

Reinforcing the Three Pillars: How Nuclear Security Efforts Underwrite the Strength of the Non-Proliferation Regime

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Introduction

Twenty years removed from the indefinite extension of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), and on the eve of the latest review conference, contentious issues abound impacting the strength and effectiveness of the NPT regime, including the lack of progress on a Middle East WMD-free zone and the Iran negotiations. At the heart of the matter, as has been the case in each review cycle whether it is ultimately deemed successful or a failure, are the fundamental weaknesses of the NPT itself. Unlike in the case of the Biological Weapons Convention and the Chemical Weapons Convention that comprise total bans on entire categories of weapons, the NPT codifies a stratified system in which certain States – those that had manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967¹ – retain their nuclear weapons (the nuclear weapon States, NWS) while others commit to foregoing such weapons (the non-nuclear weapon States, NNWS). Under the Treaty, the NNWS give up nuclear weapons ambitions, and submit to a system of verification (founded in the IAEA's safeguards system²) to ensure no diversion of peaceful-use nuclear material to nuclear weapons, in exchange for the recognized right to peaceful uses of nuclear energy and a commitment by NWS to negotiate toward nuclear disarmament.

Two of the primary persistent weaknesses are the lack of universality, leaving four nuclear weapons possessor States outside of the Treaty regime,³ and the fact that the NPT does not adequately address the threat of nuclear terrorism perpetrated by non-State actors. This latter deficit is mitigated, to a certain extent, by the nuclear security framework.⁴ What has been less examined, however, is the potential role of the nuclear security framework as a platform for regular engagement on nuclear issues with non-NPT States and how this would contribute to the effectiveness of the NPT regime. The potential contribution of focusing on nuclear security efforts – not only limited to the legal framework but also including, for instance, following up on commitments that have

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¹ NPT, Article IX(3).

² The safeguards system comprises the provisions of the IAEA Statute and safeguards agreements modeled on INFCIRC/153 (corrected), as well as the Model Additional Protocol (INFCIRC/540) which extends the power of the IAEA with respect, *inter alia*, to gathering information and having site access. The objective of the safeguards system is to detect and deter the diversion of significant quantities of nuclear material from peaceful nuclear activities to the production of nuclear weapons or of other nuclear explosive devices or for purposes unknown, see INFCIRC/153 (corrected), par 28.

³ North Korea withdrew from the NPT in 2003 pursuant to Article X of the Treaty.

⁴ See R. Johnson, "Rethinking the NPT's Role in Security: 2010 and Beyond," 1993 *International Affairs*, no. 2.

been made by States through the NSS process – is two-fold. First, it involves harnessing the body of rules and guidelines requiring and assisting States with developing domestic nuclear security systems and facilitating international cooperation to prevent criminal or unauthorized acts by non-State actors. The rules and guidelines include not only physical protection measures, but also criminalization of theft and smuggling, which are of clear relevance for non-proliferation. Second, States should make use of the institutional arrangements built around nuclear security commitments. The institutionalization issue is more complicated, but could comprise regular review conferences for the primary nuclear security-related treaty, the Convention on the Physical Protection of Nuclear Material (CPPNM), alongside political partnerships, such as the Global Initiative to Combat Nuclear Terrorism. The purpose of such institutionalization would be to engage on a continuous basis, also with non-NPT States, on the topics related to nuclear materials and facilities for both peaceful and military use with the aim of building confidence, increasing compliance pull with international norms and deepening cooperation.

It therefore bears further examining how the nuclear security framework that has been developed can contribute to the strength of the NPT regime going forward. First, this paper will look at the role played by nuclear security in the broader regime, or in other words how it fits in among the three pillars. Then, it will look at the background of the legal framework for nuclear security, considering the historical component of the exposition of the rules,⁵ and in so doing it will be made clear that there are shortcomings in the nuclear security path. After that, it will be possible to assess steps within the nuclear security framework that will help strengthen the broader NPT regime in light of the aforementioned weaknesses, primarily through additional institutionalization, facilitating regular engagement and leading to increased confidence in the security of nuclear materials.

Nuclear Security as a Common Thread

The consensus communiqué adopted at the 2010 Nuclear Security Summit declared nuclear security to be a shared objective alongside the goals of non-proliferation, nuclear disarmament and peaceful uses of nuclear energy, thereby placing nuclear security on the level of the three pillars of NPT. Instead of being a “fourth pillar” of the non-proliferation regime, however, the structure that has been developed for nuclear security – based on a separate body of rules, norms and organization – plays a fundamental role in supporting the elements of the non-proliferation regime.

That nuclear security has a cross-cutting function has long been recognized. The focus on preventing and detecting theft of nuclear material, detecting and responding to illicit trafficking, physically protecting nuclear material and developing nuclear forensics capabilities contributes to realizing non-proliferation objectives.⁶ State systems of accounting and control of nuclear material are of importance equally to non-proliferation and security goals. Similarly, cooperation to employ nuclear energy for peaceful purposes through transfer of nuclear materials and related technologies requires that those materials and technologies are secured. In other words, a strong nuclear security

⁵ L. Oppenheim, “The Science of International Law: Its Task and Method,” 1908 *The American Journal of International Law*, no. 2.

