BRIEFING AT THE OPEN DEBATE OF THE UNITED NATIONS SECURITY COUNCIL

Protection of Critical Infrastructure against Terrorist Attacks

Nuclear Terrorism: Renewed Thinking for a Changing Landscape

OLLI HEINONEN

Senior Advisor on Science and Nonproliferation
Foundation for Defense of Democracies

New York, NY
February 13, 2017

FDD
FOUNDATION FOR DEFENSE OF DEMOCRACIES

www.defenddemocracy.org

Mr. President, Your Excellencies, Ladies and Gentlemen,

I appreciate this opportunity to share with you some of my personal reflections on nuclear terrorism. Specifically, I would like to address this issue as it relates to the International Atomic Energy Agency (IAEA) and the United Nations Security Council.

We all recognize that a nuclear accident anywhere is a nuclear accident everywhere. So are the ramifications from nuclear terrorism. We are fortunate that we have so far not experienced any acts of nuclear terrorism. But bear in mind that terrorists have already openly expressed their desire to gain nuclear weapons.[1] The IAEA has documented thousands of incidents of lost, stolen, or unauthorized possession of nuclear and radioactive material in recent decades, and such materials could one day similarly fall into the hands of terrorists.[2] Nuclear security could also be compromised in other ways, such as the energy sector coming under cyber attack,[3] including sabotage at nuclear installations.[4]

The risk of nuclear terrorism today is heightened in two ways. First is the spread and increased use of nuclear technology for electricity production and for medical and industrial applications of radioisotopes, as well as the growing number of shipments of nuclear and radioactive material. All of this means an increase in the number of physical installations and shipments that could serve as potential targets for terrorist attacks or theft.

Second, terrorist organizations are getting more sophisticated. A recent report by the UK-based organization Conflict Armament Research on Islamic State ammunition production revealed that the extremist group conducts its own industrial quality control.[5] In other words, ISIS is able to attract skilled engineers to its production activities. We should therefore not ignore the possibility that such organizations are able to recruit individuals with nuclear skills, potentially

---

[1] At least two terrorist groups – al-Qaeda and the Japanese terror cult Aum Shinrikyo – have made serious efforts to obtain nuclear weapons, and there are indications of Chechen terrorist interests as well (including incidents of terrorist groups carrying out reconnaissance at Russian nuclear weapon storage sites). Al-Qaeda had a focused nuclear weapons program and repeatedly attempted to buy stolen nuclear bomb material and recruit nuclear expertise. Al-Qaeda went as far as carrying out crude tests of conventional explosives for their nuclear bomb program in the Afghan desert. Matthew Bunn, Martin B. Malin, Nickolas Roth, and William H. Tobey, "Preventing Nuclear Terrorism: Continuous Improvement or Dangerous Decline?" *Belfer Center*, March 2016. (http://www.belfercenter.org/sites/default/files/legacy/files/PreventingNuclearTerrorism-Web.pdf)

[2] Incidents reported to the IAEA demonstrate that illicit trafficking, thefts, losses and other unauthorized activities and events involving nuclear and other radioactive material continue to occur. In 1995, the IAEA established the Incident and Trafficking Database (ITDB). Since 1993, the ITDB has accumulated over 2,890 confirmed incidents reported by participating states. Over 15 percent of these confirmed incidents involved unauthorized possession and related criminal activities, over 25 percent involved reported theft or loss, and over 54 percent involved other unauthorized activities and events. In the remaining cases, the reported information was not sufficient to determine the category of incident. International Atomic Energy Agency, "ITD | Incident and Trafficking Database," accessed February 15, 2017. (https://www.iaea.org/sites/default/files/16/12/16-3042_ns_to_itdb_web-20160105.pdf)

[3] "Cyber-attacks against Nuclear Plants: A Disconcerting Threat," *INFOSEC Institute*, October 14, 2016. (http://resources.infosecinstitute.com/cyber-attacks-against-nuclear-plants-a-disconcerting-threat/)

[4] Clifton Parker, "Insider threats biggest challenge to nuclear security," *Center for International Security and Cooperation*, April 9, 2014. (http://cisac.fsi.stanford.edu/news/insider_threats_biggest_challenge_to_nuclear_security_20140409)

[5] "Standardization and Quality Control in Islamic State's Military Production: Weapon manufacturing in the east Mosul Sector," *Conflict Armament Research*, December 2016.

resulting in threats to nuclear installations or a dirty bomb.

At the same time, when we consider acts of nuclear terrorism, we should not confine ourselves to traditional ways of thinking. Just as nuclear material could be used to build a dirty bomb, holding such material could also be used for blackmail or for dispersion in urban environments.

