Preventing Nuclear Terrorism: Next Steps in Building a Better Nuclear Security Regime

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Lack of knowledge is not an impediment to nuclear terrorism. Lack of nuclear material is.

Information on how to manipulate nuclear material to produce an explosive device—an improvised nuclear device, which would produce a nuclear explosion and a mushroom cloud, or a radiation-dispersal device, which would spread dangerous radioactive material over a substantial area—is now available widely enough that the only way to prevent nuclear terrorism is to keep terrorists from acquiring nuclear material or getting access to nuclear facilities.

An effective international convention on nuclear security is needed to address gaps in global nuclear security arrangements and build a credible global nuclear security regime. The 2016 entry into force of the 2005 amendment to the 1979 Convention on the Physical Protection of Nuclear Material fills a gap in the convention, but the amended convention is far from being the nuclear security convention with common binding standards and a strong review mechanism that is needed. Nonetheless, it can be a useful step toward more effective and comprehensive governance in this field, if states-parties and the International Atomic Energy Agency (IAEA) make better use of it than they did the 1979 convention.

The purpose of the original convention was to enhance global nuclear security practices to support the peaceful uses of nuclear energy and prevent illicit acquisition and use of nuclear and other radioactive material, but its principal focus was on the security of nuclear material while being transported internationally, although it also addressed domestic transit and storage. It also established measures related to the prevention, detection, and punishment of offenses relating to nuclear material.

The original convention did not address the security of nuclear facilities. The amended convention rectifies that by making it legally binding for states-parties to protect nuclear facilities and material in peaceful domestic use, storage, and transport. It also provides for expanded cooperation between and among states regarding timely measures to locate and recover stolen or smuggled nuclear material, mitigate any radiological consequences of sabotage, and prevent and combat related offenses.

Global nuclear security arrangements, despite the entry into force of the newly amended convention, remain a patchwork of largely voluntary measures and recommendations that are inadequate given the catastrophic consequences of a successful act of nuclear terrorism. The essential elements of an effective and sustainable global nuclear security regime to prevent nuclear terrorism are still missing. Current international nuclear security arrangements, for example, have no obligatory international process to assess how states are meeting their responsibility to secure these dangerous materials. Perhaps most importantly, there is no mechanism to provide a sustained review and promotion of necessary improvements in the nuclear security regime as a whole. Many assume the IAEA performs these functions, but its role is limited by the lack of a legal mandate to offer more than advice.
The amended convention creates an opportunity to develop a sustainable forum for the international community to address some of the existing gaps in global nuclear security arrangements in order to prevent acts of nuclear terrorism. The four nuclear security summits held between 2010 and 2016 provided high-level attention to nuclear security issues that led to a variety of political commitments and voluntary unilateral actions to improve nuclear security practices in states and regions. With this summit process having run its course, however, the time is right for states-parties to the amended convention to develop its heretofore essentially unused review process as a mechanism to regularly and methodically identify, assess, and address gaps in global nuclear security arrangements that could be exploited by terrorist groups and others desiring to use nuclear materials for illicit purposes.

Nuclear terrorism remains a continuing threat to global security, stability and prosperity. Heads of state and government at the nuclear security summits stressed the reality of the threat, and past and present IAEA directors-general and national experts have made the same point at meetings and conferences sponsored by the IAEA. Various terrorist groups have signaled an ambition to create mass casualties and disrupt the global order and economy, and the IAEA has documented some 2,500 cases involving the theft, loss of control, unauthorized possession, or illicit trafficking of nuclear and other radioactive material. For example, al Qaeda, which is rebuilding, has shown such interest and repeatedly demonstrated its ruthlessness in pursuit of its goals. Similarly, attacks in Europe and elsewhere sponsored and inspired by the Islamic State group over the last 18 months demonstrate that organization’s reach, capability, and determination to create as much damage and chaos as possible, even as it loses territory in Syria and Iraq.