⁶ *Nuclear Security – Measures to Protect Against Nuclear Terrorism*, Report by the Director General, GOV/2006/46-GC(50)/13.

framework will be instrumental in preventing and detecting diversion of nuclear material, equipment and technology at both the State-level, thereby supporting the safeguards system, as well as to individuals and groups,⁷ while allowing for peaceful cooperation to harness the benefits of nuclear energy.

Nuclear security has increasingly been incorporated into the broader nuclear discussion alongside the three pillars of the NPT. The historic UN Security Council Summit that resulted in adoption of Resolution 1887, hailed as the Council's first comprehensive action on nuclear issues since the mid-1990s,⁸ included nuclear security-related actions in addition to discussing proliferation, disarmament and peaceful use. Resolution 1887 not only encourages universal adherence to the 2005 Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) and the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSANT), but it also calls on all States to share best practices in the interest of improving nuclear security practices, to raise standards of nuclear security in order to reduce the risk of nuclear terrorism, as well as to improve national capabilities to detect, deter, and disrupt illicit trafficking in nuclear materials.⁹ At the 2010 NPT review conference, the Conference of States Parties reiterated the importance of effective physical protection of all nuclear material and the need for stronger international cooperation on physical protection. In the list of recommendations for follow-on actions, the Conference listed several actions related to nuclear security in the context of both non-proliferation and peaceful uses of nuclear energy. Such actions included encouraging States to maintain the highest possible security standards for nuclear materials and facilities; to apply IAEA recommendations on physical protection, namely INFCIRC/225;¹⁰ to ratify the 2005 Amendment to the CPPNM and become party to ICSANT; to implement the Code of Conduct on the Safety and Security of Radioactive Sources; and to improve efforts aimed at combatting illicit trafficking. The role of the nuclear security framework in the non-proliferation regime traces back to the origins of the framework.

The Legal Framework for Nuclear Security: Limited Scope and the Fine-Line between Cooperation and Secrecy

Nuclear security, in the form of measures aimed at the physical protection¹¹ of nuclear material and nuclear facilities, began as an extension of the non-proliferation regime, but

⁷ 2015 NPT Review Conference working paper submitted by the Vienna Group of Ten, NPT/CONF.2015/PC.II/WP.9, 6 March 2013.

⁸ Press release, "Historic Summit of Security Council Pledges Support for Progress on Stalled Efforts to End Nuclear Weapons Proliferation," 24 September 2009.

⁹ S/RES/1887 (2009), paras. 21, 24 and 26.

¹⁰ Nuclear Security Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities, *Nuclear Security Series No. 13*.

¹¹ The objectives of physical protection as endorsed by both the IAEA Board of Governors and the General Conference are to:

- "establish and maintain conditions to:
 1. protect against unauthorized removal of nuclear material in use and storage, and during transport;
 2. ensure the implementation of rapid and comprehensive measures by the State to locate and recover missing or stolen nuclear material;
 3. protect against sabotage of nuclear facilities and sabotage of nuclear material in use and storage and during transport; and
 4. mitigate or minimize the radiological consequences of sabotage."

it has only gained in importance particularly in the wake of the terrorist attacks of September 11, 2001. The attacks did not involve nuclear or other radioactive material nor were they directed at nuclear facilities. However, the intent of the perpetrators to cause casualties and damage indiscriminately on such a massive scale raised the specter that such actors would seek to employ the most destructive weapon known to man to achieve their aims. This coupled with the knowledge that a number of terrorist organizations – Al Qaeda, Chechen separatists, Lashkar-e-Taiba and Aum Shinrikyo among them – have demonstrated interest in obtaining nuclear weapons, has led to increased international activity to address this threat. The framework that has been devised reflects the difficulty of reconciling the need for harmonized standards at the international level in order to prevent potentially devastating events with the fact that the national security sensitivities surrounding the relevant materials and facilities impact the extent to which States are willing to enter into legally binding agreements.¹² Regardless, there is sufficient room built in to the framework that would provide for another pathway to take steps aimed at strengthening the non-proliferation regime.

Pursuant to Article III of the NPT, non-nuclear-weapon States Parties are obligated to conclude an agreement with the IAEA under the Agency's safeguards system with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices.¹³ While the safeguards system was set up to focus on detecting and deterring diversion by States of nuclear material to non-peaceful purposes, it was recognized that physical protection of nuclear material and nuclear facilities from acts such as theft and sabotage was also highly important to both non-proliferation and radiation safety, though such measures were not obligated under the safeguards agreements and the Agency was given no responsibility with respect to a State's physical protection system. Acknowledging the need for some guidance to assist States in developing physical protection systems, a set of "Recommendations for the Physical Protection of Nuclear Material" was devised, a document which was subsequently revised in 1975 and published as an information circular, INFCIRC/225.¹⁴ INFCIRC/225 has for decades now been the internationally recognized basis for physical protection. Provisions related to physical protection began to be included, and therefore made legally binding, in a number of bilateral and trilateral agreements involving the application of Agency safeguards to material and/or equipment pursuant to Article III.A.5 of the IAEA Statute.¹⁵ This practice has continued, often directly referencing the most recent revision of INFCIRC/225 or more generally the "recommendations and

These objectives show that physical protection goes beyond the guards, gates and guns paradigm. IAEA Board of Governors, "Nuclear Verification and Security of Material: Physical Protection Objectives and Fundamental Principles," GOV/2001/41, Attachment p. 2.

