

STRENGTHENING NUCLEAR SECURITY WITH A SUSTAINABLE CPPNM REGIME

An Ambitious Review of the Amended CPPNM

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Abstract

In 2021, the IAEA will convene the first review conference for the amended Convention on the Physical Protection of Nuclear Material (CPPNM). The amended CPPNM is one of the most important tools in the fight against nuclear terrorism and is the only legally binding treaty requiring countries to protect nuclear materials and facilities. Article 16 of the amended CPPNM requires the IAEA, the treaty's depositary, to convene a review conference five years after the amendment's entry into force. States should use the review conference to create a forum for parties to engage in regular dialogue on how the treaty is being translated into on-the-ground nuclear security progress and to monitor and identify gaps in implementation, review progress, promote continuous improvement, and discuss emerging nuclear threats. Parties can turn the amended CPPNM into a living, breathing tool for dialogue and progress and demonstrate their commitment to building a strong, effective, and sustainable CPPNM regime. The amended CPPNM provides almost no guidance for the review conference, only stating that the review conference will "review the implementation of this Convention and its adequacy as concerns the preamble, the whole of the operative part and the annexes in light of the then prevailing situation." This minimal guidance allows parties to design a review conference with outcomes that are most likely to achieve the objectives of a strong, effective, and sustainable treaty regime. States should be ambitious and take advantage of this singular opportunity. Perhaps the most important outcome of the 2021 review conference would be a decision to hold regular review conferences in the future with intervals of not less than five years, as allowed by Article 16. Because the terrorist threat will continue to evolve, the treaty must also be dynamic and able to evolve as the security context changes. This will require parties to discuss regularly the treaty's implementation over time, reflecting, for example, on changes in the threat environment, advances in states' ability to protect materials and facilities, development of best practices, and emerging technologies. The treaty's own language—that the purpose of the review conference is to review the implementation of the treaty "in the light of the then prevailing situation"—acknowledges this reality. Continuity of the review process, particularly opportunities for regular dialogue on nuclear security, will enable the treaty to maintain its long-term relevance. This paper provides a rationale for parties to hold review conferences regularly and suggests proposed outcomes to achieve a robust and substantive review conference. It also argues that the amended CPPNM review conference and the IAEA International Conference on Nuclear Security can each provide unique benefits to strengthening global nuclear security.

1. INTRODUCTION

In 2021, the International Atomic Energy Agency (IAEA) will convene a conference to review the amended Convention on the Physical Protection of Nuclear Material (CPPNM).¹ The review conference was triggered by the CPPNM amendment's entry into force in 2016, but there is little guidance on how to conduct the review conference. Presented with a blank slate upon which to build, states parties to the amendment should strive for an ambitious review conference that can contribute to building a strong, effective, and sustainable treaty regime.

The goal should be to build a CPPNM regime and review conference process that enables states to engage in regular dialogue on how the convention is being translated into on-the-ground nuclear security progress. The review conference should provide a forum that enables states parties to monitor and identify gaps in implementation, review progress, promote continuous improvement, and discuss emerging nuclear security

¹ When referring to the original, unamended convention, "CPPNM" or "original CPPNM" will be used. The amended version of the convention will be referred to as "the amended CPPNM" or "the amendment." When referring to the treaty regime as a whole, which encompasses both the original CPPNM and amended CPPNM, "CPPNM regime" will be used.

threats. Through regular review conferences, the CPPNM and its amendment can become a treaty regime that lives and breathes, is dynamic, and evolves as the security context evolves.

A review conference with these characteristics is not a foregone conclusion, however. It will take vision, ambition, and leadership. In the time remaining before the 2021 review conference, states parties have the opportunity to plan a review conference that is not only robust and substantive, but also establishes the CPPNM and its amendment as a much-needed vehicle for continued nuclear security dialogue and impetus for progress.

This paper provides a rationale for states parties to the amendment to hold review conferences regularly and suggests proposed outcomes to achieve a robust, substantive, and inclusive review conference [1]-[5].²

2. CONTEXT FOR THE AMENDED CPPNM: ADDRESSING THE THREAT OF NUCLEAR TERRORISM

In late 2015, investigators discovered chilling surveillance video in the possession of a suspected terrorist alleged to have been involved in the November 2015 terrorist attacks in Paris [6], [7]. The Islamic State took credit for those attacks, and the video footage suggested the group had been watching a high-ranking Belgian nuclear official who had access to secure areas of a Belgian nuclear research facility [7]. The video's existence raised concerns that the group was seeking to acquire materials for a primitive nuclear device or a dirty bomb. Was there a plan to abduct the official and ransom him for nuclear or radioactive materials? Or to bribe or coerce the official to turn him into an inside collaborator? Despite these concerns, authorities acknowledged that after being informed of the video they cautioned employees to "increase their vigilance," but did not take additional measures to protect the facility [7]. Other evidence later gathered in the same investigation pointed to additional terrorist plans to "do something involving one of [Belgium's] four nuclear sites," which include two nuclear power plants, a company that produces medical isotopes, and the nuclear research facility [7].