Securing Nuclear Material

Even as nuclear terrorism remains a credible and urgent threat, the challenge of securing global supplies of nuclear material and nuclear facilities is growing. This stems from the projected growth globally of nuclear power plants in response to increasing needs for energy and the desire of a number of states to generate that energy without producing the pollution and carbon emissions associated with fossil fuel plants. The growth in nuclear power is expected to be greatest among states that do not have a long or, in some cases, any history of nuclear power or limited or no experience in securing nuclear materials.
Additionally, some nuclear power newcomer states are located in regions with political and security challenges, which will complicate efforts to sustainably secure their nuclear material. The growth of nuclear power and the increased amounts of associated nuclear material are already promoting the development of innovative nuclear technologies and practices that may have an impact on how nuclear material and nuclear facilities that contain it have to be secured and checked. The emerging evolution in nuclear users, technologies, and practices must be factored into the development of a global nuclear security regime in a timely way, not after delays of years or decades or after the wake-up call of a serious nuclear security incident.

The increasing amounts of nuclear material outside the IAEA safeguards regime is a further source of concern. Some states with such nuclear materials have demonstrated a commitment to good nuclear security practices, but others have not. North Korea, for example, has a track record of irresponsible behavior, including engaging in illicit activities to supplement the regime’s financial resources. The behavior of such states puts a premium on the need for all other states to collaborate in sharing information about illicit nuclear activity and preventing the illicit transshipment of nuclear material that could be used by terrorist groups.

**Activating a Dormant Mechanism**

Although states-parties to the original convention may have been committed and active in meeting their national obligations, the treaty’s review mechanism, which was established to allow states-parties to discuss and assess treaty implementation issues, has been essentially dormant. The first and only such meeting to review the treaty was held in 1992. There were subsequent meetings of experts to discuss the need for amending the treaty and then negotiating the amendment that entered into force in 2016, but there have been no other meetings of states-parties to review the treaty’s implementation.

This lack of implementation review stands in sharp contrast to the way other important treaties dealing with threats stemming from complex technical issues, such as nuclear safety, nuclear nonproliferation, and the protection of the ozone layer, have reviewed treaty implementation and the changing treaty environment. The Convention on Nuclear Safety has held seven formal review conferences of contracting parties since the treaty entered into force in 1996. The parties to the nuclear Nonproliferation Treaty (NPT) decided in 1995 to increase the number of meetings devoted to reviewing the treaty’s implementation, so there are now preparatory meetings in the three years leading up to review conferences, which are held every five years. The Montreal Protocol on Substances That Deplete the Ozone Layer has held 22 meetings of states-parties and been updated six times since it entered into force in 1989.
A successful nuclear terrorism attack would have the potential to destabilize not just a city but also a nation and possibly the global economy, with incalculable human and financial costs. As a result, the international community needs to do all it can to prevent such an event because no response could undo the damage done. Existing international anti-terrorism conventions, including on nuclear terrorism, mainly focus on what to do after an attack. Yet, preventing a dynamic threat involving sophisticated technologies and determined terrorist groups requires an equally dynamic process, not a static or reactive approach and certainly not a moribund one. Global nuclear security arrangements, therefore, need to be subject to regular review and improvement to ensure they are attuned to evolving threats, technologies, and industrial practices. IAEA meetings and conferences on nuclear security and nuclear terrorism, as well as the nuclear security summit process, have begun to bring a dynamism that had been lacking in global nuclear security arrangements, but it is imperative that states-parties use the amended convention to sustain and further develop these nascent efforts.

**Energizing the Amended Convention**

Some states expressed concern that the nuclear security summit process would undercut efforts to bring the amended convention into force and that the summits or some outgrowth of them would supplant the IAEA’s role on nuclear security. Neither concern was realized. Instead, the summit process facilitated the amended convention ratification process, which allowed it to enter into force in 2016, and positioned the IAEA to play a stronger role on nuclear security.

Article 16 of the amended convention calls on the IAEA to convene a review conference five years after the entry into force, which will be 2021. The objective is to review the implementation of the convention and its adequacy in the light of the prevailing situation.