¹² B. Kellman, "Protection of Nuclear Materials," in D. Shelton (ed.), *Commitment and Compliance: The Role of Non-binding Norms in the International Legal System* (2000), pp. 486-505.

¹³ NPT, Article III.1. The NPT entered into force in 1970 and is the flagship legal instrument of the nuclear non-proliferation regime.

¹⁴ Originally titled: *The Physical Protection of Nuclear Material*. The 1972 Recommendations were revised upon review by a group of experts in order to reflect progress in physical protection as well as challenges posed by increasing use of nuclear material for peaceful purposes.

¹⁵ Starting with INFCIRC/237, *The Text of the Safeguards Agreement of 26 February 1976 between the Agency, Brazil and the Federal Republic of Germany*. See further W. Morawiecki, "The IAEA's Role in Promoting Physical Protection of Nuclear Material and Facilities," 1978 *IAEA Bulletin*, vol. 20, no. 3, pp. 39-45.

guidelines” produced by the IAEA, in project and supply agreements and revised supplementary agreements for the provision of technical assistance by the IAEA. The original guidelines, along with subsequent revisions, have been of fundamental importance to the development of the international legal framework for nuclear security, prompting further consideration of ways to support international cooperation in addressing physical protection issues.¹⁶

At the first Review Conference of the NPT in 1975, the Conference of States Parties called upon all States to “enter into such international agreements and arrangements as may be necessary to ensure” the physical protection of nuclear material in use, storage and transit, “including principles relating to the responsibility of States, with a view to ensuring a uniform, minimum level of effective protection for such material” and “in the framework of their respective physical protection systems, to give the earliest possible effective application to the IAEA’s recommendations.”¹⁷ Further consultations indicated a growing recognition that there was a need for an international legally binding instrument on physical protection. It can be expected that a number of States envisaged entering into legal obligations as denoting stronger commitment, bringing with it increased expectations of compliance.

While States, and the European Atomic Energy Community, participating in the negotiations on what would become the CPPNM agreed on the necessity of adopting legally binding obligations with respect to physical protection, there was substantial disagreement as to the scope of the eventual treaty. While a number of States shared the opinion that the scope should be broad, covering military as well as peaceful nuclear material and extending to domestic use, storage and transport of nuclear material and even to the protection of nuclear facilities, other States expressed the viewpoint that the scope should be limited to peaceful nuclear material in international transport, invoking the claim that legal, security, and technical differences from State to State would cause serious difficulties.

The issue of comprehensiveness of the scope versus attaining the largest reach underlies the dilemma that often arises in multilateral treaty negotiations between developing far-reaching and detailed obligations and aiming for consensus to achieve, to the greatest possible extent, universality. With the NPT having codified a two-tiered system of NWS and NNWS, States also debated whether the scope should be confined to nuclear material for peaceful uses, or whether the required protections should be extended also to military-use materials. It was pointed out that the dangers stemming from non-State actor misuse of nuclear materials and facilities are the same whether those materials and facilities are used for military or peaceful activities, and in fact material prepared specially for military use would be most attractive to terrorist actors.¹⁸ Therefore, it was questioned why there should be a difference in treatment. It appears

¹⁶ See, for instance, the IAEA General Conference *Resolution adopted during the 183rd plenary meeting on 26 September 1975, PHYSICAL PROTECTION OF NUCLEAR MATERIAL, GC(XIX)/RES/328*. The Resolution mentions “problems of the physical protection of nuclear facilities and materials which are common to Member States, such as those relating to the international transfer of nuclear materials.”

¹⁷ Final Declaration of the Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, NPT/CONF/35/I, Annex I, p. 4.

¹⁸ IAEA 1979, Convention on the Physical Protection of Nuclear Material, Legal Series, no. 12. See the preliminary national statements of Germany, CPNM/6, and Argentina, CPNM/11. Even the Soviet Union advocated for a convention covering all nuclear materials, including military materials, see CPNM/18.

from the record of negotiations that inclusion of military-use materials in the operative text would have been a deal breaker for the U.S.¹⁹ In the end, the importance of securing nuclear materials used for military purposes was recognized with a paragraph in the Preamble, with the added assurance that this material already was and would continue to be afforded strict physical protection. Subsequent events have called this claim into question, most notably the 2012 break-in at the Y-12 National Security Complex in the U.S. that houses weapons-grade uranium. Though military material is not covered in the operative text of the CPPNM, the inclusion of this preambular paragraph does bring the issue of physical protection of military-use materials within the ambit of CPPNM review conferences, as will be discussed more below.

