Wilton Park

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Report

The interface between nuclear security and peaceful uses of nuclear technology – how to achieve mutual reinforcement?

Monday 13 – Wednesday 15 May 2019 | WP1687

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Executive Summary

This workshop was convened to discuss the current relationship between nuclear security and the peaceful uses of nuclear technology and identify opportunities to promote closer cooperation in a mutually beneficial manner. Approximately 50 people participated in the workshop ranging from diplomats and policy makers to nuclear regulators, civil society and industry. The group discussed the political and perceptual barriers preventing closer cooperation and debated how to overcome such barriers – real or perceived– and build consensus around the common goal of supporting safe, secure and sustainable use of nuclear technology. The format of the workshop was interactive and encouraged cross-sector dialogue around pertinent themes and questions. On day one, an introductory session provided an overview of the evolution of nuclear security and its current relationship with peaceful uses, identifying points of resistance and buy-in between key players. Later that afternoon, another session analysed political and perceptual barriers preventing closer cooperation and opportunities to overcome such hurdles. On day two, various case studies were presented examining the interface between security and peaceful uses to draw on lessons learned, both positive and negative. The group also had a facilitated discussion with industry and the NGO sector for a different perspective on the nexus between peaceful uses and nuclear security. In the afternoon of day two, participants deliberated how this issue plays out in political and diplomatic forums and discussed how to close the divide between policy and practice. Lastly, participants brainstormed, in smaller groups, how a more mutually reinforcing relationship could be fostered between nuclear security and peaceful uses, and which concrete, practical steps could be taken to this end.

Salient themes discussed at the workshop included:

- Recognition that there is a gap between the politics of nuclear security/peaceful uses and practical implementation of the agenda.
- Inherent tension between confidentiality and the need for transparency.
- Identification of the key players supporting both nuclear security and access to peaceful uses, including the core functions of the IAEA in this area.
- Recognition that industry plays a fundamental role in promoting nuclear security and peaceful uses and determining how better to create an inclusive framework that capitalises on what the non-governmental sector has to offer.
- Reframing nuclear security to be viewed as a fundamental part of the sustainable development agenda rather than an obstacle.
- Examining how communication and coordination on peaceful uses and nuclear security could be improved.

Below is a summary of the sessions as well as the recommendations identified by the workshop.

Peaceful uses of nuclear technology and nuclear security: current state of play

1. This session looked at the evolution of nuclear security from its beginning during the Cold War followed by intensified cooperative threat reduction in the 1990s to address concern over 'loose nukes' resulting from the disintegration of the Soviet Union, to the sudden surge of urgency and support after the 2001 September 11th terrorist attacks. The group discussed how 9-11 elevated the importance of nuclear security and served as an impetus for increased attention and coordination. After 9-11, the IAEA's international nuclear security role grew and a formalised structure developed to address nuclear material security.

2. The post 9-11 era was a period when the nascent international nuclear security regime was strengthened. The 1980 Convention on Physical Protection of Nuclear Material (CPPNM) was amended in 2005 to expand protection to civilian materials in domestic use and storage. The International Convention of Suppression of Nuclear Acts of Terrorism, which provides a legal basis for international cooperation in the investigation, prosecution and extradition of those who commit or support acts of nuclear terrorism, came into force in 2007. In addition, the IAEA's Code of Conduct on the Safety and Security of Radioactive Sources was expanded in 2003 to cover security of radioactive materials. Nevertheless, security remained clearly a state responsibility with state sovereignty front and center.

3. The group also discussed the impact of the evolution of nuclear security in the IAEA as a response to the 9-11 terrorist attacks on many Member States' perceptions of nuclear security. Linking nuclear security to terrorism has created a perceptual barrier for countries that do not consider terrorism as great a threat as poverty and hunger. Many developing countries are concerned that nuclear security will divert resources from IAEA activities such as Technical Cooperation (TC), Nuclear Applications (NA) and Nuclear Power (the so called "promotional activities" of the Agency). These activities respond to their national priorities and are the reason that developing countries join the IAEA.

4. The session examined the scrutiny around the IAEA's role as the central point of international coordination on nuclear security. The Group of 77 (G77), a coalition of 134 developing states, oppose funding of nuclear security through the regular budget of the IAEA and used to argue that nuclear security is not a statutory function of the IAEA. Other IAEA Member States interpret the security mandate as being implied and defined through General Conference (GC) Resolutions that have reaffirmed the importance of nuclear security. The majority of states acknowledge that the IAEA should continue to serve as a convener for global nuclear security coordination. However, what this role looks like and how it should be resourced are still debated issues.