The intent of the terrorist surveillance that took place remains unclear, but the discovery served as an important reminder that nuclear facilities and materials continue to be targets of interest to terrorists. There are many other incidents tracked by organizations such as Harvard University's Belfer Center for Science and International Affairs [8], [9], the James Martin Center for Nonproliferation Studies (CNS), and the International Atomic Energy Agency (IAEA). The CNS Global Incidents and Trafficking Database [10], an open-source tool launched in June 2013 to track incidents of theft or loss and unauthorized possession of nuclear and other radioactive materials, contains hundreds of incidents in 2017 and 2018 alone. Three cases of illicit trafficking incidents were reported in the database in 2017 involving nuclear materials, including one incident involving the sale of plutonium-239 and plutonium-241.

More broadly, terrorist attacks continue across the globe, including by the Islamic State and other groups, and the threat is constantly evolving. New technologies—such as cyber weapons that could disrupt nuclear facility security systems—and access to significant financial resources enable terrorist groups to become more sophisticated.

These continuing threats and documented incidents show that the threat of nuclear terrorism is not yesterday's problem. It is today's. Addressing this threat is an urgent priority. Just as terrorists have not lost focus

² This paper draws from papers previously written by the author: Samantha Neakrase, "Strengthening Nuclear Security with a Sustainable CPPNM Regime," June 2019, *Arms Control Today*, at <https://www.armscontrol.org/act/2019-06/features/strengthening-nuclear-security-sustainable-cppnm-regime>; Samantha Neakrase, "Discussion Paper: Key Issues for the Conference to Review the Amendment to the CPPNM," paper prepared for the November 2019 meeting of the NTI Global Dialogue on Nuclear Security Priorities (November 2019), at https://media.nti.org/documents/1_NTI_Global_Dialogue_November_2019_Discussion_Paper_CPPNM_2DqQvaR.pdf; Samantha Neakrase, "Discussion Paper: Building an Effective Nuclear Security Regime Through the Amended CPPNM," paper prepared for the February 2019 meeting of the NTI Global Dialogue on Nuclear Security Priorities (February 2019), at https://media.nti.org/documents/CPPNM_RevCon_Paper_FINAL.PDF; Michelle Nalabandian and Samantha Pitts-Kiefer, "Strengthening the Convention on the Physical Protection of Nuclear Materials and Nuclear Facilities Regime: A Path Forward," paper prepared for the 2016 IAEA International Conference on Nuclear Security (December 2016), available at https://media.nti.org/documents/IAEA_Conf_2016_Strengthening_CPPNM_Pitts-Kiefer.pdf; and Jonathan Herbach and Samantha Pitts-Kiefer, "More Work to Do: A Pathway for Future Progress on Strengthening Nuclear Security," October 2015, *Arms Control Today*, https://www.armscontrol.org/ACT/2015_10/Features/More-Work-to-Do-A-Pathway-for-Future-Progress-on-Strengthening-Nuclear-Security.

on their desire to acquire and use a nuclear or radiological bomb, neither can the international community—especially our governments—lose focus on the need to prevent such a catastrophic event. Protecting nuclear materials and nuclear facilities from the threats posed by terrorists and other non-state actors is too important a mission to let slide into complacency and neglect.

3. THE CPPNM REGIME AND REVIEW CONFERENCE MECHANISM

3.1. The CPPNM and its Amendment

One of the most important tools in the fight against nuclear terrorism is the CPPNM. The amendment to the CPPNM, which was signed in 2005, entered into force in 2016, making the amended CPPNM the only legally binding treaty requiring countries to protect nuclear materials and facilities [11].³ Opened for signature in 1980, as of December 20, 2019, the original CPPNM has 160 states parties, while only 123 have ratified the amendment.

Entry into force of the amendment was an important milestone for nuclear security. The amendment significantly strengthens the international legal framework for nuclear security by expanding the scope of the CPPNM’s physical protection requirements to all nuclear materials in transport—both domestic and international—and to nuclear facilities. Article 14.1 also requires each state party to inform the IAEA, as treaty depositary, of its laws and regulations giving effect to the convention [11]. (States parties were required to submit information under the original CPPNM, but the scope of the reports needs to expand to reflect the expanded scope of the amendment.)