International transport was considered the most urgent issue and therefore became the focus of the convention, though physical protection during domestic use, storage and transport was undoubtedly important and, as a compromise, would be referenced in the Preamble.²⁰ Various States expressed their agreement with the limitation on the scope, some with the caveat that a review procedure would leave room for extending the Convention's aims.²¹

The CPPNM, which was opened for signature in 1980 and which entered into force in 1987, reflects a three-pronged approach to nuclear security – physical protection of materials (and related facilities), criminalization of certain offenses and international cooperation – that is characteristic of the relevant legal framework. The CPPNM requires States Parties to implement benchmark levels of physical protection measures with respect to nuclear material used for peaceful purposes while in international transport. In addition, the CPPNM obliges States Parties to make the commission, the threat or attempt to commit and participation in certain offenses punishable under national law including punishment that is commensurate with the grave nature of said offenses.²² The CPPNM, thirdly, contains provisions for international cooperation involving, *inter alia*, information exchange on national central authorities or points of contact with responsibility for physical protection of nuclear material and for coordinating recovery and response operations; cooperation and assistance on recovery and protection of nuclear material in the case of theft, robbery or other unlawful taking, or threat thereof, of such material; and cooperation and consultation as appropriate with respect to design, maintenance and improvement of systems of physical protection of nuclear material in international transport.²³ The CPPNM remains the only multilateral treaty dealing with the physical protection of nuclear material.

The end of the Cold War, and subsequent reports of unaccounted for radioactive material, increased concern that terrorists could obtain and seek to use radioactive materials. To address this, ICSANT was introduced under the auspices of the Ad Hoc

¹⁹ *Ibid.*, statement of the U.S. delegation regarding Article 2 (scope) of the draft convention, CPNM/77, stating that restricting the scope to peaceful uses was “critical” for its delegation.

²⁰ See *Memorandum to the meeting of 5-16 Feb. 1979*, CPNM/53.

²¹ See, for instance, the statements of the Netherlands (CPNM/55), Italy (CPNM/71 Corr.1) and Japan (CPNM/65).

²² CPPNM, Article 7. The offenses are not confined to activities involving nuclear material in international transport, but rather also extend to nuclear material used for peaceful purposes in domestic use, storage and transport.

²³ CPPNM, Article 5. Besides paragraph 3, this Article also pertains to nuclear material also used for peaceful purposes in domestic use, storage and transport.

Committee established to address the legal framework to deal with international terrorism by UN General Assembly Resolution 51/210. ICSANT generally follows the three-pronged approach, though the focus is clearly on criminalization. An early draft of the convention actually contained an obligation to take physical protection measures going beyond the CPPNM to include all nuclear and other radioactive material, including waste, and related installations. Subsequent proposals even added combating illicit trafficking to the scope of requisite measures under the same Article. However, the text of the convention that was finally adopted, while maintaining the reference to all radioactive material, not only used for peaceful purposes, contains language requiring States Parties to “make every effort to adopt appropriate measures” with respect to physical protection, a weak formulation leaving substantial State discretion with respect to the type of actions taken. ICSANT adds offenses involving activities with radioactive material other than nuclear material to the list of international crimes, as long as they are accompanied by the requisite intent to cause death or serious bodily injury or substantial damage to property or to the environment, and lays out rules for handling radioactive material that is seized or taken control of by States following commission of one of the offenses, referring to physical protection recommendations of the IAEA and including provisions related to cooperation among States and with the IAEA. In that sense, ICSANT is a vital addition to the international legal framework.

Around the same time that ICSANT was being discussed, a number of States began to express a concern that the CPPNM was incomplete and should be reviewed. While even States that had been hesitant to support the development of international legal obligations covering domestic use, storage and transit of nuclear material and nuclear facilities recognized the need to strengthen the legal framework to prevent malicious acts involving said material and facilities, there unfortunately remained significant aversion to certain farther-reaching confidence-building measures such as requiring regular reports by States Parties on the implementation of the Convention or including provisions for mandatory peer review of the level of physical protection applied in a State Party.²⁴ The resulting Amendment (CPPNM Amendment), which has not yet gained the ratification, acceptance or approval of two-thirds of the CPPNM States Parties necessary to enter into force, comprises a general broadening of the scope of the CPPNM to include the commitment to apply physical protection measures to nuclear material in domestic use, storage or transport and to nuclear facilities, thereby laying out fundamental principles of physical protection, increased international cooperation and the added criminal offense of sabotage of nuclear material or a nuclear facility. The scope of the Amendment is not extended to cover military materials, and this possibility does not appear to have been seriously considered by the Amendment conference.

As this overview of the main instruments comprising the international legal framework for nuclear security makes clear, gaps remain. Besides the scope, which is either focused on peaceful-use materials at the expense of the vast majority of material in military program or on criminalization rather than physical protection, measures aimed at addressing the issue accountability, such as reporting requirements and reviews of implementation, have not gained traction. This relates to the fact that nuclear security

²⁴ INTERNATIONAL ATOMIC ENERGY AGENCY, Summary Record of the First Meeting, Plenary, CPPNM/AC/Plen/SR.1., Amendment to the Convention on the Physical Protection of Nuclear Material, IAEA international law series, no. 2, 2006.

touches upon domestic law enforcement, national defence and intelligence activities and energy production, among other sensitive sectors, which means that it impacts fundamental aspects of national sovereignty. As such, secrecy prevails over openness even though each State has an interest in (being assured of) adequate nuclear security in every other State. Therefore, even as the nuclear security framework offers another path to strengthening the non-proliferation regime, certain obstacles will need to be overcome. It is outside the scope of this paper to get into a detailed discussion of those obstacles. Instead, this paper is focused on outlining the potential contributions of the nuclear security framework to the non-proliferation regime.

