAEA safeguards) is also an issue at the NSG, since Pakistan is not eligible for transfers of nuclear reactors from NSG member states

¹⁷⁷ Yogesh Joshi, "China Rivalry Keeping India Out of Nuclear Suppliers Group," *World Politics Review*, June 14, 2013, <http://www.worldpoliticsreview.com/articles/13020/china-rivalry-keeping-india-out-of-nuclear-suppliers-group>; "India May Have to Wait to Join Sensitive Nuclear Export Body," *Reuters*, <http://in.reuters.com/article/2013/06/20/nuclear-india-nsg-idINDEE95J0A620130620>.

because of its refusal to place all of its nuclear materials and related facilities under IAEA monitoring. China has asserted that the agreement to build the facilities was concluded before it joined the NSG and is permissible under the group's "grandfather" rule. With construction having begun, it appears that the members of the group are prepared to tolerate this interpretation. Recent press reports suggest China may be planning to build a fifth facility at the site.¹⁷⁸

GAPS AND CHALLENGES

As indicated above, an underlying challenge with respect to export controls is the failure of many states to adopt complete nuclear export licensing systems. Most of these states are not significant suppliers of advanced nuclear equipment, but at least one state that recently adopted export control legislation, namely Malaysia, previously served as the location of a clandestine operation set up by the A.Q. Khan network that fabricated parts for uranium enrichment centrifuges destined for Libya. Other states with incomplete export control systems have sometimes served as unintentional transit hubs for goods going to Iran or North Korea.

Even in countries where export licensing is more fully implemented, ploys used by procurement networks continue to defeat controls. As highlighted in Chapter 2, these stratagems include falsifying end-users, end uses, and destinations on licensing applications; employing middlemen, front companies, and brokers to obscure the true purposes of proposed exports; and by-passing export licensing altogether by the use of diplomatic pouches to move goods. Countermeasures have focused on intensified efforts to alert potential target manufacturers to procurement efforts and promotion of internal compliance programs in these organizations, including screening of would-be customers against watch lists of entities of concern and close scrutiny of license application documents for inconsistencies.

The NSG does not appear to have focused comprehensively on the illicit procurement issue. The NSG Guidelines, for example, provide for urgent consultations among the group's participating governments in the event that a recipient state violates IAEA safeguards, but the Guidelines do not contain a parallel process for triggering consultations in response to repeated violations of a member state's national export control system, seen in attempts to obtain dual-use items on the NSG list. Furthermore, the group has not established a process for its members to assess the export controls

¹⁷⁸ For a detailed review of this matter see Mark Hibbs, "Chinese Chashma Poker Chip," *Arms Control Wonk* blog, March 23, 2013, <http://hibbs.armscontrolwonk.com/archive/1526/chinese-chashma-poker-chip>.

systems of the recipient states they proceed to sell NSG dual-use goods to, in order to ensure these items will not be retransferred by unscrupulous private parties. In addition, the group has no peer review mechanism to confirm the effectiveness of NSG members' export control systems – a potential problem in a number of these states. Finally, Chinese inability – or, possibly, unwillingness – to effectively enforce export control rules remains a major problem that neither U.S. diplomatic efforts, nor sanctions imposed on Chinese individuals and entities has been able to effectively address. The issue is discussed further in **System 6: Enforcement**.

Post-export inspections are an important, but distinct, component of export controls, not so substantial as to be considered a “system” as the term is used in this study, but nonetheless deserving of special attention. Accordingly, they are discussed here in brief a special section.

Post-Export Inspections and Verification

Following the legal export of nuclear-relevant or other potentially sensitive items, supplier states sometimes undertake a bifurcated follow-up process to ensure these items have not been diverted to a prohibited end-use or transferred to a location or end-user different from those listed in the item's export license. Authorities of the producer country arrange for such post-export verification of items of diversion concern. For dual-use nuclear items these arrangements are made on a case-by-case basis, while for “especially designed or prepared” nuclear items, uniform inspection arrangements implemented by the International Atomic Energy Agency (IAEA) are used, pursuant to the requirements of the NPT, where applicable, or through formal bilateral agreements between the supplier and the recipient states. For items that do not require an export license, the recipient is under no legal obligation to grant access for a post-export verification visit, and most such inspections are carried out on the basis of informal bilateral agreements.¹⁷⁹ In addition, in a parallel effort, companies manufacturing dual-use items are starting to conduct post-export inspections as an evolving part of best practices in supply chain management. While the EU¹⁸⁰ and some international and multi-state groupings (such as the Wassenaar Arrangement¹⁸¹) have offered suggestions

¹⁷⁹ China has declined to permit post-export verifications for items requiring no license, the only country approached by the United States to date that has adopted this policy.

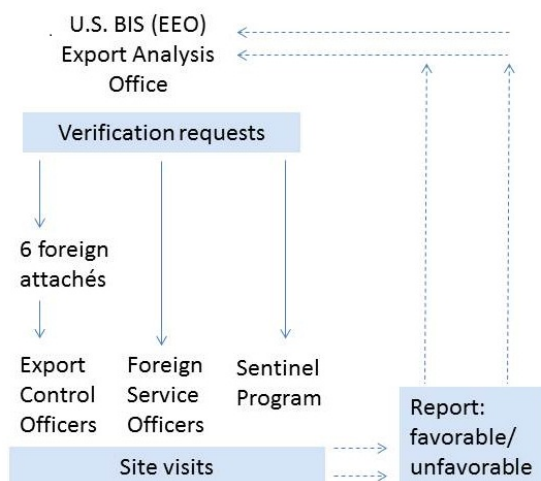
¹⁸⁰ Council of European Union, “User's Guide to the EU Code of Conduct on Arms Exports,” February 29, 2008, p. 21, <http://www.bits.de/public/documents/Ruestungsexport/userguidest07486.en08.pdf>.

¹⁸¹ Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies: Basic Documents, “Best Practices for Implementing Intangible Transfer of Technology Controls,” agreed at the 2006 Plenary, p. 40; “Extreme Vigilance: Sub-set of Tier 2 (VSL) items ‘Best

to their members about conducting post-export inspections and sharing related information, this fairly recent practice has so far been confined to uncoordinated national efforts.

At present, the United States is the most active and systematic in implementing these efforts (although a large portion of them remain somewhat informal), with significant

Figure 3.7 U.S. Post-export Verification



coordination and synergies between the public and private sectors, as well as among a number of government agencies that are engaged in the process.¹⁸² Following sales of dual-use items manufactured in the United States (for both those that do and do not require an export license), the Department of Commerce's Bureau of Industry and Security (BIS) implements post-shipment verifications through several programs (see Figure 3.7).¹⁸³

The BIS Office of Export Analysis is the central coordinating body, acting in support of the Office of Export Enforcement, which identifies the transactions to be targeted for post-export checks (usually several hundred, out of up to twenty thousand annual transactions) and distributes requests to conduct them to U.S. officials based overseas, as discussed below. In recent years, the tendency has been to single out states that have raised transshipment concerns for greater scrutiny.¹⁸⁴ These requests are then handled by the U.S. Commerce Department attachés and specialized Export Control Officers assigned to U.S. embassies; currently they are stationed in Abu Dhabi, Beijing, Hong Kong, Moscow, New Delhi, and

Practices', " agreed at the December 1, 2000 Plenary, p. 59; "Best Practices for Effective Enforcement," agreed at the December 1, 2000 Plenary, p. 62; "Annex to the Statement of Understanding on Implementation of End-Use Controls," p. 77,

<http://www.wassenaar.org/publicdocuments/2012/Basic%20Documents%202012.pdf>. Note that neither the NSG Guidelines nor the "Good Practices for Corporate Standards to Support the Efforts of the International Community in the Non-proliferation of Weapons of Mass Destruction," address post-export inspections of nuclear dual-use goods.

¹⁸² Interview with former U.S. Export Control Officer, Washington, DC, October 2013.

¹⁸³ Such verification mechanism concerns not only items potentially useful to foreign nuclear weapons programs, but a broader category of items with potential military applications or sensitive in nature – see BIS, "Commerce Control List (CCL)," <http://www.bis.doc.gov/index.php/regulations/commerce-control-list-ccl>.

¹⁸⁴ "Export Controls: U.S. Agencies Need to Assess Control List Reform's Impact on Compliance Activities," April 23, 2012, U.S. General Accounting Office (GAO), Report No. GAO-12-67.

Singapore, and oversee an additional 29 locations from these hubs.¹⁸⁵ In cases where post-export verification needs to be conducted in a country where no attaché is stationed, Foreign Commercial Service Officers are dispatched from the United States for that purpose. In addition, under the BIS Sentinel Program, Export Enforcement Officers can be dispatched from the United States to countries that are recipients of licensed exported items to verify their end use.¹⁸⁶

In 2010, Sentinel officers conducted over 600 such checks, of which 45 percent were unfavorable,¹⁸⁷ and in 2011, over 800 checks, with 18 percent unfavorable outcomes.¹⁸⁸ In one earlier instance, a post-export verification visit to a firm in India in 2003 revealed that it had transferred the U.S.-origin goods at issue without a license, to an Indian government agency that was on the BIS Entity List, subsequently resulting in a U.S. indictment in 2008.¹⁸⁹

Aside from these U.S. efforts, Canada and France are beginning to develop post-export verification practices. For instance, in 2011, Canada issued 185,500 export permits, of which 105 were for nuclear items, 335 were for items of proliferation concern, and 2,712 were for dual-use goods; under a system based on voluntary compliance, Canada's Border Services Agency issued 6 queries for post-export verification (across all

¹⁸⁵ See BIS, "Export Control Officer Program (ECO Program),"

<http://www.bis.doc.gov/index.php/enforcement/oea/eco>.

¹⁸⁶ BIS, "Compliance," <https://www.bis.doc.gov/index.php/enforcement/oea/compliance>.

¹⁸⁷ The term "unfavorable outcome" refers to a broad range of inconsistencies with the product's end use identified prior to its export, which often can be relatively minor. Available program reports tend to provide several detailed case studies, but do not identify specifically what led each of the unfavorably rated cases to receive this evaluation – examples range from diversion of items in question to limited cooperation of the local personnel. (See Matt Schroeder, "FAS Obtains Data on Arms Export End-use Monitoring," January 22, 2007, *FAS Strategic Security Blog*, http://blogs.fas.org/security/2007/01/fas_obtains_data_on_arms_expor/ and Cliff Burns, "Beware My Power, Blue Lantern's Light!" January 25, 2007, *Export Law Blog*, <http://www.exportlawblog.com/archives/95>).

¹⁸⁸ Kevin J. Kurland, "Export Control Reform: Compliance and Enforcement during Transition," July 18, 2012, http://mtitv.com/Conference2012/PDF/commerce_and_state_and_enforcement_combined_update%202012.pdf.

¹⁸⁹ Cliff Burns, "Indictment Reveals BIS Sentinel Program in Action," *Export Law Blog*, September 10, 2008, <http://www.exportlawblog.com/archives/389> and Department of Justice, "Indian National and Indian Corporation Indicted on Charges of Supplying Indian Government with Controlled Technology," September 10, 2008, <http://www.justice.gov/opa/pr/2008/September/08-nsd-805.html>. For more case studies, see slides from the discussion moderated by Kevin J. Kurland, "End-Use Monitoring: Transshipment," U.S. Department of Commerce, Bureau of International Security, Update 2012 Conference, http://www.bis.doc.gov/index.php/forms-documents/doc_view/590-end-use-monitoring-diversion.

categories)¹⁹⁰ – reflective of the relatively small scale of this effort. Canadian customs officials were also known to be conducting post-export checks up by phone for items that required no export license.¹⁹¹ Meanwhile, France is starting to develop a practice of informally asking its exporting companies to check, and share the information about, the possible post-export diversion of their products.¹⁹²

RECENT DEVELOPMENTS

A practice emerging in parallel to these governmental efforts is private sector post-export visits. Many of the items exported for legitimate purposes but having potential use in a nuclear weapon program tend to require substantial maintenance and follow-up services from the manufacturer; the technical service personnel dispatched to the clients for that purpose would quickly notice if something were amiss. The nonproliferation effort has been increasingly successful in tapping into these practices, asking the exporters to share such information with relevant authorities. Indeed, the U.S. BIS has at times been able to contact the exporters and ask it to conduct a check on its behalf in recipient destinations that have no Export Enforcement attaché and the department was unable to dispatch an Export Control Officer or Foreign Commercial Service team for that purpose.¹⁹³ If post-export visits specifically to check for diversion risks remain somewhat rare in the private sector, MKS Instruments, a company that manufactures pressure transducers, some of which were found in Iran, is an example of exceptionally rigorous scrutiny: subsequently, the company introduced the practice of sending its U.S.-based representatives to “conduct site visits for all but the smallest orders, taking photographs of the premises of end use and conducting other forms of due diligence” to insure against post-export diversion.¹⁹⁴

¹⁹⁰ Department of Foreign Affairs, Trade and Development Canada, “Annual Report to Parliament on the Administration of the Export and Import Permits Act,” 2011, <http://www.international.gc.ca/controls-controles/report-rapports/2011.aspx?lang=eng>.

¹⁹¹ Interview with a former U.S. Export Control Officer, Washington, DC, October 2013.

¹⁹² Interview with European official, Wilton Park, UK, September 2013.

¹⁹³ Interview with a former U.S. Export Control Officer, Washington, DC, October 2013.

¹⁹⁴ Ian J. Stewart and John McGovern, “Beyond Compliance: Preventing the Diversion of Sensitive Vacuum Measuring Equipment - the ‘Controlled Delivery Model’,” September 2013, CSSS Occasional Paper No. 3, <http://www.kcl.ac.uk/sspp/departments/warstudies/research/groups/csss/pubs/beyondcompliance.pdf>. This practice was introduced in response to an incident, presently under investigation, where an employee at the MKS Instruments’ Chinese office allegedly diverted thousands of pressure transducers to unauthorized end-users through front companies and false end-user certificates (see **Chapter 1**, note 10 on p. 4).

GAPS AND CHALLENGES

While post-export controls on arms transfers and nuclear-specific goods have become standard practice internationally,¹⁹⁵ few countries presently conduct such inspections for dual-use goods, especially the ones that do not require an export license. Nor do joint international or multi-state initiatives exist in this domain, so that the extent and practices of post-export inspections depend entirely on national capacity and willingness of producer states to conduct such checks. A related challenge is that states whose manufacturers have seen their dual-use technology exports diverted to advance foreign nuclear weapons programs in the past – such as Austria or Germany – are not the ones with the most rigorous or most rapidly advancing post-shipment verification programs.

Another challenge is that verification of the use of items in question can be very complex and/or costly in practice.¹⁹⁶ For example, from a technical standpoint, if an exported component, such as a particular chip, is integrated into a large piece of factory equipment, requiring access to it for verification purposes presents an unreasonable request to the business operating that factory. Also, the Export Control Officers performing a check-up might lack the technical expertise to assess whether the item is being employed in a compliant manner.¹⁹⁷ Finally, with the array of dual-use items of concern expanding, a growing number of legitimate businesses find it difficult to comply with these requirements that do not seem to be adapting as quickly to the commercial environment – for example, when end-user verification requirements make it difficult to use international distributors.

¹⁹⁵ See, e.g., Ilhan Berkol and Virginie Moreau, “Post-Export Controls on Arms Transfers: Delivery Verification and End-Use Monitoring,” *Les Rapports du GRIP*, April 2009, <http://www.nonproliferation.eu/documents/other/ilhanberkolandvirginiemoreau4f718b0ab7bd7.pdf>.

¹⁹⁶ For a detailed discussion of such challenges associated faced by high-end computer sales from U.S. manufacturers, see Harold J. Johnson, Associate Director, International Relations and Trade Issues, National Security and International Affairs Division, U.S. General Accounting Office, Testimony Before the U.S. Senate Committee on Governmental Affairs, Washington, DC., May 26, 2000, <http://www.gpo.gov/fdsys/pkg/CHRG-106shrg65171/html/CHRG-106shrg65171.htm>.

¹⁹⁷ U.S. General Accounting Office Report No. GAO-04-357, “Export Controls: Post-Shipment Verification Provides Limited Assurance That Dual-Use Items Are Being Properly Used,” released February 11, 2004, <http://www.gao.gov/assets/250/240909.html>.

System 3: Customs Controls and Inspections¹⁹⁸

BASIC FRAMEWORK

Although the structure of national customs administrations and their respective mandates vary widely from state to state, the core function of a national customs administration is monitoring the movement of physical goods in and out of the customs territory and associated functions: collection of duties and fees, protection of domestic markets, and enforcement of the national customs code; where export licensing laws exist, these functions include monitoring compliance with such laws for goods leaving the customs territory.¹⁹⁹ National customs administrations play a major role in law enforcement investigations of criminal or unauthorized activities involving violations of the national customs codes or other national laws and regulations, including violations of trade controls on nuclear items and related materials.

In many states, the traditional role of customs has been to implement a wide range of border management policies, often on behalf of other government agencies, with the focus on border security and immigration. In developed economies that have effective strategic trade control regimes, including restrictions on the import/export of radiological items and WMD-relevant specialized and dual-use commodities, a customs authority works alongside other government departments or ministries, such as the national licensing authority and the intelligence community, in a holistic approach to monitor the cross-border movement of physical goods to foreign end-users/uses. In these states, the national licensing authority reviews import or export license applications and based on certain licensing criteria, may grant a license or permit that authorizes the import or export, provided no transfers are identified that pose an unacceptable risk of diversion to foreign projects of proliferation concern, such as nuclear-related activities taking place in states that are out of compliance with their IAEA safeguards agreements. The customs function is most often located in a country's Ministry of Finance, the traditional organizational home of customs administrations established historically to generate revenue through import and export duties. In other instances, the customs function may be part of a department or ministry that is

¹⁹⁸ The authors wish to thank Carol Kalinoski, Esq., for her significant contributions to this section of the study.

¹⁹⁹ The Revised Kyoto Convention on the Simplification and Harmonization of Customs Procedures ("Revised Kyoto Convention") defines "customs" as "the Government Service which is responsible for the administration of Customs law and the collection of duties and taxes and which also has the responsibility for the application of other laws and regulations relating to the importation, exportation, movement or storage of goods." See World Customs Organization website, "The Revised Kyoto Convention," http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf_revised_kyoto_conv.aspx.

dedicated to border security. The United States' strategic trade control regime is an example of this construct, with targeting inspections function lodged in the Customs and Border Protection section of the Department of Homeland Security, and investigative functions lodged in DHS's Homeland Security Investigations.²⁰⁰

In developed economies that operate as major transportation hubs, such as Singapore or the Hong Kong Special Administrative Region, the national customs administration is the lead ministry for both the regulation and licensing of strategic trade and the enforcement of national strategic trade controls, including customs laws and regulations. When these two main licensing and enforcement functions are located in separate organizations, such as in Canada, Germany, or the United States, customs administrations and related customs intelligence branches work closely with licensing personnel in the identification of suspect end users and investigation of suspect commodity transfers.

In less developed states with limited or ineffective strategic trade controls – if any – the national customs administration is involved in general customs control activities, and can serve as a single foundational platform for establishing a system of control. These organizations are typically focused on the customs clearance process, primarily for imported goods, the collection of duties and fees, and investigations for violations of the local customs code. These states typically rely heavily on import duties and fees to generate government revenue. The challenge for these states is to modernize their customs administrations to comport with international standards, and, more importantly, to establish and implement strategic trade controls over items and intangible technology to comport with international, legally binding obligations to control such trade. This enhanced mandate requires training and expertise, as well as access to relevant inspection technology, for customs administrations to expand their scope of coverage beyond the harmonized tariff codes so as to include strategic items and intangible technologies identified on the Nuclear Suppliers Group control lists and on the control lists of other multilateral regimes.²⁰¹ Various national and regional

²⁰⁰ The Export Enforcement Coordination Center, or “E2C2,” has been created by Executive Order in 2012 to coordinate these activities between the Homeland Security Investigations and several other investigative bodies, including the Department of Commerce’s Office of Export Control Enforcement, the FBI, and various DOD-funded bodies, including Defense Investigative Services. See Executive Order 13558 (November 9, 2010), <http://www.whitehouse.gov/the-press-office/2010/11/09/executive-order-export-coordination-enforcement-center>. E2C2 is discussed further in **System 6: Enforcement**.

²⁰¹ There are three other such regimes: The Wassenaar Arrangement list (covering conventional arms and related technology); the Australia Group list (covering material, equipment, and technology for the production of chemical and biological weapons), and the Missile Technology Control Regime list (covering missile-related materials, equipment, and technology).

programs already exist to provide technical assistance to requesting states (see **System 7: International Outreach and Capacity Building**), but full implementation of such legislation and practices can be expected to take further time and resources.²⁰²

With respect to combatting nuclear commodity smuggling, specifically, three customs functions are the most salient: verifying against export licenses the nature, specifications, and approved destinations of commodities going to foreign states; conducting targeted inspections of outbound cargo, based on tips from intelligence and law enforcement agencies or on suspicious “red flag” anomalies in licensing documents, and seizing nuclear-specific and dual-use contraband; and conducting enforcement actions against export control violations, in conjunction with other enforcement and licensing agencies, as appropriate.

INTERNATIONAL MEASURES

The historical role of customs has begun to change in recent years for a number of reasons. First, the globalization of trade has broadly dispersed the stages of production, as well as the manufacturing of different components, thereby creating a global supply chain. Second, new technologies and transportation modalities have emerged, such as standardized containers that can move goods faster and more efficiently to their final end-use/users, free trade zones that are outside the traditional customs territory, and e-commerce. Third, numerous foreign trade agreements are being signed with the intent of expanding trade between the states parties and reducing trade barriers. Fourth, the face of international threats continues to change, with a rise of concerns in the aftermath of 9/11 that violent non-state actors may seek to acquire weapons of mass destruction and their means of delivery, or materials to construct them. This changing global trade environment, necessitating more rigorous systems of ensuring supply chain security, has increased the workload for national customs administrations, strained their resources, and required most that wish to maintain favorable terms of trade to be engaged, at least minimally, in strategic trade controls and related trade restrictions resulting from multilateral economic and trade sanctions. The push by many national parliaments and/or government departments for targeted inspections of shipments transiting national borders, to ensure that there are no nuclear commodities in the cargo, has added the challenge of balancing security concerns with economic feasibility.

²⁰² Since strategic trade management is a relatively new mission for many customs administrations, a significant number of developing countries with well-established customs practices, such as Brazil, South Africa, or Poland, have benefitted substantially from peer-to-peer customs exchanges focusing on the capabilities required to detect and prevent illicit WMD-related transfers. These countries’ customs administrations also serve as models to less-developed states, which are still seeking to establish systems of control and absorb niche licensing and interdiction capacities.

An attempt to inspect every shipment would be cost-prohibitive for customs administrations and for industry and could well bring the movement of international trade to a halt. As the search for middle ground continues, states have tended to make this trade-security balance at different levels of control, making the creation of uniform international standards a complex undertaking.

Revised Kyoto Convention (2006) and the World Customs Organization. The World Customs Organization (WCO), with 179 member customs administrations, has long been a proponent of the need for customs administrations to reconsider their historical approach to international trade control and argued that the “gatekeeper” mentality should be abandoned. With support from the World Trade Organization (WTO), the WCO reached consensus in 1999 on revisions to the International Convention on the Simplification and Harmonization of Customs Procedures, the key convention regarding customs. The revised convention became known as the Revised Kyoto Convention and came into effect in early 2006; it currently has 91 parties, including the United States.²⁰³ The Convention, along with its General and Specific annexes, is considered to be the international standard for customs practices in the 21st century.

The Convention promotes a number of key principles that facilitate trade by simplifying customs procedures and also promotes enhanced controls over strategic goods. These include “risk management,” in essence the use of document screening to concentrate physical inspections and added scrutiny on potentially sensitive items, while reducing scrutiny of other goods,²⁰⁴ and the concept of the “authorized person” – a trader determined to be generally in compliance with customs law, who is then approved for

²⁰³ International Convention on the Simplification and Harmonization of Customs Procedures (as amended), http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf_revised_kyoto_conv/kyoto_new.aspx. The first Kyoto Convention on the Simplification and Harmonization of Customs Procedures, along with annexes, entered into force in 1974. The 1999 revisions to the Convention commit the states wishing to become a contracting party to the Convention to accept the Convention and the General Annex, which are binding. In the Revised Kyoto Convention, the General Annex commits the contracting party to the following key principles: transparency and predictability of customs actions; standardization and simplification of the goods declaration and supporting documentation; simplified procedures for authorized persons; maximizing the use of information technology; minimum necessary customs controls to ensure compliance with regulations; use of risk management and audit-based controls; coordinated intervention with other border agencies; and partnership with industry. Contracting parties to the Convention have three years to implement the standards and five years to implement the transitional standards in the General Annex and the specific annexes.

²⁰⁴ See United Nations Economic Commission for Europe, “Trade Facilitation Implementation Guide, Customs Risk Management and Selectivity,” <http://tfig.unece.org/contents/customs-risk-management.htm>.

simplified procedures that require little intervention by customs for the clearance of their goods.

The WCO, itself, is focusing increased attention on controlling trafficking in dual-use nuclear goods and other sensitive goods through its SAFE Framework of Standards to Secure and Facilitate Global Trade. Adopted in 2005 and updated periodically, it is a set of voluntary best practice recommendations, which draws heavily on practices first adopted in the United States.²⁰⁵ SAFE Framework consists of four core elements:

First, it harmonizes the advance electronic cargo information requirements on inbound, outbound and transit shipments. Second, each country that joins the SAFE Framework commits to employing a consistent risk management approach to address security threats. Third, it requires that at the reasonable request of the receiving nation, based upon a comparable risk targeting methodology, the sending nation's Customs administration will perform an outbound inspection of high-risk cargo and/or transport conveyances, preferably using non-intrusive detection equipment such as large-scale X-ray machines and radiation detectors. Fourth, the SAFE Framework suggests benefits that Customs will provide to businesses that meet minimal supply chain security standards and best practices.²⁰⁶

The electronic information shared between customs authorities of the exporting and importing states prior to export includes the use of proliferation risk profiles, facilitating optimal deployment of inspection resources, which the organization refers to as an “intelligence enabled, risk-based approach.”²⁰⁷ The ability of states implementing the

²⁰⁵ World Customs Organization, “SAFE Framework of Standards to Secure and Facilitate Global Trade, July 2012” (hereafter, “SAFE Framework”), http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/~/_/media/55F00628A9F94827B58ECA90C0F84F7F.ashx. The SAFE Framework includes recommendations on such issues as: integrated customs control procedures for integrated supply chain management; authority to inspect cargo, and use of modern technology in doing so; risk-management systems to identify potentially high-risk shipments; identification of high-risk cargo and container shipments; advance electronic information on cargo and container shipments; and joint targeting and screening. See United Nations Economic Commission for Europe, “Trade Facilitation Implementation Guide, WCO Framework of Standards to Secure and Facilitate Trade (SAFE),” <http://tfig.unece.org/contents/wco-safe.htm>.

²⁰⁶ SAFE Framework, op. cit., section 1.3.

²⁰⁷ Remarks by Simon Limage, “Why Should Customs Focus on Strategic Trade Controls Enforcement?” U.S. Department of State, <http://www.state.gov/t/isn/rls/rm/200582.htm>; WCO Presentation, “Customs and Strategic Trade Controls,” 20th Asian Export Control Seminar, February 26-28, 2013, Tokyo, Japan, [http://www.simul-conf.com/outreach/2012/asian_ec/5-5%20Mr%20Aniszewski%20\(WCO\).pdf](http://www.simul-conf.com/outreach/2012/asian_ec/5-5%20Mr%20Aniszewski%20(WCO).pdf).

SAFE Framework to call upon other states also implementing these recommendations to inspect specific cargoes is an important addition to efforts to interdict illicit shipments of nuclear commodities.²⁰⁸ The SAFE Framework also introduces the concept of the Authorized Economic Operator (AEO) – the rough equivalent of the “authorized person” of the Kyoto Convention – as a party involved in the international movement of goods, in whatever function, that has been approved by, or on behalf of, a national customs administration as complying with WCO or equivalent supply chain security standards. In effect, an AEO is certified to be implementing a robust internal compliance program to screen against transfers involving suspect end-users. Transactions undertaken by AEOs typically receive reduced scrutiny from customs authorities. (The U.S. version of this is known as the Customs-Trade Partnership against Terrorism, or C-PTAT.) As of June 2012, 166 out of the 179 WCO members had signed letters of intent to implement the SAFE Framework. Some members have already implemented the program.

The WCO is active in building the capacity of participating customs organizations, and activities addressing the trafficking of dual-use commodities of proliferation concern have received added attention in recent years; these efforts are discussed further in **System 7: International Outreach and Capacity Building**²⁰⁹

UN Security Council Resolution 1540. As noted in a number of systems discussed above, UNSCR 1540 (2004) requires states to establish appropriate effective controls over WMD materials and equipment that comes within their jurisdiction. Customs efforts are an important component of such controls. As the 1540 Committee has reported and as noted above in **System 2: Export Controls**, many countries have yet to enact comprehensive strategic trade control laws. Nonetheless, virtually all countries have in place some measure of border control and customs activity. These can contribute to controlling nuclear commodity smuggling, even if the full panoply of control measures may be lacking in a particular state.

*Nuclear Nonproliferation Treaty (NPT) and the Convention on the Physical Protection of Nuclear Materials.*²¹⁰ As noted in **System 2: Export Licensing and Control Lists**, these two treaties require states to impose certain conditions on the export of specific classes of nuclear goods, which necessitate export licensing and associated customs verification. The NPT requires that supplier states obtain assurances from recipient

²⁰⁸ Interview with U.S. expert, Washington, DC, October 2013.

²⁰⁹ See pp. 146-148.

²¹⁰ See Treaty on the Non-Proliferation of Nuclear Weapons (NPT), op. cit., and the Convention on Physical Protection of Nuclear Material, op. cit.

states that transferred nuclear-specific goods will be used only in facilities subject to IAEA monitoring (safeguards), while the Convention on the Physical Protection of Nuclear Materials requires nuclear materials in international transit to be subjected to physical security and accounting measures to reduce the risk of theft or diversion. Neither treaty mandates that states address the danger of the illicit procurement of dual-use nuclear commodities, which are the principal target of current procurement efforts, but if effectively implemented, these treaties can reduce the threat of misappropriation of related nuclear goods.

UN Security Council Resolutions 1929 (2010) and 2094 (2013). As outlined earlier, these resolutions (and their predecessors) sanctioning, respectively, Iran and North Korea because of concerns raised by their nuclear programs, impose broad embargoes on transfers of nuclear commodities to them, including commodities identified on the nuclear-specific and nuclear dual-use control lists of the NSG. Customs activities, although not explicitly listed as required under the resolutions, are implicitly mandated by them because compliance with their embargo provisions could not be executed in the absence of the customs authorities' screening of out-going cargoes against approved export licenses and the intervention by such authorities in the event of export violations.

In addition, both resolutions look to the inspection of suspect cargoes as an important mechanism for curtailing nuclear commodity smuggling, the Iran resolutions calling upon states to conduct such inspections and the most recent North Korea sanctions resolution requiring this.²¹¹ Both, the Iran sanctions resolutions and those pertaining to North Korea underscore that any cargo inspection must be done in compliance with international law, including the Law of the Sea – a reminder that vessels in transit on the high seas or in the territorial waters of states may not be boarded without the consent of the vessel's state of registry. As a practical matter, however, for the past decade, most suspect cargo inspections have been undertaken in port by customs officials, not at sea by military boarding parties.²¹²

²¹¹ UNSCR 1929 (2010), paragraph 14, and UNSCR 2094 (2013) paragraph 16.

²¹² In December 2002, at U.S. request, Spanish naval forces boarded the *So San* on the high seas, while it was in transit from North Korea to Yemen with a cargo of ballistic missiles. The ship refused to identify its state of registry and was treated as a pirate vessel, according to press accounts. See "U.S. Lets Scud Ship Sail to Yemen," CNN.com/world, December 12, 2002, <http://edition.cnn.com/2002/WORLD/asiapcf/east/12/11/us.missile.ship/>. Regarding the predominant role of customs inspections, see Aaron Dunne, "The Proliferation Security Initiative: Legal Considerations and Operational Realities," SIPRI Policy Paper No. 36, May 2013.

MULTI-STATE MEASURES

*Nuclear Suppliers Group.*²¹³ Although the guidelines of the NSG do not mention the term “customs,” they do require member governments to establish export licensing procedures, and an effective export licensing system implies the need for verification of licenses at the time goods cross borders.

Proliferation Security Initiative. The Proliferation Security Initiative is a U.S.-led activity that seeks to halt trafficking in WMD, missile delivery systems, and related materials and equipment to and from states and non-state actors of proliferation concern, with a focus on interdicting such transfers. The PSI does not have a formal organizational structure. States join the activity by adhering to a set of “Interdiction Principles,” in effect, promising to cooperate in efforts to block transfers of WMD commodities to destinations of concern. One hundred and two states now participate in this endeavor at various levels, with members of the 21-member Operational Experts Group (OEG) playing the most prominent role.²¹⁴ The PSI establishes arrangements and points of contact to permit rapid interdiction of suspect cargoes at the request of a member of the group, with the trigger for the request normally being a tip provided by an intelligence service. Exercises, most often conducted among participant state navies on a regional basis, reinforce lines of communication and cooperative relationships in this sphere, but, as noted, it appears that the vast majority of interdictions, including those under the PSI, are performed in port.²¹⁵

The PSI Interdiction Principles do not mention customs authorities by name. They do, however, call for, among other measures, inspections by participating states in ports, airfields, or other facilities of vessels, aircraft, or other modes of transport suspected of carrying WMD-related cargoes, and for the seizure such cargoes that are identified. These are actions that would normally be carried out by customs personnel.

European Union Measures. Under EU Council Regulation 428/2009, as amended, the European Union has adopted a somewhat complex set of export licensing rules governing transfers of certain nuclear commodities, with restrictions tightening as the

²¹³ The Nuclear Suppliers Group is discussed more fully in **System 2: Export Licensing and Control Lists**.