The amended CPPNM is even more important now that the nuclear security summits, the biennial gatherings of more than 50 heads of government that were held between 2010 and 2016, have ended. The summits were convened to focus attention on nuclear terrorism, encourage action and commitments to prevent nuclear theft and sabotage, and strengthen the global nuclear security architecture. Unfortunately, high-level attention has waned since the summits, but 2021 provides an opportunity to reinvigorate global nuclear security efforts at the review conference for the amended CPPNM.

3.2. Article 16 and the Review Conference as a Vehicle for Nuclear Security Dialogue and Progress

Article 16 of the amended CPPNM requires the IAEA, as depositary, to convene a review conference five years after the amendment’s entry into force [11].⁴ As a result of the amendment’s entry into force in 2016, the review conference will be held in 2021. In addition to the initial required review conference, Article 16.2 of both

³ The original CPPNM covers only physical protection of nuclear materials in international transport, but the amended treaty, which entered into force in 2016, significantly expands the treaty’s scope to require protection of all nuclear materials against theft and of nuclear facilities against sabotage. See Convention on the Physical Protection of Nuclear Material (CPPNM), October 26, 1979, 1456 U.N.T.S. 24631, art. 2, <https://treaties.un.org/doc/db/Terrorism/Conv6-english.pdf>. Compare this to article 2A of the 2005 amendment to the CPPNM, International Atomic Energy Agency (IAEA), “Nuclear Security – Measures to Protect Against Nuclear Terrorism: Amendment to the Convention on the Physical Protection of Nuclear Material,” GOV/INF/2005/10-GC(49)/INF/6, September 6, 2005, <https://www.iaea.org/About/Policy/GC/GC49/Documents/gc49inf-6.pdf>. In addition to physical protection measures, the CPPNM requires parties to criminalize and establish jurisdiction over certain offenses in their domestic systems. The amendment adds activities related to illicit trafficking and sabotage to the list of offenses that parties must criminalize. There are two other international legal instruments relevant to fighting nuclear terrorism, the International Convention for the Suppression of Acts of Nuclear Terrorism, which requires states to criminalize and cooperate in the prosecution of acts of terrorism; and United Nations Security Council Resolution 1540, which requires states to take “appropriate effective physical protection measures.”

⁴ The provision reads:

1. A conference of States Parties shall be convened by the depositary [the IAEA] five years after the entry into force of the Amendment adopted on 8 July 2005 to review the implementation of this Convention and its adequacy as concerns the preamble, the whole of the operative part and the annexes in the light of the then prevailing situation.
2. At intervals of not less than five years thereafter, the majority of States Parties may obtain, by submitting a proposal to this effect to the depositary, the convening of further conferences with the same objective.

Unofficial Consolidated Text of the Amendment to the CPPNM, Article 16.

the original CPPNM and the amendment allows a majority of states parties to call for review conferences at intervals of not less than five years [11]. Article 16.2 of the original CPPNM was never invoked after the initial review conference held five years after its entry into force. As described later in this paper, states parties should avoid this fate for the amended CPPNM.

States should use the review conference to create a forum for parties to engage in regular dialogue on how the treaty is being translated into on-the-ground nuclear security progress, monitor and identify gaps in implementation, review progress, promote continuous improvement, and discuss emerging nuclear threats. Without a robust, substantive review conference process, the amended CPPNM risks becoming a passive instrument, the actual implementation of which is secondary to signature and ratification. The goal should be implementation, not just entry into force. Parties should therefore engage the amended CPPNM as a living, breathing tool for dialogue and progress to strengthen implementation and demonstrate their commitment to building a strong, effective, and sustainable CPPNM regime.

4. THE CASE FOR REGULAR REVIEW CONFERENCES

Given the convention's importance in the fight against nuclear terrorism, and the need for regular dialogue on nuclear security, perhaps the most important outcome of the 2021 review conference would be a decision to hold regular review conferences in the future on some agreed timeline. Regular review conferences reflect the reality that the world in which the convention is implemented is evolving and will continue to be involved, provide a unique forum for dialogue that does not currently exist, and can help promote universalization of the amendment.

4.1 The Need for a Dynamic Treaty Regime

Because the terrorist threat will continue to evolve, the treaty regime must also be dynamic and evolve. This will require parties to meet regularly to discuss how the conventions' implementation must change to reflect shifts in the threat environment, advances in states' abilities to protect nuclear materials and facilities, development of best practices, and emerging nuclear and non-nuclear technologies.