Threats of nuclear terrorism also come from many sources, ranging from sophisticated and well-financed terrorist organizations, nuclear smugglers, or hackers capable of launching devastating cyber attacks to would-be terrorists with inside information on nuclear installations. All of these challenges impact on how these threats are managed by the facility operators, nuclear regulatory bodies, and organizations in charge of emergency planning and response.

Cooperation in response to nuclear and radiological accidents is essential in mitigating risks and remedying consequences. Here, the IAEA plays a pivotal role in providing a platform for necessary international cooperation in developing safety and security standards, and training in emergency response.

These deal with civilian nuclear usage. But there is, at the same time, another more sensitive aspect. Any assessment of nuclear security relating to the use of nuclear and radioactive materials in states with nuclear weapons remains out of bounds to the international community.

While each state is responsible for nuclear safety in its territory, they each have to be prepared for accidents, emergencies, and incidents whose impact crosses borders. This could entail emergencies arising from transportation of nuclear and radioactive materials through or near their territories. Preparedness and response capabilities need to also cover incidents arising from terrorist acts using materials that do not originate from the territory of the target state.

There are a number of ways that states can better combat nuclear terrorism. These include closer collaboration between nuclear safety and security regimes, as well as changes to the role of the IAEA and United Nations.

Safeguards, security, and safety are commonly seen as separate areas in nuclear governance. While there are technical and legal reasons to justify this, they also co-exist and are mutually reinforcing. Each has a synergetic effect on the other, and authorities should carve out avenues for collaboration to contribute to the effectiveness of the nuclear order. For instance, near real-time nuclear material accountancy and monitoring systems provide valuable information about the location and status of nuclear material. This in turn is useful for nuclear security measures. Similarly, such information enhances nuclear safety by contributing as input to critical controls and locations of nuclear materials.

The adoption of relevant IAEA treaties, conventions, non-legally binding codes of conduct, United Nations resolutions, and the sharing of best practices and resources are all considered part of today's global nuclear norms. What is adopted on paper, however, varies from what is implemented in practice. Currently, implementation of the Convention of on the Physical Protection of Nuclear Material does not include review meetings where the parties present their national implementation reports. One option is therefore to create such a review process and/or a

mechanism. Before such measures can be achieved, more active engagement by the IAEA is required. For example, the IAEA director-general would inform the state in question of the risks associated with insufficient implementation of its legal commitments and open a channel for corrective action.

The proposed changes could be initiated in a number of ways. The IAEA board of governors could mandate the secretariat to initiate action. States party to the nuclear safety and security conventions could also initiate them during their review meetings.[6] The forthcoming International Conference on Physical Protection of Nuclear Material and Nuclear Facilities scheduled for November is yet another venue to explore the strengthening of nuclear infrastructure against terrorism.[7]

In addressing nuclear security threats, the Nuclear Security Summits have made important contributions. This work now continues within the IAEA, in cooperation with other international organizations and industries, and as guided by the IAEA Ministerial Conference held in Vienna in December 2015 that reaffirmed the importance of protecting nuclear and radioactive material:[8]

> We commit to continue taking active steps to combat illicit trafficking of nuclear and other radioactive material, to protect and secure all such material to ensure that it cannot be used by non-State actors in criminal or terrorist acts, and to continue efforts on our territories to prepare for recovering such material in case it has fallen out of regulatory control, taking into account relevant international instruments. We emphasize the importance of strong national legislative and regulatory frameworks for nuclear security.

To fulfill this requirement, the IAEA and other international organizations need adequate funding. To this end, the support of the United Nations Security Council is indispensable. The Security Council has a critical role to play in highlighting vulnerabilities, identifying capacity gaps, and recommending how best to support UN member states.

---

[6] International Atomic Energy Agency, "Seventh Review meeting of the Contracting Parties to the Convention on Nuclear Safety," March 27-April 7, 2017. (http://www-pub.iaea.org/MTCD/Meetings/PDFplus/2017/49023/49023GeneralInfo.pdf)

[7] International Atomic Energy Agency's International Conference on Physical Protection of Nuclear Material and Nuclear Facilities, November 13-17, 2017. (http://www-pub.iaea.org/iaeameetings/50819/International-Conference-on-Physical-Protection-of-Nuclear-Material-and-Nuclear-Facilities)

[8] International Atomic Energy Agency's International Conference on Nuclear Security: Commitments and Actions, Ministerial Declaration, December 5-9, 2016. (https://www.iaea.org/sites/default/files/16/12/english_ministerial_declaration.pdf)