5. Disagreement on the IAEA's role has resulted in challenges for the Agency in respect to funding and in a structure that reinforces stove-piping. Although the IAEA has moved from a more ad- hoc structure to address nuclear security to a larger more formalised Division of Nuclear Security, the Agency's security work remains reliant on voluntary contributions to the Nuclear Security Fund in addition to a smaller portion of the regular budget. Although the regular budget contribution for nuclear security has grown over the years, it has not reached the level required for an effective, global programme. The reliance on voluntary contributions creates the perception that a small number of donor states has a disproportionate influence on the nuclear security programme, and adds unpredictability to the future work of the IAEA on nuclear security. There is also a perception, particularly among G77 countries, that resource allocation is a zero-sum game and that additional funding for security implies a

reduction of funding for the IAEA's promotional activities.

6. Outside of the IAEA, similar dynamics are at play. Enhanced security regulations and more stringent conditions of supply in bilateral agreements have impacted on the trade and transport of radioactive material. These extra requirements have often proven costly and onerous to the end-user, resulting in security being perceived as a hurdle rather than an enabler of access to peaceful uses of nuclear technology. Furthermore states that are imposing stricter security requirements can potentially put companies at a disadvantage if other countries are not doing the same.

7. There has been a rapid shift in public opinion about nuclear energy in recent years. As countries think more about climate change, nuclear power could be an increasingly popular energy option to support countries in their adherence to the UN Sustainable Development goals. In addition to nuclear energy, radioactive materials are used in a wide array of applications supporting the sustainable development agenda. As countries shift towards nuclear energy, it is critical that safety and security be incorporated into the front end of the planning process.

8. The session agreed that whilst nuclear security has grown in importance since 9-11 it has not become "normalised" like nuclear safety. To shift to a new stage in the evolution of nuclear security it would have to be accepted as an integral part of peaceful uses, instead of being perceived as a competing priority. There has been some progress in this regard which is visible in the 2018 GC Nuclear Security Resolution (GC(62)/RES/7) where Member States acknowledged that "nuclear security may contribute to the positive perception, at a national level, of peaceful nuclear activities". This language is a key departure from prior resolutions which only referenced the nexus between nuclear security and peaceful uses by appealing to States to ensure that measures to strengthen nuclear security do not hamper international cooperation in the field of peaceful nuclear activities and do not undermine the established priorities of the Agency's technical cooperation programme. Furthermore since the advent of the Ministerial-level International Conference on Nuclear Security (ICONS) in 2016, the G77 are no longer making statements that call the into question the statutory nature of nuclear security.

What are the political and perceptual barriers preventing closer cooperation between nuclear security and peaceful uses of nuclear technology?

9. In this interactive session the workshop participants identified barriers – both real and perceived – preventing a better interface between peaceful uses and nuclear security. Diplomats working at their respective missions to the IAEA, as well as those working in capitals, shared their perspectives. Identified barriers included politicisation of the issue, the practice-policy divide, bureaucratic/structural barriers, lack of transparency, and concerns that security is a zero-sum game often at the expense of resources to support peaceful uses.

Politicisation

10. Within diplomatic forums the nuclear security debate often suffers from being linked to other sensitive issues dividing Nuclear Weapon States (NWS) and Non-Nuclear Weapons States (NWS), as well as developed and developing states. In order to understand the resistance to nuclear security, one must look at other ancillary issues impacting the discussion.

11. For many states nuclear security implies committing additional resources from budgets that are already stretched and amounts to yet another condition put on developing states which hampers growth. Furthermore many NNWS, most of whom are under IAEA full scope safeguards, including the additional protocol, perceive enhanced security measures to be part of an ever-increasing burden placed on NNWS. Nuclear Weapon States, who are in possession of the bulk of nuclear and

other radioactive material are exempt from accountability and international scrutiny of their security measures for weapons useable materials. The lack of progress on disarmament further entrenches this perception of imbalance between NWS and NNWS. One participant asked whether nuclear weapon states could be more forward leaning, another wanted to know how we can overcome this 'crisis of confidence' and build trust.