²¹⁴ Governments participating in the PSI are listed at <http://www.state.gov/t/isn/c27732.htm>. The 21 members of the OEG are: Argentina, Australia, Canada, Denmark, France, Germany, Greece, Italy, Japan, the Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Russia, Singapore, Spain, Turkey, United Kingdom and the United States. See Mary Beth Nikitin, *Proliferation Security Initiative*, op. cit.

²¹⁵ For a list of PSI exercises, see, U.S. Department of State, PSI Calendar of Events, <http://www.state.gov/t/isn/c27700.htm>. (The December 2002 interception of the *So San* took place prior to the launch of the PSI in May 2003.)

sensitivity of the commodity increases.²¹⁶ Certain nuclear-specific commodities of low sensitivity, such as natural uranium and low-enriched uranium nuclear fuel (not suitable for weapons), may be transferred without a license to any other EU member state, but require a license to be transferred to outside states. More sensitive nuclear dual-use and nuclear-specific items, however, such as plutonium or highly enriched uranium, (both usable for nuclear weapons), nuclear reactors, uranium enrichment centrifuges, and nuclear dual-use items for sensitive facilities (such as high-grade steel and carbon fiber), require an individual transfer license issued by the state of origin for transfer to another state within the EU or an individual export license for the commodity to be moved to an outside state; the licenses contain restrictions on retransfers.²¹⁷

Thus, customs authorities must oversee both the intra-EU and extra-EU movement of all but the least sensitive nuclear commodities. Although this framework is established at the level of the EU Council, individual licensing decisions and associated customs activities take place at the level of member states, creating a patchwork of regulations and enforcement, with some EU members having highly restrictive policies in issuing licenses and others far weaker restraints.²¹⁸ There are also significant differences among EU members in the application of catch-all provisions set out Regulation 428/2009.²¹⁹ Additional challenges for licensing and customs authorities is that EU members have not shared the details of licensing denials, creating risks that one state may grant a license to a particular party for a particular item after another EU state has denied it. In 2011, to remedy this situation, the European Commission launched the Dual Use e-System for the secure exchange of information regarding dual-use exports by EU member states, including the exchange of license denial information.²²⁰ As of late 2013, however, only eight EU member states were connected to the system, six additional

²¹⁶ The EU uses the term “dual-use” differently from the Nuclear Suppliers Group, whose terminology is being used in this study. The EU uses the term to refer to commodities with both military and civilian uses. Under this terminology, a nuclear reactor could be considered dual-use. The NSG, looking solely at nuclear items, distinguishes among them on the basis of whether they have been especially designed or prepared for nuclear use or whether they are dual-use commodities in the sense that have both nuclear and non-nuclear uses. In the discussion above, the EU usage is avoided and examples using specific commodities are used to reduce confusion.

²¹⁷ EU Council Regulation 428/2009, Annexes I and IV.

²¹⁸ Isabel Maelcamp, “European Union EU Export Control on Dual Use Items,” U.S. Commercial Service, June 2010, http://export.gov/europeanunion/static/MR-151%20EU%20Export%20Control%20on%20Dual%20Use%20Items_Latest_eg_eu_036947.pdf.

²¹⁹ These challenges are highlighted in a European Commission document, “Green Paper: The Dual-Use Export Control System of the European Union: Ensuring Security and Competitiveness in a Changing World,” June 30, 2011, COM (2011) 393 final, http://trade.ec.europa.eu/doclib/docs/2011/june/tradoc_148020.pdf.

²²⁰ European Commission October 2013 Export Control Report, op. cit. p. 7.

members were working to establish such links, and three others were taking preliminary steps to do so.²²¹ Enforcement actions and the setting of penalties for violations also take place at the national level.²²² These differences in the rigor of export control measures appear to have been exploited by Iran in obtaining carbon fiber, needed for the production of uranium enrichment centrifuges.²²³

The Council regulation also envisions an additional role for customs authorities in EU states, inasmuch as it provides that items transiting the EU – but not entering EU territory, as such – may be detained if national authorities believe there is a serious risk that the commodity may be diverted for proliferation purposes or if it is suspected of being destined for the proliferation of WMD in a third country.

U.S. MEASURES

In the United States, the Customs and Border Protection component of the Department of Homeland Security has the primary responsibility for inspecting outgoing cargo to verify compliance with export licenses. Given the vast quantity of goods exported from the United States annually, seizure of contraband nuclear commodities relies heavily on guidance from the intelligence community and, to a lesser extent, law enforcement agencies.

Customs and Border Protection now requires all shipping documents to be presented electronically, greatly facilitating screening and the opportunity to detect anomalies that can trigger further investigation, a measure promoted by the Kyoto Convention and the WCO SAFE Framework. This electronic system is used by exporters to file online export declarations, also helping the U.S. Census Bureau compile U.S. trade data. The information is shared with the Bureau of Industry and Security at the Department of Commerce, the Directorate for Defense Trade Controls at the Department of State, and other federal agencies involved in monitoring and validating U.S. exports. Included in the information provided is a description of the commodity to be shipped, its harmonized tariff code, and whether the item is being shipped under a license. As

²²¹ Ibid., p. 8.

²²² In a number of high-profile cases involving the A. Q. Khan nuclear smuggling network, prosecutors in individual EU countries have encountered great difficulty in obtaining convictions because of challenges in obtaining assistance from other EU members. See Sibylle Bauer, “WMD-Related Dual-Use Trade Control Offences in The European Union: Penalties and Prosecutions,” EU Non-Proliferation Consortium, Non-Proliferation Papers No. 30, July 2013, <http://www.sipri.org/research/disarmament/eu-consortium/publications/nonproliferation-paper-30> (spelling as in original); Anna Wetter, *Enforcing European Union Law on Exports of Dual-Use Goods*, SIPRI Research Report No. 24 (Oxford and New York: Oxford University Press, 2009).

²²³ Albright, Stricker, and Wood, “Future World of Illicit Nuclear Trade: Mitigating the Threat,” op. cit., p.7.

mentioned above, through the C-TPAT program the United States also promotes the implementation of rigorous internal compliance programs by offering freight carriers, brokers, manufacturers, and traders whose programs are approved, expedited customs treatment for importing goods into the United States.²²⁴ The program currently has more than 10,000 participants. The United States has also signed Mutual Recognition arrangements with several countries and the EU, which means that the AEO/C-PTAT validation of a company in one country is recognized in the other.²²⁵

Customs oriented investigations of export control violations are carried out by another unit of the Department of Homeland Security, the Immigration and Customs Enforcement agency's Homeland Security Investigations (HSI) directorate, which, in turn, has established an element dedicated to investigations of illegal exports of dual-use equipment, technology, and materials potentially useful in the manufacture of WMD, the Counter-Proliferation Investigations Unit.²²⁶ As explained in testimony by John P. Woods Assistant, director of National Security Homeland Security Investigations:

HSI's export enforcement program uses a three pronged approach: detecting illegal exports, investigating potential violations, and obtaining international cooperation to investigate leads abroad. HSI relies on specially trained U.S. Customs and Border Protection officers stationed at ports of entry to inspect suspect export shipments. Following detection of a violation, HSI special agents deployed throughout the country initiate and pursue investigations to identify, arrest, and seek prosecution of offenders.... The HSI Office of International Affairs has 71 offices around the world that work to enlist the support of their host governments to initiate new investigative leads and to develop information in support of ongoing domestic investigations.²²⁷

²²⁴ To clarify, the program focuses on preventing dangerous imports from entering the United States, as part of U.S. counter-terrorism efforts.

²²⁵ As of June 2012, WCO reported that 19 AEO mutual recognition agreements had been concluded and that 11 such agreements were pending.

²²⁶ Statement of John P. Woods Assistant Director, National Security Homeland Security Investigations, U.S. Immigration and Customs Enforcement, Department of Homeland Security, Hearing on "Economic Espionage: A Foreign Intelligence Threat to American Jobs and Homeland Security," before the U.S. House of Representatives Committee on Homeland Security, Subcommittee on Counterterrorism and Intelligence, June 28, 2012, <http://www.ice.gov/doclib/news/library/speeches/120628woods.pdf>. The Counter-Proliferation Investigations Unit also investigates illicit exports of military equipment and firearms.

²²⁷ Ibid.

In fiscal year 2011, HSI launched a total of 1,785 criminal investigations into possible export violations, made over 530 arrests, and obtained 487 indictments and 304 convictions for export related criminal violations; the organization's published statistics do not indicate what proportion of this total were cases involving dual-use nuclear technologies.²²⁸ Prior years' statistics are also impressive. The numbers have trended upward over time, likely reflecting increased effort on the part of ICE, but also suggesting that law enforcement efforts, while disrupting individual transactions and actors, have not had a deterrent effect on other malefactors.²²⁹ Enforcement activities to combat nuclear commodity smuggling are further discussed in **System 6: Enforcement Measures**.

RECENT DEVELOPMENTS

At the international level, the WCO is expected to announce in early 2014 further components of its on-going Strategic Trade Enforcement Initiative, which builds on the SAFE Framework of Standards. In particular, the WCO Enforcement Committee is developing a set of recommended best practices for customs administrations regarding the detection, inspection, and investigation of the illicit transfer of strategic goods. These would eventually be endorsed by the WCO Policy Committee and then be published. The Enforcement Committee will also continue a series of regional outreach meetings to present the best practices and is expected to launch a campaign targeting strategic commodities, with the goal of interdicting illicit transfers.

In the United States, during the second and third quarters of 2013, customs authorities launched a number of new enforcement actions, which are discussed in **System 6: Enforcement**.

²²⁸ Ibid.

²²⁹ For statistics for Fiscal Year 2006 through 2010, see *Export Controls: Proposed Reforms Create Opportunities to Address Enforcement Challenges*, Government Accountability Office Report 12-246, March 2012, <http://www.gao.gov/assets/590/589640.pdf>. In recent years U.S. customs agencies have launched a number of major initiatives to protect against the introduction of WMD into the United States, including the Container Security Initiative to inspect and seal containers coming to the United States in the ports of departure and the National Targeting Center, which screens and targets for anti-terrorism inspection all passengers and cargo before their arrival in the United States. These important efforts are not directly relevant to the problem of illicit exports of nuclear commodities, however, and are not further examined in this study. However, CSI staff provide important insights into the functionality of U.S. and partner country targeting and inspections capabilities, thus indirectly enhancing efforts to detect illicit transfers. See Customs and Border Security website, "CSI: Container Security Initiative," http://www.cbp.gov/xp/cgov/trade/cargo_security/csi/; and written testimony of U.S. Customs and Border Protection Office of Field Operations Assistant Commissioner Kevin McAleenan before the House Committee on Homeland Security, Subcommittee on Border and Maritime Security, Hearing, "Eleven Years Later: Preventing Terrorists from Coming to America," September 11, 2012, <http://www.dhs.gov/news/2012/09/11/written-testimony-us-customs-and-border-protection-house-homeland-security>.

At the national level China appears to have significantly tightened customs activities along its border with North Korea, which external observers have long considered to be one of the main access points for illicit trafficking (not limited to nuclear commodities) to and from North Korea. The action came in the wake of Pyongyang's third nuclear test on February 12, 2013.²³⁰ (China also supported tightened Security Council sanctions against North Korea under UNSCR 2094 (2013)). It is not clear how far-reaching these changes will be, however.

GAPS AND CHALLENGES

As indicated earlier the customs authorities worldwide face great difficulties in combatting illicit nuclear commodity activities. The scale of international commerce, the opacity and pervasiveness of containerized cargo, the desire to create expedited customs clearance processes to speed the flow of goods, and the great breadth of responsibilities falling to customs authorities, all coupled with inevitable limitations on resources create enormous obstacles to successful interdictions and enforcement activities. The use of electronic shipping documents allows for the automated scanning of these records, but even this advance continues to fall prey to the falsification of end-use and end-user entries and to the failure of private industry to comply with regulations requiring correct completion of basic data elements in their shipper export declarations.

With limited available resources, countries seeking to bolster their nonproliferation bona fides will sometimes also tend to focus on one initiative rather than seeing multiple approaches as essential to the goal of detecting illicit commodity transfers. For example, some large developing countries have strong Authorized Economic Operator arrangements in place, which can help reduce the number of shipments and companies warranting further scrutiny. But then, these same countries do not take steps to target dual-use goods or to train frontline inspectors to recognize the tell-tale signs of illicit movement of dual-use goods. Still other advanced countries have superior licensing systems but no systems in place to detect outbound shipments for which licenses have not been sought.

²³⁰ Charles Hutzler, "China Punishing North Korea for Missile Tests with Economic Pressure," *Huffington Post*, March 23, 2013, http://www.huffingtonpost.com/2013/03/23/china-punishing-north-korea-missile-tests_n_2939512.html; Ben Blanchard, "China Steps Up Customs Checks, But North Korea Trade Robust," *Reuters*, April 30, 2013, <http://www.reuters.com/article/2013/04/30/us-korea-north-sanctions-china-idUSBRE93T15E20130430>; Associated Press, "China Ups Pressure on North Korea by Detailing List of Weapons-Related Items It Won't Sell to Ally," *CBS News*, September 24, 2013, http://www.cbsnews.com/8301-202_162-57604314/.

This latter concern demonstrates why reform of EU customs and licensing activities to create a more robust and consistent system throughout the EU zone remains on the agenda. Few of the recommendations in the EU Council's 2011 Green Paper highlighting weaknesses in the EU system appear to have been implemented as of late 2013.²³¹ A report by the European Commission to the European Parliament on Regulation 428/2009 underscored the continuing challenges in controlling transfers of dual-use goods. Some stakeholders commenting on the current status of controls, the report notes, consider that EU export controls do not sufficiently address differentiated levels of risk, while enforcement remains sometimes fragmented for lack of systemic cooperation between relevant national authorities. From a security perspective, some stakeholders take the view that varying levels of control increase the risk of exposing "weak links" in the export control chain and might compromise the overall effectiveness of EU export controls.

Customs activities at transshipment hubs, such as Dubai, Hong Kong, and Singapore, remain problematic, but it appears that important progress has been made in these settings.²³² Elsewhere, as noted at the outset of this section, the failure of many states to implement basic laws controlling exports of nuclear and other WMD commodities limits the ability of their customs authorities to interrupt such illicit activities in this sphere.

²³¹ See note 219.

²³² Comments made by a number of participants at Wilton Park Conference 1261, Meeting the Challenge of Emerging Nuclear Commodity Smuggling, September 2013.

System 4: Supplier-State Private Sector Internal Compliance Programs

BASIC FRAMEWORK

At some point in their activities, illicit nuclear procurers must interact with the legitimate private sector entities. At such intersections, alert private sector firms committed to curbing nuclear commodity smuggling can serve as a crucial first line of defense in preventing a successful procurement. The essential tool is an internal corporate program dedicated to complying with relevant nonproliferation controls, referred to generally as “internal compliance programs.”

At present at least four major economic sectors must comply with a range of nonproliferation rules, triggering the need for internal compliance programs: manufacturing, finance, insurance, and transportation (including freight-forwarders and courier services).²³³ Such requirements are established under domestic laws, which themselves are mandated by a number of international instruments and undertakings, including UN Security Council Resolutions, although, in the United States and many Western countries, these domestic laws often pre-date the related international requirements and were adopted independently, as a matter of national policy.²³⁴

Current best practice standards for effective internal compliance programs for manufacturers of dual-use commodities attempt to address all major elements of the

²³³ Academia is also subject to export restrictions, namely those governing the export to persons abroad of relevant intangible technology and the provision of such technology through training or other means to foreign persons in the United States, including foreign students and trainees (“deemed exports”). At the moment, illicit nuclear commodity procurement efforts to support emergent nuclear weapon programs, as described above and highlighted in Security Council sanctions committee reports, are largely focused on the acquisition of tangible goods. However, an increasingly worrisome longer-term trend is aggressive efforts by states of proliferation concern to acquire intangible technology, for instance, by sending engineers or scholars to study programs or seminars abroad, and/or by the hacking foreign networks to gain access to military technology. See, e.g., U.S. Department of Justice, Federal Bureau of Investigation, “Higher Education and National Security: The Targeting of Sensitive, Proprietary, and Classified Information on Campuses of Higher Education,” White Paper, April 2011, <http://www.fbi.gov/about-us/investigate/counterintelligence/higher-education-and-national-security>; and Richard Perez-Pena, “Universities Face a Rising Barrage of Cyberattacks,” July 16, 2013, *New York Times*, http://www.nytimes.com/2013/07/17/education/barrage-of-cyberattacks-challenges-campus-culture.html?_r=0. Regarding such intangible technology procurement efforts, China and Iran are the states of greatest concern.

²³⁴ Export licensing requirements in the United States for nuclear-specific goods date back to the Atomic Energy Act of 1954. The current requirements for arms exports were established in the Arms Export Control Act of 1968, and for strategic dual-use goods (a category including nuclear dual-use goods) in the Export Administration Act of 1979. As noted above, the relevant UN Security Council resolution requiring states to adopt export controls was adopted in 2004, and to embargo nuclear-relevant goods to Iran and North Korea, during and after 2006.

illicit procurement – sometimes termed “cradle to grave security”²³⁵ – and call for such programs to include, with certain variations:

- Commitment to this mission by high-level management, ideally including a firm’s board of directors, and the appointment of a chief export compliance officer;
- Tailored screening, or “risk management,” procedures to determine whether the proposed transaction is consistent with current export and sanctions regulations, including
 - Application of commodity control lists;
 - Customer, end-user screening, and (where applicable) freight-forwarder, intermediate destination, and shipper screening;
 - Shipping controls to confirm goods shipped are as intended and properly characterized in shipping documents;
- Monitoring of post-shipment activities including license condition compliance, re-exports and transfers, and servicing and returns;
- Written procedures applicable across an enterprise;
- An active training program to support the screening effort;
- An internal program for monitoring and auditing the effectiveness of the internal compliance program;
- Procedures for handling and reporting export compliance problems and violations, both internally and to appropriate authorities;
- Procedures for implementing corrective actions.²³⁶

Arrangements for information sharing with national governments in countries where the firm does business can contribute crucially to effectiveness of such programs, on the one hand providing mechanisms for firms to receive background information on nuclear procurement patterns and alerts regarding specific suspect procurement

²³⁵ “Elements of an Effective Export Compliance Program,” Tom Andrukonis, Director Export Management & Compliance Division Office of Exporter Services, Bureau of Industry and Security, U.S. Department of Commerce, undated PowerPoint presentation, http://www.bis.doc.gov/index.php/forms-documents/doc_download/244-compliance-pdf.

²³⁶ Ibid. See also, “Core Elements of an Effective Export Management and Compliance Program,” Bureau of Industry and Security, U.S. Commerce Department website, <http://www.bis.doc.gov/index.php/compliance-a-training/export-management-a-compliance/elements-of-an-effective-emcp>; “Best Practice Guidelines on Internal Compliance Programmes for Dual-Use Goods and Technologies,” Wassenaar Arrangement, adopted at 2011 Plenary, <http://www.wassenaar.org/guidelines/docs/2%20-%20Internal%20Compliance%20Programmes.pdf>, and “Good Practices for Corporate Standards to Support the Efforts of the International Community in the Non-Proliferation of Weapons of Mass Destruction,” recently published on the NSG website, http://www.nuclearsuppliersgroup.org/A_test/01-eng/NSG%20Measures%20for%20industry%20update%20revised%20v3.0.pdf.

operations, and, on the other, offering firms a means for advising governments of unusual procurement approaches of which the company becomes aware.²³⁷

Cradle-to-grave, or supply chain, security encourages firms to focus not only on their own compliance, but on that of other entities with whom they do business, including suppliers and downstream partners, as well as subsidiaries and affiliated and unaffiliated distributors. One corporation, MKS Instruments, whose pressure transducers are used to monitor the uranium enrichment process, learned of an alleged diversion of these items to Iran, potentially involving an employee in a Chinese subsidiary.²³⁸ To avoid such challenges in the future, the company decided to tighten its supply chain and sell selected products directly to end-users and only to those that it had certified through due diligence procedures as legitimate.²³⁹

Although the above best practices are designed with the manufacturing sector in mind, the banking community has formulated parallel guidelines, focused on complying with a wide range of national and international sanctions regimes.²⁴⁰ Indeed, in advanced industrial states, most firms are subject to a wide range of regulatory requirements, and compliance with nonproliferation controls is a component of a broader compliance effort. In some cases requirements for screening for proliferation relevant transactions can be incorporated into preexisting screening efforts. In manufacturing, for example, where the licensing to a variety of destinations of a range of commodities – including nuclear-specific and dual-use commodities – has been required for many decades, refinements in export control lists and additions to lists of banned end-users can be easily incorporated into existing practices. Similarly, in the banking sector, the screening of transactions for money laundering and terrorism financing has been expanded to include screening for proliferation financing.²⁴¹

²³⁷ Germany and the United Kingdom are considered to have particularly effective information sharing arrangements. U.S. efforts may lag somewhat behind these because of corporate concerns that self-reporting of possible violations will trigger penalties, despite cooperation with the government.

²³⁸ See “Pressure Transducers with Nuclear Applications to China and Elsewhere,” Justice Department Compilation of Cases, op. cit.

²³⁹ Ian J. Stewart and John McGovern, *Beyond Compliance: Preventing the Diversion of Sensitive Vacuum Measuring Equipment - The “Controlled Delivery Model”* Center for Science and Security Studies, King’s College, September 2013, <http://www.kcl.ac.uk/sspp/departments/warstudies/research/groups/csss/pubs/beyondcompliance.pdf>.

²⁴⁰ Timothy White, “How to Implement Risk-Based OFAC Monitoring Practices,” *Bank Compliance*, September-October 2007, p. 8, <http://www.aba.com/Products/bankcompliance/Documents/SeptOct07CoverStory.pdf>.

²⁴¹ In the United States, the blocking of assets of individuals and entities materially supporting terrorist activities was required in 2001 by Executive Order 13224, requiring banks to screen transactions for possible violations of this rule. The blocking of assets of those materially supporting proliferation was

Compliance at the transaction level in the insurance and shipping sectors is far more difficult. Typical insurance underwriting agreements – which might insure a cargo that included nuclear contraband – cover all of a shipper’s cargoes for a fixed period of time, although they usually incorporate a clause excluding shipments that violate sanctions regulations. As a practical matter, it is usually impossible for an underwriter to examine a cargo prior to its departure.²⁴² Shipping firms have little capability to examine the vast number of containers in international commerce and must rely on tips from authorities and anomalies in shipping documents. International courier services are now going to considerable expense to screen package destinations and manifests against control lists, but undertake physical inspections only in rare cases.²⁴³

Adding to the difficulty of compliance is that, as seen in Chapter 2, goods being sought today by procurement networks are predominantly dual-use commodities, whose export, financing, or transport (under appropriate licenses when relevant), is in most cases is entirely legal. This makes it necessary to screen pending transactions not only against control lists to determine whether licenses may be needed but also against multiple lists maintained by governments of proscribed individuals, entities, and destinations.²⁴⁴ In the case of a transaction involving a proscribed party, transfers of uncontrolled items may also be banned under so-called “catch-all” regulations, if the supplier, financing entity, or shipper knows or has reason to know that the item is intended for use in a nuclear program. Manufacturers, financial institutions, and shippers are expected to watch for suspicious attributes of proposed transactions, referred to as “red flags,” which may be indicators of intent to divert commodities from permitted end-uses and/or end-users. Such indicators include first-time requests for goods from an unknown end-user, a proposed end-use not consistent with the type of business seeking the commodity, inconsistency between the number of items requested and normal requests, and the stripping of data from financial transactions to hide the identity of the initiator.²⁴⁵

first required in 2005, under Executive Order 13382 and screening criteria were expanded, accordingly. See, e.g., David Pan, “Pencils or Bombs? Making Sense of Newly Expanded Sanctions on Iran,” Accuity website, June 20, 2013, <http://www.accuity.com/industry-updates/free-resources/iran-sanctions/>.

²⁴² Interview with UK insurer, Wilton Park, UK, September 2013.

²⁴³ Interview with courier service executive, Wilton Park, UK, September 2013.

²⁴⁴ For a compilation of principal watch lists, see “A Resource on Strategic Trade Management and Export Controls: Red Flags and Watch Lists,” U.S. Department of State, <http://www.state.gov/strategictrade/redflags/>.

²⁴⁵ For additional red flags, see “Red Flag Indicators,” Bureau of Industry and Security, U.S. Department of Commerce website, <http://www.bis.doc.gov/index.php/compliance-a-training/export-management-a-compliance/freight-forwarder-guidance/23-compliance-a-training/51-red-flag-indicators>.

INTERNATIONAL AND MULTI-STATE MEASURES

International instruments typically impose obligations on states, requiring or calling upon them to enforce international rules by implementing domestic laws that require compliance by individuals and entities falling under the jurisdiction of the state. As described in the previous section, UNSCR 1540 (2004) requires states to adopt controls over nuclear-weapon-relevant commodities, and UNSCR 1929 (2010) and UNSCR 2094 (2013) impose embargoes on Iran and North Korea respectively, which implicitly require such controls, with respect to those two states. The resolutions, however, are silent concerning private sector internal compliance programs, and the 1540 Committee, which has an expansive mandate to promote effective strategic trade controls, does not monitor progress made on this component of national export control programs.

Such programs are, however, widely encouraged at the multi-state level, although not made mandatory by any multi-state grouping. The Nuclear Suppliers Group has issued suggestions, drafted by the UK and several other Western state members, regarding the adoption of internal compliance programs within member states on a voluntary basis.²⁴⁶ Members of the Wassenaar Arrangement, which seeks to control transfers of heavy weaponry and strategic goods to sensitive destinations and in which many members of the NSG participate, has gone a step further and in 2011 formally adopted “Best Practice Guidelines on Internal Compliance Programs for Dual-Use Goods and Technologies,” programs that would include monitoring of a range of nuclear-relevant commodities; the Guidelines remain voluntary both at the level of state and private entity implementation, however.²⁴⁷ Strategic trade control assistance programs, such as those promoted by UNSCR 1540 (2004), similarly, encourage the establishment of internal compliance systems in recipient states.²⁴⁸

²⁴⁶ See “Good Practices for Corporate Standards to Support the Efforts of the International Community in the Non-Proliferation of Weapons of Mass Destruction,” op. cit.

²⁴⁷ The European Union did not require such programs as part of its 2009 regulations establishing an EU-wide export control regime. Council Regulation (EC) No 428/2009, May 5, 2009, Setting up a Community Regime for the Control of Exports, Transfer, Brokering and Transit of Dual-Use Items. According to the Stockholm International Peace Research Institute, moreover, “Legislation in most EU member states recommends that companies engaged in the export of military equipment and dual-use goods have effective systems of record-keeping, screening of recipients, reporting and other factors that constitute the central elements of ICPs [internal compliance programs]. However, there are few states that have a mandatory requirement for an ICP to be in place before any type of transfer license can be issued.” *Internal Compliance Programs*, (Stockholm: South Eastern and Eastern European Clearing House for the Control of Small Arms and Light Weapons, 2011). Regarding the NSG suggestions, see note 236.

²⁴⁸ See, e.g., Mohamed Shahabar Abdul Kareem, Strategic Trade Secretariat, Ministry of International Trade and Industry Kuala Lumpur, Malaysia, “Facilitating Trade in a Secure Trading Environment,” 1540 *Compass* Issue 2, p. 22, <http://cits.uga.edu/uploads/compass/compass2-06-kareem.pdf>, noting assistance from the United States, the European Union, Australia, and Japan, on “best practices in licensing procedures, internal compliance programs, and commodity identification training”).

Somewhat ironically, the one source of authority with the ability to make internal compliance programs mandatory in the international sphere are multi-national corporations, which can enforce these requirements in their subsidiaries around the world – and, depending on their leverage, can also impose strict compliance rules on their suppliers and customers. The point underscores the value of such programs, when embraced by senior management of large enterprises, as a means for combatting nuclear commodity smuggling.

A final anti-nuclear-commodity-smuggling mechanism with a global reach are U.S. sanctions directed at private entities abroad that have materially assisted suspect nuclear programs. As noted in **System 1: Measures against Originating Parties** three U.S. legal instruments impose penalties on foreign individuals and entities for such acts, including through the transfer of commodities or facilitating such transfers: the Iran-North Korea-Syria Nonproliferation Act (INKSNA) and Executive Orders (E.O.'s) 12938 and 13382.

It cannot be expected that the behavior of sanctioned entities that are actively and deliberately developing or assisting such nuclear programs will be improved by their strengthening their internal compliance programs, since their goal is to advance suspect nuclear programs by defeating compliance programs implemented by others. However, commercial firms that may have assisted such suspect programs in the past, but which have other, competing commercial interests can be influenced to improve compliance by means of sanctions. At least one Chinese firm, for example, China North Industries Group (NORINCO), sanctioned under E.O. 12938 for contributing to proscribed missile programs, took this step in order to regain access to U.S. markets.²⁴⁹ Similarly, sanctions imposed in 2006 under E.O. 13382 against China Great Wall Industries, also because of missile proliferation concerns, expired in 2009 and were not renewed. In announcing the change, the State Department noted, among other factors that the company “has expanded its internal export control procedures, including extensive training and communications within the company regarding non-proliferation issues.”²⁵⁰ Research has not disclosed a company accused of assisting

²⁴⁹ Interview with NORINCO officials, Washington, DC, 2006. See also, Department of State, “E.O. 12938, as amended,” <http://www.state.gov/t/isn/c15233.htm>. Indeed, the listing of sanctions imposed under this order shows sanctions being lifted on numerous organizations, reflecting their improved behavior.

²⁵⁰ U.S. Department of State, “Sanctions Lifted From China Great Wall Industry Corporation,” <http://2001-2009.state.gov/r/pa/prs/ps/2008/jun/106102.htm>. The approach has also been used for enforcement actions triggered by prohibited transactions with the Islamic Republic of Iran Shipping Lines. According to one summary, “On April 12, [2013] the State Department lifted sanctions on three companies targeted in May 2011 for their roles in a 2010 transaction that provided a tanker worth \$8.65 million to Iran’s state shipping line in violation of U.S. sanctions. The State Department noted that

suspect nuclear programs being sanctioned and having sanctions lifted in part because of improvement in internal compliance programs, but the precedents set in the missile area indicate the value of this approach as it may be used with respect to nuclear-related transfers.

NATIONAL ENFORCEMENT ACTIVITIES

Enforcement actions by government, and the threat of such actions, particularly in the United States, have been a major factor in the development of internal compliance programs. Fines under U.S. law for violations of financial sanctions can amount to hundreds of millions of dollars. This reality, reinforced by a number of well publicized prosecutions, has led many firms, including major banks, insurance companies, and industrial concerns, among others, to implement aggressive compliance programs to avoid falling afoul of regulatory requirements. Many firms refer to this as a form of “risk management.”²⁵¹ Such attention to compliance concerns not only reduces the risk of actual violations but, if well developed and actively implemented, can also act as a mitigating factor in the event that the firm is prosecuted for committing an offense that was inadvertent, helping to establish that the act was unintentional and that the firm was committed to avoiding such missteps. Strong compliance screening measures can also alert firms to such inadvertent episodes and enable it to “self-report” the incident, which can also be a mitigating factor. Two recent U.S. Iran sanctions laws expressly state that implementation of a robust internal compliance programs can entitle firms to exemption from the sanctions the laws establish.²⁵²

At the same time, actual enforcement actions against firms with weak internal compliance programs can be a powerful driver for improvement. DHL, the international courier service, for example, was able to settle a case against it for making unlicensed shipments from the United States to Syria, Iran, and Sudan between 2002 and 2006, by agreeing to pay a fine of \$9.44 million, to separately screen items in the future destined for restricted destinations, and to have outside auditors monitor its

significant steps taken by the companies to ensure compliance with U.S. law led to the removal of sanctions.” Shearman and Sterling, “Sanctions Round-Up: Second Quarter 2013,”

<http://www.shearman.com/files/Publication/1e4a2464-8a2d-4d42-9b73-1d1ce9617915/Presentation/PublicationAttachment/60b5cbf1-75b4-4aae-b307-5b32f98a0431/Sanctions-Roundup-Second%20Quarter%202013-LIT-071213.pdf>.

²⁵¹ See, White, “How to Implement Risk-Based OFAC Monitoring Practices,” *op. cit.*; John Larkin, “Export Control Compliance Best Practices for Your Carbon Fiber R&D Program,” July 26, 2013 (location of presentation not given) <http://www.carbonfiberworkshop.com/wp-content/uploads/2013/08/17-John-Larkin-LTI.pdf>.

²⁵² See Iran Freedom and Counter-Proliferation Act of 2012, (enacted as part of the National Defense Authorization Act for Fiscal Year 2013), P.L. 112-239, section 1681; Iran Threat Reduction and Syria Human Rights Act of 2012, P.L.112-158, section 202 (regarding insurance and reinsurance firms).

compliance program in coming years.²⁵³ The company was initially threatened with a fine of \$380 million. The case, as well as several involving major banks, underscores the power of enforcement activities in buttressing compliance efforts.²⁵⁴ In a more recent settlement, Intesa Sanpaolo, S.p.A. agreed to pay a \$2.9 million fine for violating a U.S. ban on banking transactions with Iran. In announcing the settlement, the enforcing agency, the Office of Foreign Assets Control, criticized Intesa's weak compliance system and noted that, "Intesa took remedial action in response to the apparent violations and now has a more robust compliance program in place," a point cited as a mitigating factor in deciding on the ultimate fine, which initially was set at \$9.3 million.²⁵⁵

INTERCONNECTEDNESS WITH OTHER SYSTEMS

The role of private sector internal compliance programs highlights the multi-dimensionality and interconnectedness of the overall anti-nuclear-commodity-smuggling enterprise. The programs:

- Are the indirect product of international and multi-state mandates requiring the control of nuclear exports and implementation of related sanctions, translated into domestic laws by national governments, and of independently enacted domestic legal measures;
- Are shaped by national and multi-state guidelines;
- Are implemented internationally by private firms in diverse economic sectors through overseas subsidiaries, affiliates, or supply-chain partners;
- Are promoted through internationally coordinated export control assistance programs (see **System 7: Int'l Outreach and Capacity Building**) ; and
- Are reinforced by powerful domestic enforcement actions.