The NSS: Nuclear Security as Top Priority

In 2009, President Obama, calling nuclear terrorism “the most immediate and extreme threat to global security,” initiated the NSS process. The NSS originally aimed at securing all vulnerable nuclear material – military and peaceful use – within a period of four years. The scope has since expanded to consider other radioactive material besides nuclear material, as well as the interface between nuclear safety and nuclear security. The NSS process has brought together a significant number of States at the level of heads of State or government – NWS and NNWS, NPT parties and non-parties – and has aimed at addressing nuclear security in a comprehensive fashion (civilian and non-civilian nuclear material, fissile material and other radioactive material). This latter aspect, in particular, is where the NSS process has gone above and beyond the existing legal framework, not to mention the high-level political engagement. Participating States share in the commitment to strengthen nuclear security and reduce the threat of nuclear terrorism by means of, *inter alia*, “sustained and effective international cooperation.”

By its nature, the NSS process is of limited duration and limited participation, but it has achieved remarkable progress in concrete actions taken and commitments made in three main areas: reduction of the amount weapons-grade nuclear material (repatriation, down-blending), improvement of the security of nuclear and other radioactive material (e.g. through broader adherence to international instruments), and enhancement of international cooperation. Substantial progress was achieved during the most recent Summit, in March 2014 in The Hague, particularly with respect to a number of States going further than before in committing to implementation of fundamentals and guidelines developed under the auspices of the International Atomic Energy Agency (IAEA) in their domestic systems and to inviting peer reviews of their nuclear security efforts.²⁵ In addition, more States committed to giving up weapons-grade nuclear material – notable here was Japan’s decision to remove stocks of both highly-enriched uranium (HEU) and plutonium from the Fast Critical Assembly (FCA) at the Japan Atomic Energy Agency. Further pledges were also made with regard to the security of Category 1 radioactive sources, transport security and countering nuclear smuggling, among others. In this way, the Hague Summit both built upon steps taken at the previous gatherings and established new approaches to measures aimed at continuously improving nuclear security worldwide.

The fourth and, for the foreseeable future, final NSS will take place in the U.S. in 2016. There is an attempt now to identify a sustainable model that will carry forward

²⁵ Joint Statement on Strengthening Nuclear Security Implementation, introduced by the Netherlands, South Korea and the U.S. and signed-on to by two-thirds of the participating States.

nuclear security efforts following the conclusion of the Summit process. Transition to a more permanent, sustainable model of international nuclear security cooperation will be complicated by the differences among States in terms of interests and motivations. While nuclear security is sure to remain a top priority for the States that have participated in the NSS process, a number of them, for instance, single out the existence of nuclear weapons and insufficient progress in terms of nuclear disarmament as the main issues that need to be resolved in realizing an effective global nuclear security regime.²⁶ A couple of participating States in fact proposed that, going forward, any such discussion on nuclear security should expand in focus to include disarmament and non-proliferation.²⁷ From an institutional perspective, this would seem to imply that the issue of nuclear security should be absorbed into the NPT process. However, nuclear security as such is not part of the NPT, nor should that be the goal. As long as nuclear weapons possessor States remain outside of the NPT, it would not be beneficial to attempt to wholly absorb nuclear security efforts into the NPT process at the expense of nuclear security-specific pathways. Clearly it is wishful thinking that the non-NPT nuclear weapons possessors will give up their nuclear weapons to accede to the Treaty as NNWS; neither is it foreseeable that the Treaty will be amended in some way in order to let these States become parties without doing away with their arsenals. The best course of action, then, is to continue with regular interaction in the area of nuclear security to engage these States, along with the NWS and States with substantial peaceful nuclear programs, with the aim of increasing trust and transparency. This can be accomplished by establishing a mechanism, or mechanisms, that provides for monitoring compliance with existing commitments and taking additional steps to strengthen security and cooperation.

Institutionalization: Reporting and Review

The purpose of institutionalization in the area of nuclear security is to establish a continuing relationship within which each party becomes progressively more transparent, an important factor in building trust and strengthening compliance. This is because establishing continued interaction based on an established set of commitments will allow for additional steps to be taken with respect to information sharing and confidence-building, and perhaps even some sort of monitoring of compliance, i.e. sharing outcomes of peer reviews.²⁸ Confidence-building measures come in many forms. The only requirement is that of effect – the measures are meant to allay concerns of the recipient or audience, whether that is one State in the case of bilateral arrangements, a group of States or an international organization.

Information production/exchange is the category most often associated with the idea of confidence-building. Within this category are assurances. Assurance is a broad concept, one that is commonly used in international law, but it generally involves a State gathering and providing of information about itself and its activities to others (i.e. States

²⁶ See the NSS 2014 National Progress Reports of, for example, Indonesia, New Zealand and Japan.

²⁷ See the NSS 2014 National Statement of Switzerland. Chile made a similar statement.