Bureaucratic/structural

12. There was a discussion on how the current organisation of security particularly within the IAEA incentivised present day stove-piping and perceived lack of strategic planning. The reliance on extra budgetary funding coupled with walking the thin line between transparency and confidentiality has created additional hurdles for the IAEA's Division of Nuclear Security. In addition, although there is much discussion on encouraging a 'one house' approach to security, there is lack of definition on what that means in practice.

13. In terms of the budget discussion the key challenge remains how to increase funding from the IAEA regular budget for nuclear security without reducing funding for other programmes, in particular TC and NA. When the Nuclear Security Fund (NSF) was established it was understood that the Technical Cooperation Fund (TCF) would be maintained intact for development, while the NSF would be the primary source of funding for security assistance. Over time, a number of Member States have recognised the need to review this arrangement to achieve a more effective and holistic financing of IAEA assistance to its Member States. However, the perception (or reality) that the Agency's budget is a zero-sum game complicates discussions on increasing funds for nuclear security. Some of the workshop participants suggested increasing the overall budget to the IAEA to address this concern, however in the current zero growth environment such a proposal is not likely to gain traction among Member States. The group discussed how to advance and recommended shifting focus from pressure to regularise the budget to other steps that could be taken to encourage creative problem solving and building trust. One participant pointed out that "we talk to ourselves" and suggested that the security community become more engaged in the broader peaceful uses community.

14. Participants agreed that the budget that does exist has to be optimised and the interface between TC and the Division of Nuclear Security (DNS) in particular, has to be strengthened. Participants were informed that a platform for coordination of TC programmes between the TC and DNS exists for the TC programme officers (PMO) to integrate nuclear security into a country's peaceful use programme from the outset. It was agreed that more encouragement should be given to PMOs to make use of this platform. Several participants also suggested a better analysis of the core function of the IAEA. Member States should then provide resources to support the core functions, whether through extra or regular budgetary means.

Communications

15. Security should be reframed to emphasise the collective good with simplified messaging that focuses on the human element. The group agreed that linking security more closely with the sustainable development agenda will resonate more with the user community. Efforts should be made to counter the narrative that nuclear security and peaceful uses are mutually exclusive. To this end it was recommended that the IAEA, governments and industry should do more to highlight success stories of how the safe and secure use of nuclear technology and nuclear power for peaceful purposes has improved lives and contributed to the protection of the environment. To increase public confidence in especially nuclear power, governments and industry should provide more information to the public on efforts made to secure facilities and materials.

16. Some participants also emphasised the importance of delinking the security narrative from the terrorism narrative. As noted by one participant “nuclear security is important in and of itself. Linking it to a terrorist threat complicates the message”.

Peaceful uses and nuclear security: case studies

17. Lessons learned, both positive and negative, were examined looking at three case studies that highlighted the relationship between security and peaceful uses from an industry, development assistance and a regulatory perspective.

18. One case study looked at how strengthened security regulations on radioactive sources impacted the ability of industry to transport these sources to countries who do not produce their own sources. Denial of vital sources needed to treat cancer or support industrial sterilisation is often pointed to as an example of the negative impact of security and how access to peaceful uses and security are at times at odds with one another. In this particular case, the denials were resulting from a shipping company’s lack of knowledge about the risk related to transporting radioactive cargo and an aversion to enhanced security requirements. Today the company reported that they have not had a source denial in the last five years. The impasse was overcome through enhanced communication between industry, users, shipper, and regulators with the assistance on the IAEA under an established ‘Transportation Facilitation Working Group’. During the discussion a company supplying cobalt-60 sources noted that as a result of rapid decreases in the number of ocean carriers willing to transport radioactive cargo denials and delays of shipments of radioactive cargo remain a challenge. Concern was expressed by other participants that another crises in the transportation of radioactive sources could strengthen the rhetoric that nuclear security measures hamper access to peaceful uses.

19. The second case study looked at the execution of Technical Cooperation projects under the IAEA supporting Member States’ request for a cradle to grave support system for radioactive sources, including safety/security regulations, radiation protection programme support, technical support and end of life management assistance and planning. In this particular case, security was a component of a larger effort but a critical part of the overall project aimed at augmenting safe/secure access to sources. To successfully develop and implement this project the TC programme officer coordinated with the IAEA’s Division of Nuclear Security as well as Nuclear Energy to ensure an integrated approach.