The convention's own language—that the purpose of the review conference is to review the implementation and adequacy of the convention “in the light of the then prevailing situation”—acknowledges this reality. The prevailing situation at the time of the review conference in 2021 will be different than the prevailing situation when the amendment was signed in 2005, and will likely be different than the prevailing situation five years after the 2021 review conference, the earliest possible date for a future review conference. Without future review conferences, states parties will not be able to understand whether the treaty's implementation and adequacy persist in the future. Continuity of the review process, particularly opportunities for regular dialogue on nuclear security, will enable the convention to maintain its long-term relevance.

4.2 The Unique Role of the Amended CPPNM Review Conference

Regular review conferences are an integral part of many treaty regimes to ensure the treaty's viability in light of changing circumstances. This is even more important when the treaty's purpose is to address a threat that will continue to evolve. Review conferences can strengthen a treaty regime by developing a common understanding of key provisions and help states set goals for implementation. Given that most major treaties have regular review conferences, it would be an odd omission for a treaty as vital to global security as the amended CPPNM not to also use this tool. When it comes to addressing one of the most dangerous threats worldwide, the amended CPPNM should not be treated differently than other treaty regimes. To the contrary, a regular, substantive review conference for the amended CPPNM will provide unique benefits not available in any other forum. Regular review conferences will have a different character and purpose from other nuclear security forums [12], such as the IAEA International Conference on Nuclear Security (ICONS) or the annual amended CPPNM points of contact meetings that are convened by the IAEA.⁵

⁵ This document compares how an ambitious and substantive review of the amended CPPNM would compare to ICONS and the points of contact meetings. “How Can the CPPNM/A Review Conference Be Different than Other Mechanisms,” prepared for the February 2019 meeting of the NTI Global Dialogue on Nuclear Security Priorities, available at https://media.nti.org/documents/PPNM_Comparison_Matrix.pdf.

First, the review conference is the only legally mandated forum for enduring nuclear security dialogue. ICONS was first held in 2013 and is currently on a three- or four-year cycle. Although ICONS covers a range of nuclear security-related topics and informs the work of the IAEA in the area of nuclear security, it is not based on any legal obligations. Instead, IAEA member states call for the IAEA to hold ICONS in their annual nuclear security resolution. The meetings among designated national points of contact, while also useful technical meetings, are a voluntary initiative of the IAEA Secretariat and not specifically mandated under the treaty and have only been convened since 2016. The legal basis for the review conference provides a stronger mandate for sustained dialogue on nuclear security and greater durability than other conferences and meetings that rely on the continued interest and resources of IAEA member states.

Second, the amended CPPNM can offer a different level of interaction than ICONS and the points of contact meetings. ICONS features a one-day ministerial session attended by only a few dozen actual ministers. The remainder of the conference is dedicated to technical sessions attended by diplomats, technical experts, academics, and representatives from nongovernmental organizations. The points of contact meetings are attended by technical experts, usually regulators. In contrast, the appropriate level of participation for the review conference would be senior officials who can go beyond technical discussions and discuss policies and priorities for nuclear security. They would be both knowledgeable about nuclear security and empowered to make decisions.

Finally, the purpose of the review conference and its agenda should be different from ICONS and points of contact meetings, neither of which provide a forum for senior policy makers to engage in a substantive, multiday dialogue on forward-looking policies and priorities for nuclear security. At the ICONS ministerial segment, ministers and other senior officials make national statements and issue high-level principles for nuclear security, but the meeting is quite limited in scope. At the technical sessions, experts give presentations on a range of nuclear and radiological security topics. The points of contact meetings similarly are limited in scope. These one- or two-day meetings focus on the technical aspects of implementation of the amended CPPNM, but do not assess nuclear security progress or set priorities for the future and are not aimed at taking forward-looking action to strengthen the CPPNM regime. In contrast, the review conference provision is broad and flexible enough to provide for a multiday, substantive, policy discussion on a range of themes and topics relevant to the treaty, such as the threat environment, nuclear security progress, gaps and challenges to implementation, and priorities for future progress.

4.3 The Role of Review Conferences in Achieving Universalization

An additional benefit of convening future review conferences is the role they can play in continuing efforts to achieve universalization. Many states, including the United States and Russia, worked hard to garner enough ratifications of the amendment for it to enter into force. Now that the amendment is in force, universalization will continue to be an important goal at the 2021 review conference and beyond. It is unlikely that universalization will be achieved before 2021, however. Future review conferences at which countries share lessons learned and how they are implementing the convention, overcoming challenges, and addressing emerging threats can help encourage countries to ratify the amendment. The attention to the amended CPPNM generated by preparing for the review conference can be leveraged to continue momentum toward universalization.