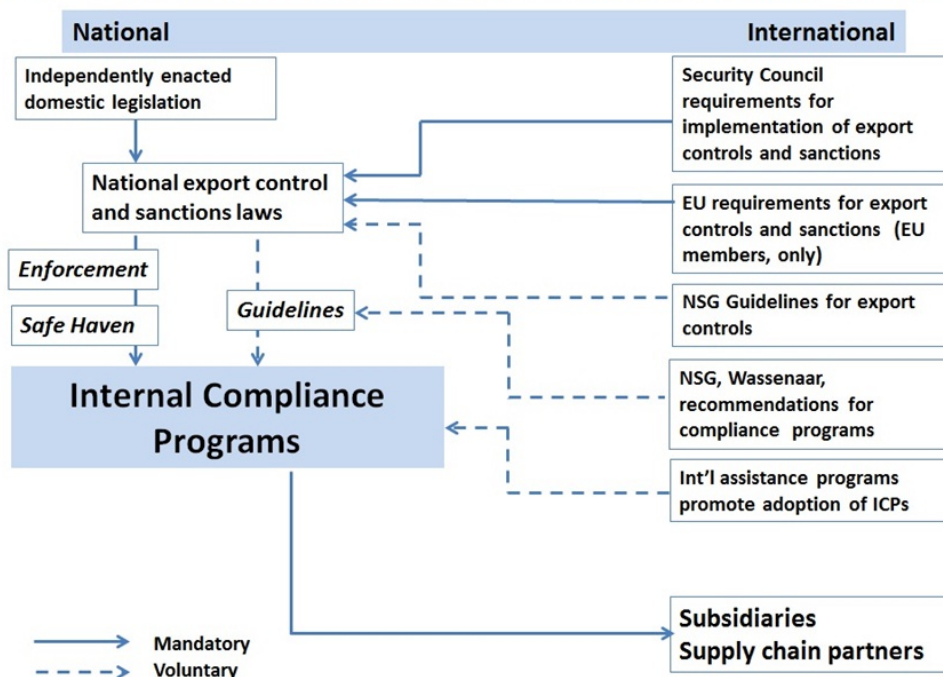
Figure 3.8 illustrates these relationships between the national and international mechanisms influencing internal compliance programs

²⁵³ "Update 1-DHL to Pay \$9.4 Million for U.S. Sanctions Violations," *Reuters*, August 6, 2009, <http://www.reuters.com/article/2009/08/06/dhl-exports-fine-idUSN0635754920090806>.

²⁵⁴ In 2012, the ING Bank settled a case with the U.S. Department of Justice for \$619 million for moving funds on behalf of Iranian and Cuban entities through the U.S. financial system and agreed to implement a set of best practices in compliance as part of the settlement; other settlements, listed most recent first, include Barclays Bank (\$298 million, 2010), Credit Suisse (\$536 million, 2009), Lloyds TSB Bank (\$350 million, plus a penalty payment to OFAC of \$217 million, 2009), [Australian and New Zealand Banking Group](#) (\$5.75 million, 2009), and [ABN AMRO Bank N.V.](#) (\$40 million, 2006) (see "ING Bank to Pay \$619 Million Fine in Largest Ever U.S. Economic Sanctions Penalty," *Steptoe & Johnson LLP Newsletter*, June 18, 2012, <http://www.steptoel.com/publications-newsletter-585.html>).

²⁵⁵ "Enforcement Information for June 28, 2013," Office of Foreign Assets Control, U.S. Treasury Department, http://www.treasury.gov/resource-center/sanctions/CivPen/Documents/20130628_intesa.pdf.

Figure 3.8
National and International Mechanisms Influencing Internal Compliance Programs



RECENT DEVELOPMENTS

NSG Guidance. The most noteworthy recent development in this area was the publication by the Nuclear Suppliers Group, in conjunction with its June 2013 Plenary, of “Good Practices for Corporate Standards to Support the Efforts of the International Community in the Non-Proliferation of Weapons of Mass Destruction.”²⁵⁶ The document, itself, provides less detail than a number of guidelines regarding internal compliance programs issued by national governments or by the Wassenaar Arrangement, cited earlier.²⁵⁷ Nonetheless, the NSG “Good Practices” reinforce the importance of such programs.

Compliance and Corporate Social Responsibility. Secondly, there have been increasing efforts by specialists in the policy community to promote compliance with nonproliferation controls as a component of “corporate responsibility.” One initiative, known as Project Alpha, launched by a group at King’s College, London, with sponsorship by the UK government, seeks to enroll firms in a Partnership Against Proliferation,

²⁵⁶ “Good Practices for Corporate Standards to Support the Efforts of the International Community in the Non-Proliferation of Weapons of Mass Destruction,” op. cit.

²⁵⁷ “Best Practice Guidelines on Internal Compliance Programmes for Dual-Use Goods and Technologies,” op. cit.

... a voluntary and inclusive mechanism to share good practices between companies in the area of export and trade compliance. Participation will reduce the likelihood that your company's goods or services will aid proliferation or that your company will breach trade control obligations. At the heart of the initiative are guidelines and a related peer-review mechanism. Firms undertake to work towards implementing the internationally-recognised 'good practice guidelines' and to demonstrate to other 'Partners' how they go about this. (Spelling as in original.)²⁵⁸

The initiative notes that companies will benefit in several ways from participating, including by improving their trade controls and providing confidence to suppliers, customers, and shareholders that they are supporting efforts to curb proliferation.

A similar initiative has been proposed by two specialists at the U.S. Pacific Northwest National Laboratory, namely, the idea of taking private sector firms beyond mere compliance with strategic trade rules and integrating nonproliferation into what they refer to as "corporate sustainability."²⁵⁹ Under the approach, the community of nuclear proliferation-relevant technology manufacturers who produce nuclear dual-use goods in some 68 industries would agree on common individually adopted corporate codes of ethics that include a commitment not to contribute to proliferation; the group would develop the code into guidelines that all would agree to follow; a third-party, akin to the International Standards Organization, would be established to provide ISO-like guidance; and the organization would then audit participant compliance. Efforts would also be made to gain compliance by other elements of the members' supply chains. The benefits to participants would be similar to those of Project Alpha.

Enforcement Actions and Disclosure Requirements. Other recent developments influencing this area are a number of highly publicized enforcement actions, which provide strong encouragement for other firms to strengthen internal compliance practices. In addition to the Intesa Sanpaolo S.p.A. case, noted above, several settlements with major banks for stripping identifying information from transactions with proscribed parties, also received considerable media attention, including those with Standard Charter Bank (August 2012) leading to fines of \$667 million; HSBC (December 2012), leading to fines

²⁵⁸ Ian Stewart, "Open Invitation to Participate in the Partners Against Proliferation Initiative," Project Alpha website, <http://acsss.info/item/260-open-invitation-to-participate-in-the-partners-against-proliferation-initiative>.

²⁵⁹ Gretchen Hund and Andrew Kurzrok, "Beyond Compliance: Nonproliferation and the Private Sector," Global Security, Technology and Policy Group, presentation at the Center for Strategic and International Studies, June 6, 2013, http://csis.org/files/attachments/060613_BeyondCompliance_Slides.pdf.

of \$2.275 billion; and Bank of Tokyo-Mitsubishi (December 2012), leading to fines of \$8.5 million.²⁶⁰ Indeed one account in the European press declared that after years of attempting to encourage foreign bankers to enforce sanctions rules, “a couple of billion dollars in fines, not to mention lurid headlines and talk of jail time, has suddenly got their attention.”²⁶¹ The report goes on to note that Royal Bank of Scotland, Germany’s Commerzbank, and HBV, a unit of the Italian Unicredit bank, have acknowledged discussions over these issues with U.S. authorities and French banks BNP Paribas and Credit Agricole were conducting internal inquiries to ensure compliance with U.S. rules.²⁶²

Separately, the Iran Threat Reduction and Syria Human Rights Act of 2012 (ITRA), signed into law on August 12, 2012, requires publicly traded corporations to disclose in their quarterly and annual reports to the Security and Exchange Commission (SEC), certain transactions with the government of Iran, including its subdivisions and agencies, or the IRGC, as well as transactions with certain sanctioned individuals and entities on the Treasury Department’s list of Specially Designated Nationals.²⁶³ Transactions related to Iran’s development of weapons of mass destruction, its petroleum industry, and certain other areas must be disclosed, as must those with persons on the Treasury list involved in the proliferation of weapons of mass destruction.²⁶⁴ The first reports with the SEC under the new provisions were delivered in early 2013.

A final point to note is the increased attention given to sanctions compliance in corporate merger and acquisition due diligence efforts. Increasingly, parties to such transactions are inquiring into the compliance history of other parties to determine potential liabilities that may exist and demanding guarantees of a clean record. This

²⁶⁰ See, SIFMA AML and Financial Crimes Conference “Significant Sanctions Enforcement Actions and Other Financial Crimes Developments,” *op. cit.* See also, “UK and Japanese Banks Settle U.S. Sanctions and Money Laundering Violations,” Steptoe and Johnson Newsletter, December 21, 2012, providing details of key cases, <http://www.steptoelaw.com/publications-newsletter-703.html>. In March 2013 reports circulated that Deutsche Bank was at risk of being fined \$390 million for sanctions violations. “Deutsche Bank Could Pay \$390 Million Over Claims It Violated U.S. Sanctions on Iran: Report,” *Huffington Post*, March 24, 2013, http://www.huffingtonpost.com/2013/03/24/deutsche-bank-iran-sanctions_n_2943761.html.

²⁶¹ “Banks Face Threat of Billions in U.S. Fines over Iran Connections,” *Reuters*, September 2, 2012, http://www.huffingtonpost.com/2012/09/02/iran-banks-fines_n_1850135.html.

²⁶² *Ibid.*

²⁶³ Iran Threat Reduction and Human Rights Act of 2012, Section 291.

²⁶⁴ For a summary of these requirements, see, “SEC Filings Under The New Iran Disclosure Obligations Have Reached A Steady Drumbeat,” Simpson Thatcher Memorandum, March 5, 2013.

new attention to the subject may serve to reinforce corporate compliance efforts in certain cases.²⁶⁵

GAPS AND CHALLENGES

Compliance in Difficult Settings. Most major corporations have much at stake if they run afoul of strategic trade rules, including potentially massive fines, possible criminal prosecution of top executives, and damage to reputation. In part for this reason, as sanctions have expanded in the past decade, such firms, as a rule, have placed added importance on compliance with non-proliferation-related legal requirements, as well as other regulatory strictures. Small and medium-size enterprises may lack the resources for doing so, however, and it is these firms that appear to be the most frequent targets of nuclear procurement efforts. In this setting, industry-wide awareness programs, codes of conduct, and peer or other external review of compliance programs may be essential to achieve improvement.

It must be recalled, however, that compliance programs are part of a nation's overall strategic trade management effort. To the extent that this larger effort, itself, suffers from major gaps, it must be expected that private-sector anti-proliferation measures will also be weak. The absence of a strategic trade law, for example, means the absence of enforcement in this area, and, that in turn, severely weakens private sector incentives for the adoption of compliance programs. Thus a precondition for strengthened private sector actions, in many cases, will be improved national performance, underscoring the importance of assistance programs and other measures to increase national compliance with the requirements of Security Council resolutions and other relevant mandates promoting or requiring strong national export control measures.

China poses a distinct problem in this regard. Although its export control system is fairly complete, implementation and enforcement remain a serious challenge. As Western firms have increased compliance with export control and sanctions requirements, Chinese firms have become increasingly involved in facilitating illicit nuclear acquisitions for Iran and North Korea.²⁶⁶ Firms involved in nuclear commerce of this kind have not been consistently targeted by U.S. sanctions, however. Still, such sanctioning as has occurred, has not only penalized the individual firms involved, but

²⁶⁵ Brought to the author's attention by Sean Thornton, former General Counsel, Office of Foreign Assets Control.

²⁶⁶ Interviews with specialists and officials Washington, DC, June 2013; Joby Warrick, "Nuclear Ruse: Posing as Toymaker, Chinese Merchant Allegedly Sought U.S. Technology for Iran," *Washington Post*, August 11, 2012, http://articles.washingtonpost.com/2012-08-11/world/35490055_1_nuclear-program-civilian-energy-program-chinese-firms.

also, through public exposure, put pressure on the Chinese government to enforce its control measures more effectively.

Transactional Versus Systemic Impacts of Compliance Programs. Finally, the ultimate value of internal compliance programs in constraining nuclear commodity smuggling must be assessed. Banks, courier services, and others must invest considerable sums and effort to screen vast numbers of items looking for red flags and then must investigate potential control violations individually. One courier service, which screens all items it receives against the various U.S. control lists, experiences 4,000 “hits” per night, all of which must be investigated, resulting in the discovery of only three to four actual attempts to move items illegally.²⁶⁷ Banks must screen millions of transactions and experience similar false positive and true positive rates.²⁶⁸ Actual disruptions of illicit transactions are thus very limited in number. Insurers, as noted, have little opportunity to disrupt illicit transactions before they occur. Manufacturers may have fewer transactions to screen, but actual illicit procurement attempts will again be a very small percentage of scanned purchase orders. Indeed, at a September 2013 conference on the subject, an expert in strategic trade controls, with both government and academic experience, estimated that only one percent of illicit nuclear transfers are detected and halted.²⁶⁹

At the same time, however, the fact that sanctions regulations have been enacted and that transactions are being vetted on such a scale places all illicit procurement attempts at risk of detection and has required procurers to employ costly and time-consuming alternative approaches to obtain controlled commodities, from complex chains of middlemen to making purchases with bulk cash. In effect, the combination of extensive regulations and widespread, if incomplete, commitment to internal compliance programs has seriously encumbered the entire nuclear commodity smuggling process. Thus, while interrupting *individual* smuggling attempts may be a rare occurrence, complicating *all* smuggling attempts through continuous scrutiny in multiple sectors has succeeded in slowing suspect programs, overall.²⁷⁰

²⁶⁷ Interview with courier service executive, Wilton Park, UK, September 2013.

²⁶⁸ Ibid.

²⁶⁹ Comment made during discussions of Wilton Park Conference 1261, Meeting the Emerging Challenge of Nuclear Commodity Smuggling, September 19-22, 2013.

²⁷⁰ Interview with former U.S. official, Washington, DC, June 2013.

System 5: Financial Measures

BASIC FRAMEWORK

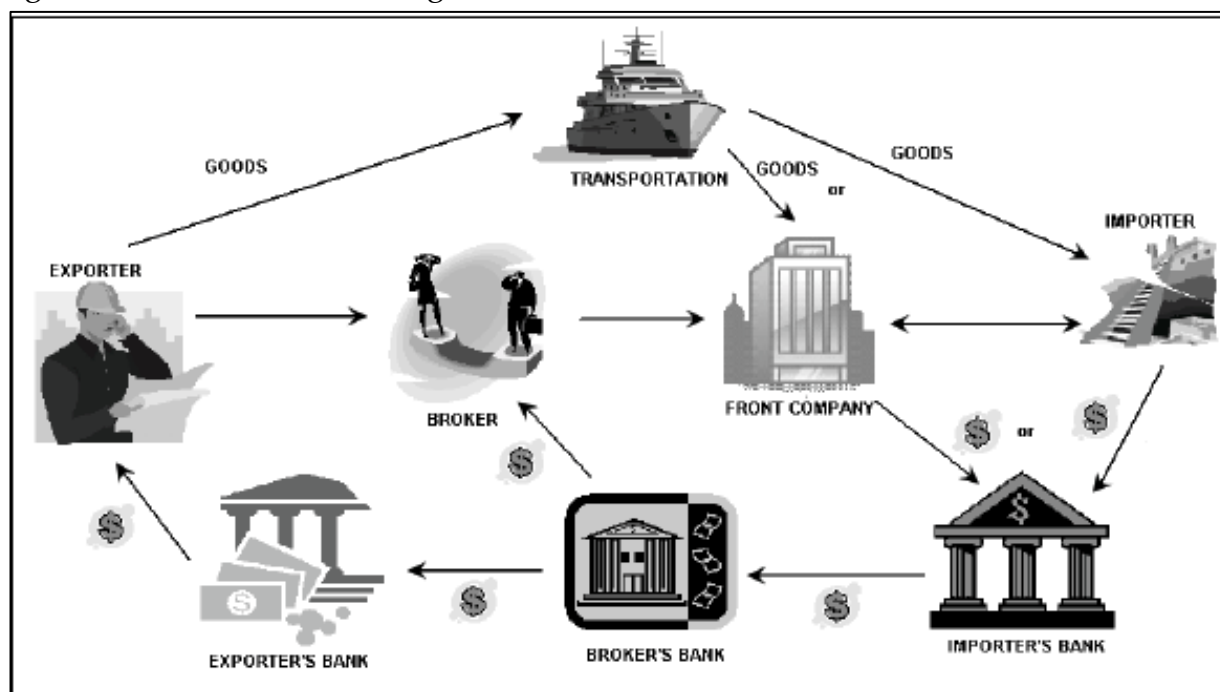
As noted in Chapter 2, underlying illicit commerce in sensitive WMD commodities are a range of financial transactions, without which this trade cannot be consummated: manufacturers, must be paid, middlemen compensated, and transportation fees covered. In contrast to other criminal organizations, such as drug trafficking rings and terrorist organizations, WMD proliferation networks generally depend on access to legitimate financial institutions to conduct illicit trade because many participants in procurement activities operate in, and expect payment through, the traditional banking system, which if by-passed would raise suspicions. Such “proliferation financing” – the provision of funds or financial services to support proliferation-relevant activities – is prohibited under various international, multi-state, and national instruments.²⁷¹ This, and the fact that financial documents can disclose the ultimate end-user of procured goods, triggering denials of export licenses and seizures of cargoes, have led nuclear commodity smugglers to establish elaborate chains of bank accounts, to set up by front companies and intermediaries, and to strip identifying information from financial documents in order to disguise the purpose of their financial dealings.

Figure 3.9, prepared by the Financial Action Task Force (FATF), a 34-member intergovernmental organization that sets standards for measures to prevent money laundering and the financing of terrorism and proliferation, provides a simplified illustration of how such financing activities are organized.²⁷²

²⁷¹ The Financial Action Task Force, described in the text below, defines proliferation financing in greater detail as: “the act of providing funds or financial services which are used, in whole or in part, for the manufacture, acquisition, possession, development, export, trans-shipment, brokering, transport, transfer, stockpiling or use of nuclear, chemical or biological weapons and their means of delivery and related materials (including both technologies and dual-use goods used for non-legitimate purposes), in contravention of national laws or, where applicable, international obligations.” See, “Combating Proliferation Financing: A Status Report on Policy Development and Consultation,” February 2010, <http://www.fatf-gafi.org/media/fatf/documents/reports/Status-report-proliferation-financing.pdf>.

²⁷² Actual financing schemes are considerably more elaborate. See, Financial Action Task Force, “Proliferation Financing Typologies Report,” June 2008, (hereafter, “FATF June 2008 Typologies Report”), <http://www.fatf-gafi.org/media/fatf/documents/reports/Typologies%20Report%20on%20Proliferation%20Financing.pdf>. Other types of transactions have been discussed in reports by the panels of experts monitoring the implementation of Security Council resolutions that impose sanctions against Iran and North Korea, as well as in the literature on the A.Q. Khan network, Iraq’s procurement efforts during the 1980s, and other proliferation cases.

Figure 3.9 Overview of a Foreign Trade Pattern Abused for Proliferation



An importer may arrange for the shipment of goods directly with an exporter or could use a front company, broker or both a front company and a broker. Similarly, payments may be settled with a manufacturer's bank: either directly; using a front company; using a broker; or the manufacturer may arrange for payment using letter of credit or other payment method.

Asset Freezes and Denials of Access. International, multi-state, and national measures to interrupt proliferation financing have focused principally on two tools: the freezing, or blocking, of the assets of individuals and entities closely involved in proliferation-relevant transactions and, for financial institutions supporting such transactions, denying them access to the Western financial system by prohibiting their maintaining correspondent accounts with Western banks.

Targeted Activity-Based, Targeted List-Based, and Broad Economic Sanctions. Asset freezes and denials of access to the Western banking system are applied, in the first instance, through targeted, "activity-based" sanctions that result in lists of sanctioned parties.²⁷³ Activity-based sanctions require analysis to determine whether an individual or entity has engaged in prohibited behavior, such as being directly associated with the Iranian

²⁷³ See Financial Action Task Force, "Combating Proliferation Financing: A Status Report on Policy Development and Consultation," op. cit. Both activity-based and the resulting list-based sanctions are "targeted," that is, focused narrowly on parties closely linked to prohibited activities. Economic sanctions, in contrast, often focus on sectors of the target state's economy and affect a much wider swath of parties, some of which may have limited or no connection to proliferation transactions.

or North Korean nuclear program or engaged in procuring goods for them. These determinations are typically made by international organizations or national governments. Once such a determination is made, the individual or entity is placed on a blacklist and sanctions are applied. Private parties will rarely have the necessary expertise and information to make such judgments. Once the lists are established, however, where private sector involvement is required to implement sanctions, such as in a financial institution's blocking assets or refusing to process financial transactions, private parties can implement the relevant "list-based" sanctions easily by using the blacklists to screen transactions. Because both activity-based and list-based sanctions focus on specific parties, they are considered "targeted" sanctions.

The United States and a number of other countries, however, are also using these financial tools, in particular the threat of denial of access to the Western banking system, as part of efforts to weaken the economies of certain countries of proliferation concern. To restrict Iranian sales of its crude oil, for example, the United States has threatened to deny such access to foreign banks, including foreign central banks that facilitate Iranian oil sale transactions.²⁷⁴ In some cases, these more far-reaching "economic" sanctions have created significant new obstacles to illicit nuclear procurement efforts, even though their primary purpose is the broader goal of weakening the national economies of states of proliferation concern.

Both international and national financial sanctions are largely implemented through the banking system and regulated and enforced predominantly by finance ministries. In the United States, the lead agency is the U.S. Treasury Department Office of Foreign Assets Control (OFAC).

The combination of targeted and economic sanctions is being used to constrain nuclear commodity smuggling through several different vectors.

- First, once identified, participants in such smuggling activities, wherever situated, are subject to these penalties, under Security Council resolutions and under U.S. and other national laws, a process commonly known as "designation." Apart from imposing an economic penalty, this impedes the ability of these parties to conduct procurement operations.
- Second, the threat of such finance-related penalties is being used to discourage others, including banks, brokers, freight forwarders, shippers, etc., from assisting these parties; indeed, legitimate businesses and financial institutions have

²⁷⁴ National Defense Authorization Act of 2012, P.L. 112-81, section 1245.

become increasingly hesitant to do so, for fear of being subjected to these secondary sanctions.

- Third, economic sanctions are being used to impede *all* Iranian and North Korean financial transactions – including, necessarily, those supporting illicit nuclear procurements – by isolating these countries, at large, from the international financial system. The isolation has been so effective, that both states have been forced to pay for some imports using precious metals or bulk shipments of cash.²⁷⁵

INTERNATIONAL MEASURES

UN Security Council. UNSCR 1540 (2004) requires all states to establish “appropriate effective” controls over nuclear (and other weapons of mass destruction) relevant commodities, including controls over exports. This, in turn, must include controls over “providing funds and services related to such export and trans-shipment, such as financing....”²⁷⁶ UNSCR 1540 (2004), itself, however, does not impose sanctions on any country or party, but only mandates the adoption and implementation of controls by member states to constrain proliferation finance that could support illicit procurement activities.

In its 2011 report to the Security Council (the latest available) the Committee implementing UNSCR 1540 (2004) noted that 125 states have taken legislative measures to ban the provision of financial services that might assist a non-state actor to develop nuclear weapons, compared to 66 states in 2008, a very significant increase. But only 49 states had measures in place against the financing of illicit trade transactions related to nuclear, chemical and biological weapons, their means of delivery, and related materials. This is an important increase from the 29 states with such measures in 2008, but still a low proportion of all states in absolute terms – barely 25 percent.²⁷⁷

The 1540 Committee has worked closely with the FATF, which has established terms of reference for how states can effectively implement the finance aspects of the resolution, namely by requiring financial institutions under their jurisdiction to intensify the scrutiny of transactions, as discussed further, below.²⁷⁸

²⁷⁵ Economic sanctions are also being imposed in areas unrelated to nuclear commodity smuggling, such as the prohibition on the purchase of Iranian crude oil, that are beyond the scope of this study.

²⁷⁶ UNSCR 1540 (2004), paragraph 3(d).

²⁷⁷ “Report of the Committee established pursuant to Security Council resolution 1540 (2004),” S/2011/579, September 14, 2011, paragraph 74, http://www.un.org/en/ga/search/view_doc.asp?symbol=S/2011/579.

²⁷⁸ Financial Action Task Force, “FATF Guidance: The Implementation of Financial Provisions of United Nations Security Council Resolutions to Counter the Proliferation of Weapons of Mass Destruction,” June

UN Security Council resolutions sanctioning Iran and North Korea have included a number of financial components relevant to nuclear commodity smuggling. As noted in **System 1: Measures against Procurement Originators**, the resolutions have required all states to freeze the assets of individuals and entities designated by the Security Council sanctions oversight committees as

...engaged in, directly associated with or providing support for Iran's proliferation sensitive nuclear activities or the development of nuclear weapon delivery systems, or by persons or entities acting on their behalf or at their direction, or by entities owned or controlled by them, *including through illicit means....*²⁷⁹ (Emphasis added.)

The lists of parties so designated, contained in annexes to the relevant resolutions and periodically updated, include individuals and entities that originate illicit procurement transactions and, in some cases, engage in procurement operations.²⁸⁰ As noted previously, the lists contain far fewer names than comparable lists used by the United States and the EU, however, reflecting the Security Council's caution in using this tool.²⁸¹

The series of resolutions sanctioning Iran also contain a set of increasingly stringent restrictions on providing financial benefits and financial services to Iran that could contribute to its WMD programs. In most cases, the sanctions are crafted as measures to be implemented by UN members voluntarily. The gradually escalating, cumulative restrictions currently:

- Require all states to ban the provision of financial services and the movement of funds to support transfers of embargoed items to Iran.²⁸²
- Call upon states not to provide new foreign assistance or concessional loans to Iran.²⁸³

2013 (hereinafter "FATF June 2013 Guidance"), <http://www.fatf-gafi.org/media/fatf/documents/recommendations/Guidance-UNSCRS-Prolif-WMD.pdf>.

²⁷⁹ UNSCR 1737 (2006), paragraph 12, sanctioning Iran. To similar effect, with respect to North Korea, see UNSCR 1718 (2006), paragraph 8(d).

²⁸⁰ Current lists of designated parties may be found at the sanctions committees' websites, Security Council Committee Established Pursuant to Resolution 1737 (2006), Consolidated List, <http://www.un.org/sc/committees/1737/consolist.shtml>, and Security Council Committee Established Pursuant to Resolution 1718 (2006), Consolidated List of Entities and Individuals, http://www.un.org/sc/committees/1718/pdf/List_Entities_and_Individuals_English.pdf.

²⁸¹ See **CHAPTER 3: Background and Overarching Issues** on p. 37, particularly notes 71 and 72; also see Katzman, *Iran Sanctions*, op. cit., "Table 4. Entities Sanctioned Under U.N. Resolutions and U.S. Laws and Executive Orders," p. 67.

²⁸² UNSCR 1737 (2006), paragraph 6. Provision of financial services to DPRK is restricted under UNSCR 1718 (2006) paragraph 8(d), as well as UNSCR 1874 (2009) paragraphs 18-22, and UNSCR 2094 (2013) paragraphs 11, 13 and 15.

- Call upon states not to provide export credits, guarantees, or insurance to Iran and to “exercise vigilance over the activities of financial institutions in their territories with all banks domiciled in Iran,” in order, in both cases to avoid such activity contributing to proliferation-sensitive nuclear activities in that country.²⁸⁴
- Call upon states to prevent the provision of financial services, including insurance or re-insurance, or the transfer of any financial or other assets or resources to Iran, if they have information that provides reasonable grounds to believe that such services, assets or resources could contribute to Iran’s proliferation-sensitive nuclear activities.²⁸⁵
- Require states to mandate that individuals and entities under their jurisdiction exercise vigilance when doing business with Iranian entities, including the IRGC and IRISL, and their affiliates, if they have reasonable grounds to believe that such activity could contribute to Iran’s proliferation-sensitive nuclear activities.²⁸⁶
- Call upon states to prohibit Iran from opening new banking branches on their territory and to prohibit banks under the jurisdiction of member states from opening branches in Iran, if, in both cases, the state has reasonable grounds to believe that such actions could contribute to Iran’s proliferation-sensitive nuclear activities.²⁸⁷

The DPRK sanctions resolutions cover much of the same ground, but the most recent one, UNSCR 2094 (2013), requires states to prevent the provision of financial services or the transfer of any financial or other assets or resources – including bulk cash – to the DPRK that “could contribute” to its nuclear or other proscribed programs.²⁸⁸ The comparable Iran sanctions provision, as seen above, merely “calls upon” states to take similar action with respect to that country.²⁸⁹

It is not clear how effective these various Security Council measures have been or whether they have had an impact on nuclear commodity smuggling. It appears, for example, that there have been few actual blockings of assets pursuant to these mandates of persons or entities supporting Iran’s nuclear program, in part because some states lack the necessary domestic legal authority to make such seizures and because targeted

²⁸³ UNSCR 1747 (2007), paragraph 7.

²⁸⁴ UNSCR 1803 (2008), paragraphs 9 and 10.

²⁸⁵ UNSCR 1929 (2010), paragraph 21.

²⁸⁶ Ibid., paragraph 22.

²⁸⁷ Ibid., paragraphs 23 and 24.

²⁸⁸ UNSCR 2094 (2013), paragraph 11.

²⁸⁹ Also, in the DPRK sanctions there are no admonitions regarding doing business with entities in that country.

individuals and entities may have moved assets to safe locations before seizure was possible.²⁹⁰ The absence of penalties for the failure of states to comply with the UN resolutions is likely another factor explaining why implementation has not been more effective. Nor is it clear how many states have “exercised vigilance” in the areas identified by the resolutions or what impact this may have had. Nonetheless, the Security Council sanctions have sometimes set the stage for and helped legitimize far stronger measures in all of the above areas taken by the United States, the EU, and certain other like-minded states.²⁹¹

The FATF has worked with the Security Council committees overseeing implementation of the Iran and North Korea sanctions resolutions, and along with its guidelines on the implementation of UNSCR 1540 (2004), the FATF has issued guidelines for implementing the sanctions applicable to Iran and North Korea, discussed below.

MULTI-STATE MEASURES

Financial Action Task Force. The FATF, established in 1989 to help preserve the integrity of the international financial system, is an intergovernmental organization with a membership of 34 states having advanced banking systems and two regional organizations.²⁹² The task force initially focused its attention on combatting the misuse of the financial system by persons laundering money from the sale of illegal drugs and in 2001, expanded its mandate to address the financing of terrorist activities. Importantly, the FATF promotes compliance with its recommendations, which have become internationally accepted standards, through a formalized process of self-evaluations by member states and mutual evaluations conducted by the FATF experts.²⁹³ To give the latter evaluations added weight, the group publishes a periodically updated list, based on these assessments, of “high-risk and non-

²⁹⁰ Interview with former UK Treasury official, Washington, DC, April 2013.

²⁹¹ Interview with former U.S. official, Washington, DC, September 2013.

²⁹² See the FATF website, <http://www.fatf-gafi.org/>. Eight affiliated FATF-style regional organizations promote implementation of the FATF’s recommended policies in their respective areas. For additional information regarding the organization’s history and operations, see, James Jackson, “The Financial Action Task Force: An Overview,” Congressional Research Service, May 9, 2012, <http://www.fas.org/sgp/crs/terror/RS21904.pdf>.

²⁹³ Financial Action Task Force, “International Standards on Combating Money Laundering and the Financing of Terrorism and Proliferation -- The FATF Recommendations,” February 2012, p. 7, http://www.fatf-gafi.org/media/fatf/documents/recommendations/pdfs/FATF_Recommendations.pdf.

cooperative jurisdictions,” and member states are cautioned regarding continued engagement in financial relations with them.²⁹⁴

In 2008, the FATF expanded its mandate to encompass the combatting of proliferation financing, and its revised Recommendations published in 2012 contain a new Recommendation 7, which addresses this issue.²⁹⁵ The recommendation, which is focused narrowly on ensuring “consistent and effective implementation of targeted financial sanctions when these are called for by the UN Security Council,” states:

Countries should implement targeted financial sanctions to comply with United Nations Security Council resolutions relating to the prevention, suppression and disruption of proliferation of weapons of mass destruction and its financing. These resolutions require countries to freeze without delay the funds or other assets of, and to ensure that no funds and other assets are made available, directly or indirectly, to or for the benefit of, any person or entity designated by, or under the authority of, the United Nations Security Council under Chapter VII of the Charter of the United Nations.²⁹⁶

The FATF’s inclusion of this recommendation is significant because, unlike the underlying Security Council resolutions themselves, the FATF has a mechanism for enforcing compliance, namely through its mutual assessment process. This means that pressure on states to freeze the assets of and deny funds to UN Security Council-designated individuals and entities could intensify as the current 2013 round of assessments unfolds.

As the interpretive note to Recommendation 7 makes clear, however, the sanctions resolutions impose additional requirements, beyond freezing the assets of and denying new funds to designated parties – additional requirements that are not reflected in FATF Recommendation 7, itself:

Recommendation 7 is focused on targeted financial sanctions. However, it should be noted that the relevant United Nations Security Council

²⁹⁴ See FATF website, op. cit.; Financial Action Task Force, “Methodology for Assessing Technical Compliance with the FATF Recommendations and the Effectiveness of AML/CFT Systems,” February 2013, <http://www.fatf-gafi.org/media/fatf/documents/methodology/FATF%20Methodology%2022%20Feb%202013.pdf>.

²⁹⁵ See FATF website, op. cit.