The IAEA and states that place a priority on preventing nuclear terrorism need to take steps now to ensure that the review process of the amended convention is more robust and substantive than the essentially non-existent review process of the original convention.
This could be done in several ways. One approach would be to hold a review conference before 2021. Article 16 obliges the IAEA to convene the first review conference after five years, but it does not prevent it from doing so earlier. If the agency and a majority of the states-parties to the amended convention saw a need for and supported it, there is no decisive legal argument against holding a review conference sooner. Such an initiative could be started by the IAEA in its capacity as the convention depositary or by a group of states, such as those that signed the Joint Statement for Strengthening Nuclear Security Implementation, adopted at the 2014 Hague nuclear security summit and subsequently converted into IAEA document INFCIRC/869.

IAEA consultations with and among Vienna-based IAEA delegations would be a practical way to facilitate a process of building support for an earlier review conference, which could be held in 2019 or 2020. Undoubtedly, there would be resistance to this idea from at least some states-parties, citing, for example, the need for more time to implement the amended convention and the challenge of finding sufficient resources for it, nationally and in the IAEA. As a result, holding a review conference before 2021 would require active championing by the IAEA and leading states-parties.

Another approach that might draw broader and more immediate support would involve developing a preparatory meetings process, similar to the NPT approach. If the current Article 16 interval remains at least five years, it is vital that states-parties meet regularly between the review conferences to prepare the conferences and, equally importantly, to have opportunities for discussion of current issues affecting the convention and its implementation. More generally, the establishment of a forum that meets regularly and fairly frequently is essential to support momentum in improving nuclear security.

Preparatory meetings will be especially important to lay the groundwork for the first review conference, if it is not held until 2021. There are a variety of questions, procedural and substantive, to be addressed to ensure that the first review conference of the amended convention produces a sustainable process to steadily assess and improve global nuclear security. Ideally, there would be two preparatory meetings, one in 2019 and one late in 2020 or early in 2021.

The convention has no provision on intersessional or preparatory meetings ahead of the review conferences, but this does not preclude such meetings under international law. Yet, care would have to be taken in developing political support to initiate a process of preparatory meetings. The IAEA director-general could ask a representative group of states-parties to consult with him on what preparations would be needed for the first review conference to ensure its success. This informal consultation process could lead to a more formal set of preparatory meetings leading up to the first review conference. Alternatively, a group of states-parties, for example those that have signed on to IAEA INFCIRC/869, could urge the IAEA director-general to formally convene a meeting or a series of meetings to prepare for the first review conference of the amended convention.

Regardless of how it is done, establishing a preparatory process for review conferences held no more often than every five years will be essential for the review conferences to be effective in strengthening nuclear security and preventing nuclear terrorism.

**Getting the Substance Right**

Preparatory meetings and review conferences are only as good as their objectives and agendas. Article 16 provides a traditional and minimalistic description of the objective of the review conference, that is, it shall review the implementation of the entirety of the convention and its adequacy in light of the prevailing situation. It provides no guidance on how to fulfill the task, including no reference to the possibility of going beyond an article-by-article implementation review.

An effective feature of review processes in many treaties is the mechanism of reporting on national implementation measures. These reports are normally sent to the relevant organization or depositary, in this case the IAEA, for subsequent distribution to the states-parties. Consistent with this common practice, Article 14 requires states-parties to inform the depositary of how they are implementing their obligations and requires the depositary to communicate such information to all states-parties from time to time. To increase the value of this reporting, the review conferences, as
well as the preparatory process leading up to them, should be used as fora for review and discussion of the reports. This would also encourage more states-parties to take an active part in the reporting system. For example, the IAEA reported that 79 of 80 states-parties to the Convention on Nuclear Safety submitted national reports at the convention’s seventh and most recent review meeting.\(^{11}\)

The reporting system could become even stronger and more useful if it were supplemented by self-assessment and peer review mechanisms, the results of which would be included in the reports, while respecting the need to protect any sensitive information from disclosure.