5. REACHING AGREEMENT TO HOLD FUTURE REVIEW CONFERENCES

5.1 Agreement at the 2021 Review Conference

Article 16.2 allows a majority of states parties to request that the IAEA convene a future review conference [11]. However, the better approach is for states parties to take this decision at the 2021 review conference. There is nothing in the text of the amended CPPNM or in international treaty law that would prohibit states parties from doing so. To the contrary, similar decisions have been made in the context of other treaty regimes.

After the original CPPNM entered into force in 1987, one review conference was held five years later in 1992. States parties did not exercise their option to call for further review conferences either at the 1992 conference or later under Article 16.2. This was in part because the focus had shifted from reviewing the convention to the need to amend the convention to expand its scope. The need to amend the convention was a topic at a conference on the Physical Protection of Nuclear Material held by the IAEA in 1997, after which efforts began in earnest to prepare for possible amendment. There is large recognition today, however, that the amended CPPNM is sufficient in scope. Instead of a need to reassess the scope of the amendment, there is a need to regularly review

implementation and engage in dialogue to strengthen implementation. Repeating the review history of the original CPPNM would ignore the rapidly evolving security context in which the amended CPPNM must be implemented, and the valuable opportunity the convention offers to review this essential tool in the fight against nuclear terrorism.

Parties should therefore come to agreement at the 2021 review conference to hold future review conferences regularly as a standing arrangement, instead of waiting for a request of the majority of states parties to do so on an ad hoc basis. Without a decision at the 2021 review conference, there is a risk that it will be the last.

5.2 Periodicity for Future Review Conferences

Ideally, states parties would agree to hold review conferences every five years, as permitted by the convention. It is difficult to imagine that a five-year review cycle would not be warranted given that significant changes in the threat environment, technology, and the tools to address threats are likely. In reality, allowing flexible frequency may be appropriate to account for other international conferences and events, such as the IAEA ICONS, and to respond to developments in the global security environment. For instance, if ICONS is held every three years, it may make sense for a review conference on the amended CPPNM to be held every six years instead of five.

Whether parties agree to a fixed period of five or six years, parties could agree that they would be able to adjust the date of the subsequent review conference to account for factors that would affect its timing. At a minimum, parties at the 2021 review conference should set the date for the next review conference and then require each successive review conference to set a future conference date. In other words, states would agree to hold review conferences in perpetuity, but not on a predetermined schedule. To avoid review conferences being set too far into the future and to reflect the reality of fast-evolving threats, however, parties should agree that the time between review conferences will not exceed a set period, such as seven or eight years. Although preferable to set a specific date for the next review conference, if this cannot be agreed due to uncertainties about the calendar, states parties could instead agree on a window during which the review conference will be held (e.g., between five and seven years), to be confirmed later between the IAEA and states parties with enough notice to engage in the appropriate preparatory process.

5.3 Precedent for Agreement at the Review Conference to Hold Future Review Conferences

There are three examples of other treaty regimes for which parties have agreed to regular review conferences beyond what the treaty requires. These examples make clear that there is precedent for states parties to the amended CPPNM to come to a similar agreement at the 2021 review conference.

The Convention on Certain Conventional Weapons (CCW) [13] provides for review conferences to review the “scope and operation” of the treaty at the request of any party. At the first CCW review conference [14], parties agreed in the final declaration “that future Review Conferences should be held more frequently, with consideration to be given to holding a Review Conference every five years.” At the second review conference [15], parties once again noted their commitment to “establish a regular review mechanism” and agreed that future conferences “should continue to be held on a regular basis.”

The Biological Weapons Convention (BWC) [16] contains a provision for a conference of the parties to be held five years after entry into force, or earlier if requested by a majority of the parties, but does not contain a provision for additional optional review conferences. Even so, parties recommended at the third, fourth, and sixth review conferences [17] that additional review conferences “should be held at least every five years.” The final declaration at the seventh review conference [18] was stronger: “The Conference therefore decides that Review Conferences be held at least every five years.”

Finally, the Treaty on the Nonproliferation of Nuclear Weapons (NPT) [19] provides the closest model for the amended CPPNM review conference because the NPT’s review conference provision is identical to the provision in the amended CPPNM. The NPT provides for a conference of the parties to be held five years after entry into force of the treaty with the option for a majority of parties to call for future conferences every five years. However, the parties decided at the 1995 NPT review conference [20] in a series of decisions designed to strengthen the review process “that Review Conferences should continue to be held every five years.”