²⁹⁶ Ibid.

resolutions are much broader and prescribe other types of sanctions (such as travel bans) and other types of financial provisions (such as activity-based financial prohibitions and vigilance provisions). With respect to other types of financial provisions, the FATF has issued non-binding guidance, which jurisdictions are encouraged to consider in their implementation of the relevant UNSCRs. With respect to targeted financial sanctions related to the financing of proliferation of weapons of mass destruction, the FATF has also issued non-binding guidance, which jurisdictions are encouraged to consider in their implementation of the relevant UNSCRs.

Because they are not included in the group's mandatory provisions on proliferation financing, implementation of these additional elements of the sanctions resolutions will not be examined during the FATF's mutual assessments, and a state's failure to comply will not be subject to public censure. One factor in the decision to exclude these activity-based sanctions from Recommendation 7 may have been the underlying difficulty financial institutions would encounter in implementing such sanctions, which require the assessment of behavior, rather than the simple use of lists of designated parties, to screen transactions.²⁹⁷

While the FATF's expansion into the realm of proliferation financing strengthens pre-existing international restraints on the financing of illicit nuclear procurements, its actions, in the end, leave intact the relatively limited exploitation of punitive financial measures in the Security Council resolutions, themselves.²⁹⁸

European Union Actions. The EU has been a strong partner in the efforts to sanction Iran. Like the United States (see below), it has designated far more parties than the Security Council for being associated with or materially supporting the Iranian nuclear program.²⁹⁹ The EU has blocked the assets of the Iran Central Bank (although transactions supporting non-sanctioned trade are permitted), and banned all

²⁹⁷ See Financial Action Task Force, "Combating Proliferation Financing: A Status Report on Policy Development and Consultation," *op. cit.*

²⁹⁸ This may not be surprising, given that the five permanent members of the Security Council – China, France, Russia, the United Kingdom, and the United States – who approved the text of the resolutions are also members of the FATF, which operates by consensus.

²⁹⁹ For a listing of EU sanctions in force, see European Union Restrictive Measures (Sanctions) in Force, July 31, 2013, http://eeas.europa.eu/cfsp/sanctions/docs/measures_en.pdf. For the EU master list of sanctioned persons, see EU External Action Service, "Consolidated List of Persons, Groups and Entities Subject to EU Financial Sanctions," http://eeas.europa.eu/cfsp/sanctions/consol-list_en.htm. A more user-friendly presentation of EU-sanctioned parties may be found on the Iran Watch website, "Sanctions – European Union," <http://www.iranwatch.org/sanctions/european-union>.

transactions with many Iranian financial institutions, unless specifically authorized; the UK (and Canada) ban all transactions with the Iranian Central Bank.

Particularly noteworthy was the decision taken, at the request of the EU, by the SWIFT (Society of Worldwide Interbank Financial Telecommunications) electronic funds transfer system to terminate service for Iranian banks that had been sanctioned for their facilitation of nuclear and other activities, including the Iran Central Bank.³⁰⁰ The action did not deny access for Iranian financial institutions that were not subject to EU sanctions, however, limiting its impact as an economic sanction and creating potential for access to international transfer services by procuring entities that are able to disguise their identities. Like other financial measures, however, the SWIFT action would have added at least some measure of further complication to procurement activities, since the banks presumably most favored by smuggling networks – and thus the most likely to have been sanctioned – would no longer have easy access to check clearing and similar services.

U.S. MEASURES

The role of U.S. unilateral financial measures in constraining nuclear commodity smuggling, however, is far more substantial. First, as noted, the United States has designated a considerable number of individuals and entities under the Iran-North Korea-Syria Nonproliferation Act (INKSNA) and E.O.s 12938 and 13382, legal authorities discussed in detail above.³⁰¹ Among those whose assets have been blocked are not only the originators of procurement activities, noted earlier, but also a number of intermediary organizations inside and outside Iran that execute these transactions. In November 2011, for example, the U.S. State and Treasury Departments designated more than ten such individuals and firms, including the Noor Afzar Gostar Company, the Fulmen Group, and Javad Rahiqi, among others, under E.O. 13382 for procurement activities.³⁰² More recently, on May 9, 2013, the State Department sanctioned one individual, Parviz Khaki, and four entities, Aluminat, Pars Amayesh Sanaat Kish, Pishro Systems Research Company, and Taghtiran Kashan Company, for procuring items for the Iranian enrichment program and the Arak reactor. In addition, on May 23,

³⁰⁰ Rick Gladstone and Stephen Castle, “Global Network Expels as Many as 30 of Iran’s Banks in Move to Isolate Its Economy,” *New York Times*, March 15, 2012, http://www.nytimes.com/2012/03/16/world/middleeast/crucial-communication-network-expelling-iranian-banks.html?_r=0.

³⁰¹ See Unilateral U.S. Measures under **System 1: Measures Against Originating Parties**, pp. 55-61.

³⁰² For details regarding the sanctionable activities of these parties, see, Office of the Spokesman, U.S. Department of State, “State Fact Sheet: Executive Order 13382 Designations on Iran,” November 21, 2011, <http://iipdigital.usembassy.gov/st/english/texttrans/2011/11/20111121190953su0.43691.html#axzz2iP6b5noU>.

2013, the Treasury Department sanctioned Farhad Bujar, Zolal Iran Company, and Andisheh Zolal Company for similar activities, as well as individuals and firms providing air transport and related services to the IRGC, an organization that the Treasury singled out for the “central role it plays in Iran’s ballistic missile and nuclear programs.”³⁰³ (Only one of these individuals and entities appears on the UN list of sanctioned parties.)

North Korean nuclear procurers and their supporters have also been targeted. On May 10, 2013, for example, following the indictment of Alex Tsai and his son Gary Tsai for attempted violations of the U.S. laws and regulations prohibiting proliferation of WMD (alleged diversion of U.S.-origin high-precision machine tools to North Korea), OFAC sanctioned the Trans Multi Mechanics Co. Ltd. and Chang Wen-Fu (a Taiwanese national) for their links to the Tsais. The latter had a history of supporting North Korean nuclear and missile programs, and OFAC had designated Alex Tsai in January 2009.³⁰⁴ OFAC also sanctioned Daedong Credit Bank; one of the bank’s front companies, DBC Finance Limited; and its representative based in China, KIM Chol Sam, for their role in supporting North Korea’s nuclear and missile programs by handling millions of dollars in transactions for them.³⁰⁵ As noted by OFAC and mentioned earlier, the asset freezes and associated ban on any U.S. individual or corporation doing business with these individuals and entities, “effectively denies those parties access to the U.S. financial and commercial systems.”³⁰⁶

U.S. unilateral financial measures are considerably more robust than those of the Security Council, however, not only because they have been applied to more parties. In addition, the nature of sanctions the United States imposes extends significantly beyond asset freezes and includes the especially potent and far-reaching sanction, noted earlier:

³⁰³ U.S. Department of State Press Statement, “State Department Actions Targeting Iran’s Nuclear Enrichment and Proliferation Program,” May 9, 2013, <http://www.state.gov/r/pa/prs/ps/2013/05/209195.htm>. U.S. Department of the Treasury, “Treasury Announces New Sanctions Against Iran,” May 23, 2013, <http://www.treasury.gov/press-center/press-releases/Pages/jl1955.aspx>. See also, the case of Parviz Khaki, described in U.S. Department of Justice, “Two Indicted for Alleged Efforts to Supply Iran with U.S.-Materials for Gas Centrifuges to Enrich Uranium,” July 13, 2012, <http://www.justice.gov/opa/pr/2012/July/12-nsd-873.html>. Khaki was designated on May 13, 2013, *Federal Register*, Vol. 78, No. 94, p. 28702, <http://www.gpo.gov/fdsys/pkg/FR-2013-05-15/html/2013-11538.htm>.

³⁰⁴ U.S. Department of Treasury Press Center, “Treasury Sanctions Taiwan Proliferators Linked to North Korea,” May 10, 2013, <http://www.treasury.gov/press-center/press-releases/Pages/jl1935.aspx>

³⁰⁵ U.S. Department of Treasury Press Center, June 27, 2013, <http://www.treasury.gov/press-center/press-releases/Pages/jl1994.aspx>.

³⁰⁶ Office of Foreign Assets Control Fact Sheet, “Nonproliferation – What You Need to Know about Treasury Restrictions,” undated, <http://www.treasury.gov/resource-center/sanctions/Programs/Documents/wmd.pdf>.

denial of access for foreign persons to the U.S. financial system. As indicated, the latter is implemented by denying foreign banks in countries with sanctioned nuclear programs, namely Iran and North Korea, the right to have correspondent accounts with U.S. banks, and persuading foreign banks to similarly isolate the countries of concern. Indeed, current U.S. laws impose penalties on third country financial institutions that facilitate transactions with such parties of concern.

Under a suite of U.S. laws and Executive Orders, some of which took effect in 2013, several categories of parties are denied this access, in particular: individuals and entities directly supporting the banned nuclear programs, including through procurement activities; financial institutions in Iran and North Korea that could support such activities; and financial institutions in third countries (“foreign financial institutions”) that facilitate transactions with either of the previous two categories; U.S. financial institutions, in turn, are subject to massive fines if they do business with designated parties, including transactions through intermediary banks.

Because the denial-of-access penalty is so severe, very few foreign financial institutions are prepared to continue dealing with the wide swath of Iranian banks (including the Iranian Central Bank) and other parties that the United States has designated as contributing to Iran and North Korea’s nuclear programs or to the two countries’ other WMD and related missile activities. This, in turn, means that absent successful efforts to disguise the origin of necessary financial flows, those seeking to pursue clandestine procurement of nuclear commodities would have no means for paying for the goods at issue or those working procurement operations.

The application of the denial-of-access penalty has expanded over time with respect to Iran. Under the most relevant provisions of the Comprehensive Iran Sanctions and Divestment Act of 2010 (“CISADA”)³⁰⁷ enacted in July 2010, foreign financial institutions risk being denied correspondent with U.S. banks if they (1) facilitate the efforts of the Government of Iran to acquire or develop weapons of mass destruction; (2) engage in significant transactions with any person designated by the Security Council under the Iran sanctions resolutions; or (3) engage in significant transactions with any financial institution sanctioned by OFAC for supporting Iranian proliferation or terrorism activities.³⁰⁸ As U.S. Treasury Under Secretary for Terrorism and Financial Intelligence David Cohen testified in June 2013:

³⁰⁷ Comprehensive Iran Sanctions and Divestment Act, P.L. 111-195.

³⁰⁸ Comprehensive Iran Sanctions and Divestment Act, Section 104(c).

The mere fact that we have CISADA at our disposal has been sufficient to drive the overwhelming majority of banks away from business with Iran's designated banks, isolating those Iranian banks from the global financial system.³⁰⁹

He went on to note that the United States has also targeted Iran's Central Bank, blocking its assets and threatening to deny foreign financial institutions access to the U.S. financial system if they engage in any transactions with it not authorized by U.S. law.³¹⁰

The Iran Threat Reduction and Syria Human Rights Act, signed into law on August 10, 2012,³¹¹ amended CISADA to expand the list of activities that could trigger the denial of a foreign bank's access to the U.S. financial system. The list of sanctionable behavior now includes the facilitation of the activities of *any individual or entity* designated by OFAC in connection with Iran's proliferation activities. Previously CISADA had imposed the sanction on foreign financial institutions only for facilitating the activities of a *financial institution* designated by OFAC for links to Iran's proliferation activities.³¹²

The Iran Freedom and Counter-Proliferation Act of 2012 (IFCA), which became law on January 2, 2013,³¹³ and E.O. 13645 (signed June 5, 2013, implementing key IFCA provisions),³¹⁴ expand the scope of the denial-of-access penalty still further. They deny correspondent and payable-through accounts with U.S. banks to any foreign financial institution determined to be doing business with Iranian persons on the list of OFAC sanctioned parties irrespective of the reason for that person being listed.³¹⁵ In addition, these instruments block the assets of any person determined to have "materially

³⁰⁹ Testimony of David Cohen, Under Secretary of the Treasury for Terrorism and Financial Intelligence, before the Senate Committee on Banking, Housing and Urban Affairs, June 4, 2013, <http://www.treasury.gov/press-center/press-releases/Pages/jl1969.aspx>. One bank has been penalized under CISADA's secondary sanctions for dealings with designated parties, China's Bank Kunlun. Iraq's Elaf Islamic Bank was also sanctioned, but these were lifted after negotiations with OFAC.

³¹⁰ Ibid. Certain transactions, such as the financing of exports of humanitarian goods, are authorized, although a license issued by OFAC is required.

³¹¹ Iran Threat Reduction and Syria Human Rights Act of 2012, op. cit.

³¹² See, U.S. Department of State, Fact Sheet, "Iran Sanctions Contained in the Iran Threat Reduction and Syria Human Rights Act (ITRSHRA)," September 28, 2012, <http://www.state.gov/e/eb/rls/fs/2012/198393.htm>. It also expanded the list of penalties that can be imposed under the Iran Sanctions Act against individuals and entities materially supporting Iranian WMD-related activities. This statute's penalties do not include denial of access to the U.S. banking system, however.

³¹³ Iran Freedom and Counter-Proliferation Act of 2012, P.L. 112-239.

³¹⁴ E.O. 13645, issued June 3, 2013, <http://www.treasury.gov/resource-center/sanctions/Programs/Documents/13645.pdf>.

³¹⁵ E.O. 13645, section 3.

assisted, sponsored, or provided financial, material, or technological support for, or goods or services to or in support of, any Iranian person” included on the OFAC list.³¹⁶ To publicize the potential risk for individuals and firms of doing business with designated Iranian parties, OFAC now highlights this in its listings with the warning, “Subject to Secondary Sanctions.”³¹⁷

All of these measures are likely to help constrain nuclear commodity smuggling because of their broad restrictions on Iran’s access to the Western financial system. As an additional measure to complicate Iranian financial dealings, including those linked to illicit procurement, the United States is also attempting to impede international transactions in Iranian rials, threatening foreign financial institutions with denial-of-access sanctions if they engage in significant transactions that use this currency, or are based on its value.³¹⁸

There have been comparatively fewer U.S. legislative and executive branch initiatives to address the North Korean nuclear program. The focus, instead, appears to have been on encouraging banks around the globe to curtail dealings with North Korea voluntarily, on the grounds that its opaque banking practices disguise many illegal activities, exposing legitimate banks to risk should they be found to have unknowingly facilitated North Korea’s nuclear or other sanctioned activities.³¹⁹

RECENT DEVELOPMENTS

Several important developments that have been highlighted above, include:

- New Security Council UN sanctions against North Korea, under UNSCR 2094 (2013) which for the first time require states to prevent the provision of financial services or the transfer of any financial or other assets or resources – including bulk cash – to the DPRK that “could contribute” to its nuclear or other proscribed

³¹⁶ E.O. 13645, section 2. Exceptions are made in both cases privately owned Iranian financial institutions not linked to prohibited activities.

³¹⁷ See OFAC list of Specially Designated Nationals, “SDN by Programs,” <http://www.treasury.gov/ofac/downloads/prgrmlst.txt>. OFAC has published an extensive list of entities owned or controlled by Iran. Inasmuch as the Iranian government and its financial institutions have been blocked pursuant to an earlier executive order, E.O. 13599, transactions with any entity owned or controlled by and by the Government of Iran is effectively prohibited. See, Shearman and Sterling, “Sanctions Round-Up: Second Quarter 2013,” July 12, 2013, op. cit.

³¹⁸ E.O. 13645, Section 1. Imports and exports of precious metals, also sometimes used by Iran to support trade in contraband goods, including crude oil, are also targeted by IFCA.

³¹⁹ Leon V. Sigal, “How North Korea Avoids Financial Sanctions,” 38 *North* blog, May 3, 2013, <http://38north.org/2013/05/lsgal050313/>. For a detailed analysis comparing U.S. financial sanctions against Iran and North Korea, see Klingner, “Time to Get North Korean Sanctions Right,” op. cit.

programs.³²⁰ With regard to this new requirement, China for the first time has taken important steps to limit North Korea's access to the Chinese banking system, instructing four state-owned banks to end relations with North Korea's Foreign Trade Bank.³²¹

- New designations of Iranian and North Korean parties for procurement activities, blocking their property and prohibiting others from doing business with them.
- The issuance of E.O. 13645, which expands secondary sanctions against Iran, with particular attention to the possible sanctioning of foreign financial institutions that engage with U.S.-designated Iranian parties, and which focuses on constraining transactions in Iranian rials.

Lawsuits in EU and UK Courts to Void Designations. A further development of note has been a series of lawsuits in the UK and EU courts challenging the designations of a number of Iranian banks and other firms. Designations against Bank Mellat and Bank Saderat have been voided by the EU General Court in Luxembourg and the UK's designation of Bank Mellat has been voided by the UK Supreme Court.³²² In early September 2013, an EU court voided eight additional designations, including that sanctioning IRISL.³²³ All of the cases were decided principally on the grounds that the targets were not able to defend themselves because they were being denied access to the intelligence information on which the designation was based. Some 30 similar cases are currently pending before the EU General Court. The immediate impact of the cases is not clear. The EU cases are being appealed to the European Court of Justice, and the designations remain in effect pending action in that forum. The UK government is also deciding on how it will proceed with respect to the UK Supreme Court decision. One

³²⁰ UNSCR 2094 (2013), paragraph 11.

³²¹ See Asahi Shimbun, "Chinese Financial Sanction Hits N. Korea Where it Hurts," May 8, 2013, http://ajw.asahi.com/article/asia/korean_peninsula/AJ201305080060. For a broader contextual overview of China's policies towards the DPRK in this respect, see Stephanie Kleine-Ahlbrandt, "China's North Korea Policy: Backtracking from Sunnylands?" July 2, 2013, 38 *North* blog, <http://38north.org/2013/07/skahlbrandt070213/>.

³²² Laurence Norman and Benoit Faucon, "EU Struggles to Save Iran Sanctions," *Wall Street Journal*, September 5, 2013; Spencer Kimbal, "Iranian Banks Fight Sanctions in European Court," *DW*, July 31, 2013.

³²³ The entities whose designations were voided included: Islamic Republic of Iran Shipping Lines; Persia International Bank, PLC; Post Bank Iran; Iran Insurance Company; Good Luck Shipping; Export Development Bank of Iran; and Iranian Offshore Engineering and Construction Co. See "EU Seeks to Tighten Iran Bans Despite Court Rulings," *PressTV*, October 28, 2013, <http://www.presstv.ir/detail/2013/10/28/331720/eu-seeks-to-tighten-iran-sanctions/>; Cheryl Chumley, "EU Tosses Out Sanctions on Iranian Banks with Suspected Ties to Nuclear Program," *Washington Times*, September 6, 2013, <http://www.washingtontimes.com/news/2013/sep/6/eu-tosses-sanctions-iran-banks-suspected-ties-nuke/>.

approach is for the governments to modify their mode of sanctioning and instead of targeting specific entities, impose sanctions on an entire sector of the economy; indeed, as noted, the UK has banned all transaction with Iranian banks. Also, U.S. designations of the banks remain in place and the threat of U.S. sanctions may be sufficient to keep banks in Europe from doing business with the Iranian financial institutions, even if EU sanctions are not ultimately sustained. Nonetheless, there is some concern that the designation approach may be falling out of favor in Europe. According to one press account referring to the impact of the recent legal challenges, “EU diplomats have cautioned ... that any new consideration in Brussels of further targeted sanctions against Iran will be dampened by concern over future litigation.”³²⁴

Negotiations with Iran to Settle Nuclear Controversy. In November 2013, talks were held in Geneva between Iran and the P5+1 group to negotiate restraints on Iran’s nuclear program to be adopted in return for sanctions relief. In the negotiated Joint Plan of Action that will run for six months (with the possibility of renewal), Iran agreed to freeze some of the most concerning aspects of its nuclear program in turn for limited relief from U.S. sanctions. Under the terms of the deal, around \$4.2 billion in Iranian assets (payments made by third country buyers for recent purchases of Iranian crude oil that previously could only be spent in the country where such purchases were made), will be released, giving Iran the discretion to use the funds as it wishes; the United States will pause its efforts to further reduce Iranian sales of crude oil; and the U.S. and EU will suspend the sanctions on Iranian exports of petrochemical products, as well as gold and precious metals.³²⁵ However, all other sanctions against Iran, discussed above, remain intact and continue to weaken the Iranian economy – and to complicate illicit nuclear procurement transactions.

GAPS AND CHALLENGES

Financial measures are a powerful restraint on further nuclear commodity smuggling, although firms are sometimes able to skirt these restrictions by doing business under new names. It appears that implementation by major Western banks has improved after the wave of extremely costly settlements of enforcement actions brought by U.S. authorities against a number of these banks in 2012. With Iran and North Korea being forced to resort to bulk cash transfers and the use of precious metals as a medium of exchange, the measures appear to be working. Uncertain implementation by less

³²⁴ Clair Hutchison, “British Supreme Court Ruling Threatens Western Sanctions against Iran,” *Reuters*, June 19, 2013, <http://uk.reuters.com/article/2013/06/19/uk-iran-sanctions-idUKBRE95I18A20130619>.

³²⁵ See Joint Plan of Action on Iran’s Nuclear Program, http://www.nytimes.com/interactive/2013/11/25/world/middleeast/iran-nuclear-deal-document.html?_r=0.

advanced states may be gradually improved via the FATF, as it implements its new Recommendation 7, which addresses means for countering proliferation financing.

China's efforts to constrain North Korea in part by curtailing the latter's links to Chinese banks, is a useful step, but a recent analysis highlights that China – and the United States – have a number of opportunities that could be exploited to act more forcefully in this arena.³²⁶

³²⁶ Klingner, "Time to Get North Korean Sanctions Right," *op. cit.*, noting China's expansion of trade with North Korea, even as Beijing was imposing added sanctions, and China's refusal to add the freezing of certain bank accounts associated with Kim Jong Un to UNSCR 2094 (2013).

System 6: Enforcement

BASIC FRAMEWORK

Enforcement activities, in the context of nuclear commodity trafficking, are the implementation of measures, usually involving the threat of criminal, monetary, or other penalties, taken against individuals, private enterprises, and certain targeted governmental units to ensure compliance with mandatory rules adopted by governments and international organizations. At the most basic level, such activities can physically prevent instances of nuclear commodity trafficking by incarcerating perpetrators, seizing contraband, denying access to essential financial assets and channels, or blocking necessary transportation links. Secondly, if widely perceived as effective, law enforcement can sometimes deter such nuclear commodity trafficking by the threat of punishment through fines, imprisonment, or denial of various governmental privileges. Such deterrence can alter the behavior not only of knowing participants, but also of other actors, such as banks and transport firms, that might otherwise unwittingly assist nuclear commodity smuggling activities.

As a rule, enforcement activities with respect to nuclear commodity smuggling take place at the national level, and occasionally at the state/province level, although in some cases foreign governments or international organizations provide a framework for international cooperation.³²⁷ The legal authorities on which enforcement actions are based are also enacted at the national level. Where nuclear procurement is concerned, however, relevant national laws are sometimes based on international mandates, in particular UN Security Council resolutions and more informal multi-state undertakings, such as agreements among the members of the Nuclear Suppliers Group (NSG).

In most countries, multiple governmental agencies are involved in these enforcement activities. The U.S. Department of Commerce and economic ministries in other countries traditionally license relevant dual-use exports and investigate violations of these rules. The U.S. Federal Bureau of Investigation and national police organizations abroad also pursue investigations of potential violations. The U.S. Department of Justice and counterpart justice ministries in other states are responsible for prosecuting related criminal and, in some countries, civil cases. Customs officials verify that exports are consistent with licenses and various embargoes and pursue investigations of

³²⁷ The UN Security Council has designated some individuals and entities engaged in nuclear commodity smuggling for punishment – by means of asset freezes and travel bans – but the actual execution of the punishment is carried out at the national level.

misconduct. The U.S. Treasury Department and finance ministries elsewhere enforce rules against the financing of proliferation-relevant activities.

In addressing nuclear commodity smuggling, the laws to be enforced fall into two broad categories, those focused on export controls and those focused on financial sanctions against parties providing assistance to suspect nuclear programs, especially Iran and North Korea.³²⁸

INTERNATIONAL MEASURES

UN Security Council Resolutions. UNSCR 1540 (2004), requiring all states to adopt and implement controls over nuclear materials and related equipment, and the series of resolutions imposing sanctions on Iran and North Korea directed at curbing their nuclear and missile activities, are the most relevant in the current context.

Implementation of UNSCR 1540 is being pursued through diplomatic channels and does not, in itself, encompass coercive measures to achieve its goals. It does, however, require UN member states to enact laws with coercive elements. Indeed one specific requirement of the resolution is that states adopt laws that include civil and criminal penalties for export control violations.³²⁹

The Iran and North Korea sanctions resolutions, however, rather than merely requiring the adoption of legislation, require that states engage in specific enforcement activities at the national level to: implement embargoes on transfers of nuclear and other sensitive items to both states; asset freezes and travel bans against individuals and entities designated in each of the resolutions; and restrictions (some mandatory) on banking activities involving both states. In addition, UNSCR 1929 (2010) calls on states to inspect cargoes suspected to include prohibited nuclear and other sensitive contraband moving to or from Iran – a stricture the United States and the EU have made mandatory – and UNSCR 2094 (2013) makes such inspections mandatory for all states in the case of North Korea.

International Treaties. Two international treaties have potential relevance to nuclear commodity smuggling, but may have little practical impact in addressing the problem, namely, the 2005 Protocol to the Convention on the Suppression of Unlawful Acts

³²⁸ Other laws of more general applicability may also be invoked in particular cases, such as making false statements to government officials, defrauding a government, transporting stolen property, or tax evasion. See, Justice Department Compilation of Cases, op. cit. Past prosecutions in Europe, involving the A.Q. Khan network, have also sometimes included charges of treason or espionage.

³²⁹ UNSCR 1540 (2004), paragraph 3(d).

(SUA) Against the Safety of Maritime Navigation and the 2010 Beijing Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation (not in force).³³⁰ The two treaties respectively, declare a number of actions to be offenses, including a person's transporting or causing to be transported (by maritime vessel or civil aircraft, respectively) nuclear materials or equipment especially designed or prepared for nuclear use knowing that the commodity is intended to be used in a nuclear explosive activity or in any other nuclear activity not under safeguards pursuant to a safeguards agreement with the International Atomic Energy Agency.³³¹ As with the Iran and North Korea sanctions resolutions, domestic law enforcement measures are necessary to implement the treaties' strictures.

The requirement that the perpetrator know that the commodity in question is to be used for nuclear explosives or an unsafeguarded activity, however, creates a high evidentiary hurdle for prosecuting this offense. Moreover, with respect to Iran and North Korea, items that are currently the subject of nuclear commodity smuggling are dual-use items (not nuclear materials or items especially designed or prepared for nuclear use) and for Iran, at least, are destined for IAEA safeguarded facilities; thus, at this time, most procurement activities of concern would not constitute offenses under either of these instruments. The fact that the 2005 SUA Protocol, although in force, applies only to the limited number of states that have joined it and the fact that the Beijing Protocol is not yet in force, further reduce the relevance of these instruments to current challenges.

INTERPOL. With respect to nuclear commodity smuggling, the role of INTERPOL appears to be limited. The organization's mission is to facilitate international police cooperation within the limits of existing national laws among its 190 member countries. A search of the organization's website for the term "nuclear," however, did not identify a single reference to the illicit procurement issue. Similarly, INTERPOL's 2011 and 2012 year-end wrap-ups do not cite any activities aimed at combatting nuclear procurement networks, although they do highlight the organization's important contributions to the largely separate issue of preventing the smuggling of nuclear and other radioactive materials to reduce the risk of nuclear terrorism. One function of the agency is to issue

³³⁰ Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation, Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf, Adopted March 10, 1988; Entry into force March 1, 1992; 2005 Protocols: Adopted October 14, 2005; Entry into force July 28, 2010, <http://www.imo.org/About/Conventions/ListOfConventions/Pages/SUA-Treaties.aspx>; Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation, Done at Beijing on September 10, 2010 (not in force), http://legacy.icao.int/DCAS2010/restr/docs/beijing_convention_multi.pdf.

³³¹ See, e.g., 2005 SUA Protocol, article 3bis; Beijing Convention, article 1 (i) (3) and 1 (i) (4).

“red notices,” announcements of arrest warrants that have been issued by a member state seeking assistance in locating and detaining an alleged offender. A review of the 212 red notices in mid-2013, however, did not indicate any related to nuclear commodity smuggling, although one was mentioned in a recent press report.³³²

MULTI-STATE MEASURES

Nuclear Suppliers Group. The Guidelines issued by the NSG are not codified in an international treaty, although they are forwarded by the group to the Director General of the IAEA, lending them a degree of formality, if not international legal status. Rather, each member state agrees to adopt the export control lists and principles negotiated within the group. The Guidelines are then incorporated into each member state’s domestic export control laws, which are, in turn, the subject of law enforcement measures. The Guidelines state that member governments should have in place legal measures to enforce them, including penalties for violations.

Financial Action Task Force (FATF). The FATF’s recommendation regarding implementation of UN sanctions in the banking sector, in effect, calls upon states to adopt and enforce rules to ensure that financial institutions are properly enforcing asset freezes against Iranian and North Korean parties sanctioned by the Security Council. Although states are required by the relevant resolutions to implement these measures, the FATF’s role is more one of shaping states’ compliance measures than adding new substantive requirements.

EU Enforcement Actions - Export Controls. Late 2012 and the first part of 2013 saw a number of important criminal cases developing in Western Europe and Turkey against nuclear commodity smuggling activity.

- In mid-2012, German authorities arrested four men alleged to be part of an international procurement network seeking to send specialized valves to Iran for use in its heavy-water reactor at Arak. The effort involved the transfer of 91 highly specialized valves produced in Germany and 856 less complex valves produced in India to the Iranian firm, MITECH, via intermediaries in Turkey and Azerbaijan.³³³ (In January 2013, Turkish authorities also arrested two Turkish nationals for their role in this scheme.)³³⁴

³³² World News, “Nuclear Materials Smugglers Arrested,” op. cit.

³³³ See “Four Men-Kianzad Ka., Gholamali Ka., Hamid Kh and Rudolf M- Arrested in Raids Across Germany in Bid to Stop Illegal Exports of Nuclear Technology to Iran,” Nuclear Export Controls

- In November 2012, Spanish customs officials raided the offices of a machine tool manufacturer, Electroerosion S.I., accused of exporting seven multi-ton machine tools to Iran via a front company based in Turkey that Iran had set up specifically to disguise the ultimate destination of the transfer. The machine tools have potential uses in Iran's nuclear and defense sectors.³³⁵
- In January 2013, Spanish authorities intercepted a truck carrying 44 corrosion resistant valves manufactured by the Spanish firm, Fluval Spain, S.L., which, according to documentation seized in the raid, were destined for Iran, via a front company in the UAE. Funds supporting the transaction were channeled through banks in third countries.³³⁶
- In February 2013, a Swedish national was found guilty in a Swedish court of trying to export to Iran, via intermediaries in Dubai, advanced, corrosion protected valves apparently intended for use in uranium enrichment. The individual received a three-month suspended sentence.³³⁷

Although it is difficult to draw direct comparisons, at first impression, it would appear that during this period, the overall scale of European prosecutorial actions against nuclear commodity smuggling were of the same rough order of magnitude as those of the United States, discussed below. In an October 2013 report to the European Parliament covering the previous three years, however, the European Commission reported, "National authorities are primarily responsible for the enforcement of export controls. Over the reporting period, a few violations were reported, e.g. for unlicensed export of items, resulting in the imposition of fines and/or seizure of the items, while a few cases were referred to courts."³³⁸ (Spelling as in original.)

(Stockholm International Peace Research Institute) website,

<http://nuclearexportcontrols.blogspot.com/2012/08/four-men-arrested-in-raids-across.html>.

³³⁴ See, e.g., "Covert Iranian Nuclear Dealings via Turkey Revealed," *Daily Zaman*, op. cit.

³³⁵ David Roman and Ilan Brat, "Spain Raids Company Over Suspected Iran Exports," *Wall Street Journal*, November 26, 2012,

<http://online.wsj.com/news/articles/SB10001424127887324469304578142892948556144?cb=logged0.11807277309708297>.

³³⁶ "Fluval Spain, S.L.," King's College, London, website,

<http://www.kcl.ac.uk/sspp/departments/warstudies/research/groups/csss/alpha/About-proliferation/Case-Studies/Valves/Fluval-Spain-SL.aspx>.

³³⁷ "Swedish Man Found Guilty of Breaking Iran Embargo," *GlobalPost* (citing *Agence France-Presse*), February 6, 2013, <http://www.globalpost.com/dispatch/news/afp/130206/swedish-man-found-guilty-breaking-iran-embargo>.

³³⁸ Report from the Commission to the Council and the European Parliament on the Implementation of Regulation (EC) No 428/2009 Setting Up a Community Regime for the Control of Exports, Transfer, Brokering and Transit of Dual-Use Items, COM (2013) 710 Final, (hereinafter "European Commission October 2013 Export Control Report") pp. 8-9, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0710:FIN:EN:PDF>.

Separately, the UK government in its 2012 annual report on strategic trade control activities lists all relevant prosecutions it undertook during that period. The report indicates, however, that none of the three prosecutions undertaken dealt with nuclear goods. More broadly, the 2012 report also notes that the government undertook “280 seizures of strategic goods in breach of licensing requirements or sanctions and embargoes; 151 disruptions, where strategic goods subject to end use control and financial sanctions have been stopped from leaving the UK; and ... made use of its power to issue compound penalties, with 8 issued in 2012, totaling £520,000.”³³⁹ Although, no details are provided regarding the proportion of actions taken with respect to nuclear commodities, the ratio of seizures and disruptions to prosecutions highlights the importance that the UK places on rapid administrative actions in comparison to formal legal proceedings.