Although treaty review conferences generally focus on a review of the implementation matters, some, such as the Montreal Protocol on Substances That Deplete the Ozone Layer, are more dynamic. The protocol review conferences examine and make decisions to respond to the impact on treaty obligations of new scientific information. The IAEA and states-parties should be similarly dynamic in establishing a broader mandate and a more dynamic role for the amended convention’s review conferences and preparatory process, for example by conducting assessments of the international nuclear security regime in general with a view to improve and develop it or by examining how changes in nuclear power technologies and industrial practices affect states-parties’ convention obligations. This could lead to identification of gaps and proposals for how to address them.

Article 16 does not specifically deal with this question, but it does mention that a review of “the adequacy” of the convention is part of the objectives of the review conference, and likewise, the article concludes that the review is performed “in the light of the then prevailing situation.” There is, therefore, scope for an interpretation of Article 16 that leaves the door open for the amended convention’s review conferences to have a dynamic character, including assessing the accord’s effectiveness in meeting its goals, identifying gaps in the global nuclear security regime, and considering how to address them. Additionally, such an approach to the review conference’s agenda would generally be in line with the spirit of IAEA INFCIRC/869. States-parties that have signed on to INFCIRC/869 should take the lead in promoting this approach in order to strengthen and supplement the effectiveness of commitments already made.

In any event, a good case can be made that the convention’s lack of specificity on the review process means the states-parties are free to shape the agenda of the review conferences according to their wishes and needs in light of prevailing circumstances.

**Involving All Relevant Parties**

Because the IAEA convenes the review conferences, it is also authorized to make proposals concerning the preparation of a conference, including details about the number and duration of preparatory meetings, as well as the question of who may participate in them (e.g., whether states parties to the original convention and the amended one or only the latter should be allowed to participate). In that connection, it will also have to be considered and decided to what extent and in which capacity civil society and the nuclear industry can participate in the review conferences.
One of the experiences from the nuclear security summit process was that the parallel industry and knowledge (civil society experts) summits offered valuable contributions to the official meetings and the overall goal of improving nuclear security. There were similarly positive experiences with the participation of nongovernmental representatives at the IAEA nuclear security conferences in 2013 and 2016. Industry and civil society have important roles to play in supporting and promoting effective nuclear security practices, so it would be appropriate to adopt rules that facilitate their participation in the convention’s review conferences.

**Sustained Attention and Action**

The Convention on the Physical Protection of Nuclear Material was negotiated in 1979 and entered into force in 1987. The amendment to the convention was negotiated in 2005 and entered into force in 2016. There have been a variety of developments related to the security of nuclear materials since 1979. Other international agreements related to nuclear security and terrorism, such as the International Convention for the Suppression of Acts of Nuclear Terrorism and UN Security Council Resolutions 1373, 1540, and 1887, have been adopted; and a variety of like-minded state initiatives, such as the Global Initiative to Combat Nuclear Terrorism and the nuclear security summit process, emerged to promote political commitments and voluntary action. Yet from 1987 to the present, there has been only one implementation review conference for the states-parties of the one international agreement related to securing nuclear materials from those who would seek to illicitly acquire, traffic in, or use it.

With the amended convention now in force, it is time for the states-parties and the IAEA to pick up where the nuclear security summit process left off and move the global nuclear security agenda forward. The review mechanism of the treaty provides an opportunity and scope for continuing efforts to do so. Given the disappointing record of the original convention’s review mechanism, states-parties and the IAEA will need to provide strong and coordinated leadership and pursue an ambitious interpretation of the amended convention’s review process to identify and address gaps in nuclear security arrangements and, in so doing, contribute to preventing a catastrophic act of nuclear terrorism.
Endnotes


4. In two statements in June 2017, IAEA Director-General Yukiya Amano noted the rapid growth in the number of new nuclear power plants, with the expansion mostly taking place in Asia but with developing countries, including in Africa, also embarking on nuclear power programs, https://www.iaea.org/newscenter/statements/opening-remarks-at-international-conference-on-topical-issues-in-nuclear-installation-safety-safety-demonstration-of-advanced-water-cooled-nuclear-power-plants.


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