6. A VISION FOR THE REVIEW CONFERENCE: A ROBUST, SUBSTANTIVE, AND INCLUSIVE AGENDA

The amended CPPNM provides almost no guidance for the review conference, only stating that it will “review the implementation of this Convention and its adequacy as concerns the preamble, the whole of the operative part and the annexes in light of the then prevailing situation.” This minimal guidance allows parties to design a review conference with outcomes that are most likely to achieve the objectives of a strong, effective, and sustainable treaty regime. States should be ambitious and take advantage of this singular opportunity and not simply check a box.

6.1 Review of Implementation and Adequacy in the Light of the Then Prevailing Situation

Fundamentally, the core of the review conference will be to review implementation and adequacy in the light of the then prevailing situation, as the text directs, but the means of undertaking this review are up to states parties. States parties should consider how the review can best fulfil certain goals, such as providing useful information to other states, building awareness of future threats and challenges, discussing how to address those future challenges, and giving guidance to states that have not ratified the amendment as they consider whether to do so. In other words, the goals should be to strengthen future implementation, drawing from past lessons, and work toward universalization of the amendment.

6.1.1 Review of Implementation

A review of implementation provides an opportunity for parties to share experiences and lessons learned from how they are interpreting and putting into practice the amended CPPNM’s obligations. Reviewing implementation should not be interpreted as an assessment of each other’s implementation or a formal reporting exercise. A more meaningful approach, which would reflect a vision of the review conference as a vehicle for dialogue and for promoting progress, would be to interpret “review of implementation” as a chance to develop and share national self-reflections in a way that is constructive and instructive for all parties. This more expansive approach could lead to a more beneficial substantive dialogue that promotes strengthened implementation and future progress on nuclear security by sharing best practices, lessons learned, implementation challenges, progress made, and planned future activities to strengthen implementation of the amended CPPNM. This approach could also be informative for states that have not yet ratified the amendment.

6.1.2 Review of Adequacy

A review of the amended CPPNM’s adequacy can also be done in a meaningful way. Unlike the review conference for the original CPPNM held in 1992, which resulted in a perfunctory statement that the CPPNM was adequate, a more rigorous and substantive discussion is possible and should be undertaken. Taking a more substantive approach would also help delink the discussion of adequacy from any assumption that doing so might lead to a decision that the convention is inadequate and needs further amendment.

It is difficult to imagine a circumstance in which parties would decide the amended CPPNM is inadequate and requires further amendment. The 2005 amendment gave the CPPNM a comprehensive scope, and within that scope, the amended convention provides significant flexibility for how parties implement it. The amended CPPNM is written broadly and at a high level, providing objectives for physical protection instead of taking a prescriptive approach. Its evergreen character allows interpretation and implementation of the amendment to evolve as the global environment evolves. Even if parties were to conclude that the prevailing situation had changed—perhaps even substantially—the amended CPPNM itself would likely remain adequate in its current form.

A more rigorous and substantive approach to discussing adequacy would be for parties to share how their interpretation and implementation of the amended CPPNM has evolved within the confines of the text and how they envision future evolutions. For instance, how has the meaning of “physical protection” evolved? How will it need to evolve in the future? How does the meaning of “physical protection” capture changes in priorities and practices for preventing nuclear theft or sabotage? Does it include protection against cyberattacks?

6.1.3 *The Prevailing Situation*

Implementation and adequacy are both to be reviewed in the light of the then prevailing situation, which provides an important opportunity for parties to assess the risk environment, at national, regional, and global levels. Review conferences do not occur in a vacuum, just as implementation of the amended CPPNM does not occur in a vacuum. Review conference discussions will occur in the context of current, evolving, and predicted (or unpredicted) future threats. The prevailing situation today is different than the prevailing situation in 2005, and will be different from the prevailing situation in five years. Threats change, actors change, technology changes, security tools and practices change, assistance resources and services change, and the global architecture changes. The review conference will allow countries to assess how implementation and interpretation of the amended CPPNM need to adapt to reflect contemporary and emerging threats and to maintain the treaty's relevance as a long-term tool for nuclear security.

A discussion of the prevailing situation can be an opportunity for states to share their perspectives on emerging challenges to the security of nuclear materials and facilities, how they are addressing those challenges, and how they plan to address future challenges. For instance, a state might share how it is building national capacity or updating laws and regulations to address cyber threats or other emerging technology. Taking a national and/or regional approach to this discussion would be more productive than attempting to reach a common assessment of the prevailing situation, and would be more reflective of the reality that parties have different perspectives on the threats and challenges they face. This approach would also be more inclusive, providing valuable information to states parties, as well as to states that have not yet ratified the amendment.