EU Enforcement Actions - Financial sanctions. Regarding second-tier enforcement actions, at least one bank whose sanctions violations and other illegal conduct resulted in a major fine in the United States in 2012, was also targeted by authorities in the UK, where the bank was headquartered, namely HSBC, which was subject to enforcement action by the UK Financial Services Authority.³⁴⁰ Although a number of additional European banks were either engaged in discussions with authorities on their sanctions compliance practices or conducting internal inquiries into the issue, press reports do not indicate that other European banking authorities were pursuing enforcement actions in this area.³⁴¹

U.S. MEASURES

Key U.S. legal authorities governing nuclear and related dual-use export controls, most of which have been discussed previously, are the Atomic Energy Act, which governs export of nuclear-specific materials, equipment, and technology and the International Economic Emergency Powers Act (IEEPA) and the related Export Administration Regulations (EAR), which govern the export of nuclear dual-use items (with both nuclear and other uses).³⁴² The principal legal authorities governing the imposition of sanctions on individuals and entities to constrain nuclear programs of concern are the

³³⁹ *United Kingdom, Strategic Export Controls, Annual Report, 2012*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/212251/Strategic_Exports_AR_2012_NO_SIG.pdf, p. 32.

³⁴⁰ “HSBC to Pay \$1.9bn in U.S. Money Laundering Penalties,” *BBC News Business*, December 11, 2012, <http://www.bbc.co.uk/news/business-20673466>; “UK and Japanese Banks Settle US Sanctions and Money Laundering Violations,” *Steptoe and Johnson Newsletter*, op. cit.

³⁴¹ “Banks Face Threat of Billions in U.S. Fines over Iran Connections,” op. cit.

³⁴² Atomic Energy Act of 1954, 42 U.S.C. § 2011 et seq.; International Emergency Economic Powers Act (IEEPA), 50 U.S. Code, Chapter 35, Sec. 1701, et. seq.

Iran-North Korea-Syria Nonproliferation Act (INKSNA);³⁴³ the Comprehensive Iran Sanctions and Divestment Act (CISADA);³⁴⁴ the National Defense Authorization Act of 2012;³⁴⁵ the Iran Threat Reduction and Syria Human Rights Act of 2012;³⁴⁶ the Iran Freedom and Counter-Proliferation Act of 2012;³⁴⁷ and a series of executive orders, especially, E.O. 12938,³⁴⁸ E.O. 13382,³⁴⁹ E.O. 13599,³⁵⁰ and E.O. 13645.³⁵¹ For the United States, these laws, together with various licensing and enforcement activities largely satisfy the requirements of UNSCR 1540 regarding export controls and their enforcement, as well as the embargoes and targeted sanctions provisions of the Iran and North Korea Security Council sanctions resolutions. Regulations issued under the Atomic Energy Act by the Nuclear Regulatory Commission and the Department of Energy, and issued under IEEPA by the Department of Commerce implement the Guidelines of the NSG, and regulations issued by OFAC implement Recommendation 7 of the Financial Action Task Force.

For both export controls and financial sanctions, enforcement usually takes place in a two-tiered environment. First, governmental agencies, applying rules established in laws or executive orders – such as rules imposing sanctions on parties materially assisting suspect nuclear programs – determine the individuals and entities against whom these rules will be applied and publish the names of these parties.³⁵² Then, the private sector is directed to comply with these regulatory decisions. For export controls, the requirement imposed on the private sector is to obtain a license for the export of certain goods to certain persons or destinations as identified and published by the relevant governmental authorities. In most cases, authorities review licenses proposing exports to sanctioned parties with a “presumption of denial,” and the actual denial of the export is made by the government when it refuses to grant the license. Where financial sanctions are involved, the role of the private sector is more direct

³⁴³ Iran-North Korea-Syria Nonproliferation Act, P.L. 106-178, as amended.

³⁴⁴ Comprehensive Iran Sanctions and Divestment Act, P.L. 111-195, as amended.

³⁴⁵ National Defense Authorization Act of 2012, op. cit..

³⁴⁶ Iran Threat Reduction and Syria Human Rights Act of 2012, P.L. 112-158

³⁴⁷ The Iran Freedom and Counter-Proliferation Act of 2012, P.L. 112-239.

³⁴⁸ 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>.

³⁴⁹ Issued, June 28, 2005, <http://www.treasury.gov/resource-center/sanctions/Documents/whwmdeo.pdf>.

³⁵⁰ Issued February 5, 2102, <http://www.gpo.gov/fdsys/pkg/FR-2012-02-08/pdf/2012-3097.pdf>.

³⁵¹ Issued June 3, 2013, <http://www.treasury.gov/resource-center/sanctions/Programs/Documents/13645.pdf>.

³⁵² See U.S. Department of Commerce, Lists of Parties of Concern, <http://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern>.

because the blocking of assets of parties identified by the government or denying such parties correspondent or payable-through accounts are actions executed by financial institutions, themselves.

If a private sector party makes an export without a required license or extends financial services to a banned individual or entity, the second tier of enforcement is brought to bear, as the government acts against that private party. Offenders are either prosecuted, resulting in imprisonment and/or monetary fines, or subject to civil penalties, principally fines and the denial of export privileges.

Under some statutes and executive orders where the penalties include denials of government benefits, the penalties are implemented by the government, itself. INKSNA, which sanctions parties for materially assisting proscribed nuclear programs, fits this pattern. Its penalties are a ban on U.S. government contracts with the sanctioned party, a ban on the provision of U.S. assistance to that party, and a ban on exports of U.S. dual-use goods and military equipment to that party. Penalties imposed under the Iran Threat Reduction and Syria Human Rights Act – which are targeted directly at illicit procurement networks – are a mix of both models.³⁵³ Some penalties, such as the denial of export assistance from the Export-Import Bank of the United States or the denial of licenses for the export of U.S. military, dual-use, or nuclear-related goods or technology, must be implemented directly by the government. Other penalties, however, such as the prohibition on private U.S. bank loans exceeding \$10 million in any 12-month period or the ban financial transactions subject to U.S. jurisdiction, must be executed by private parties.³⁵⁴

³⁵³ The law imposes five of the 12 sanctions described in the next note on persons “for exporting, transferring, permitting, or otherwise facilitating, on or after the date of enactment of the Act, the transshipment of any goods, services, technology, or other items to any other person while the person knew or should have known that the export, transfer, or transshipment would likely result in another person exporting, transferring, transshipping or otherwise providing the goods, services, technology, or other items to Iran and that the items would contribute materially to the ability of Iran to acquire or develop chemical, biological, or nuclear weapons....” Similar penalties are imposed for participation in a joint venture with the Government of Iran or entities incorporated in Iran entity that involves any activity relating to the mining, production, or transportation of uranium. See, U.S. Department of State Fact Sheet, “Iran Sanctions Contained in the Iran Threat Reduction and Syria Human Rights Act (ITRSHRA),” September 28, 2013, http://www.state.gov/e/eb/rls/fs/2012/198393.htm#_ftnref3.

³⁵⁴ The Iran Threat Reduction and Syria Human Rights Act requires the president to impose five of twelve possible sanctions against parties that are determined to have engaged in prohibited conduct. The available sanctions include prohibitions on:

1. Export assistance from the Export-Import Bank of the United States;
2. Licenses for export of U.S. military, “dual use,” or nuclear-related goods or technology;
3. Private U.S. bank loans exceeding \$10 million in any 12-month period;
4. If the sanctioned person is a financial institution, designation as a primary dealer in U.S. Government debt instruments or service as a repository of U.S. Government funds;

The first tier of enforcement – identification and listing of the targets of export restrictions, financial sanctions, or denials of government benefits – relies heavily on intelligence information and is undertaken behind closed doors by interagency bodies. Designations under INKSNA, for example, are made by a U.S. interagency group led by the State Department’s Bureau of Verification, Compliance and Implementation.³⁵⁵ Designations under the various Executive Orders also rely on a closed interagency process – indeed, interagency consultation is mandated by the orders, themselves.³⁵⁶ The same process is used by the Commerce Department in identifying parties to be added to its Entity List and Unverified List, leading to restrictions on exports to those parties.³⁵⁷ For this tier of enforcement, the targeted party is usually not under U.S. jurisdiction. The second tier of enforcement, against non-compliant exporters and financial institutions, however, employs the traditional tools of the formal U.S. justice system and, in most cases, the United States has jurisdiction over the non-compliant party, including foreign banks that do business with U.S. banks or have branches in the United States.

Enforcing Export Controls. In the United States, some 18 agencies of the federal government are working to enforce export related rules, leading in 2010 to the

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5. Procurement contracts with the United States Government;
 6. Foreign exchange transactions subject to U.S. jurisdiction;
 7. Financial transactions subject to U.S. jurisdiction;
 8. Transactions with respect to property and interests in property subject to U.S. jurisdiction;
 9. Imports to the United States from the sanctioned person;
 10. Ban on investment in equity or debt of the sanctioned person;
 11. Exclusion (visa ban) of corporate officers of sanctioned entities;
 12. Or sanctions (any of the above) on principal executive officers of sanctioned entities.

See, U.S. Department of State Fact Sheet, “Iran Sanctions Contained in the Iran Threat Reduction and Syria Human Rights Act (ITRSHRA),” *op. cit.*

³⁵⁵ See Department of State, “Iran, North Korea, and Syria Nonproliferation Act Sanctions (INKSNA)” webpage, <http://www.state.gov/t/isn/inksna/index.htm>. As described by the GAO, “Officials from the U.S. Department of State conduct bi-annual analyses, assessing 60,000 intelligence reports in order to identify cases to recommend for interagency review. The interagency review meetings, chaired by the NSC, include input from the Departments of Defense, Energy, Treasury, and other agencies. Ultimately, the State Department’s Verification, Compliance, and Implementation (VCI) Bureau informs Congress of sanction targets, and their activities, before publishing the names of parties in the *Federal Register*.” Government Accountability Office, GAO-08-58: Iran Sanctions, December 13, 2007, p. 14, <http://www.gao.gov/new.items/d0858.pdf>.

³⁵⁶ See, e.g., E.O. 13382, section 1(a)(ii), 1(a)(iii) and 1(a)(iv).

³⁵⁷ The Entity List contains the names of certain foreign persons that are subject to specific license requirements for the export, re-export and/or transfer (in-country) of specified items. The Commerce Department has declared that these licenses will be reviewed with a presumption of denial. The Unverified List includes names and countries of foreign persons who in the past were parties to a transaction with respect to which BIS could not conduct a pre-license check or a post-shipment verification for reasons outside of the U.S. Government’s control. Exporters are cautioned to consult the Commerce Department before exporting to these parties.

establishment of the Export Enforcement Coordination Center (E2C2). The center is managed by the Homeland Security Investigations unit of Immigration and Customs Enforcement, a part of the U.S. Department of Homeland Security.³⁵⁸ The E2C2 coordinates activities of units within the Departments of State, Treasury, Defense, Justice, Commerce, Energy, and Homeland Security, and the Office of the Director of National Intelligence. Investigations in most enforcement cases are undertaken by the Commerce Department's Office of Export Enforcement, the Federal Bureau of Investigation (FBI), or the Immigration and Customs Enforcement (ICE) component of the Department of Homeland Security.³⁵⁹ Commerce and ICE have the authority to impose fines and other civil penalties, including the Commerce Department's authority to deny export privileges. Criminal prosecutions and civil actions brought in Federal court are led by the Department of Justice, which has established a National Coordinator for Export Enforcement, supported by a team of specialized prosecutors, who help build cases and bring added expertise to the courtroom.

The dominant triggers for an investigation leading to imposition of a penalty vary from agency to agency. At the Department of State, officials find that most investigations originate in the Intelligence Community (including the financial intelligence unit at the Department of Treasury), based on information collected in the course of normal intelligence activities.³⁶⁰ At the Department of Commerce, intelligence information, export data, and tips from industry all contribute importantly in triggering investigations. For Department of Justice prosecutors, these actions are triggered by information from the Intelligence Community, domestic law enforcement activities, and tips from industry, in roughly equal measure.

Because export control violations typically involve the failure to obtain necessary export licenses under the Export Administration Regulations, the Commerce Department is the agency most heavily involved in export control enforcement cases. Commerce has 100 law enforcement agents in Washington and in eight U.S. field offices, as well as additional representatives in U.S. embassies, who conduct post-export end-use verification inspections to uncover unauthorized transshipments or re-exports to restricted destinations.³⁶¹ Among other responsibilities, it implements the denial of

³⁵⁸ Executive Order 13558, November 9, 2010, <http://www.whitehouse.gov/the-press-office/2010/11/09/executive-order-export-coordination-enforcement-center>.

³⁵⁹ A 2007 FBI publication noted that the bureau had at least one special agent in each of its 56 field offices dedicated to counterproliferation cases. "Playing Keep-Away From Spies and Terrorists," FBI Story, December 13, 2007, http://www.fbi.gov/news/stories/2007/december/counterproliferation_121307.

³⁶⁰ Many State Department responses to such information involve diplomatic demarches to foreign governments, rather than domestic investigations possibly leading to prosecutions.

³⁶¹ See, System 3: Customs Controls and Inspections.

exports sanction under INKSA, once the Secretary of State, in consultation with other agencies, triggers this action by making a determination that a party has materially assisted Iran's nuclear or other WMD or missile programs.

In June of 2013, Under Secretary of Commerce for Industry and Security Eric Hirschhorn testified the Commerce Department had 749 open cases, 300 of which involved Iran as the ultimate recipient of diverted items, with 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.³⁶² Although Commerce has not published statistics on what proportion of these cases involve nuclear dual-use items, if only three percent of the total involved such commodities, some 24 nuclear investigations would be open, of which 10 would involve Iran.³⁶³ One especially disturbing set of statistics showed that Iranian procurement activities appeared to be rapidly accelerating:

In FY 2012, BIS's [the Bureau of Industry and Security] 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 2013.³⁶⁴

No similar statistics were made available for North Korea or Pakistan. As noted in **System 3: Customs Controls and Enforcement**, ICE is also very active in countering illicit exports, launching nearly 1,800 criminal investigations in 2011 and obtaining hundreds of arrests, indictments, and convictions, respectively, for export-related criminal violations of all types.³⁶⁵

With respect to U.S. criminal prosecutions of nuclear commodity smuggling pursued by the Department of Justice, the actual number of convictions annually appears to be modest. The Justice Department list of major cases shows only three convictions during 2012 for nuclear export control violations (all involving dual-use goods). In one case the defendant, Susan Yip, was given a sentence of two years' imprisonment; in a second case, Richard Phillips received a sentence of 92 months' imprisonment; and in the third,

³⁶² U.S. 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>.

³⁶³ Ibid.

³⁶⁴ Ibid.

³⁶⁵ Also see pp. 92-93.

China Nuclear Industry Huaxing Construction Co., Ltd. was given a \$2 million fine, with \$1 million postponed.³⁶⁶ The Justice Department list cautions that it is comprised of selected cases and is not exhaustive, but presumably it includes the cases that are the most salient. The sentences in the three listed cases appear to be of low-to-moderate severity. Only the case involving China Nuclear Industry Huaxing Construction Co., Ltd. received attention from more than one national media outlet. In 2011, the Justice list shows two sentences being handed down. Majid Saboni received twelve months and one day for conspiracy to export laboratory equipment, radiation detection equipment, and radon detection equipment from the United States to Iran, and Jirair Avanesian received 18 months and a \$10,000 fine for the export of vacuum pumps potentially usable in the enrichment of uranium.³⁶⁷ The latter case received coverage in the Chinese news service, Xinhua, but not, it appears, in the U.S. media.³⁶⁸

The case list also illustrates that in most instances, defendants had engaged in successful smuggling activities for some time before being apprehended. From Oct. 9, 2007, to June 15, 2011, for example, Susan Yip and her co-conspirators obtained or attempted to obtain from companies worldwide over 105,000 parts valued at a cost of some \$2,630,800, involving more than 1,250 transactions – including 599 transactions with 63 different U.S. companies. The listing also reveals that considerable time was required to successfully investigate and prosecute an offender. In one case still under way, involving a single illegal export of carbon fiber to Iran via Europe and the UAE, the offense was alleged to have taken place in 2007, but the indictment was not lodged until 2012.³⁶⁹ In the case involving China Nuclear Industry Huaxing Construction Co., Ltd., the illegal export to Pakistan of controlled specialty coatings for nuclear power plants at the heart of the case took place in 2006 and 2007, but the first guilty plea in the case was not obtained until 2010.³⁷⁰

In addition to the conviction and sentencing of the individuals and entities just noted, in July 2012 U.S. authorities indicted Parviz Khaki and several other persons for conspiring to obtain and illegally export to Iran U.S.-origin materials used to construct, operate and maintain gas centrifuges to enrich uranium, including maraging steel,

³⁶⁶ Justice Department Compilation of Cases, “Military-Sensitive Parts to Iran,” “Carbon Fiber Material to Iran,” and “Specialty Coatings to Pakistani Nuclear Facility.”

³⁶⁷ Justice Department Compilation of Cases, “Laboratory and Radiation Detection Equipment to Iran,” and “Vacuum Pumps with Potential Sensitive Applications to Iran.”

³⁶⁸ “California Man Convicted for Nuclear Conspiracy with Iran,” *Xinhua*, July 7, 2011, http://news.xinhuanet.com/english2010/world/2011-07/07/c_13971104.htm.

³⁶⁹ Justice Department Compilation of Cases, op. cit., “Carbon Fiber and Other Materials to Iran and China.”

³⁷⁰ Ibid., “Specialty Coatings to Pakistani Nuclear Facility.”

aluminum alloys, mass spectrometers, vacuum pumps and other items. Khaki was also charged with successfully exporting two specialized lathes and nickel alloy wire from the United States through China to Iran.³⁷¹ Separately, in December 2012, prosecutors charged four individuals with exporting carbon fiber via the UAE to Iran, and via Belgium to China.³⁷²

The Department of Commerce designation process can move much more rapidly, although the civil penalties meted out are far less onerous than imprisonment for a criminal offense, which the Commerce Department also has the authority to impose through judicial proceedings (represented in court by the Department of Justice). Speaking at a meeting in mid-2012, Assistant Secretary of Commerce for Export Enforcement David Mills gave general statistics regarding the enforcement efforts of the department, stating:

The Office of Export Enforcement's investigations resulted in the conviction of 29 individuals, who received prison sentences totaling 572 months. There were criminal convictions of 10 companies. These cases resulted in the imposition of \$20.2 million in criminal fines and \$2.1 million in forfeitures. In 2012 we are on track to meet or exceed those numbers.³⁷³

He also noted that in 2011, Commerce had settled 39 cases, which imposed a total of \$8.5 million in fines, and that the department had imposed 26 export denial orders, revoking export control privileges of the targets of the orders; by mid-2012, 24 additional administrative cases had been settled, imposing \$6.4 million in fines and 24 export denial orders.³⁷⁴ In addition, during all of 2012, Commerce's Bureau of Industry and Security added 197 new persons to the Entity List – effectively making them ineligible to receive U.S. exports, while removing 18.³⁷⁵ The statistics show a very active enforcement effort, although it is not possible to determine how much of this effort was devoted to addressing nuclear commodity smuggling, specifically.

³⁷¹ Ibid., "Materials for Gas Centrifuges and Other Nuclear-Related Goods to Iran."

³⁷² Justice Department Compilation of Cases, op. cit., "Carbon Fiber to Iran and China."

³⁷³ Remarks by David W. Mills Assistant Secretary for Export Enforcement, Bureau of Industry and Security, at Update 2012 Conference, Washington, DC, http://www.bis.doc.gov/index.php/licensing/forms-documents/doc_view/420-part-746-embargoes-and-other-special-controls.

³⁷⁴ Ibid.

³⁷⁵ Remarks by David W. Mills Assistant Secretary for Export Enforcement, Bureau of Industry and Security, Washington, DC, July 24, 2013, http://www.bis.doc.gov/index.php/forms-documents/doc_download/802-assistant-secretary-for-export-enforcement-speech.

Enforcing Financial Sanctions. Enforcement actions in this sector are implemented predominantly by OFAC and a second office at the Treasury Department, the Financial Crimes and Enforcement Network (FINCEN), although some sanction triggers require implementation by the Department of State or a determination involving both agencies.

During 2012, the Department of State did not sanction any party under INKSNA, although it did sanction two individuals and six entities mentioned earlier during 2013 for illicit procurement activities related to Iran.³⁷⁶ State did not make designations under E.O. 13382 during 2012 or during the first three quarters of 2013 that are listed on its website. (E.O. 13382 is administered by OFAC, but for some determinations State is the lead agency.³⁷⁷) In 2012, OFAC, imposed asset freezes on 11 individuals and 22 entities under the executive order. Although it not possible to determine from the designations which parties were sanctioned because of nuclear procurement activities, specifically, one designated individual was Seyed Jaber Safdari, manager of the Natanz Enrichment Facilities, discussed earlier as a likely originator of procurement transactions;³⁷⁸ one designated entity's name, SAD Import Export Company, Tehran, strongly suggests a link to such activities; one firm was affiliated with the Defense Industries Organization in Iran, involved in Iran's production of uranium enrichment centrifuges;³⁷⁹ and four Iranian shipping entities were designated on nonproliferation grounds, implying they play a role in transporting nuclear contraband.³⁸⁰ In the first three quarters of 2013, OFAC designated 25 individuals and 34 entities for nonproliferation reasons. Of these, a number appear to be related to illicit procurement, judging from their addresses in well-known transit countries: China (two individuals), Taiwan (one individual and one entity), Dubai (two entities), and Hong Kong (one entity).

Enforcement at the second tier against private parties for non-compliance has also been active in the recent past. As noted in **System 4: Supplier State Private Sector Internal Compliance Programs**, OFAC and other financial enforcement agencies, including those of New York City and New York State, have obtained a number of settlements with major banks for stripping identifying information from transactions with proscribed parties, including settlements with Standard Charter Bank (August 2012) leading to fines of \$667 million; HSBC (December 2012), leading to fines of \$2.275 billion; and Bank of Tokyo-Mitsubishi (December 2012), leading to a fine of \$8.5

³⁷⁶ See **System 5: Financial Measure**, p. 121.

³⁷⁷ See E.O. 13382, Section 1(a)(ii).

³⁷⁸ See **System 1: Measures Against Originating Parties**, p. 46, particularly note 92.

³⁷⁹ See note 95 on p. 47.

³⁸⁰ The total number of designations used here excludes designations of individual vessels and aircraft.

million.³⁸¹ The stripping of information made it possible to mask transactions with Iranian banks subject to U.S. sanctions, including those sanctioned on WMD proliferation grounds. The various cases received extensive coverage in the U.S. and international media.

In the first three quarters of 2013, no U.S. enforcement actions against financial institutions on this scale took place.³⁸² However, among lesser proceedings, OFAC initiated two actions, one against a Turkish trading company and the second a UAE investment company/general trading company, for originating electronic funds transfers that were processed through financial institutions located in the United States for the benefit of persons in Iran or the Government of Iran; this violated U.S. regulations prohibiting the exportation of services, directly or indirectly, from the United States to Iran or the Government of Iran. The two firms agreed to settlements with OFAC resulting in fines of \$750,000 and \$1.5 million, respectively.³⁸³ Though less dramatic than the 2012 fines against major banks, the settlements, which involved fewer than ten identified transactions in each instance, demonstrate the scope of OFAC enforcement activities – as well as the efforts by Iranian parties to circumvent U.S. banking restrictions – significantly heightening their potential deterrent effect.

OTHER NATIONAL ENFORCEMENT ACTIONS

In January 2013, South Korea and Japan made arrests for transfers of frozen Iranian assets and for payments to an IRISL affiliate, respectively. The South Korean case involved multiple transfers, totaling \$1.02 billion in frozen Iranian funds, apparently at the request of the Iran Central Bank, to accounts in third countries; a forged official approval document accompanied the withdrawal requests, which were duly processed.³⁸⁴ In Japan, authorities arrested three employees of Tokyo-based shipping

³⁸¹ See SIFMA AML and Financial Crimes Conference, “Significant Sanctions Enforcement Actions and Other Financial Crimes Developments,” op. cit.; “HSBC to Pay \$1.9bn in U.S. Money Laundering Penalties,” op. cit.; Jessica Silver-Greenberg, “British Bank in \$340 Million Settlement for Laundering,” *New York Times*, August 14, 2012, http://www.nytimes.com/2012/08/15/business/standard-chartered-settles-with-new-york-for-340-million.html?pagewanted=all&_r=0.

³⁸² OFAC Resource Center, 2013 Enforcement Information, Civil Penalties Information Chart, <http://www.treasury.gov/resource-center/sanctions/CivPen/Pages/civpen-index2.aspx>.

³⁸³ OFAC, Enforcement Information for September 26, 2013, “Finans Kiyetli Madenler Turizm Otomotiv Gida Tekstil San. Ve Tic Assessed a Penalty for Violating the Iranian Transactions and Sanctions Regulations,” <http://www.treasury.gov/resource-center/sanctions/CivPen/Documents/09262013.pdf>; and OFAC, Enforcement Information for October 21, 2013, “Alma Investment LLC Assessed a Penalty for Violating the Iranian Transactions and Sanctions Regulations,” http://www.treasury.gov/resource-center/sanctions/CivPen/Documents/20131021_alma.pdf.

³⁸⁴ “Three Held over Iran Remittance,” *Japan Times*, January 23, 2013, <http://www.japantimes.co.jp/news/2013/01/23/national/three-held-over-iran-remittance/#.Um5-hfmsim4>.

agent Ben Line Agencies for making transfers totaling \$144,000 to an IRISL-associated firm in Singapore.³⁸⁵

RECENT DEVELOPMENTS

The most important prosecutions and other enforcement actions of 2012 and 2013 are highlighted in the sections immediately above.³⁸⁶ It would appear that the most salient activity was the fining of the various major international banks during 2012, which appears to have had significant influence on other financial institutions.

In addition, as described in detail in **System 5: Financial Measures**, of particular importance in the enforcement area has been the voiding of sanctions designations against roughly ten Iranian parties by the EU General Court. The EU continues to implement these sanctions while these rulings are appealed, but their future remains uncertain.³⁸⁷

GAPS AND CHALLENGES

In the recent past, there was great difficulty in Europe in prosecuting members of the A.Q. Khan network for export control violations because of issues such as lack of jurisdiction over the accused, witnesses and documents involved; the difficulties of extradition; imprecise punitive statutes; problems of proving intent; and challenges in utilizing classified evidence in court proceedings. It is possible that many of these problems persist, and, if the EU General Court decisions in the related area of sanctions designations have wide application, difficulties surrounding the use of classified information may have become more pronounced. In the European cases noted above, it appears that for several, documentary evidence of the crime involved was seized at the time of the arrest of the alleged perpetrators, which may facilitate prosecutorial efforts. The most elaborate case, however, involving Germany, Turkey, and India may well face many of the difficulties encountered in prosecuting the multi-national A.Q. Khan network. Issues of proof appear to be easier to manage in prosecutions or civil actions

³⁸⁵ Ju-Min Park, "South Korea Reveals Staggering \$1 Bln Transfer Fraud in Iranian Money," *Reuters*, January 25, 2013, <http://in.reuters.com/article/2013/01/25/korea-iran-idINL4N0AU0OH20130125>.

³⁸⁶ One additional indictment was handed down at the end of October 2013 for an individual seeking to ship aluminum tubes to Iran via Malaysia. See "Belgian Man Charged in Chicago with Attempting to Illegally Export Aluminum Tubes from U.S. to a Malaysian Front For Individual in Iran," ICE Press Release, October 30, 2013, <http://www.ice.gov/news/releases/1310/131030chicago.htm>.

³⁸⁷ "EU Seeks to Tighten Iran Bans Despite Court Rulings," *op. cit.* Also, the EU appears to be inclined to re-impose the sanctions against Iranian Shipping Lines (IRISL), previously repealed by the European Court of Justice (see Justyna Pawlak, "EU May Re-impose Sanctions on Iran Ship Line Despite Court Order," *Reuters*, October 24, 2013, <http://www.reuters.com/article/2013/10/24/us-iran-nuclear-eu-idUSBRE99N0YK20131024>).

for banking violations, since financial transactions typically leave a clear documentary trail.

For export control cases, lenient sentences may remain an issue, as well. The three-month suspended sentence handed down in the Swedish case noted above and the two-year sentence given Susan Yip for many years of illicit procurement activities appeared to be very light, considering the offenses involved. Not only do such sentences fail to punish adequately, but they appear to do little to deter, in part because they receive only limited publicity. The multi-hundred-million dollar fines in the 2012 cases involving major banks and financial sanctions, which received extensive media coverage, appear to be far more effective in deterring other potential malefactors.

System 7: International Outreach and Capacity Building

BASIC FRAMEWORK

In the effort to curb proliferation of goods that could contribute substantially to new and emerging nuclear weapons programs, countries manufacturing sensitive items have been the natural first base to cover. A large proportion of such states have joined the 48-member Nuclear Suppliers Group and apply a uniform set of export controls, as do three formal adherents to the group's guidelines. But even within this group, despite its overall attentiveness to controlling nuclear exports, the effectiveness of such controls remains uneven, due in part to fact that the regime is voluntary, as well as to the growing sophistication of nuclear smuggling networks.

At the same time, strengthened, if imperfect, implementation of trade controls within the major supplier states has forced illicit procurement networks to circumvent them and seek substitutes for controlled items in other venues. Thus attention has shifted to improving export controls not only within NSG member states but also in an expanding number of states capable of making such substitutes. Many of these "emerging suppliers," particularly in the developing world, view the prospect that they might contribute to a foreign nuclear weapons program as remote and are consequently less alert to being potential targets of illicit procurement activities. Economies with weak controls and/or significant trading activities with countries of concern, such as UAE, Hong Kong, and Singapore, are also frequently selected by nuclear commodity smugglers as transit points, where illicit nuclear-related transfers can be hidden in the flow of legitimate trade.

This has led to a wide range of outreach efforts on the part of international organizations and of several states that are particularly active in seeking to strengthen the legal and technical basis for strategic trade controls in countries that fall into these categories of potential vulnerability.³⁸⁸ As with the other systems discussed in this report, there is some overlap, but also increasing cooperation among states and organizations in raising awareness through outreach activities regarding relevant nonproliferation issues.

INTERNATIONAL MEASURES

UN 1540 Committee. The 1540 Committee engages in two types of outreach and capacity building activities. Upon request, the members of the 1540 Panel of Experts visit

³⁸⁸ The focus of this section is international outreach; government programs designed to assist domestic industries are discussed in **System 4: Supplier State Private Sector Internal Compliance Programs**.

interested states for consultations or to provide training workshops. In addition, Panel of Experts members also regularly participate in international initiatives to promote UNSCR 1540 implementation or to discuss associated challenges.³⁸⁹ Notably, these outreach visits and participation activities are partially funded by the EU, under its strategy of promoting international nonproliferation norms. Separately, the 1540 Committee acts as a coordinator, channeling the requests (or third-party referrals) for technical or legal assistance it receives from member states to appropriate international bodies or to other UN member states that are willing to offer it – although the Committee, itself, does not offer such assistance.³⁹⁰ Notable initiatives channeled through the 1540 system include Austria’s assistance to neighboring states in strengthening border controls; Canada’s workshop on export controls and maritime security for CARICOM members; Finland’s border management seminar for Central Asia countries in 2002; and Norway’s outreach and assistance visits to various countries.³⁹¹

World Customs Organization (WCO). WCO, with 179 member states, is generally active in building capacity of participating customs organizations, particularly at the regional level. Outreach efforts focused on the trafficking of dual-use commodities of proliferation concern form part of its supply chain management effort,³⁹² and are also at the heart of the WCO’s Strategic Trade Enforcement Initiative. (The initiative is discussed further in **System 3: Customs Controls and Inspections.**)

³⁸⁹ See 1540 Committee, “Event List and Related Documents,”

<http://www.un.org/en/sc/1540/transparency-and-outreach/outreach-events/events.shtml>.

³⁹⁰ For a list of requests received by the committee, see “Summary Requests for Assistance from Member States,” <http://www.un.org/en/sc/1540/assistance/requests-for-assistance-from-states.shtml>; for a list of states and international organizations that offer such assistance, see “Summary Offers of Assistance from Member States,” <http://www.un.org/en/sc/1540/assistance/offers-of-assistance/states.shtml> and “Assistance Programmes and Offers from International, Regional and Subregional Organizations and Other Arrangements,” <http://www.un.org/en/sc/1540/assistance/offers-of-assistance/assistance-programmes.shtml>.

³⁹¹ See 1540 Committee Direct Assistance sections for these four provider states:

<http://www.un.org/en/sc/1540/assistance/states/Austria.shtml>,

<http://www.un.org/en/sc/1540/assistance/states/Canada.shtml>,

<http://www.un.org/en/sc/1540/assistance/states/Finland.shtml>, and

<http://www.un.org/en/sc/1540/assistance/states/Norway.shtml>. States that have been prominent in export control and nonproliferation outreach internationally outside this framework are discussed separately below.

³⁹² See World Customs Organization, “Capacity Building Strategy,”

http://www.wcoomd.org/en/topics/capacity-building/overview/cb_strategy.aspx; “Capacity Building: Instruments and Tools,” <http://www.wcoomd.org/en/topics/capacity-building/instrument-and-tools.aspx>, and “Schedule of Prime Texts, Tools and Instruments,”

<http://www.wcoomd.org/en/topics/key-issues/odp/instruments-and-tools.aspx>.

The 2011 WCO Compendium on Building a Single Window Environment to increase trade flow efficiency included supply chain management suggestions, such as the recommendation for members to provide online information on the licensing of dual-use goods.³⁹³ Also, part of the outreach effort in implementing and improving the WCO SAFE Framework was to establish the Private Sector Consultative Group as a liaison between a rotating group of international companies and national customs administrations – with proliferation risk assessments and compliance practices as part of the program.³⁹⁴ In its first annual report on Illicit Trade in 2012, WCO emphasized the need for a comprehensive approach to illicit trafficking trends, considering proliferation-relevant incidents in the context of other networks of concern (e.g. drug and human trafficking, etc.).³⁹⁵

However, the WCO Customs Enforcement Network Database contained only two instances of dual-use item seizures during 2012.³⁹⁶ This low number may be a reflection of significant underreporting among member states (possibly because of the desire to avoid highlighting interrupted procurement transactions in friendly states) but was also indicative of the relatively low priority placed specifically on trafficking of dual-use goods in the context of broader WCO efforts to build capacity in border security.³⁹⁷

The Strategic Trade Enforcement Initiative is a three-step process, designed by the WCO Enforcement Committee to provide key information resources to member states' customs administrations, in order to assist their efforts to detect illicit dual-use trafficking. First, the WCO is preparing a guide that reviews the proliferation threat, describes dual-use items, and explains what tools the member state administrations can use to strengthen their targeted inspections and investigations in order to improve their capacity for detecting and detaining illicit dual-use transfers. Steps two and three

³⁹³ See WCO, "How to Build a Single Window Environment: Volume 1, the Executive Guide," 2011, pp. 44-45,

http://www.wcoomd.org/~media/WCO/Public/Global/PDF/Topics/Facilitation/Activities%20and%20Programmes/Single%20Window/Compendium/PC_SWC_Vol_1_E.ashx?db=web.