²⁸ The term “peer reviews” generally refers to IAEA advisory missions, which include International Physical Protection Advisory Service (IPPAS) missions and International Nuclear Security Service (INSServ) missions. While IPPAS missions focus on a State’s physical protection system in light of guidelines contained in INFCIRC/225/Rev.5 and recognized best practices, INSServ missions serve more generally to examine a State’s nuclear security measures and to identify means for improving the broader range of nuclear security activities.

or international organizations) to demonstrate compliance with or adherence to agreements.²⁹ The related activities can range from certification of facts to the sharing of confidential information. The idea, of course, is for States to undertake assurances on a mutual basis, leading not only to the production of information but to information exchange. The next step would be assessment of the provided information by other States or an international organization (the IAEA). In essence, for nuclear security, this is what happens in the course of the advisory service missions undertaken under the auspices of the IAEA. Reflecting its role in removing uncertainties and alleviating mistrust, information production/exchange is also used in the context of dispute settlement, for example through clarification of contested information. It should be pointed out that to be of value for building confidence, the information that is produced and exchanged must be acceptable to the recipient or audience, meaning that it is sufficiently credible and probative.³⁰

The legal requirement laid down in Article 14(1) of the CPPNM that States shall inform the IAEA, as depositary, of its law and regulations which give effect to the Convention. The IAEA is then mandated to communicate this information periodically to States. To this point very few States Parties have provided this requisite information, but it is an existing obligation and thus necessitates no additional agreement to bind States that are party to the CPPNM. The obligation in Article 14(1) itself is quite vague in that it contains no guidance as to the form of the information provided or a process for the communication of the provided information periodically by the depositary. This means that States Parties may present as much or as little detail as they deem appropriate, provided that the duty to inform as stated in the provision is fulfilled. In principle, the way in which the provision is formulated means that sharing information regarding national implementation measures is not necessarily meant to be a one-time action, as the obligation is to inform on the laws and regulations giving effect to the CPPNM which are foreseeably to be updated in light of changing circumstances, such as becoming party to the CPPNM Amendment. Such a systematic flow of information is accounted for in the phrasing that the depositary is to communicate the information *periodically*. The result of having a mechanism for information sharing in place, even if the information shared is very basic, is enhanced transparency among States Parties and with the IAEA, which serves the function of both building confidence and pressuring Parties into compliance.³¹ It can also enable a certain level of coordination among States Parties without compromising confidentiality as decisions on how much information to share remains in the hands of the State itself.

Most important for building confidence and increasing compliance pull is sustained interaction among the relevant actors. Sustained interaction serves a number of functions. It can facilitate and institutionalize information exchange. It can lead to the necessary evolution of the regime in light of changing circumstances. It can function as a catalyst for additional measures and arrangements, such as bilateral or regional

²⁹ On assurances, see K. Abbott, “‘Trust but Verify’: The Production of Information in Arms Control Treaties and Other International Agreements,” 26 *Cornell International Law Journal* 1, 1993.

³⁰ Abbott, “Trust but Verify,” at 28-29.

³¹ T. Marauhn, “Dispute resolution, compliance control and enforcement of international arms control law,” in Ulfstein et al. (eds.), *Making Treaties Work: Human Rights, Environment and Arms Control* (2007), pp. 243-272.

cooperation or transgovernmental partnerships, which often lead to progress beyond baseline international norms and guidelines. The relevant legal instruments contain specific provisions for sustained interaction, namely through treaty review (CPPNM) or consultation (ICSANT).

Article 16 of the CPPNM contains a review conference mechanism to consider implementation of the Convention, as well as its adequacy “as concerns the preamble, the whole of the operative part and the annexes in light of the then prevailing situation.” Using the phrase “the then prevailing situation” would seem to indicate an implicit acknowledgement that changing circumstances could impact the adequacy of the Convention as a whole and ostensibly necessitate amendment. The prevailing situation could entail technological or scientific developments, or even reflect changing dynamics among States. One would expect that the need to test the adequacy of the Convention against the current (at that time) circumstances would indicate a concern that the Convention might no longer be suitable to fulfill its object and purpose. Perhaps presupposing inadequacy of the elements of the Convention at the time of review³² and harking back to the disagreements regarding the scope of the Convention, a proposal had been made to combine the review and amendment processes into an overall evaluation conference. It was eventually determined that the processes should be kept separate, however, to allow for amendment proposals and subsequent meetings at any time. At the 1992 Review Conference, the only one required by the treaty, the conference of States Parties to the CPPNM found the Convention to be adequate.³³ In particular, the conference of States Parties expressed agreement that the Convention provided an appropriate framework for cooperation with regard to protection, recovery and return of stolen nuclear material and for international cooperation in the application of criminal sanctions against persons who may commit illegal acts involving nuclear material.

Though only one review conference is required under the Convention,³⁴ and one when the 2005 Amendment enters into force, Article 16(2), in a provision nearly identical to that of Article VIII(3) of the NPT, allows for a majority of CPPNM States Parties to obtain the convening of further Review Conferences, at intervals of at least five years, by submitting a proposal to this effect to the IAEA. This provision has not yet been invoked, but could form the institutional basis for continuing discussion of nuclear security, and States Parties should be encouraged to initiate a regular review conference process. Results of regular review conferences could include anything from encouraging periodic submission of the Article 14(1) reports to voluntary measures to share additional information and boost confidence in implementation of the treaty to adopting common understandings or making efforts at clarification of certain provisions to agreeing to additional commitments. Review conferences could also contribute to a discussion of security of military materials. As discussed above, during the treaty negotiations, many States advocated for including military materials in the scope of the convention. This did not make it into the operative text, but as a compromise it was put in the Preamble with a

³² Toward the end of negotiation in 1979, in reference to a proposed text in CPNM/77, the German delegation noted that possible that changes could foreseeably be made in the transport of nuclear material in the near future that would necessitate the Annexes, and maybe other clauses, being brought up to date.