6.2 A Substantive Agenda

The review conferences should have a robust, substantive agenda designed to allow for in-depth dialogue on themes or topics derived from the treaty's operative text and preamble. These themes should be woven into the plenary agenda and supported by additional breakout sessions to facilitate in-depth discussions about topics relevant to subsets of countries or specific regions.

One theme could cover the IAEA's role in nuclear security. Such a dialogue would be productive and appropriate given the IAEA's role as the treaty depositary and convener of the review conference. The discussion could build awareness of and promote significant IAEA nuclear security resources, including Integrated Nuclear Security Support Plans and peer reviews such as the International Physical Protection Advisory Services, which support member states' implementation of the treaty's provisions. Promoting implementation of IAEA nuclear security guidance would also be a positive step toward building common, international nuclear security standards and would be consistent with the treaty's reference to "internationally formulated recommendations" in the preamble and the fundamental principles in the operative text. States could also share success stories of IAEA assistance in implementing nuclear security, which could encourage additional financial and political support for the IAEA's important nuclear security mission.

Emerging technology is ripe for discussion, including offensive use of technology that could lead to nuclear theft or sabotage and defensive use of new technology to protect nuclear materials and facilities. As technology evolves, so must the assessment of those technologies as potential security assets and risks. Cyber tools, for example, can be used to enhance security as technology becomes more sophisticated and reliable, but they can also be used to defeat digital security systems designed to protect nuclear materials and facilities. Another example is drones, which have the potential to enhance security by providing additional eyes and ears to supplement guard force capabilities at facilities and in transport convoys. They can also be used by bad actors to carry out surveillance or attacks. Building awareness of cyber capabilities and the need to develop measures to prevent or mitigate cyber-mediated theft and sabotage would be a significant contribution to nuclear security.

In a related theme, countries could consider whether physical protection includes protection against cyberattacks. There are strong arguments for doing so. Cyberweapons are just one of many types of weapons or tools, such as guns, bombs, or other traditional weapons, that could be deployed to defeat physical security measures, and efforts to defend against cyber tools link directly to physical protection. A flexible definition of physical protection means the CPPNM regime will remain relevant as the threat evolves and as adversaries adapt their tools to defeat security.

6.3 Information Sharing and Building Confidence

Strengthened information sharing under the amended CPPNM should be an important component of the review conference. Sharing non-sensitive information on nuclear security practices provides valuable opportunities for states to learn from one another and build confidence in the security of their nuclear materials. In addition, sharing information ensures that states are held accountable for their security and provides a useful means of tracking progress.

Article 14.1 of the amended CPPNM requires each state party to “inform the depositary [the IAEA] of its laws and regulations which give effect to this Convention” [11]. The IAEA “shall communicate such information periodically to all States Parties” [11]. As of December 20, 2019, only 48 parties have submitted information under Article 14.1. A goal for the 2021 review conference should be for all states to submit the required information under Article 14.1, or update prior submissions, prior to the review conference. There could also be a dedicated session on Article 14 reporting to discuss the usefulness of a template and best practices in reporting, and to encourage states to make their Article 14.1 submissions public, as some countries have already done.⁶

States have an opportunity to go beyond reporting on “the laws and regulations which give effect to” the CPPNM and its amendment and instead voluntarily provide broader information on their nuclear security programs and the steps they are taking to continuously improve security. Additional reporting not only builds the confidence of others, but offers a chance to share best practices or identify areas where assistance from the IAEA or other nations might be useful. States can learn from one another and provide value by sharing their practices, while protecting sensitive information. The amended CPPNM itself notes the importance of information sharing among states parties—Article 5.4 and 5.5 encourage information sharing among states parties for the purpose of “obtaining guidance on the design, maintenance, and improvement of its national system of physical protection of nuclear material” [11].

6.4 An Inclusive Approach: Parties to the Original CPPNM

In preparation for the review conference, states parties should consider ways to be inclusive of countries that are not party to the amendment.

Article 16 of the amended CPPNM does not provide any clarity on whether the review conference should also include the minority of parties that have not ratified the amended text. It would be prudent and beneficial to apply an expansive approach and invite to the 2021 review conference and subsequent conferences both states parties to the amendment and states parties to the original CPPNM that have not yet ratified the amendment. The two groups of parties have overlapping obligations and one conference for all parties would provide an opportunity to encourage those states that have not yet ratified the amendment to do so as soon as possible. Reaching universalization of the amendment continues to be a key objective and the review conference can provide an opportunity to promote further ratifications. Including non-parties at the review conference, while taking into account any procedural considerations, will have a net benefit to the CPPNM regime as a whole.