³⁹⁴ See "Private Sector Consultative Group (PSCG)," http://www.wcopscg.org/who_we_are.html and Carol West, "Strengthening the Customs-Business Partnership: a Shared Vision for Future Collaboration," June 27, 2011,

http://www.wcoomd.org/~media/WCO/Public/Global/PDF/Events/2011/Open%20Day%20for%20Trade/West_02.ashx?db=web.

³⁹⁵ See WCO, "Illicit Trade Report,"

<http://www.wcoomd.org/~media/WCO/Public/Global/PDF/Topics/Enforcement%20and%20Compliance/Activities%20and%20Programmes/Illicit%20Trade%20Report%202012/WCO%20REPORT%202013%20-%20BR.ashx?db=web>.

³⁹⁶ Ibid p. 125.

³⁹⁷ Consider, e.g., "WCO Secretary General Addresses EU Customs Representatives,"

<http://www.wcoomd.org/en/media/newsroom/2013/january/sg-mission-union-group.aspx>.

involve a set of regional awareness-raising seminars on best practices so that the members can prepare to undertake global targeting campaigns focusing on dual-use goods, much like WCO's Project Global Shield, which has targeted the components required to manufacture Improvised Explosive Devices.³⁹⁸

MULTI-STATE MEASURES

Global Partnership against the Spread of Weapons and Materials of Mass Destruction. This G-8 initiative, which now has 26 member countries, was originally established in 2002, as a response to the risks of WMD terrorism: its goal was to raise \$20 billion over 10 years for projects to secure nuclear materials and relevant facilities, and to assist in destroying WMDs, primarily in Russia and also in the former Soviet states.³⁹⁹ However, the partnership's lifespan, due to expire in 2012, was extended at the group's Deauville Summit in 2011 and its scope was broadened to include support for implementation of the UNSCR 1540 (2004). The Partnership has also expressed its support for the Proliferation Security Initiative, and its geographic reach continues to expand.⁴⁰⁰

Nuclear Suppliers Group (NSG). Somewhat distinct from the other international capacity building initiatives, the purpose of NSG outreach activities is to promote compliance with the group's Guidelines, and generally falls under the responsibility of the group's rotating chair – although the NSG Plenary can mandate outreach with interested countries.⁴⁰¹ In the past, the NSG has conducted such outreach meetings with India, Mexico, and Israel. In addition, at its plenary meeting in June 2013, the NSG agreed on the need to strengthen and expand its outreach program, particularly regarding regulation and curbing of illicit brokering and transit activities.⁴⁰² The principal value

³⁹⁸ World Customs Organization, Project Global Shield, <http://www.wcoomd.org/en/topics/enforcement-and-compliance/activities-and-programmes/programme-global-shield.aspx>.

³⁹⁹ Strengthening border controls and law enforcement assistance was part of the original Global Partnership declaration of principles, but, in practice, these were all measures against the theft or diversion of nuclear, chemical, and biological materials by non-state actors, rather than controlling dual-use commodities to prevent their contributing to state-level nuclear programs of concern. See, "The G8 Global Partnership: Principles to Prevent Terrorists, or Those That Harbor Them, from Gaining Access to Weapons or Materials of Mass Destruction," June 27, 2002, http://www.sipri.org/research/disarmament/nuclear/researchissues/strengthening_reduction/G8/partnership_documents/3.

⁴⁰⁰ See Bonnie D. Jenkins, "The Future Role of G8 Partnership: Combating Weapons of Mass Destruction," June 2010, *Stanley Foundation Policy Analysis Brief*, <http://www.fmwg.org/sitefiles/the%20future%20role%20of%20the%20g-8%20global%20partnership%20%28june%202010%29.pdf>.

⁴⁰¹ See Nuclear Suppliers Group, "Organization," http://www.nuclearsuppliersgroup.org/A_test/01-eng/05-orga.php?%20button=5.

⁴⁰² See Nuclear Suppliers Group, "Public Statement (Final) at the Plenary Meeting of the Nuclear Suppliers Group," June 13-14, 2013,

of the NSG, in terms of capacity building internationally, is its potential to familiarize the states with the discourse and best practices in the field through regular interaction with fellow NSG members and to be the facilitative forum where further partnership efforts can be fostered. For instance, as noted earlier in this chapter, in 2013 the NSG published the Guidelines for good corporate practices in countering WMD proliferation, developed by the UK, Australia, Canada, Finland, Germany, Japan, and the United States.⁴⁰³ In effect, the group became a vehicle for these states with the most advanced nonproliferation practices to reach out to other members that are not as far along in this process.

European Union. Within the EU, the European Commission is the body primarily responsible for overseeing capacity building programs for addressing chemical, biological, radiological and nuclear (CBRN) risks,⁴⁰⁴ but the majority of initiatives it funds focus on securing CBRN materials and facilities, rather than engaging with the trafficking of dual-use commodities.

A number of entities, including governmental agencies, NGOs and supra-national EU institutions, like the EU's Joint Research Center, provide support to the EU's efforts to educate its member states, as well as a range of outside assistance recipients. The most important government agency in this regard has been the German Federal Office of Economics and Export Control (BAFA). BAFA is the lead German export licensing agency and the largest licensing agency in Europe. As such, it has had the staff and knowledge needed to take the lead in helping implement the long-term EU outreach program of Cooperation in Export Control of Dual-Use Goods, focused on states that are not EU members and designed to promote the standards set out by UNSCR 1540 (2004).⁴⁰⁵ This program offers partnership-based projects to 25 countries⁴⁰⁶ in the form

http://www.nuclearsuppliersgroup.org/A_test/press/NSG%20%20PUBLIC%20STATEMENT%20HOD%20final.pdf.

⁴⁰³ See **System 4: Supplier-State Private Sector Internal Compliance Program**, pp. 101 and 106; and Nuclear Suppliers Group, "Good Practices for Corporate Standards to Support the Efforts of the International Community in the Non-proliferation of Weapons of Mass Destruction,"

http://www.nuclearsuppliersgroup.org/A_test/01-eng/NSG%20Measures%20for%20industry%20update%20revised%20v3.0.pdf.

⁴⁰⁴ See Lina Grip, "Mapping the European Union's Institutional Actors Related to WMD Non-proliferation," May 2011, EU Nonproliferation Consortium Paper No. 1,

http://www.sipri.org/research/disarmament/eu-consortium/publications/EUNPC_no1.pdf.

⁴⁰⁵ See BAFA, "The Outreach Program,"

http://www.bafa.de/eu_outreach/ltp/general_project_information/the_outreach_project/index.html

and BAFA, "International Cooperation," http://www.eu-outreach.info/eu_outreach/ltp/general_project_information/the_outreach_project/international_cooperation/index.html.

of seminars and workshops on licensing, risk management, customs training, and industry best practices, which are organized one to three times each year in the partner country. Funds for export control assistance, in particular, and non-proliferation related outreach, in general, are allocated through the EU Instrument for Stability (IFS), and its annual share of the EU Heading 4⁴⁰⁷ budget fluctuates at around 0.5 percent – with each project averaging around €1 million.⁴⁰⁸ However, in effect, the EU funds the bulk of activities that help nonproliferation outreach (even though they are not identified as such) through other development projects, such as the instrument for pre-accession assistance, holding consultations on legal reforms, strengthening relevant domestic institutions of partner countries, or border security training and equipment. Consequently, BAFA’s approach to offering training sometimes does not explicitly distinguish between export controls of dual-use items and other goods.⁴⁰⁹

Proliferation Security Initiative (PSI). The outreach efforts of this U.S.-led international initiative consist of bilateral and multilateral workshops and training exercises, organized by the PSI core members (also known as the Operational Experts Group - OEG) for states that have not endorsed the PSI Principles of Interdiction – upon their request for assistance, or as part of the effort to increase international support for the PSI.⁴¹⁰ For instance, in March 2012, Germany hosted a two-day outreach seminar, and the United States hosted outreach workshops in May 2008 and May 2009, respectively, as part of OEG meeting events.⁴¹¹ In addition, regular joint OEG exercises serve as part of the outreach and capacity building effort, targeted at both new PSI members and

⁴⁰⁶ The countries involved are: Albania, Bosnia and Herzegovina, Croatia, FYRO Macedonia, Montenegro, Serbia, Afghanistan, Armenia, Azerbaijan, Georgia, Kazakhstan, Moldova, Ukraine, China, Pakistan, India, Morocco, Tunisia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam.

⁴⁰⁷ The EU budget is divided into four areas, or headings, by priority issues, and Heading 4 (under which the IFS falls) is designed to promote the EU as a global actor. See European Commission, “Financial Programming and Budget,” updated March 29, 2012, http://ec.europa.eu/budget/explained/budg_system/fin_fw0713/fin_fw0713_en.cfm.

⁴⁰⁸ See European Commission Staff Working Document, Accompanying the document “Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions: 2011 Annual Report on the Instrument for Stability, Vol. 4,” July 24, 2012, pp. 28-32, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SWD:2012:0225%2854%29:FIN:EN:PDF>.

⁴⁰⁹ This is a common phenomenon in the area of export control capacity building. Just as with the WCO’s support to member state customs services, certain core administrative functions must be followed as items move through the supply chain, regardless of whether or not they have WMD-related, dual-use purposes. See, generally, Sibylle Bauer, “Enhancing Export Control-Related CTR [Cooperative Threat Reduction] Programmes: Options for the EU,” SIPRI, Background Paper 6, 2005, p. 8.

⁴¹⁰ Aaron Dunne, “The Proliferation Security Initiative: Legal Considerations and Operational Realities,” op. cit., p. 10. For further discussion of the initiative, see the PSI section in **System 3: Customs Controls and Inspections**, pp. 89-90.

⁴¹¹ See U.S. Department of State, “Proliferation Security Initiative: Calendar of Events,” <http://www.state.gov/t/isn/c27700.htm>.

non-endorsing states. Non-PSI member states were invited as observers to exercises, such as “Deep Sabre II” at Changi Naval Base in Singapore in October 2009 (India, Malaysia, and Pakistan) and “Pacific Shield 07” off the coast of Japan in October 2007 (India, Malaysia and Oman).⁴¹²

Association of Southeast Asian Nations (ASEAN) and ASEAN Regional Forum. Nonproliferation outreach activities are generally not yet a well-developed concept in Asia. Indeed, many ASEAN members are on the receiving end of such international capacity building efforts,⁴¹³ but ASEAN is gradually starting to engage more actively in this, in partnership with Japan.⁴¹⁴ The ASEAN Regional Forum (ARF), established in 2003, holds regular technical expert meetings on export controls to share and promote best practices and enhance its members’ capabilities to comply with the UNSCR 1540 (2004) requirements; the ARF Export Licensing Experts Meeting in 2005 produced an outcome document “Best Practices in Export Control,” endorsed by ARF in 2007.⁴¹⁵ Notwithstanding the slow pace of the legal reforms in many ASEAN countries required to initiate implementation of best practices, the export control norms promoted through ARF will continue to gain currency due to ASEAN’s interest in lowering trade barriers and increasing trade flows through the envisaged “ASEAN Single Window.”⁴¹⁶ Malaysia’s Strategic Trade Act marks an important milestone towards this objective, demonstrating to the region and the world that developing economies can enact and implement trade controls without noticeable costs to their trading relationships.⁴¹⁷

NATIONAL MEASURES

U.S. Measures. At present, the United States has the most developed and far reaching national structure for extending capacity building assistance internationally, with

⁴¹² Stephanie Lieggi, “Proliferation Security Initiative Exercise Hosted by Japan Shows Growing Interest in Asia But No Sea Change in Key Outsider States,” *WMD Insights*, December 2007-January 2008; and NTI, “Proliferation Security Initiative (PSI),” <http://www.nti.org/treaties-and-regimes/proliferation-security-initiative-psi/>.

⁴¹³ Scott A. Jones, “Current and Future Challenges for Asian Nonproliferation Export Controls: A Regional Response,” October 2004, Strategic Studies Institute, pp. 17-18, <http://www.strategicstudiesinstitute.army.mil/pdffiles/pub584.pdf>.

⁴¹⁴ See “Briefing by Japan on Japan’s Efforts to Promote Cooperation for Nonproliferation in Asia,” ARF Inter-sessional Support Group Meeting on Confidence Building Measures, April 11-14, 2004, Myanmar, <http://www.asean.org/archive/arf/11ARF/ISG-CBM-Yangon/Annex-K.pdf>.

⁴¹⁵ Mala Selvaraju, “ASEAN’s Efforts Towards Nonproliferation,” presentation at the 20th ASEAN Export Control Seminar, February 28, 2013, Tokyo, http://www.simul-conf.com/outreach/2012/asian_ec/5-6%20Ms%20Selvaraju%20%28ASEAN%29.pdf.

⁴¹⁶ See ASEAN website, <http://asw.asean.org/>.

⁴¹⁷ For a discussion of the net neutral impact on the trade of states that have adopted systematic trade controls, see Scott Jones and Johannes Karreth, “Assessing the Economic Impact of Adopting Strategic Trade Controls,” U.S. Department of State, December 2010.

multiple agencies offering programs that help manage different stages of the supply chain.⁴¹⁸

Export Control and Related Border Security. The most extensive international outreach at the Department of State is conducted through its Export Control and Related Border Security (EXBS) program⁴¹⁹ - which is also the responsible body coordinating with other U.S. government agencies, as well as with international outreach efforts.⁴²⁰ Established in the 1990s to combat illicit transfers of WMD and radioactive materials, at present EXBS has expanded into a U.S. mechanism for promoting compliance with UNSCR 1540 (2004) and sharing best practices in export controls internationally.⁴²¹ EXBS seeks to enhance compliance with international trade controls in countries that produce potentially sensitive items or are likely to be chosen by procurement networks as transit and transshipment points.⁴²² EXBS engages at the bilateral, multilateral, and international levels with over sixty partner countries, extensively covering South and Southeast Asia, as well as former Soviet states, the Middle East and North Africa region, and some of the Latin American countries.⁴²³ To enhance the implementation of strategic trade controls and bolster border security in these partner states, EXBS offers

⁴¹⁸ In addition to programs supporting controls over nuclear commodities sought by national nuclear programs of concern, the United States also has a number of programs focused on preventing non-state actors from gaining access to nuclear and radiological materials. Some of the key U.S. outreach programs that focus on building the capacity of international partners to counter or interdict the trafficking of radiological and other WMD-related threats include the following: the State Department's Preventing Nuclear Smuggling Program - specifically the Nuclear Smuggling Outreach Initiative (see "Nuclear Smuggling Outreach Initiative," <http://www.state.gov/t/isn/c28043.htm>, and "Counter Nuclear Smuggling Teams," <http://www.state.gov/documents/organization/187722.pdf>); the Second Line of Defense program under the Department of Energy (see "Second Line of Defense Program," <http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/programoffices/internationalmaterialprotectionandcooperation/se> and "Core Program," <http://nnsa.energy.gov/aboutus/ourprograms/nonproliferation/programoffices/internationalmaterialprotectionandcooperation/-4>); several components of the Department of Defense Cooperative Threat Reduction Program that focus on preventing such trafficking, and offer assistance in securing or destroying biological and chemical weapons and relevant materials, as well as strategic arms that could be used as delivery systems for any of the WMD (see "Fiscal Year 2013 Budget Estimates: Cooperative Threat Reduction Program," February 2012, pp. 72-73, 75, http://comptroller.defense.gov/defbudget/fy2013/budget_justification/pdfs/01_Operation_and_Maintenance/O_M_VOL_1_PARTS/O_M_VOL_1_BASE_PARTS/CTR_OP-5.pdf).

⁴¹⁹ See U.S. Department of State, "The EXBS Program," <http://www.state.gov/t/isn/ecc/c27911.htm>.

⁴²⁰ See U.S. Department of State, "Interagency Coordination," <http://www.state.gov/t/isn/ecc/c27917.htm>; and U.S. Department of State, "EXBS Activities: Collaboration and Exchanges," <http://www.state.gov/t/isn/ecc/c27914.htm>.

⁴²¹ See Office of Export Control Cooperation, "Export Control and Border Security Program," <http://www.state.gov/documents/organization/126248.pdf>.

⁴²² See U.S. Department of State, "Export Control Cooperation," <http://www.state.gov/t/isn/ecc/index.htm>.

⁴²³ See U.S. Department of State, "EXBS Global Partners," <http://www.state.gov/documents/organization/116107.pdf>.

assistance in drafting and reviewing export laws and regulations (e.g., in Kazakhstan, Kyrgyzstan, and Tajikistan); enforcement training (e.g., in Kenya, Uganda, and Tanzania), and setting up relevant public-private partnerships (e.g., supporting Indian government outreach to local industry). Twelve countries in Eastern Europe that have “graduated” from the EXBS assistance programs were engaged in hosting best practice visits and border security and control training to other countries in the region.⁴²⁴

International Nonproliferation Export Control Program. At the U.S. Department of Energy, the National Nuclear Security Administration’s (NNSA’s) International Nonproliferation Export Control Program (INECP) is perhaps the second most concerted effort in U.S. nonproliferation outreach, offering assistance in the development of sustainable export control implementation capabilities world-wide. INECP’s assistance and related resources focus on developing cadres of licensing and enforcement experts with a robust understanding and recognition of WMD-related commodities and in the application of export control risk analysis techniques. Many of INECP’s activities are funded by EXBS and range from short courses for managers and administrators, to in-depth training for licensors and front line inspectors and their instructors.⁴²⁵ This approach not only directly enhances the capability of front line officials to recognize items of concern and the ways in which they are traded, but also serves the broader purpose of raising the level of awareness of proliferation issues within governments so that they are more likely to make commitments to support their systems of control over the long term.⁴²⁶

⁴²⁴ See Emily Mella, “Reported Accomplishments of Selected Threat Reduction and Nonproliferation Programs by Agency for Fiscal Year 2012,” PGS Policy Update, August 2013, pp. 17-18.

http://www.fmwg.org/pgs/reports_fy12accomplishmentsreport_aug142013_mella1.pdf.

⁴²⁵ For instance, in 2008, INECP, together with the U.S. Department of Commerce and Korean Ministry of Commerce, Industry and Energy, offered training to over 150 representatives of manufacturers of strategic goods in the Republic of Korea (Office of Global Security Engagement and Cooperation, “International Nonproliferation Export Control Program: 2008 Engagement Plan,” p.9,

http://nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/INECP_Brochure.pdf).

⁴²⁶ Todd Perry, “Technology and Innovation for Preventing Illicit Shipments of WMD-Related Strategic Commodities,” WCO Technology and Innovation Forum, November 2-4, 2010,

http://www.wcoomd.org/~media/WCO/Public/Global/PDF/Events/2010/Technology%20Forum/Presentations/Todd_Perry.ashx?db=web and Tatyana Colgan, “Advanced Inspection Tools and Training to Prevent Illicit Shipments of WMD-Related Strategic Commodities,” WCO Technology and Innovation Forum, March 5-9, 2012,

<http://www.wcoomd.org/~media/WCO/Public/Global/PDF/Events/2012/IT/Sessions/3/DOE.ashx?db=web>.

Defense Threat Reduction Agency International Counterproliferation Program.⁴²⁷ International Counterproliferation Program (ICP) sends interagency teams to the nations of the former Soviet Union and other regions of specific interest to U.S. military commands. The ICP Program has provided training and detection equipment to over 10,000 international participants in more than 30 nations, engaging police, border officials, investigators, and national security executives who determine WMD response on and within their borders. Although much of the training done by Defense Threat Reduction Agency personnel focuses on WMD materials, the program also supports the development of dual-use commodity control capabilities at the law enforcement and regulatory levels, in partnership with other U.S. government agencies.

Customs and Border Protection. The Customs and Border Protection (CBP) agency under the Department of Homeland Security offers PSI-related enforcement training to foreign partners: the CBP Office of International Affairs has a designated PSI team conducting outreach to foreign law enforcement and customs agencies, as well as testing international partner capabilities in this respect.⁴²⁸ The CBP Training and Assistance Division offers 3-10 day training programs in over 100 countries to build capacity on multiple aspects of customs and border security, a program that includes WMD training. These international outreach activities are funded by the U.S. Department of State, as part of the WCO Framework of Standards implementation.⁴²⁹

Department of Commerce. While the U.S. Department of Commerce does not have a dedicated international outreach program, its representatives offer, participate in, or co-sponsor with other U.S. agencies, a number of international seminars and workshops to raise awareness of the type of items that require export licenses and to share best practices in this regard.⁴³⁰ In addition, the Department's Bureau of Industry and Security has Export Control Officers stationed abroad for pre-licensing checks and post-

⁴²⁷ See Defense Threat Reduction Agency website, International Counterproliferation Program, <http://www.dtra.mil/missions/ArmsControlVerification/ICP.aspx>.

⁴²⁸ See CBP, "Proliferation Security Initiative," http://www.cbp.gov/xp/cgov/border_security/international_operations/initiative.xml and U.S. Customs and Border Protection Today, "CBP lab team showcased in international counterproliferation exercise," August/September 2006, http://www.cbp.gov/xp/CustomsToday/2006/aug_sep/cbplab_intl_drill.xml

⁴²⁹ Chole Fairfax, "Extending America's Security Zone: CBP Provides Border Management Assistance to Countries Throughout the World," U.S. Customs and Border Protection Today, June/July 2007, http://www.cbp.gov/xp/CustomsToday/2007/jun_jul/extend_america.xml.

⁴³⁰ GAO Report to the Committee on Foreign Affairs, House of Representatives, "Export Controls: Observations on Selected Countries' Systems and Proposed Treaties," May 2010, p. 24.

shipment verification tasks, and these officers also engage in export control outreach and educational activities with the host nation government agencies.⁴³¹

Department of Justice. Similarly, the U.S. Department of Justice Office of Overseas Prosecutorial Development, Assistance and Training (OPDAT) has been the first agency to offer international training and judicial capacity building in prosecuting nonproliferation related export control cases.⁴³² Of the nine international EXBS exchanges OPDAT conducted in this respect, perhaps its most significant achievement has been its assistance to Malaysia in drafting and preparing to implement the Strategic Trade Act of 2010.⁴³³ For instance, in February and March 2011, the Department of Justice, together with the Department of Homeland Security, offered a series of seminars and table-top exercises to the Royal Malaysian Police and Attorney General's Chambers on drafting and prosecuting cases of strategic trade violations, as well as on export enforcement and investigation strategies.⁴³⁴

United Kingdom Measures. The Export Control Organisation (ECO) is the agency coordinating with other British government departments to set outreach priorities on annual basis.⁴³⁵ The UK works the closest with the United States in this respect, participating in American projects and arranging joint outreach visits, such as the one to Libya in 2005,⁴³⁶ and channels much of its outreach funding through the Global Partnership activities. The ECO does not have a dedicated outreach team and typically pools a delegation of representatives from Foreign and Commonwealth Office, the Department Business, Innovation, and Skills (formerly the Department for Trade and Industry), the Ministry of Defense, and Her Majesty's Revenue and Customs.⁴³⁷ The British government supports a number of NGO and research organizations to carry out such projects as its partners, effectively outsourcing this function, as needed,⁴³⁸ rather

⁴³¹ Bureau of Industry and Security, "Export Control Officers Program," <https://www.bis.doc.gov/index.php/enforcement/oea/eco>. For further discussion on Export Control Officers' role in post-shipment verification processes, see section Post-Export Inspections and Verification in **System 2: Export Licensing and Control Lists**, pp. 78 and 80.

⁴³² See "OPDAT at a Glance," <http://www.justice.gov/criminal/opdat/about/> and "DOJ/OPDAT Counterterrorism Programs: Nonproliferation and Export Enforcement," <http://www.justice.gov/criminal/opdat/worldact-programs/ctu.html>.

⁴³³ Other recipients of assistance were United Arab Emirates, Kazakhstan, Taiwan, Thailand, Singapore, Argentina, the Czech Republic, and Latvia. See *ibid*.

⁴³⁴ See <http://www.justice.gov/criminal/opdat/achieve/across-the-board-2011-2.pdf>.

⁴³⁵ GAO Report to the Committee on Foreign Affairs, House of Representatives, "Export Controls: Observations on Selected Countries' Systems and Proposed Treaties," May 2010, p. 10.

⁴³⁶ Bauer, "Enhancing Export Control-Related CTR Programmes," *op. cit.*, pp. 9-10.

⁴³⁷ *Ibid*.

⁴³⁸ For instance, Project Alpha supported the UK Government's effort in designing the NSG Good Practice Guidelines and offers relevant training to foreign (particularly Chinese and Indian), as well as domestic,

than primarily relying on consistently maintained nonproliferation outreach programs within its agencies, as the United States does.⁴³⁹

Japan Measures. The Center for Information on Security Trade Controls (CISTEC),⁴⁴⁰ a Tokyo-based non-profit non-governmental organization that supports Japanese industry activities through research and analysis on numerous peace and security issues related to export controls, is the only Japanese organization conducting international outreach on sensitive commodity exports, in collaboration with Japan's Ministry of Trade. CISTEC is active in Asia – particularly in South Korea, Malaysia, and China – in trying to promote the Japanese best practices of compliance with international export controls. It offers seminars and training sessions to Asian companies on appropriately classifying the items they produce, setting up internal compliance and audit programs, and counseling on relevant international export control regulations.⁴⁴¹

Figure 3.10 illustrates the relationships among national, multi-state, and international outreach measures, including the coordinating functions of the Global Partnership and the UNSCR 1540 (2004) Committee.

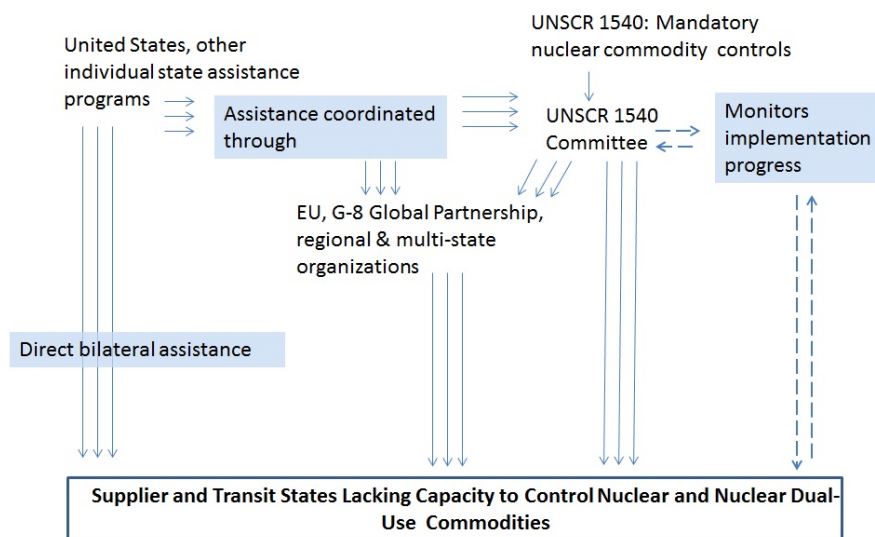
entities through its Partners Against Proliferation initiative. See Ian S. Stewart, “NSG Publishes Corporate Good Practice Guidelines,” July 17, 2013, <http://acsss.info/item/254-nsg-publishes-good-practice-corporate-guidelines> and Lucy Jones, “Partners Against Proliferation: Good Practice Guidance,” May 15, 2013, <http://acsss.info/alpha/partners-against-proliferation>.

⁴³⁹ The UK's Global Threat Reduction Program – the international outreach part of the country's nonproliferation strategy – is focused almost exclusively with securing radiological materials and sites, including support for the EU CBRN Centers of Excellence, and is therefore not discussed further in this context. For details, see “Countering Weapons Proliferation: Global Threat Reduction Programme,” <https://www.gov.uk/government/policies/countering-weapons-proliferation/supporting-pages/global-threat-reduction-programme> and see “Countering Weapons Proliferation: Global Partnership,” <https://www.gov.uk/government/policies/countering-weapons-proliferation/supporting-pages/global-partnership>.

⁴⁴⁰ Center for Information on Security Trade Control website, <http://www.cistec.or.jp/english/about/introE2.html#annaie7>.

⁴⁴¹ See CISTEC website, <http://www.cistec.or.jp/english/service/seminar.html>.

**Figure 3.10 Anti-Nuclear Commodity Smuggling
Capacity Building and Assistance**



RECENT DEVELOPMENTS

In recent years, international outreach activities have been focused increasingly on smaller transshipment centers through which illicit procurement networks are routing dual-use items. For instance, in 2011, Southeast Asia became the focal point of EU outreach activities, with six workshops and seminars conducted in Malaysia that year, whereas Eastern Europe and Caucasus had been the primary recipient of such assistance up to 2010 (in Ukraine, nine seminars were conducted in 2008, six in 2009, and five in 2010; in Georgia, five workshops were held in 2009).⁴⁴² Similarly, while EXBS remains the U.S. outreach program with the widest range of partners and activities, other U.S. agencies have stepped up engagements with Southeast Asia, as discussed above.

GAPS AND CHALLENGES

Given the number of states with weak strategic trade controls, including many in the Middle East and Sub-Saharan Africa that lack basic laws governing this area, the scale of outreach and assistance efforts appears insufficient to address the level of need. Moreover, coordination of assistance being provided and coordination in the development of priorities also remain as problems. Indeed, at present, notwithstanding

⁴⁴² See BAFA: EU Outreach Activities Country Sections for Malaysia (http://www.bafa.de/eu_outreach/ltp/partner_countries/south_east_asia/malaysia/agendas/index.html), Ukraine (http://www.eu-outreach.info/eu_outreach/ltp/partner_countries/eastern_europe/ukraine/agendas/index.html), and Georgia (http://www.eu-outreach.info/eu_outreach/ltp/partner_countries/eastern_europe/georgia/agendas/index.html).

the efforts of the UNSCR 1540 (2004) Committee and the G-8 Global Partnership, no overarching coordinating mechanism among the various outreach programs noted above exists, resulting in overlaps of functions or worse, the failure of one effort to capitalize on progress made by another. The EU, for example, has been allocating a substantial share of its meager funds for work in the post-Soviet space, where the U.S. has maintained an active and extensive program for many years, prior to the EU intervention; similarly, many actors are expanding their outreach programs to assist Southeast Asia, while engagements with the Middle East and North or Sub-Saharan Africa remain somewhat limited.⁴⁴³

Additional challenges are posed by the fact that individual country programs have sometimes offered assistance to states with which the donor state has pre-existing economic or political ties, or with which it is looking to start such partnerships, rather than to states where needs are most urgent. Conversely, some states, especially in the developing world, do not view constraining proliferation as an urgent concern compared to other pressing needs, such as combatting poverty. Such states are not inclined to seek assistance to improve export controls, or if they do, they are not inclined to expend the political capital necessary to link training outcomes to the improved export control system functionality needed to detect illicit WMD-related transfers.

Time lag is also a concern. Typically, it is only after procurement networks have exploited a country with weak controls for many years that the jurisdiction is made a target for capacity building and assistance. Efforts to improve controls in the UAE Emirate of Dubai, for example, occurred only after the A.Q. Khan network had exploited this port for a decade or more and then an additional several years were required before Dubai's control capabilities began to have a constraining impact on transshipments to Iran. Khan also exploited weak export controls in Malaysia, but it was not until 2010 that this country enacted a strategic trade law. On the other hand, it is difficult to anticipate which state with weak controls will be the next to be exploited, making the selection of countries for "preemptive" capacity building somewhat problematic. That said, most assistance providers and even countries that have adopted export control reforms over the past decade – the Russian Federation, Ukraine, Malaysia, Mexico, Brazil, UAE, South Korea, and Eastern European EU members in particular -- understand which neighboring economies are the most ripe for exploitation. Moreover, most of these countries are prepared to work with the main

⁴⁴³ Lack of coordination among outreach programs in Southeast Asia was identified as a concern by specialists at a September 2013 meeting at Wilton Park, UK; they noted that even aid provided by multiple agencies of a single assisting government appeared to be disorganized.

assistance providers to direct their recently acquired expertise to those economies where the risks of illicit procurement or trans-shipment appear greatest.

While the number of international outreach programs has mushroomed over the past few years, few of them conduct impact assessments during or after the process of partner country engagements. Project evaluations are needed for measuring cost effectiveness and comparing the relative effectiveness of potentially overlapping initiatives.⁴⁴⁴

Above all, the fundamental challenge that remains for what has become a large community of export control specialists prepared to assist each other and those who do not yet have systems of control in place, is the lack of political will. Even in countries with adequate legal regulatory frameworks, effective implementation and enforcement are often lacking, due to resource constraints as well as to inadequate political attention to the nonproliferation importance of export controls. As noted elsewhere, these factors appear to present an endemic problem in a number of countries.

⁴⁴⁴ For an example of critical outside study of U.S. counterproliferation programs, see Jennifer D. P. Moroney, Aidan Kirby Winn, Jeffrey Engstrom, Joe Hogler, Thomas-Durell Young, and Michelle Spencer, "Assessing the Effectiveness of the International Counterproliferation Program," *RAND Corporation*, 2011, http://www.rand.org/content/dam/rand/pubs/technical_reports/2011/RAND_TR981.pdf.