20. The last case study looked at how a facility fabricating MOX fuel was incorporating nuclear material control and accounting into their security design to improve detection of insider diversion and close a security gap. This was highlighted as an innovative security solution using a 2S (safeguards and security) concept.

The role of industry in security

21. The workshop examined the role that industry plays in the development and implementation of security and how that role can be strengthened. In general there was a strong sentiment that governments and international organisations could do more to systematically integrate industry. Engagement upfront with industry brings innovation, resources, and on the ground experience to the table. Moreover, it assists in getting ‘buy in’ from those that will ultimately be responsible for implementation.

22. The operator’s perspective is important as they translate regulations, standards and guidance into practice. In spite of the important role that industry plays, mechanisms for governments and the IAEA to effectively engage industry are lacking. More could be done to reach out to industry. One example that was given was that there was no regular seat on the IAEA’s Nuclear Security Guidance Committee (NSGC) for industry. This prompted some of the government participants to assert that governments could make more of an effort to get industry’s input before submitting

national inputs to the NSGC. These government participants undertook to do so in future.

23. Industry is generally supportive of robust nuclear security, assuming that regulations/standards allow the business to remain viable. There is a recognition that a security incident would have a negative impact on business. However, orienting security standards around the expectation of zero risk is impractical and will result in security being an obstacle to peaceful uses of nuclear technology rather than an enabler. Industry representatives made the point that if regulations are too stringent, then access to peaceful uses is impacted. The group agreed that regulations and standards must be balanced and appropriate and workable for industry.

24. The group agreed that industry can do more to increase the public's confidence in the safety and security of nuclear power facilities and nuclear and other radioactive materials that are used for every day applications. It was suggested that more communication by the nuclear industry of its efforts in this regard could build trust and confidence in the industry. The industry agreed that it could also do a better job of promoting nuclear power as being climate neutral and build a positive narrative around nuclear power and climate change. The IAEA also has an important role to play in promoting this message.

25. It was recognised that industry brings innovation and resources. Opportunities exist to work with industry up front to integrate security into designs keeping in mind cost effectiveness and user-friendliness. Examples for opportunities included security by design on advanced reactors, as well as Small Modular Reactors (SMR). Industry should also be engaged in addressing cyber security and opportunities with block-chain and other technologies.

Diplomatic and political forums and their dynamics

26. The workshop considered ways in which international forums could be used to change the nuclear security narrative and overcome the barriers to closer cooperation between nuclear security and peaceful uses.

27. The group acknowledged that the Nuclear Security Summit (NSS) (2010-2016) strengthened the global nuclear security architecture and brought high-level political attention to nuclear security. The NSS reinforced the nuclear security roles of various multilateral organisations including the IAEA, the Global Initiative to Combat Nuclear Terrorism (GICNT), the 1540 committee, the Global Partnership and Interpol. Each was recognised as having its own role in the championing nuclear security and supporting the nuclear security architecture.

28. The Summit process did not include all IAEA Member States and it was agreed that the NSS would be replaced by a Ministerial-level International Conference on Nuclear Security (ICONS) to be held at the IAEA every two years. Workshop participants agreed that ICONS2020 presents an opportunity to promote a clear message on the importance of greater interface between peaceful uses and nuclear security. Workshop participants also thought that ICONS should include a wider audience drawing on the broader IAEA community (TC and NA in particular) as well as nuclear industry.

29. The Nuclear Security Contact Group (NSCG) is another forum where the mutual reinforcement of nuclear security and peaceful uses can be promoted. The NSCG was established in 2016 to advance the implementation of NSS commitments, facilitate cooperation and sustain engagement on nuclear security after the conclusion of the NSS.

30. The workshop participants discussed the importance of the 2021 CPPNM Review Conference (RevCon). This will be the first RevCon since the amendment to the CPPNM came into force in 2016. The CPPNM is critical to the nuclear security architecture because it is the only treaty based, legally binding instrument. The

mandate of the RevCon was described by participants as ‘wide and flexible’. It was noted that states that signed up to the CPPNM/A have the opportunity to shape this process and make it effective. Article 14 of the CPPNM requires states to report on laws/regulations giving effect to the convention. Some participants noted that the RevCon could be a milestone for all states parties to submit/update reports. Given the importance information sharing and reporting as a confidence building mechanism, as highlighted in this workshop, participants agreed to support this process where possible both nationally and within the context of the IAEA.