³³ See FINAL STATEMENT OF THE REVIEW CONFERENCE OF PARTIES TO THE CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL.

³⁴ Once the 2005 Amendment enters into force, another review conference is mandated.

view to perhaps widening the scope to include military materials down the line. This explains the specific formulation or the review conference provision, which explicitly includes a consideration of implementation and adequacy of the convention as concerns the Preamble. This is different from review conference provisions referring to the general purposes of the preamble (i.e. NPT and the Biological Weapons Convention). In this way, then, the review conference process can also consider the topic of military material security.

In any case, nuclear weapons possessing States Parties should be encouraged to at least address the security of military materials in some way under treaty mechanisms, including this in an Article 14(1) report for instance. One can look to the NSS process for a precedent when it comes to sharing this type of information. The U.S. pointedly stated in its National Progress Report for the 2014 NSS that it takes INFCIRC/225/Rev. 5 into account in military security provisions. Russia also referred in its report to all nuclear material, storage sites and associated facilities being secured “at least” to the level prescribed in INFCIRC/225/Rev.5.

The goal of these institutional steps will be ensure and provide assurances of adherence to rules and norms related to physical protection of materials, criminalization of offenses such as theft and illicit trafficking, and international cooperation with respect to, for instance, designing domestic physical protection systems or locating and recovering missing or stolen material. With broader adherence to these rules and norms, opposing approaches will become less justifiable. The result will be increased harmonization, which will help lay the groundwork for additional cooperation and action to strengthen the broader non-proliferation regime.

A Comprehensive and/or Universal Approach?

The foregoing represents an incremental approach to resolving some of the persistent weaknesses of the non-proliferation regime. However, vulnerabilities to non-compliance and weak enforcement remain issues for the nuclear security framework.³⁵ The slowness of progress on disarmament will continue to be a source of frustration for NNWS. The steps described in this paper are meant to enhance the effectiveness of framework by getting States to act in accordance with and demonstrate adherence to existing applicable rules and norms. Another aspect of effectiveness is whether the regime is adequate to achieve the objectives for which it was established. One alternative to the gradational approach that has been proposed would be setting a goal to develop a treaty prohibiting use, development, production, acquisition, stockpiling and transfer of nuclear weapons and military nuclear technologies and components.³⁶ Security of remaining materials would still need to be arranged, though with such a treaty in place, all nuclear materials and facilities would be used for peaceful purposes placing them under the coverage of the CPPNM (as amended). Similarly, some have called for comprehensive nuclear security agreement as a post-NSS goal that would supersede the current piecemeal approach.³⁷

³⁵ C. Joyner and A.I. Parkhouse, “Nuclear Terrorism in a Globalizing World: Assessing the Threat and the Emerging Management Regime,” 2009 *Stanford Journal of International Law*, no. 2, p. 233.

³⁶ *Supra* note 4, pp. 442-443.

³⁷ See the NGO-developed International Convention on Nuclear Security, available at <http://partnershipforglobalsecurity.org/2015/03/24/international-convention-on-nuclear-security-icns/>.

Treaties are, of course, dependent on consent of States to be bound, which has led others to propose a greater role for the Security Council in order to fix deficiencies.³⁸ It has been said that the Security Council has entered its legislative phase.³⁹ In 2004, the Security Council unanimously adopted Resolution 1540 which labels, inter alia, the proliferation of nuclear weapons and their means of delivery, as well as illicit trafficking in nuclear weapons, their means of delivery and related materials, as a threat to international peace and security. Adopted under Chapter VII of the UN Charter, Resolution 1540 is binding on all Member States of the UN. It requires States, among other actions, to develop and maintain appropriate and effective measures, though without further defining what “appropriate effective measures” would be, to account for and secure relevant items in production, use and storage as well as appropriate and effective physical protection measures, border controls and export controls. By deeming in general the proliferation of nuclear weapons as a threat to the peace, the Security Council has given itself room to trigger a wide range of measures in order to maintain international peace and security.

The measures taken by the Security Council since the turn of the century indicate that it is willing to make full use of this broad scope when it comes to non-proliferation. The implication is that non-proliferation may be shifting from multilateral law-making to executive decision-/law-making. Such a method could provide the answer for dealing with the outlier issue. While the NPT is near universal and is credited with preventing a cascade of nuclear weapons proliferation, the States remaining outside the framework and possessing nuclear weapons undermine the overall effectiveness. Without deciding that all States must become party to the NPT, the Security Council could mandate that all States enact the appropriate measures that form the non-proliferation regime. In other words, taking legislative measures could allow the Security Council to fill in where there are shortcomings in the legal framework. Resolution 1540 also aims to address the threat of non-State actors, thereby seeking to advance nuclear security goals as well as non-proliferation goals.