System 8: Transportation and Interdictions

BASIC FRAMEWORK

In response to the tightening of strategic trade controls internationally and broadly growing awareness of illicit nuclear commodity procurement efforts, the networks seeking these items have resorted to increasingly sophisticated modes of routing and concealing their smuggling of the items in question. Historically, containerization has facilitated the movement of dual-use items (as well as other illicit substances not relevant to WMD proliferation) hidden within the tremendous volume of global trade shipping traffic. However, with technological advances enabling a growing array of port security measures, and end user checks becoming increasingly effective, the transit routes used by illicit procurement networks have come to include an increasing number of forwarding points. Using trading companies and freight forwarders, cargoes are transshipped multiple times, with the logistical chain including states with weak export controls or that have previously not raised proliferation concerns and shipping documentation that is altered en route, obscuring the true end-user.⁴⁴⁵ In addition, the increased international focus on maritime interdictions has led the procurers to shift towards air and ground routes, as well as to mixed logistical chains, where legal frameworks and enforcement practices are not as well-established.⁴⁴⁶ An example of these trends in nuclear commodity transport patterns is an Iranian carbon fiber procurement case in which quantities of the material manufactured in Japan were sold and shipped to a U.S. company, which subsequently sold a portion of the material to a legitimate buyer in the EU; the material was then resold within the EU, ultimately finding its way to a firm seeking the material on behalf of Iran, which then arranged for the carbon fiber to be trucked to Iran via Turkey.⁴⁴⁷

INTERNATIONAL MEASURES

UNSCR 1540 (2004). As discussed earlier in this study, the UNSCR 1540 sets out the broad requirement for all states to establish “appropriate effective” controls over WMD-relevant commodities, including with respect to “transporting that would contribute to proliferation.”⁴⁴⁸ While UNSCR 1540 does not, in itself, include restrictions on transportation, or any other relevant aspects of nuclear commodity supply chain

⁴⁴⁵ Albright, Stricker, and Wood, “Future World of Illicit Nuclear Trade: Mitigating the Threat,” op. cit., p.10.

⁴⁴⁶ Remarks by Rebecca K. C. Hersman, Vann H. Van Diepen, and Susan J. Koch at the “10th Anniversary of the Proliferation Security Initiative,” July 9, 2013, CSIS, <http://csis.org/event/10th-anniversary-proliferation-security-initiative>.

⁴⁴⁷ Albright, Stricker, and Wood, “Future World of Illicit Nuclear Trade: Mitigating the Threat,” op. cit., p.7.

⁴⁴⁸ UNSCR 1540 (2004), paragraph 3(d).

management, its committee of experts works with states to assist them in establishing programs to meet these standards, and channels their requests for assistance to appropriate parties.⁴⁴⁹ Furthermore, the measures under UNSCR 1540 are not “directed against” any state in particular, but rather have been put in place as a blanket means of raising the bar for illicit smuggling activities internationally.

As discussed in **System 2: Export Licensing and Control Lists**, many states still lack basic laws controlling exports that could contribute to nuclear and other WMD proliferation. For these states, it must be assumed that implementation of the resolution’s requirements regarding transportation of WMD-related commodities is also lagging.

UN Security Council Resolutions Sanctioning Iran and North Korea. These resolutions provide a multi-tiered framework for impeding the transport of illicitly procured nuclear commodities once they have left the borders of the producer nation. The four mechanisms comprising this framework are: a broad proscription against providing assistance to proliferation efforts, including the provision of means of transport or granting passage of embargoed nuclear goods through the territory of member states; a mandate for the inspection of suspect cargoes; the denial of bunkering services to vessels reasonably believed to be carrying such cargoes; and the freezing of assets of firms, including transportation companies, materially assisting proliferation activities.

The requirements for UN member states not to provide assistance to states with suspect nuclear programs, including, specifically, by allowing transportation of embargoed nuclear items through a member state’s territory or using their flag vessels or aircraft, are established in UNSCR 1737 (2006) in the case of Iran⁴⁵⁰ and UNSCR 1718 (2006) in the case of DPRK,⁴⁵¹ and updated in subsequent resolutions as the embargoes expanded to additional classes of goods.

Second, the Security Council sanctions resolutions also create international mandates of varying strength for inspecting suspect cargo. In case of Iran, the latest relevant resolution, UNSCR 1929 (2010), *calls upon* states to inspect cargo originating from or destined for Iran, “in accordance with their national authorities and legislation and consistent with international law, in particular the law of the sea and relevant international civil aviation agreements,” if there are reasonable grounds to believe it

⁴⁴⁹ See the section on the UN 1540 Committee in **System 7: International Outreach and Capacity Building**, p. 146.

⁴⁵⁰ UNSCR 1737 (2006), paragraphs 3 and 8.

⁴⁵¹ UNSCR 1718 (2006), paragraph 8(a)(ii).

contains proscribed items, noting that states may request such inspections on the high seas with the permission of flag states, and *calls upon* flag states to cooperate (emphasis added).⁴⁵² The cargo inspections mandate for North Korea, established with the UNSCR 1718 (2006) and reiterated in UNSCR 1874 (2009), was originally rather similar in its wording and provisions to that concerning Iran. However, following North Korea's missile tests at the end of 2012 and its third nuclear test in early 2013, the mandate was strengthened: under UNSCR 2094 (2013), the Security Council "*Decides* that all states *shall* inspect all cargo" going to or from the DPRK, if it is suspected to contain proscribed items, and *shall* deny entry into their land or sea ports to vessels and aircraft that subsequently refuse to be inspected (emphasis added).⁴⁵³ Whereas the resolutions are quite specific about how the ships are to be approached and inspected and what is to be done with suspect cargo, they do not provide similar detail regarding interdiction procedures for air transport, although many experts have noted increasing Iranian and North Korean reliance on air routes for WMD-relevant procurements.⁴⁵⁴

Third, the UNSCR 1929 (2010) and UNSCR 1874 (2009) decide that member states "shall deny bunkering services, such as provision of fuel or supplies" to Iranian and North Korean vessels, respectively, "if they have information that provides reasonable grounds to believe they are carrying" embargoed items.⁴⁵⁵ This set of measures has particularly significant potential for obstructing illicit shipments in the latter case: DPRK ships tend to sail under that country's own flag, and its aging fleet of relatively small vessels requires port calls en route for refueling, limiting its reach without such services.⁴⁵⁶ In the case of Iran, these measures have a somewhat lesser impact – the Islamic Republic of Iranian Shipping Lines (IRISL) and National Iranian Tanker Company (NITC) operate some of the largest fleets in the Middle East, which also includes at least six bunkering ships.⁴⁵⁷ Frequent changes of declared flag state,

⁴⁵² See UNSCR 1929 (2010), paragraphs 14-17. These measures were originally set out in the UNSCR 1803 (2008).

⁴⁵³ UNSCR 2094 (2013), paragraphs 16, 17 and 18.

⁴⁵⁴ Mary Beth Nikitin, Mark E. Manyin, Emma Chanlett-Avery, and Dick K. Nanto, "North Korea's Second Nuclear Test: Implications of U.N. Security Council Resolution 1874," *Congressional Research Service Report*, April 15, 2010, p. 2, <http://www.fas.org/sgp/crs/nuke/R40684.pdf>; the growing importance of land and air transport of nuclear contraband goods were highlighted by European officials during interviews, Wilton Park, September 2013.

⁴⁵⁵ UNSCR 1929 (2010), paragraph 18. The prohibition extends to vessels Iranian-owned or -contracted vessels, including chartered vessels.

⁴⁵⁶ Cesar Ducruet, Stanislas Roussin, and Jin-Cheol JO, "Political and Economic Factors in the Evolution of North Korea's Maritime Connections," *Journal of International Logistics and Trade*, Vol. 7 No. 1, 2009, pp. 13-14; and David Sanger, "U.S. to Confront, Not Board, North Korean Ships," *New York Times*, June 17, 2009, http://www.nytimes.com/2009/06/17/world/asia/17korea.html?_r=0.

⁴⁵⁷ The number of bunkering ships is based on the list of designated IRISIL vessels, and is a conservative estimate (see U.S. Office of Foreign Assets Control (OFAC), "Non-proliferation Designations; Non-

operator, and owner (878 times in two years) meant that in 2012, 130 of the IRISL's fleet of 144 ships were able to continue to call at world's major ports unimpeded.⁴⁵⁸ Notably, no comparable security measures have been put in place to obstruct air or land transportation routes that these two countries use to support their illicit nuclear commodity procurements.

Finally, Iranian shipping companies directly linked to nuclear commodity procurement efforts have been added to the list of entities designated for asset freezes. At present, that list is confined to three IRISL affiliates: UNSCR 1929 (2010) designated Irano Hind Shipping Company, IRISL Benelux NV, and South Shipping Line Iran.

Two international treaties also restrict transportation of nuclear commodities, namely, the 2005 Protocol to the Convention on the Suppression of Unlawful Acts (SUA) Against the Safety of Maritime Navigation and the 2010 Beijing Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation (not in force).⁴⁵⁹ These two pacts may have little practical impact in addressing the issue with respect to Iran and North Korea, however, as explained in **System 6: Enforcement Measures**.⁴⁶⁰

MULTI-STATE MEASURES

Proliferation Security Initiative (PSI). As noted in **System 3: Customs Controls and Inspections**, the PSI is a framework built around the Statement of Interdiction Principles, aimed at facilitating the inspection and seizure of suspect cargo in transit, and currently has 102 members. PSI does not constitute a separate legal framework in itself, but rather encourages its members to rely on existing national and international laws, and promptly share relevant information to facilitate interdictions within the

proliferation Designation Removals; Iran Designations," July 12, 2012, <http://www.treasury.gov/resource-center/sanctions/OFAC-Enforcement/Pages/20120712.aspx#vessels>).

⁴⁵⁸ Rachel Armstrong, Stephen Grey, and Himanshu Ojha, "Iran's Global Cat-and-Mouse Game on Sanctions," *Reuters Special Report*, February 2012, pp. 2-3, <http://graphics.thomsonreuters.com/12/02/IranSmuggling.pdf>.

⁴⁵⁹ Convention for the Suppression of Unlawful Acts Against the Safety of Maritime Navigation, Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf, Adopted 10 March 1988; Entry into force 1 March 1992; 2005 Protocols: Adopted 14 October 2005; Entry into force 28 July 2010, <http://www.imo.org/About/Conventions/ListOfConventions/Pages/SUA-Treaties.aspx>; Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation, Done at Beijing on 10 September 2010 (not in force), http://legacy.icao.int/DCAS2010/restr/docs/beijing_convention_multi.pdf.

⁴⁶⁰ See pp. 130-131.

group.⁴⁶¹ Notably, of the 32 states that have open registries, allowing foreign ships to use them as their flag states with few formalities, 15 have joined the PSI (including Panama and Liberia, which show the highest volume of activity among these so-called flag of convenience countries), and several of them have subsequently signed ship boarding agreements with the United States, which could make these open registry states less attractive to Iran and North Korea.⁴⁶² PSI regularly holds large exercises – with its members, as well as invited observer states – to practice interdictions of suspect cargo in transit, with the bulk of them simulating interdiction scenarios on the high seas.⁴⁶³ However, many of the PSI group activities are not publicized, and, given its reliance on the existing regulatory frameworks, its impact is largely felt through fostering greater interoperability, intelligence sharing, and trust among members, as well as building capacity in a wide range of countries to interdict proliferation-relevant transfers. As noted, since the inception of PSI, most actual cargo interdictions have taken place in ports, supported by customs authorities.⁴⁶⁴

European Union. Since 2010, the EU Council has passed legislation implementing and expanding the course of action against nuclear commodity transportation prescribed under the UNSCR 1929 (2010), freezing the assets under its jurisdiction of IRISL as a whole and over 30 additional affiliates by May 2011.⁴⁶⁵ The EU sanctions also required EU member states to inspect all cargo to and from Iran in their territories if they have reasonable grounds to believe the cargo contains prohibited goods, a strengthening of UNSCR 1929 (2010), which merely called upon states to take such action. The Council action also banned all Iranian cargo planes from landing in the EU and prohibited bunkering services for Iranian owned or contracted vessels, and banned the provision of maintenance services for Iranian cargo aircraft. It is ultimately up to individual member states, however, to put in place corresponding national legislative frameworks, as well as to enforce the prescribed measures at its air and sea ports, with the EU

⁴⁶¹ See, e.g., Mary Beth Nikitin, *Proliferation Security Initiative*, op. cit.; and Kelsey Davenport, “The Proliferation Security Initiative (PSI) At a Glance,” June 2013, *Arms Control Association*, <http://www.armscontrol.org/factsheets/PSI>.

⁴⁶² Ibid. p. 4.

⁴⁶³ In 2013, all PSI exercises simulated maritime interdictions, and in 2012 that was true for 4 out of 5 exercises. Exercises in previous years also involved air and ground intercepts, or a combination of these in-transit interdiction scenarios. Of the 46 PSI exercises held since 2003, only four involved in-port interdictions (the most recent was held in 2008) and only one involved customs authorities (see U.S. Department of State, “Proliferation Security Initiative: Calendar of Events,” <http://www.state.gov/t/isn/c27700.htm>). For additional discussion of PSI, see **System 3: Customs Controls and Inspections**, pp. 89-90 and **System 7: International Outreach and Capacity Building**, pp. 152-153.

⁴⁶⁴ Interviews former European official Washington, DC, September 2013.

⁴⁶⁵ See Council Decision concerning restrictive measures against Iran and repealing Common Position 2007/140/CFSP, July 26, 2010; and Council Implementing Regulation 503/2011, May 23, 2011.

measures serving as the second tier of the UN umbrella framework. Nonetheless, the tightening of EU-wide controls for transit of potentially sensitive cargo is of particular importance, as the lax internal European trade space regulations have turned a number of states there into attractive forwarding points for nuclear commodity smuggling networks. In addition, one of the most powerful EU measures in curbing potential nuclear commodity trafficking has been Article 26 of the EU Council Regulation 961 (2010) banning on the provision of insurance and re-insurance to Iranian vessels; with European insurers controlling three-quarters of the maritime insurance market, this has posed a significant impediment for Iranian ships seeking these services, and, most importantly, uninsured ships could not call at European ports.

The EU has also acted against Iranian air transport organizations, temporarily banning Iranian jets from EU airspace because of safety concerns and later banning sales of jet fuel to Iranian passenger aircraft using EU airports.⁴⁶⁶

Many of the EU measures against IRISL (and its affiliate Good Luck Shipping) were voided by the Luxembourg-based EU General Court in September, 2013; however, that decision is being appealed while the sanctions remain in effect.⁴⁶⁷ With regard to North Korea, EU Council Regulation 696 (2013) implements the amended language of UNSCR 2094 (2013), indicating that “it is necessary” to inspect cargo originating from or destined for the DPRK if there are grounds to believe it contains prohibited items,⁴⁶⁸ but no comparable entity designations or denial of insurance services were put in place.

U.S. MEASURES

The United States has created a range of legal measures and sanctions to restrict the transport of nuclear commodities to Iran and North Korea. One cluster of measures penalizes parties directly involved in the transfer such commodities to the two countries. Under the Iran-North Korea-Syria Nonproliferation Act (INKSNA), the United States imposes sanctions on individuals and entities that make such transfers, denying them U.S. government contracts and licenses to receive U.S. dual-use strategic

⁴⁶⁶ “U.S. Imposes Economic Sanctions on Iran Air,” *BBC News*, June 23, 2011, <http://www.bbc.co.uk/news/world-us-canada-13897272>; Gerald Traufetter, “The Geopolitics of Jet Fuel: Sanctions Create Headaches for Iran Air in Europe,” *Der Spiegel*, October 1, 2012, <http://www.spiegel.de/international/world/sanctions-create-problems-for-iran-air-in-europe-a-858886.html>.

⁴⁶⁷ For further discussion of this issue, see **System 5: Financial Measures**, p. 126. Also see Justyna Pawlak and Jonathan Saul, “EU Court Orders Sanctions on Iran’s Top Cargo Ship Line Scrapped,” *Reuters*, September 16, 2013, <http://www.euronews.com/newswires/2119872-eu-court-orders-sanctions-on-irans-top-cargo-ship-line-scrapped/>; and “EU Seeks to Tighten Iran Bans Despite Court Rulings,” *op. cit.*

⁴⁶⁸ EU Council Regulation 696/2013 of 22 July 22 2013, amending regulation (EC) 329/2007, concerning restrictive measures against the Democratic People’s Republic of Korea, paragraph 6.

and military goods. The United States has sanctioned IRISL under this law.⁴⁶⁹ Separately, Executive Order 13382 (2005) freezes the assets of individuals and entities determined to have materially assisted a weapon of mass destruction program, as well as individuals and entities determined “to have provided, or attempted to provide, financial, material, technological or other support for, or goods or services in support of any [such] activity or transaction....”⁴⁷⁰ IRISL and numerous Iranian shipping firms have been sanctioned under this instrument.⁴⁷¹

Recently Enacted Laws. The 2012 Iran Threat Reduction and Syria Human Rights Act imposes sanctions that in several respects could constrain Iranian shipping that might facilitate nuclear commodity smuggling. Three aspects of the law are especially worth noting in this regard:⁴⁷²

- Asset freezes on persons engaged in shipping or related services in support of Iranian WMD activities. The law imposes an asset freeze and prohibition on transactions in property with respect to entities, wherever situated, that sell, lease, or provide a vessel or insurance, reinsurance, or other shipping services for the transportation to or from Iran of goods that could materially contribute to the activities of Iran with respect to the proliferation of weapons of mass destruction (or support for acts of international terrorism).
- Denial of correspondent accounts for foreign financial institutions that facilitate transactions with parties designated by United States for supporting Iranian proliferation (or terrorism) activities. The law requires the denial of correspondent accounts for foreign financial institutions determined to have facilitated a significant transaction with any individual or entity that has been designated by the United States in connection with Iran’s proliferation activities (or support of terrorism).

As noted, IRISL and numerous affiliated Iranian shipping companies have been designated on proliferation grounds. This means that, in principle, any foreign financial institution providing significant financial services to IRISL, its affiliates, or any other designated shipping firm could be subject to de facto exclusion from

⁴⁶⁹ U.S. Department of State, Iran, North Korea, and Syria Nonproliferation Act: Imposed Sanctions (updated May 19, 2013), <http://www.state.gov/t/isn/inksna/c28836.htm>.

⁴⁷⁰ E.O. 13382, 1(a)(3).

⁴⁷¹ U.S. Department of State, Executive Order 13382, <http://www.state.gov/t/isn/c22080.htm>.

⁴⁷² See U.S. Department of State, Fact Sheet, “Iran Sanctions Contained in the Iran Threat Reduction and Syria Human Rights Act (ITRSHRA),” <http://www.state.gov/e/eb/rls/fs/2012/198393.htm>.

the U.S. banking system, a powerful sanction that is likely to discourage such behavior.

- Range of sanctions for brokering with knowledge goods are destined for Iran and will materially support WMD programs. The law also requires imposition of five of 12 listed sanctions for persons determined to have facilitated the export or transshipment of goods, while the person knew or should have known that the export, transfer, or transshipment would likely result in another person exporting, transferring, or transshipping the goods, services, technology, or other items to Iran and that the transferred items would contribute materially to the ability of Iran to acquire weapons of mass destruction. The sanctions include prohibitions on:
 - Engaging in foreign exchange transactions subject to U.S. jurisdiction;
 - Engaging in financial transactions subject to U.S. jurisdiction; and
 - Engaging in transactions with respect to property and interests in property subject to U.S. jurisdiction.⁴⁷³

The measures addressing brokering, while not directed at transportation operations, per se, in effect, seek to discourage the misuse of the international commercial transportation system by penalizing such violations.

Finally, the Iran Freedom and Counter-Proliferation Act of 2012 (IFCA)⁴⁷⁴ and E.O. 13645 (signed June 5, 2013, implementing key IFCA provisions),⁴⁷⁵ authorizes the imposition of financial sanctions on an expanded list of parties, including those involved in the Iranian shipping sector. Specifically, the act, in relevant part provides for:

- Denial of correspondent accounts for engaging in transactions with shipping sector and designated persons. The law requires the denial of correspondent accounts to foreign financial institutions determined to have knowingly facilitated a significant financial transaction
 - For the sale, supply, or transfer to or from Iran of significant goods or services used in connection with the energy, shipping, or shipbuilding sectors of Iran, including IRISL, or

⁴⁷³ For the complete list of the 12 sanctions see note 354 on p. 136.

⁴⁷⁴ Iran Freedom and Counter-Proliferation Act, P.L. 112-239.

⁴⁷⁵ Executive Order 13645, issued June 3, 2013, <http://www.treasury.gov/resource-center/sanctions/Programs/Documents/13645.pdf>.

- On behalf of any Iranian person included on the OFAC list of sanctioned persons (except for certain private Iranian financial institutions) irrespective of the reason for the imposition of the sanctions.
- Freezing of the assets of persons in shipping sector or providing financial services to persons in shipping sector or to U.S.-sanctioned Iranian persons. The law authorizes the blocking of the assets of persons determined
 - To be part of the energy, shipping, or shipbuilding sectors of Iran or operating a port in Iran; or
 - To have knowingly provided significant financial, material, technological, or other support to, or goods or services in support of, any activity or transactions on behalf of or for the benefit of: (a) a person determined to be part of the energy, shipping, or shipbuilding sectors of Iran; (b) a person determined to be operating a port in Iran; or (c) any Iranian person included on the OFAC list of sanctioned persons (except for certain private Iranian financial institutions) irrespective of the reason for the imposition of sanctions.⁴⁷⁶

The IFCA sanctions against the Iranian shipping sector have multiple goals. One is to weaken Iran by targeting an important revenue generating sector of its economy; a second is to hinder shipping operations that might enable Iran to evade sanctions restricting its sales of crude oil; and a third is to constrain Iran's ability to use its shipping operations to support its acquisition of contraband goods for its nuclear and other WMD and missile programs.

Designations. During the first six months of 2013, OFAC designated dozens of shipping entities and vessels for sanctions related to curtailing Iranian crude oil sales. In February, it also began to make designations under the Iran Threat Reduction and Syria Human Rights Act, whose sanctions had recently entered into force, sanctioning Iran Electrical Industries under that statute and also on nonproliferation grounds. In mid-March two Iranian insurance firms were also sanctioned under the Iran Threat Reduction and Syria Human Rights Act; it is not clear whether they were serving the shipping industry or whether the designation was made for other reasons. The sanctions under IFCA took effect on July 1, 2013. On July 3, 2013, OFAC designated IRISL, the National Iranian Tanker Company, and South Shipping Line Iran for their

⁴⁷⁶ U.S. Department of State, "Fact Sheet: Iran Freedom and Counter-Proliferation Act of 2012," Exceptions are made in for privately owned Iranian financial institutions not linked to prohibited activities.

involvement in Iran's shipping sector. Tidewater Middle East Company, the principal operator of Iranian ports, was designated under IFCA and also on nonproliferation grounds, because of its links to the Iranian Revolutionary Guard Force.

The designation of Tidewater means that shipping firms calling at Iranian ports and paying regular port fees are put at risk of an asset freeze, a penalty that would effectively close U.S. markets and U.S. ports to such firms. Fearing this possibility, even before IFCA took effect, two major Taiwan-based shipping firms, Evergreen and Yang Ming, terminated service to Iran in March 2013; a third firm, Shanghai-based, China Shipping Container Lines, announced it would do so as of July 1, 2013.⁴⁷⁷ Like the constriction of Iran's ability to use the global banking system for international financial transactions, reducing Iran's access to the major international shipping lines limits its ability to engage in international commerce of any kind – including commerce involving the procurement of commodities to support its nuclear program.

In an effort to limit Iran's air transport capabilities, the United States has also imposed sanctions on Iran Air, initially in 1995, and more recently in June 2011, preventing it from acquiring U.S.-made aircraft, and making the acquisition of spare parts difficult. U.S. officials have underscored the need for such measures because of Iran Air's material assistance to the Iranian Ministry of Defense and Armed Forces Logistics, which are deeply involved in the Iranian missile program and oversee the IRGC.⁴⁷⁸ The 2011 sanctions were implemented under E.O. 13382, and would freeze the assets of parties who engage in commercial or financial transactions with the Iranian airline.⁴⁷⁹ Similar sanctions were imposed on Mahan Air, another commercial Iranian airline, in October 2011.⁴⁸⁰ On May 31, 2013, OFAC announced sanctions against Iran's aircraft

⁴⁷⁷ "Evergreen, Yang Ming, CSCL End Iran Operations," *Maritime Executive*, July 3, 2013, <http://www.maritime-executive.com/article/Evergreen-Yang-Ming-CSCL-End-Iran-Operations-2013-07-03/>. Maersk Line, the world's largest shipping line, ceased doing business with Iran in October 2012, fearing that continuing to do so would damage business opportunities in the United States and the EU. Matt Egan, "Sanctions Force Maersk Line to Halt Service to Iran," *FoxBusiness*, October 9, 2012, <http://www.foxbusiness.com/industries/2012/10/09/maersk-line-stops-service-to-iran/>. See also Mark Wallace, "Closing U.S. Ports to Iran-Tainted Shipping," *Wall Street Journal*, March 14, 2013, <http://online.wsj.com/news/articles/SB10001424127887323826704578352683711365520>.

⁴⁷⁸ Thomas Erdbrink, "Iran's Aging Airliner Fleet Seen as Faltering Under U.S. Sanctions," *New York Times*, July 13, 2012, <http://www.nytimes.com/2012/07/14/world/middleeast/irans-airliners-falter-under-sanctions.html>; David Cohen, Under Secretary of Treasury for Terrorism and Financial Intelligence, Letter to the Editor, "Sanctions Against Iran Air," *New York Times*, July 16, 2012, <http://www.nytimes.com/2012/07/17/opinion/sanctions-against-iran-air.html>.

⁴⁷⁹ Department of the Treasury, Press Center, "Treasury Announces New Sanctions Against Iran," May 31, 2013, <http://www.treasury.gov/press-center/press-releases/Pages/jl1965.aspx>.

⁴⁸⁰ Terry Atlas, "U.S. Imposes Terrorism Sanctions on Iran's Mahan Air," *Bloomberg*, October 12, 2011, <http://www.bloomberg.com/news/2011-10-12/u-s-treasury-imposes-terrorism-sanctions-on-iran-s-mahan-air.html>.

support and procurement network targeting parties located in Kyrgyzstan, Ukraine, and the U.A.E. that, in the words of the OFAC press release announcing the sanctions, “are leasing and selling aircraft to Mahan Air and Iran Air as they attempt to circumvent sanctions and support Iran’s worldwide illicit activities.”⁴⁸¹ Iran has also attempted to evade sanctions by purchasing second-hand aircraft, with mixed success.⁴⁸² These sanctions were eased under the November 23, 2013, agreement to permit the sales to Iran of spare parts for certain civilian aircraft.

The United States has also sought to disrupt the flow of goods via the Chinese port of Dalian to and from North Korea.⁴⁸³

RECENT DEVELOPMENTS

A number of recent developments highlighted above appear likely to have a constraining impact on transportation links supporting illicit nuclear procurement efforts, in particular, the withdrawal of a number of major shipping lines from doing business with Iran and the entry into force of new U.S. sanctions laws. The voiding of the designation of IRISL in by the European General Court if not overturned, however, could improve Iran’s ability to pursue international commerce, including with respect to the clandestine acquisition of nuclear goods.

Tracking North Korean Shipping. Efforts to constrain North Korean shipping that may be supporting nuclear proliferation have involved more direct intervention than in the case of Iran.

- In late May 2009, for example, a U.S. Navy destroyer intercepted a North Korean vessel, the *M/V Light* thought to be carrying a cargo of arms to Burma (and possibly equipment to support clandestine nuclear activities there). The United States obtained permission from Belize, the vessel’s state of registry, to board the ship, but the captain refused to comply. The U.S. destroyer continued to track the vessel for several more days, at which point the North Korean ship turned around and returned to that country.⁴⁸⁴
- More recently, in November 2012, Japan detained a North Korean vessel in Tokyo harbor carrying 15 alloy bars and 50 pipes. The ship was en route to Burma.

⁴⁸¹ “Treasury Announces New Sanctions against Iran,” *op. cit.*

⁴⁸² “Winging It,” *Economist*, July 23, 2013, <http://www.economist.com/blogs/gulliver/2013/07/iranian-sanctions>.

⁴⁸³ See, e.g., U.S. Department of State, “United States Sanctions Individuals Linked to North Korean Weapons of Mass Destruction Programs,” March 8, 2013, <http://www.state.gov/t/isn/205879.htm>.

⁴⁸⁴ William Wan and Craig Whitlock, “North Korean Ship Turned Back by U.S. Navy,” *Washington Post*, June 13, 2011, http://articles.washingtonpost.com/2011-06-13/national/35265505_1_north-korean-ship-weapons-officials.

Subsequent analysis indicated that the items were made from high-quality aluminum alloy of the type used for uranium enrichment centrifuges and ballistic missiles. The Japanese government seized the material, which, as of March 2013, was being held in a private warehouse in March 2013.⁴⁸⁵

- In early July 2013, Panama stopped a North Korea vessel, the *Chong Chon Gang*, en route from Cuba to North Korea, on which Panamanian authorities discovered and seized a cache of obsolete Soviet-era conventional arms. Presumably Panama received a tip derived from U.S. intelligence capabilities in deciding to stop the vessel. Security Council sanctions resolutions prohibit North Korea from importing or exporting conventional arms.

These episodes indicate that North Korean shipping is being closely watched, but it is not apparent that such interventions have deterred North Korea from undertaking sea shipment of embargoed goods, including those with potential nuclear uses.

Re-flagging and De-flagging. To evade sanctions on its tanker fleet, Iran has repeatedly renamed sanctioned vessels, used front companies to disguise their ownership, and shifted states of registry, requiring the sanctioning states to continuously update its lists of sanctioned parties – a process that rarely keeps up with Iranian efforts to elude penalty.⁴⁸⁶ One approach to limit Iran's use of this ploy is to persuade registry states not to extend privileges to Iranian owned or controlled vessels, an effort, promoted by the U.S. Treasury – and, in part, by an independent group, United Against a Nuclear Iran. During 2012 and 2013 a number of states took such action, including Bolivia, Cyprus, Hong Kong, Mongolia, Moldova, Sierra Leone, and Tuvalu.⁴⁸⁷ Iran appears

⁴⁸⁵ "Japan Seizes Suspicious North Korean Cargo in Transit to Myanmar," *Global Security Newswire*, November 26, 2012, <http://www.nti.org/gsn/article/japan-seizes-suspicious-north-korean-cargo-transit-myanmar/>; <http://www.fastcompany.com/3007116/fast-feed/japan-intercepts-nuclear-materials-ship-bound-north-korea>; Adam Westlake, "Nuclear-related North Korean Ship Cargo Confirmed, Seized in Tokyo," *Japan Daily Press*, March 19, 2013, <http://japandailypress.com/nuclear-related-north-korean-ship-cargo-confirmed-seized-in-tokyo-1925374/>.

⁴⁸⁶ Claudia Rosett, "How Iran Steams Past International Sanctions," *Wall Street Journal*, July 12, 2012, <http://online.wsj.com/news/articles/SB10001424052702303919504577522431458614636>; Claudia Rosett, "Iran's Worrisome Shipping News," *Wall Street Journal*, November 4, 2013, summarizing Iranian actions, <http://online.wsj.com/news/articles/SB10001424052702304200804579165743729609738>; Hugh Griffiths and Michael Jenks, *Maritime Transport and Destabilizing Commodity Flows*, SIPRI Policy Paper 32, January 2012, noting Iran's use of Hong Kong, Barbados, Cyprus, and Malta as venues for re-registering ships to evade sanctions.

⁴⁸⁷ "UANI Applauds Hong Kong for Ending Its Re-flagging of Iranian Vessels," *BusinessWire*, November 12, 2012, <http://www.businesswire.com/news/home/20121112006725/en/UANI-Appplauds-Hong-Kong-Reflagging-Iranian-Vessels>; "Moldova Ends Its Re-flagging of Iranian Vessels," *Motorship*, October 8, 2012, <http://www.motorship.com/news101/industry-news/moldova-ends-its-reflagging-of-iranian->

also to be spuriously claiming registry in some instances, requiring the state declared by an Iran-linked vessel to be the state of registry to publicly deny the assertion.⁴⁸⁸ These counter-measures appear to have constrained the Iranian reflagging effort. According to Claudia Rosett, an analyst who has tracked such reflagging efforts for a number of years:

Among the more than 120 vessels currently blacklisted by Treasury as linked to IRISL, most are now reflagged back to Iran. And while IRISL's fleet used to sail most of the globe, ship-tracking databases show that IRISL's shipping routes are now largely confined to the Middle East and Asia, with occasional runs to Africa.⁴⁸⁹

Increasing Awareness. The gradual emergence of a regulatory framework, through international, multi-state, and national measures, curbing different aspects of the nuclear commodity procurement chain, has had an indirect, positive impact on obstructing the physical movement of such items by the sheer increase in awareness of private and governmental parties involved about this challenge. The gradual enlargement of PSI to 102 participating states and the substantial number of ship boarding agreements with open-registry states, creating a legal environment more conducive for inspections and interdictions of cargo in transit, are good examples of such consciousness-raising. In addition, the multiple EU sanctions against the Iranian transportation industry, ranging from denial of insurance to the ban on the carrying of Iranian oil on European vessels, have significantly raised the bar for illicitly transporting dual-use goods of WMD-relevance through the Eurozone and will remain intact, even if the designation of IRISL and the associated freezing of its assets is ultimately voided.

Chinese Interventions in Dalian. China's efforts to tighten sanctions against North Korea in the aftermath of the latter's third nuclear test, noted earlier, have included measures to restrict the passage of goods through Dalian. Specifically, China closed down more than half the freight forwarding firms in that city processing cargoes for North Korea and also cut back the number of vessels that it would permit to continue through this

vessels; "Countries Scramble to De-Register Iranian Vessels," IranWatch, September 30, 2012, <http://www.iranwatch.org/our-publications/countries-scramble-de-register-iranian-vessels>.

⁴⁸⁸ Issa Yussuf, "Tanzania: Zanzibar Denies Registering Iran Oil Tankers," *Tanzania Daily News*, June 30, 2012, <http://allafrica.com/stories/201207020056.html>.