31. Another result of the NSS was IAEA information circulars (INFCIRCs) which capture commitments made by various NSS participating states on nuclear security related topics such as insider threat mitigations, security of radioactive sources, nuclear forensics, and certified training. Some workshop participants noted the value of voluntary subscription to these INFCIRCs. These INFCIRCS have been used to strengthen nuclear security practices and as a basis for exchange of best practices and technical expertise.

32. The group discussed including more positive language into the 2019 GC Nuclear Security Resolution supporting the nexus between nuclear security and peaceful uses. Some participants pointed out that the inclusion of the language in the 2018 NSC Resolution acknowledging that nuclear security may contribute to the positive perception, at a national level, of peaceful nuclear activities, was a significant positive step forward for nuclear security, which should not be underestimated. Some participants undertook to make an effort at the 2019 GC to build on this language.

33. There was some discussion about using the NPT’s RevCon in 2020 as a forum to advance the nexus between nuclear security and peaceful uses. Some participants however suggested that the security debate should be kept outside of the NPT framework to avoid conflating it with the disarmament debate.

Conclusion and next steps – how to improve mutual reinforcement between nuclear security and peaceful uses and proposed next steps

The group identified the following shared principles providing a starting place from which progress can be made.

- It is in the interest of all states that nuclear energy and nuclear technology remains available for the purposes of peaceful use. To this end it is essential that the material and facilities used for these activities are adequately secured. A security incident knows no borders and apart from the humanitarian and economic impact such an incident would have it could also jeopardise access to peaceful uses.
- Communication and cooperation between countries on nuclear security, both regarding ongoing and new activities, are essential to ensuring a strong global nuclear security architecture.
- Nuclear energy and nuclear technology can contribute significantly to the sustainable development agenda.
- Nuclear energy, potentially with the use of new technology, will be critical in facing climate change. There is a need for a reasonable level of security and the acceptance of a certain level of risk.

Towards the end of the workshop participants broke into smaller working groups to address the questions of ‘what needs to happen now’ and ‘how do we make it happen’.

The group made the following recommendations on next steps:

1. Improved communications

- Cross sector dialogue should be encouraged including more interaction between the policy and technical communities, security and peaceful uses,

G-77 to P5, capitals to missions, across divisions within the IAEA (TC&NA and Division of Nuclear Security)

- More listening to understand is needed. The security community should take the opportunity to learn more about user needs and sensitivities.
- Clearer communication on what success looks like.

2. Provision of adequate resources to support both nuclear security and peaceful uses

- 'Sustainable and adequate' funding is needed for the IAEA's Division of Nuclear Security. Improved transparency and improved 'governance' would support continuity of funding. Life cycle costs to support core security priorities must be better understood and communicated.
- Optimise funding that is available including the improvement of coordination between DNS and TC.
- Community should also recognise and support players beyond the IAEA that bring expertise, experience and resources to the table.

3. Better integration of industry

- There is no systematic mechanisms in place within most national structures to call on industry to help out. A mechanism to do this should be identified.
- The role of industry within the IAEA framework needs to be better defined rather than ad hoc. Industry in particular should have a role to play in the development of guidance under the Nuclear Security Series.
- Industry plays a key role in closing the gap between practice and policy.
- The buy-in of industry is critical to the successful implementation of security. They need to be brought in earlier to help shape, relevant, practical and workable policy.
- Industry brings innovation, access and resources to both peaceful uses and security.
- Industry has to be more proactive and not wait to be invited to the table.
- Industry should build public confidence in nuclear by reporting on their efforts to keep facilities and materials safe and secure.

4. Reframing of security to be an integral part of the sustainable development agenda

- Use less scare tactics to bolster security. Make the messaging relatable, human and community centered.
- Stronger articulation of a common vision is needed to reframe security as being an integral part of peaceful uses as opposed to an obstacle.
- Do a better job of communicating positive stories that highlight a win-win between security and peaceful uses.
- Convene additional activities in which policy-level representatives from nuclear industry can meet with regulators, ministries and other organisations with nuclear security responsibilities.

The majority of participants walked away from the workshop with a list of actions items for both the short and near term. It was a diverse and energetic group, not afraid to argue and express opposing ideas. The participants are all in a position to contribute to advancing improved communication, coordination and cooperation between the peaceful uses and security communities.

Tedros Abraham
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