The treaty-creation process is cumbersome and does not allow for quick reaction in the case of evolving nuclear proliferation threats. The Security Council is empowered to get results when a traditional law-making process would take too long or end up with lacunae due to extraneous deliberation and consensus-building among hundreds of States. This is certainly not to say that Security Council action should replace treaty creation. Through participation in treaty negotiation, rules and norms gain legitimacy and become more acceptable to States, leading to greater commitment and compliance pull. Therefore, resort to legislation by the Security Council should in principle aim to fulfill the three criteria that were raised in the context of debates regarding Resolution 1540: 1) the subject is of essential, common international interest, 2) urgent action is needed and

³⁸ See, for instance, J. Garvey, “A New Architecture for the Non-Proliferation of Nuclear Weapons,” 2007 *Journal of Conflict and Security Law*, no. 3. The International Court of Justice, in its famous judgement on *Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States of America)*, stated: “[I]n international law there are no rules, other than such rules as may be accepted by the State concerned, by treaty or otherwise, whereby the level of armaments of a sovereign State can be limited.”

³⁹ See S. Talmon, “The Security Council as World Legislature,” 2005 *American Journal of International Law*, no. 1, p. 175.

3) the decision-making process and Security Council composition is fair and representative.⁴⁰

While the implications of foregoing the traditional modus operandi of treaty-creation should not be taken lightly, the general legislative approach could be considered in cases where it would be, to borrow a phrase, appropriate and effective. On issues that touch on peace and security and require preventive measures because of risks associated with waiting to take action, the international community would clearly benefit from acting through the UN collective security system. This option should thus form an integral part of policy discussions on the topic of non-proliferation and security. It must, however, be used sparingly, as frequent supranational legislation might breed resentment among States as a breach of sovereign equality and increase the chance of defection, which would fundamentally undermine the functioning of the collective security system.

Conclusion

The international (legal) framework for nuclear security is comprised of a distinct set of rules and norms aimed at preventing, detecting and responding to criminal or other unauthorized activities involving nuclear and other radioactive materials and related facilities. Though separate, the framework is related to, and was in fact originally and outgrowth of, the non-proliferation regime. In the preparations for the 2015 NPT Review Conference, several States and groups of States have reaffirmed the integral role played by nuclear security efforts in supporting the effectiveness of the non-proliferation regime and have called on the Conference of States Parties to take the related steps called for in the 2010 recommendations for action. Robust nuclear security is necessary from the moment a peaceful nuclear energy program is developed. Strong nuclear security measures are essential when it comes to transfers of nuclear materials, sensitive technology and equipment – there must be provisions in place for security during transport and a national nuclear security regime in the recipient state.⁴¹ Prevention and detection of the diversion of nuclear material, related technology and equipment to non-peaceful purposes, which is the ambit of Article III of the NPT, is needed both at the State level as well as with respect to non-State actors. Nuclear security that comprises measures aimed at combatting theft and illicit trafficking of nuclear material is clearly of relevance here. Therefore, the body of rules and norms complement and supplement the non-proliferation regime, and ensuring and building confidence in adherence to these rules and norms of nuclear security would consequently strengthen the regime.

Related to the rules and norms is the institutional dimension. The nuclear security framework provides the platform – currently still in the context of the NSS process, but potentially by means of treaty-based mechanisms such as CPPNM review conferences following the conclusion of the NSS process – for regular engagement on non-proliferation-related matters with non-NPT States. India, Israel and Pakistan are all participating in the NSS process, and thus committing to certain actions to strengthen nuclear security, and all are States Parties to the CPPNM. Sustaining interaction will not

⁴⁰ M. Asada, “Security Council Resolution 1540 to Combat WMD Terrorism: Effectiveness and Legitimacy in International Legislation,” 2008 *Journal of Conflict & Security Law*, no. 3, p. 312. Asada goes on to point out that “no treaties can obligate states to establish such a national export control system so extensively, so quickly and so effectively,” p. 325.

⁴¹ This latter element is required under Article 4 of the CPPNM.

only build confidence among States, but it will also reinforce norms, as States hold each other accountable, as well as allow for deepening cooperation. States should be encouraged to continue improving nuclear security on a national, regional and international basis through compliance with existing commitments and making additional commitments where necessary. An example is the initiative on strengthening nuclear security implementation that was announced at the 2014 NSS. The initiative represents a major breakthrough in getting states to make concrete commitments to reflect the fundamental principles and recommendations of the IAEA's guidance documents in their national nuclear security regimes though, inter alia, the implementation and enhancement of national regulations. These legislative and regulatory actions are coupled with the commitment to host peer reviews periodically and to act on the recommendations that come out of the reviews in order to continuously improve the effectiveness of national nuclear security regimes. This initiative has now been opened up to the collective membership of the IAEA, having been published as an information circular requesting States to indicate their commitment to the instrument.

Through broad adherence to the relevant rules and norms and use of existing institutional mechanisms for regularized interaction, the nuclear security framework can make a substantial contribution to the strength of the non-proliferation regime. Due to the separate legal structures, the two tracks will exist in parallel, but the nuclear security efforts should be approached in such a way as to help achieve non-proliferation objectives. This is not a cure-all for NPT weaknesses, and the nuclear security framework is not without its shortcomings, but such steps, even if only incremental progress is made, can serve to reinforce the foundations of the three pillars.