States parties will have to agree to rules of procedure that lay out the voting rights of the two sets of parties—decisions on matters that are only in the amended text should exclude parties not obligated by that text, for instance. States that are not parties to the amendment could participate as observers, as allowed by the IAEA General Conference Rules of Procedure, which were adapted for the 1992 CPPNM review conference [21].

There are precedents for holding review conferences of parties to a convention that has been amended or that has an additional protocol and where not all parties to the original convention are parties to the amendment or protocol. The family of climate conventions provides the best example. The Framework Convention on Climate Change (Framework Convention) requires annual meetings of the conference of the parties (COP) [22]. The Kyoto Protocol to the Framework Convention [23] and the Paris Agreement [24] have been ratified by a subset of parties

⁶ For states that already feel a heavy reporting burden, the Consolidated National Nuclear Security Report offered as a reporting template by the Dutch government at the 2016 Nuclear Security Summit can be a useful tool and highlighted in discussions. Nuclear Security Summit, Consolidated National Nuclear Security Report, Washington, D.C., April 1, 2016, <https://static1.squarespace.com/static/568be36505f8e2af8023adf7/t/570511498259b5e516e16689/1459949897436/Join+Statement+on+Consolidated+Reporting+Appendix.pdf>.

to the Framework Convention, but conferences of the parties to all three instruments are held concurrently. The text of the Protocol specifies that the COP shall serve as the conference of the parties to the Protocol (CMP) [23]. Parties to the Framework Convention that are not parties to the Protocol may participate in the CMP as observers, though they may not vote on decisions with respect to the Protocol [23]. The Paris Agreement provides for the same meeting mechanism as the Protocol, with the COP serving as the conference of the parties to the Paris Agreement (CMA) and states that are not parties to the Paris Agreement participating in the CMA as observers [24]. This structure results in a joint conference of the parties for all three instruments: a joint COP, CMP, and CMA, the most recent of which was held in December 2019 in Madrid, Spain [25].

Another example is the Convention on Certain Conventional Weapons (CCW) [26], which has five additional protocols and therefore many different sets of parties. The CCW holds one review conference every five years and annual high-level meetings at which parties to the CCW discuss the umbrella treaty and the protocols [26]. Two of the protocols also have their own annual meetings of the parties.

6.4 An Inclusive Approach: Nongovernment Organizations and International Organizations

Parties should consider ways to be inclusive of international organizations and non-government organizations (NGOs). Multi-stakeholder engagement is an important component of any cooperation to solve global challenges. NGOs—including industry—and international organizations can provide useful contributions to the review conference and preparatory process.

Experts from around the world—from NGOs, industry, and international organizations—can provide knowledge and expertise to help inform official discussions. For example, expert views on how the prevailing situation has changed since 2005, particularly in the area of emerging technology, could be a useful contribution that could serve as a resource to parties in advance of the preparatory committee in 2020. Nuclear operators have a direct stake in these discussions because they are responsible for implementing nuclear security at the facility level. In fact, industry should be an integral part of each state party's national assessment of implementation and adequacy of the amended CPPNM (see Section 6.1 above).

International organizations, such as the United Nations Office on Drugs and Crime, the United Nations Office of Counter-Terrorism, and INTERPOL, are also important elements of the global nuclear security architecture and help countries to implement nuclear security and their treaty obligations under the CPPNM (both original and amended), as well as under other instruments, such as the International Convention for the Suppression of Acts of Nuclear Terrorism and UN Security Council Resolution 1540. International organizations therefore can benefit from and provide useful input into the amended CPPNM review conference discussions.

There is precedent for including international organizations and NGOs in other treaty review conference contexts. Many treaty regime rules of procedure allow varying levels of participation by NGOs, ranging from simply attending public sessions and receiving conference documents as observers to addressing the plenary sessions themselves during comment periods or dedicated sessions for NGOs. NGOs are also often provided opportunities to hold side events and provide materials and information in exhibits.

7. CONCLUSION

The amended CPPNM invites states to be ambitious by providing a broad, flexible basis on which to design a robust agenda for nuclear security dialogue. A robust and meaningful, outcome-oriented review conference in 2021 can play a vital role building on significant nuclear security achievements and preventing international complacency over nuclear terrorism. The conference will be an important—and perhaps the only—opportunity to establish the building blocks for a strong, effective, and sustainable CPPNM regime for combating nuclear threats, now and in the future. Seizing this opportunity requires vision, ambition, and strong leadership. This is too great a chance to squander when the collective mission to prevent nuclear terrorism is so consequential.

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