⁴⁸⁹ Rosett, "Iran's Worrisome Shipping News," op. cit.

and other ports to travel on to North Korea, seizing a number of cargoes of Iranian oil products in the process.⁴⁹⁰

GAPS AND CHALLENGES

According to a knowledgeable Western European official, the extensive attention given to shipments of nuclear and other contraband (including Iranian crude oil) by sea has created sufficient impediments to this mode of transportation that nuclear commodity smugglers appear to be turning increasingly to land and air transportation alternatives.⁴⁹¹ Nonetheless, as seen in the detaining of the *Chong Chon Gang* in July 2013, sea transport continues to be used for moving sensitive goods, even if the risks of detection have increased.

Moreover, while restrictions on the use of state-owned shipping have tightened, reflagging and the use of charters continue to pose challenges. And, despite the risk of sanctions for freight forwarders and transportation concerns, embedding clandestine shipments of nuclear-specific, and especially, of nuclear dual-use goods, within the enormous flow of legitimate commerce will remain highly difficult to detect absent actionable guidance from intelligence and law enforcement agencies.

⁴⁹⁰ "China Cracking Down on North after UN Sanctions," *Korea Joongang Daily*, March 13, 2013, <http://koreajoongangdaily.joins.com/news/article/article.aspx?aid=2968488>; "China Holding Iran Condensate Destined for NK," *Asahi Shimbun*, October 20, 2013, <http://ajw.asahi.com/article/asia/AJ201310200026>

⁴⁹¹ Comment made during Wilton Park Conference 1261, Meeting the Challenge of Emerging Nuclear Commodity Smuggling, September 2013; Remarks by Rebecca K.C. Hersman, Vann H. Van Diepen, and Susan J. Koch op. cit.

CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

ACTORS, INSTITUTIONS, AND MODALITIES

This study has attempted to present an explanatory catalogue of current efforts to combat nuclear commodity smuggling, highlighting measures taken at the international, multi-state, and national level to counter the various elements of illicit procurement transactions. As shown, numerous institutions and activities contribute to this overall enterprise: at the international level, these include the UN Security Council, International Atomic Energy Agency (IAEA), and World Customs Organization (WCO), as well as INTERPOL, the International Maritime Organization, and the International Civil Aviation Organization; at the multi-state level, some of the major contributors include the European Union, the Nuclear Suppliers Group (NSG), Financial Action Task Force (FATF), G-8 Global Partnership, and the Proliferation Security Initiative (PSI); and at the national level, numerous U.S. agencies, EU member states, U.S. allies in the Asia-Pacific, China, and, indeed, UN member states, at large.

Numerous synergies can be found among the work of these actors, including the contributions of customs inspectors in many states to the PSI, the efforts of the G-8 Global Partnership to support capacity building under UNSCR 1540 (2004); the new recommendation of the FATF to strengthen implementation of Security Council resolutions sanctioning Iran and North Korea; and the use, if infrequent, of INTERPOL red notices to aid the pursuit of nuclear commodity smugglers. But inefficiencies can also be observed, such as lack of coordination among – and within – national governments in providing assistance to states to build export control capacity and the fact that malefactors are often brought to justice only after years of successful illegal nuclear procurements.

The enterprise working to curb such procurements relies on a wide range of long-standing authorities, such as the nuclear Nonproliferation Treaty (NPT) and, in the United States, the 1954 Atomic Energy Act, but it has also developed important and potent new tools, such as the use of interdictions and financial sanctions against a wide range of parties including shippers and brokers, with a recent U.S. law – the Iran Threat Reduction and Syria Human Rights Act – specifically sanctioning persons facilitating the export of goods to third parties knowing they will be shipped onward to Iran. New roles for established institutions, such as the UN Security Council, and the advent of new institutions, such as the increasingly visible committees implementing Security

Council sanctions resolutions and their panels of experts, are also features of the anti-nuclear-commodity-smuggling effort. The contribution of private enterprise, especially in the manufacturing and banking sectors, in monitoring transactions for illicit procurement activity and in implementing export licensing and sanctions laws has also grown substantially.

In many settings, activities to curb illicit nuclear procurement efforts are embedded in the work of institutions with very broad mandates and are sometimes treated as a subordinate element of the organization's mission, a situation observable at the FATF, the G-8 Global Partnership, the World Customs Organization, INTERPOL, and indeed within national customs services. Even at the U.S. Treasury Department's Office of Foreign Assets Control (OFAC), which gives considerable attention and visibility to nonproliferation issues, sanctions promoting this objective must compete with other priorities, as seen in the numerous sanctions regimes noted on the OFAC Specially Designated Nationals list. On the other hand, these institutions, with powerful capabilities in related fields, bring multiple resources and techniques to bear on the nuclear commodity smuggling challenge that might not otherwise be applied.

Although addressed only tangentially in this study, the role of non-governmental organizations (NGOs) is also worth noting. Some, such as the Wisconsin Project's Iran Watch, the Institute for Science and International Security, and United Against a Nuclear Iran, have monitored illicit nuclear commodity trafficking closely and publicized the actions of wrong-doers, a process of "naming and shaming" that has reinforced the international sanctioning efforts, helped build public support for such sanctions measures, and, through advocacy campaigns targeting legitimate businesses concerned about their reputation, contributed to raising their level of compliance with nonproliferation standards. Other NGOs, such as the Foundation for the Defense of Democracies, have helped shape the sanctions subsequently adopted by governments and, in the United States, have served as intermediaries between Congress and the Executive Branch as new sanctions rules were drafted. Still other NGOs, such as the James Martin Center for Nonproliferation Studies, the University of Georgia's Center for International Trade and Security, and the Civilian Research and Development Foundation, have provided expert advice and training capabilities to support government-sponsored outreach efforts, as has Japan's Center for Information on Trade Security Controls.

U.S. LEADERSHIP AND GROWING COALITIONS

Although this study has presented the tools used to combat nuclear commodity smuggling in terms of tiers of activities originating at the international, multi-state, and national levels, respectively, in practical terms the United States has a major influence on virtually every element of these efforts, frequently taking the lead on these matters, e.g., at the UN Security Council, the Nuclear Suppliers Group, the G-8 Global Partnership, and the Proliferation Security Initiative, as well as using domestic law to create sanctions regimes with international reach.⁴⁹²

Efforts to curb nuclear commodity smuggling can accomplish little, however, if not widely adopted, making international collaboration essential. In this regard, the United States has a number of strong partners, such as the EU and a number of individual EU member states, as well as Canada and U.S. allies in the Asia-Pacific. Among important contributions of such partners was the imposition of unilateral sanctions on Iran beyond those in UNSCR 1929 (2010) in the summer of 2010, and the EU decision in March 2012 to encourage the SWIFT electronic funds transfer system to terminate Iran's access to it.

Gradually, however, stronger nuclear commodity control measures have found considerably wider support, as seen in the growing number of states that have enacted export control laws; accepted the PSI Statement of Interdiction Principles and participated in PSI activities; reported on their UNSCR 1540 (2004) implementation activities and sought or offered capacity-building assistance; employed the control lists of the NSG; and complied with extraterritorial U.S. sanctions laws limiting a range of transactions with Iran.

Indeed, over the past decade, the international environment in which illicit nuclear procurement activities take place has been transformed, with virtually every dimension of such transactions involving originators, brokers, bankers, shippers, and many others now subject to continuous scrutiny. For procurement networks, there is virtually no avenue that is not strewn with obstacles. To be sure, these networks have identified pathways through this thicket, but at significant cost, both in terms of the additional time and financial resources needed to accomplish such pursuit. Moreover, a number of stratagems procurers have used to defeat controls have themselves been defeated, at least in part, as seen in the reluctance of an increasing number of open-shipping-registry states to reflag Iranian vessels and in the improved capabilities of a number of transit states to block the diversion of goods to Iran and North Korea.

⁴⁹² An important contributor to U.S. leadership is guidance about suspect nuclear programs and illicit procurements provided by the U.S. intelligence community, as noted at the outset of Chapter 3.

INCREASING RELIANCE ON PRIVATE SECTOR

The tendency of procurement networks for new and emerging nuclear weapons programs to rely increasingly on commercially available lower quality dual-use items has substantially expanded the pool of entities potentially involved at every node of the supply chain, from production to logistics handling and post-export verification procedures. In the past, for example, vendors of concern were reactor manufacturers, while today it is producers of certain types of metal tubes or anti-corrosive paints. As the regulatory framework for controlling the movement of strategic goods expands, many states are turning to private companies, particularly large multinational corporations, to assist the effort to curb illicit nuclear smuggling through enhanced supply chain management.

National agencies are approaching private firms, for instance, to tap into data that these firms collect (to improve their efficiency and save costs) regarding clients and the movement of their products, as a means of verifying compliance with export licenses and the truthfulness of shipping documents. In many instances, the efficacy of international sanctions against the states of proliferation concern depends on the extent and quality of internal compliance programs instituted among the bankers, insurers, shippers, and manufacturers, as well as their willingness to come forward to consult the sanctioning governments about transactions of potential proliferation concern or even offer tip-offs about such transactions as they unfold. Indeed, a number of corporations have been able to promote their active compliance efforts as a positive dimension of their branding, although most often this greater vigilance has been seen as re-pricing the risks the businesses were facing from non-compliance. From the corporate perspective, however, emerging control requirements are often maladapted to business realities, and can sometimes contribute to an atmosphere of suspicion across the public-private divide.

Among other concerns, industries fear the shift of clientele to under-regulated environments as the states they operate in raise the standards for oversight practices. As one example, financial sector experts have been concerned about the potential emergence of a strong Asian competitor to the SWIFT system, once it was closed off to Iranian transactions, and European insurers have expressed similar concerns after denying their services to Iran. So far, no unified regional or international approach has emerged regarding the optimal level of nonproliferation regulation across industries. The overall trend appears headed toward stricter regulations, while trying to streamline their implementation and ease the burden of compliance.

SETBACKS, FLAWS, AND INEFFICIENCIES

Despite its accomplishments, the system of systems that comprises the anti-nuclear-commodity-smuggling enterprise is far from perfect. Indeed, virtually every system suffers from weak links. Private sector internal compliance programs have emerged as a powerful nonproliferation tool, for example, but while implemented with considerable effectiveness by larger corporations, they are often beyond the capabilities of smaller firms and cannot restrain an unscrupulous manufacturer or disloyal employee committed, for financial or ideological reasons, to assist in advancing illicit transfers. Moreover, around the world, and even within the EU, states with weak export controls can still be easily found, even though the performance on a global basis is slowly improving. In addition, regulators – licensing authorities, customs agents, diplomats negotiating control lists, and others – must operate in an environment where many parties, including governments, place a higher priority on maximizing legitimate commercial activity than controlling flows of strategic goods, requiring trade-offs that often lead to weakened control measures.

As these issues have gained increased prominence, moreover, the result has been a multiplication of actors, whose activities may be well-intentioned but are often poorly coordinated. For instance, efforts in 2012 to prosecute a major bank for illegal transactions involving Iran appeared to suffer from mismanagement and confusion, when federal, state, and local prosecutors all scrambled to seize the lead.⁴⁹³ Recipients of assistance for UNSCR 1540 (2004) implementation complain that aid from multiple states has not been coordinated and is duplicative. In the United States, to cite another example, so many enforcement agencies have been involved in export control cases that the Export Enforcement Coordination Center had to be established to “deconflict” their respective responsibilities. Synchronization of all the anti-nuclear-commodity smuggling systems is, perhaps, a goal to strive toward, but the very scale of the enterprise makes it unattainable as a practical matter; moreover, some believe that a more informal network of systems is the better model for dealing with elusive procurement networks operating in a diffuse and flexible manner. It is also important to recognize that, as less developed states are being approached with multiplying offers of assistance through uncoordinated programs, “initiative fatigue” can set in, with the issue losing the sense of urgency and priority on national agendas.

Intelligence sharing is a separate challenge that appears in multiple settings within the system of systems. Difficulties in sharing with the IAEA, Security Council sanctions

⁴⁹³ Neil Gough, “Standard Chartered to Pay \$330 Million to Settle Iran Money Transfer Claims,” *New York Times*, December 6, 2012, http://dealbook.nytimes.com/2012/12/06/standard-chartered-to-pay-u-s-330-million-to-settle-iran-laundering-claims/?_r=0.

committees, the NSG, foreign governments whose assistance is sought to interdict a shipment, prosecutors (and defendants), foreign intelligence agencies, and private sector firms seeking to implement effective compliance programs are issues that have cropped up repeatedly in the course of preparing this study. There may be no obvious solutions to the challenge of advising these various audiences while maintaining the confidentiality of intelligence sources and methods, but best efforts must be made to bridge these divides.

MEETING CORE OBJECTIVES: SUCCESS OR FAILURE?

It is well recognized that technology denial, standing alone, cannot halt an emergent nuclear weapon program, but it can play a crucial role in slowing down such a program to provide time for other, more disruptive and/or political level nonproliferation tools to take effect. In late 2013, both of these dynamics could be observed. On the one hand, despite the far-ranging efforts described in this report to curtail nuclear commodity smuggling, Iran's nuclear program has continued to grow, bringing Iran closer to the time when it might be able to rapidly field a small number of nuclear weapons, if it chose to do so. On the other hand, the interim agreement reached in Geneva on November 23, 2013, has led to a pause in sensitive elements of Iran's nuclear program in return for limited sanctions relief. Subsequent negotiations hold the promise of ultimately limiting the Iranian nuclear program more significantly and on a long-term basis, and will also provide the opportunity for Iran to prove itself to be a state unambiguously committed to the exclusively peaceful uses of nuclear energy. Most observers believe that the harsh economic sanctions imposed by the United States and others against Iran in recent years have made open-ended continuation of its nuclear program too costly for Tehran and brought it to the negotiating table once Hassan Rouhani succeeded Mahmoud Ahmadinejad as Iran's president. Efforts to curtail nuclear commodity smuggling have undoubtedly helped to buy time for such an evolution in Iranian thinking.

It is important to recognize, however, that although the combination of technology denial and wide-ranging economic sanctions appears to be having a measure of success in the case of Iran, the economic sanctions tool may not be easily applied in some other cases. With respect to North Korea, for example, the impact of economic sanctions is being blunted by China's policy of preventing that country's economic collapse because of the disruption this would cause in the region. Pakistan, in turn, is a U.S. regional ally and, far from seeking to damage the country's economy, the United States is working to strengthen it, by providing extensive economic assistance to Islamabad; this leaves technology denial as one of the few tools, however imperfect, that is available to

constrain its nuclear weapons program. It may nonetheless be possible to take advantage of some of the tools used against Iran, such as the naming and shaming of originators of nuclear commodity smuggling transactions, to strengthen technology denial measures in these and other cases.

Specific Recommendations for Further Consideration

With this background in mind, a number of specific suggestions for strengthening the anti-nuclear-commodity-smuggling system of systems may be offered.

SYSTEM 1: MEASURES AGAINST ORIGINATING PARTIES

Asset freezes and travel bans directed at Iranian and North Korean individuals and entities appear to have had little impact on their behavior other than to force them to operate through front companies that disguise their identities.

Recommendation: If the United States has information concerning foreign bank accounts of these parties, it should be exploited more effectively, possibly by threatening the foreign banks with exclusion from the U.S. banking system pursuant to various laws if the banks fail to freeze the assets of sanctioned individuals.⁴⁹⁴

Iran and North Korea have systematically and repeatedly violated the export controls of numerous UN member states. Although Security Council sanctions resolutions attempt to put in place a number of tools, such as inspection of suspect cargoes, to address illicit procurements, and although reports of the Panels of Experts highlight such illegal behavior by both countries, the Council needs to underscore that nuclear commodity smuggling by these states, in itself, is a profound affront to international norms. Moreover, the fact that nuclear programs of concern in both of these states have relied on illegally obtained commodities from abroad makes clear that these programs are not the product of indigenous technological prowess and undercuts any claims that pursuing these programs is a right guaranteed in the NPT, as Iran asserts.

Recommendation: The Security Council should declare that the Iranian and North Korean nuclear programs rely on illegally obtained commodities and that no state has the right to pursue nuclear energy programs based on illegally obtained equipment, technology, or materials. Furthermore, the Security Council should condemn the repeated violation of national export control laws by these two states and declare this to

⁴⁹⁴ The power of this approach was demonstrated in the Banco Delta Asia case, when the United States threatened to deny the Macao-based bank access to the U.S. financial system for money laundering involving bank accounts of senior North Korean officials engaged in a range of illicit activities. The threat triggered a run on the bank, causing China to freeze its assets and take a number of corrective actions. See David Asher, Victor D. Comras, and Patrick M. Cronin, *Pressure: Coercive Economic Statecraft and U.S. National Security* (Washington, DC: Center for a New American Security, January 2011), http://www.cnas.org/files/documents/publications/CNAS_Pressure_AsherComrasCronin_1.pdf.

be one of the bases for its imposition of sanctions against them. The precedent set in this manner would be an important addition to international nonproliferation norms.

There is little evidence to suggest that UN travel bans on designated individuals are being effectively enforced.

Recommendation. A possible mechanism, which might make it difficult and risky for persons originating illicit nuclear procurements to travel abroad, would be to include them, where possible, as co-conspirators in criminal indictments that are brought against nuclear commodity smuggling rings in the United States and elsewhere. The indictments would trigger arrest warrants that could be lodged with INTERPOL and circulated as INTERPOL “red notices,” making the individuals subject to arrest in any state they visited. If several enforcing states orchestrated a combined effort to pursue this approach, the publicity generated could serve to deter other perpetrators.

Although INKSNA imposes penalties on parties supporting WMD and related missile programs being pursued in Iran, North Korea, and Syria, E.O. 13382 requires the freezing of assets of persons materially supporting WMD programs in any country of proliferation concern, a group normally interpreted to include India, Israel, and Pakistan. It appears, however, that no individuals or entities currently responsible for nuclear weapon programs in these three states have been designated under the executive order, although many of these parties are on the Department of Commerce Entity List, which effectively bars them from receiving all but the most innocuous nuclear dual-use items. Presumably, the George W. Bush and Obama Administrations have hesitated to impose sanctions under the Executive Order against officials in these states because the United States has close ties to all three countries and has effectively tolerated their nuclear programs for many years. From time to time, however, these states can run afoul of U.S. laws by actively seeking to obtain nuclear commodities illegally from the United States, as seen in the Department of Justice compilation of major U.S. export enforcement criminal cases. The Treasury Department has sanctioned the individuals accused in a number of these cases, but it has not sanctioned the originators of these transactions within the relevant national nuclear establishments.

Recommendation: When one of these states is linked to illicit nuclear procurement activities in the United States, the United States should use diplomatic channels to demand that the state cease such abuse of the U.S. commercial system and should use the threat to impose sanctions under E.O. 13382 to back up this demand. Other states similarly targeted by any of these countries should take comparable measures, using appropriate elements of their domestic laws to threaten sanctions against originating parties if such behavior is not halted.

SYSTEM 2: EXPORT LICENSING AND CONTROL LISTS

One of the core challenges in this sphere is the lack of comprehensive export control systems in many states; another challenge, in some states with export control systems in place, is the lack of political will to enforce them effectively. Recommendations for strengthening assistance programs for states with weak export controls are provided below, under **System 7: International Outreach and Capacity Building**.

As noted in the earlier discussion of System 2, the NSG has limited its involvement with respect to illicit procurement activities. Several steps by the group could strengthen efforts to combat this challenge. One matter requiring urgent attention is the considerable variance in the comprehensiveness of export control systems and export control implementation *within* the NSG.

Recommendation: To address any such deficiencies, the NSG should establish a mechanism for peer reviews of participating government export control systems, akin to those employed by the FATF (to assess the national banking systems' vulnerability to, and capability to detect, money laundering, terrorism financing, and proliferation financing) and by the World Association of Nuclear Operators (to assess nuclear safety and nuclear plant reliability in participating countries). Most members of the NSG are also members of one or both of these groups and have accepted the peer review process in these equally sensitive contexts. The intra-NSG export control peer review initiative could then serve as a model for expanded peer reviews to include non-member states. Countries found to be seriously deficient and unable to show progress would be barred from receiving commodities identified in Part II of the NSG Guidelines. Given that the NSG is viewed with suspicion as a supplier cartel in some quarters, a Security Council mandate for collaboration between the 1540 Committee and the NSG would be desirable.

Note: Some initial peer reviews have already been conducted under the auspices of the 1540 Committee. The recommendations above call for formalizing the peer review process and gradually expanding it to encompass a larger number of states.

The EU Council's 2011 Green Paper⁴⁹⁵ highlighted the disparity in effectiveness of export control systems among member states of the EU and how procurement networks take advantage of such disparities.

Recommendation: The EU should implement an internal program of peer reviews of such systems as a means to help bring all systems to the highest level within the EU.

⁴⁹⁵ European Commission document, "Green Paper: The Dual-Use Export Control System of the European Union: Ensuring Security and Competitiveness in a Changing World," June 30, 2011, COM (2011) 393 final, http://trade.ec.europa.eu/doclib/docs/2011/june/tradoc_148020.pdf.

Indian firms have been implicated in a recent trafficking episode involving the supply of hundreds of Indian valves for Iran's Arak reactor.

Recommendation: If this episode turns out to be part of a larger pattern, consideration of India's membership in the NSG should be suspended, until India demonstrates commitment to suppressing illicit nuclear transfers by prosecuting the parties involved in such cases and establishing mechanisms to prevent such exports to suspect nuclear programs in the future.

The United States is a global leader in undertaking post-export verifications to confirm transferred U.S. goods are not being misused. Also, France is encouraging relevant manufacturers of nuclear dual-use goods to sign maintenance agreements with purchasers that will permit manufacturers to do post-export verifications, where it is appropriate given the technology involved.

Recommendation: EU member states, U.S. allies in the Asia-Pacific, and other industrialized states should develop post-export verification strategies, possibly following the U.S. practice of post-export on-site verification or implementing other approaches, such as the French model of using maintenance contracts to take advantage of private sector links to purchasers.

SYSTEM 3: CUSTOMS CONTROLS AND INSPECTIONS

Customs seizures of illicitly obtained nuclear commodities rely greatly on tips from the intelligence community and law enforcement officials, and cooperation of foreign customs services is often essential for interdicting a shipment of concern. Efforts should certainly be made to reinforce the capabilities and contributions of the former and to facilitate collaboration among customs administrations, where existing initiatives, such as the PSI and Container Security Initiative, deserve much credit. The development of new technology, such as scanners that can identify the nature of metals in bulk shipments, has also been a valuable addition to customs capabilities.

Customs activity within the EU remains problematic for reasons cited above, where recommendations for improvement are also offered.

The Nuclear Suppliers Group mandates post-export inspections of nuclear-specific commodities by the requiring members not to export such goods unless the recipient accepts IAEA inspections of facilities where the goods are used. The NSG Guidelines do not address the subject of post-export verification of dual-use nuclear goods, however.

Recommendation: As a component of the recommendation above that the NSG give intensified attention to preventing misuse of nuclear dual-use exports, the group should strongly encourage participating governments to implement programs for post-export verification of transferred nuclear dual-use goods with the goal of adding this to the NSG Guidelines.

The Proliferation Security Initiative predominantly interdicts cargoes in port, rather than when vessels are at sea, meaning that customs authorities play a larger role in the initiative than national navies or specially trained boarding teams. In some quarters, the PSI may appear to be an instrument of U.S. military power projection, which may make some states reluctant to join, as appears to be the case for China.

Recommendation: Funding for the PSI and the way it is presented internationally should give greater attention to the customs dimension. In particular, a greater portion of the annual exercises should involve customs agents and sea- or air- port officials.

It was suggested to the authors that clearly and prominently marking shipping documents to indicate whether an item is controlled would greatly facilitate risk-assessment-based screening of goods.

Recommendation: The U.S., and other like-minded states, should adopt this practice as a means for strengthening customs effectiveness, and, with this model in place, should promote its universal adoption through the UN 1540 Committee, the World Customs Organization, the NSG, and through U.S. and other states' capacity building programs.

China's implementation of export controls and customs inspections with respect to the transfers of nuclear commodities to Iran and North Korea has been mentioned a number of times in this study, noting both progress seen in China's efforts to address this issue and remaining challenges.

Recommendation: The United States and other concerned nations should continue to engage China in efforts to further improve its performance in this area and consider a range of incentives and disincentives to promote this goal.

SYSTEM 4: SUPPLIER-STATE PRIVATE SECTOR INTERNAL COMPLIANCE PROGRAMS

Internal compliance programs have become an instrument of great value in constraining illicit nuclear procurement activities. Many corporations, especially the large multinational firms, have been driven to invest in building up robust internal compliance programs in the environment of tightening export control laws, given the risk of substantial fines for failing to comply. Recent U.S. sanctions legislation, protecting organizations with robust compliance programs from punishment for

inadvertent violations of sanctions, is an additional incentive for adoption of such programs.⁴⁹⁶

Recommendation: To the extent feasible, the strong incentive structures in the United States encouraging effective internal compliance programs should be promoted in other industrialized states. Consideration should also be given to making such programs a mandatory condition for the receipt of export licenses in the United States and abroad. Government hot lines and on-line screening tools should be made available to assist smaller firms.

As private firms, especially those that are publicly traded, seek to demonstrate that they are good corporate citizens, a number of promising initiatives have emerged promoting the inclusion of export control/sanctions compliance as one measure of corporate responsibility. With declarations on sanctions compliance now being required by the Securities and Exchange Commission and by participants in corporate mergers and acquisitions, there are added incentives to include compliance within the corporate responsibility framework.

Recommendation: Industry associations, academic organizations, and non-governmental organizations should promote the inclusion of strategic export control/sanctions compliance as a component of corporate responsibility initiatives.

SYSTEM 5: FINANCIAL MEASURES

Significant developments in this area – including the enactment of the U.S. ITRA and IFCA, whose implementation was only beginning by late 2013, and the November 23, 2013, interim agreement between Iran and the P5 +1, freezing key elements of Iran’s nuclear program in return for limited sanctions relief – have created a rapidly changing environment for the application of financial pressure to combat nuclear commodity smuggling. The Obama Administration and other members of the P5+1 have used the careful calibration of sanctions measures to support the negotiations with Iran. It is beyond the scope of this study to make recommendations with respect to these talks, but the approach of careful adjustments of sanctions to support restraints on the Iranian nuclear program appears sound and worth continuing. If Iran ultimately agrees to significant limitations on its nuclear program, its continued acquisition of commodities for that program by illicit means would raise questions as to whether it was pursuing clandestine nuclear activities inconsistent with those limitations and was thereby violating the basis for lifting of sanctions.

Recommendation: The termination of illicit Iranian nuclear procurements should be included as a subject in the negotiations over Iran’s nuclear program, and any final

⁴⁹⁶ See note 252 on p. 101.

agreement should specify that future evidence of such illicit procurements would jeopardize the continued implementation of the accord and lead to the reintroduction of appropriate financial sanctions.

SYSTEM 6: ENFORCEMENT

The designation process that is the first tier of enforcement relies on classified information and takes place behind closed doors, and is therefore difficult to assess. As indicated in the recommendations for **System 1: Measures against Originating Parties**, existing authority for imposing sanctions is used selectively and might be exploited more fully. Given the secrecy surrounding the designation process, however, it is not possible to offer a judgment as to whether U.S. and foreign officials have struck the right balance in using, or forgoing the use of, these tools. It is clear, however, that this first tier of enforcement can be executed far more rapidly and penalize a greater number of individuals and entities than the more protracted and procedurally complex second tier of enforcement, which must, in many cases, rely on the formal judicial process. Nonetheless, the criminal investigatory process plays a critical role in exposing and shutting down procurement networks, whose contours may be only partially understood by the intelligence community. Separately, the accelerated designation process has, at least temporarily, run afoul of fair trial and due process principles in European courts.

Within the second tier of enforcement, convictions for nuclear-related export control violations appear to have little deterrent effect on determined malefactors, possibly because potential targets operate in the shadows and must be hunted down one by one. However, legitimate corporate entities caught up in such cases often respond by strengthening internal compliance programs, and the model can positively influence other organizations or have a deterrent effect, when penalties/settlements are significant and cases receive media attention. In the end, the strengthening of internal compliance programs may be as important an outcome of these various enforcement cases as penalizing the wrong-doers against whom such cases are brought.

Recommendation: Sustain the two-tiered enforcement approach, giving added attention to publicizing nuclear-related export control cases as a means of reinforcing corporate internal compliance programs.

Penalties in nuclear export control cases are often too lenient, given the criminal activity involved, particularly in Europe.

Recommendation: Promote longer prison terms and stiffer fines in cases of nuclear export control violations, both to punish offenders and to increase the visibility of cases to

deter others and encourage strong corporate internal compliance programs. In the United States, examine alternative or additional bases for indictments, such as bank fraud, that may carry higher penalties than those for violations of export controls.

Complex export control prosecutions involving multiple countries have run aground in the past because of difficulties in extraditing defendants and obtaining witnesses and evidence from foreign states.

Recommendation: As part of the effort to give added attention to the illicit procurement of dual-use goods, the NSG Guidelines should be revised to include a mutual legal assistance pledge under which all participating governments would commit to provide legal assistance to each other to support prosecutions and other punitive measures against nuclear commodity smugglers under the jurisdiction of the requesting party. In addition, NSG members should amend mutual extradition treaties, as needed, to facilitate bringing malefactors to justice.

Intelligence sharing, within and between national governments is central to the first tier of enforcement, the designation process, but inability to share such information with the targets of designations has led to a number of designations being challenged and voided in EU courts in cases now on appeal. One particular challenge in the EU system is the absence of court procedures for reviewing classified information in a closed setting (*in camera*). In addition, some EU designations rely on U.S. intelligence information, but the fact that foreign intelligence is used creates substantial obstacles to partial release of such data to defend EU designations in the court cases brought to challenge them. Furthermore, intelligence sharing with most international organizations, including the Security Council sanctions committees and the IAEA, appears to be very limited, compared to, e.g., the level of sharing that took place when the UN Security Council was eliminating Iraq's WMD in the wake of the 1991 Gulf War through the UN Special Commission (UNSCOM).⁴⁹⁷

Recommendation: The EU judicial system should develop procedures for reviewing classified information for use in court proceedings, with due consideration to making sufficient information available to claimants to meet due process standards. The United States should develop expedited procedures for releasing information to foreign governments' use in court proceedings, recognizing the need to protect intelligence sources and methods. In addition, U.S. and other intelligence services should examine whether the sharing of data with international organizations regarding nuclear

⁴⁹⁷ UNSCOM was singled out as a unique example of successful international intelligence sharing effort, facilitated by special operating procedures and unique security measures that facilitated such exchanges, which otherwise remain limited. Based on an interview with former U.S. official, July 2013, Washington, DC.

commodity smuggling can be increased, similar to the level of cooperation with UNSCOM.

SYSTEM 7: INTERNATIONAL OUTREACH AND CAPACITY BUILDING

With a growing number of capacity-building initiatives to strengthen strategic trade control programs, and more states engaging in these activities (both, as assistance providers and recipients), coordination and the avoidance of overlaps is increasingly challenging. The UN 1540 Committee and the G-8 Global Partnership are both playing a coordinating role, but no single overarching coordination mechanism is yet in place. Moreover, with the United States and number of other countries individually pursuing multiple specialized capacity-building initiatives, coordination is often lacking, even among the assistance programs of individual donor countries, according to recipients.

Recommendation: Assisting states should develop a clearinghouse mechanism for coordinating export control and related capacity-building programs that incorporates requests for assistance, prioritization of recipients, and the rational division of labor to improve the efficiency of these efforts. Efforts should also be made to work through a lead agency in each recipient state to improve coordination there and avoid competition and tension among the recipient state's domestic institutions.

Because many states with weak systems for controlling trafficking in nuclear commodities have other national priorities (particularly for economic development) that overshadow compliance with UNSCR 1540, measures are needed to gain their support for improving WMD-relevant commodity controls.

Recommendation: To gain the support for building export control capacity in states preoccupied with other issues of national urgency, donor states should develop new incentive-based strategies for promoting the export control mission, for example, gaining the endorsement of national political leaders; combining export control capacity building with broader foreign aid programs; merging strategic trade control capacity building with overlapping capacity building in border control or anti-smuggling programs; and presenting such controls as a tool for improving trade opportunities by enhancing the target's status as a responsible trading partner compliant with international standards.

In assisting states to develop effective strategic trade controls, it is important to avoid the impression that rules are being forced on the recipient country by outsiders. Donor country-proposed changes to local laws are often presented as generic templates that do not take into account the local legal framework and history.

Recommendation: Donor states need to consult the recipient states through the changes that will help the required controls fit within local legal frameworks, rather than present a one-size-fits-all template for export control measures.

SYSTEM 8: TRANSPORTATION AND INTERDICTIONS

Similar to the situation with respect to **System 5: Financial Measures**, a new U.S. sanctions law that took effect in 2013 (IFCA, in the case of transportation) and the November 23, 2013, interim agreement between the P5+1 and Iran are altering the environment for applying measures to constrain Iranian transportation options that support its clandestine nuclear procurement efforts. The 2013 IFCA requirements already discourage international shipping firms from calling at Iranian ports, and, separately, the mounting pressure on open-entry ship registry states is limiting Iran's ability to escape sanctions by reflagging and changing the ownership of its merchant fleet. The November 23, 2013, interim agreement offers some carefully structured relief from transportation sanctions, providing Iran access to spare parts for civil aviation and, additionally, the ability to ship crude oil at current levels of sales. If, after a final agreement limiting Iran's nuclear program, Iran was observed to be abusing the international commercial transportation system to carry illicitly procured nuclear goods, the activity would raise questions as to Iran's commitment to that accord. Given this background, recommendations for this system mirror those for **System 5: Financial Measures**.

Recommendation: During on-going talks between the P5+1 and Iran over the future of Iran's nuclear program, the United States and its partners should continue to calibrate relief from transportation sanctions to support the negotiations. In addition, the termination of illicit Iranian nuclear procurements (including abuse of the international transportation system) should be included as a subject in the talks and any final agreement should specify that future evidence of such illicit procurements (including abuse of the international transportation system) would jeopardize the continued implementation of the accord and lead to the reintroduction of appropriate financial sanctions.

A CONCLUDING COMMENT

As noted at the outset of this study, when thinking about improving a system of systems, incremental enhancements in individual systems can lead to significant improvement of the total enterprise. The recommendations suggested above are offered with this goal in mind.

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