FIFTH REPORT

Legal Challenges for Nuclear Deterrence and Security

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Introduction

1. Mandated ‘to consider competing legal approaches to non-proliferation and regulating nuclear weapons within the contemporary context’, the Committee has assessed the three pillars of the 1968 Nuclear Non-Proliferation Treaty (NPT)\(^1\) – i.e. non-proliferation of nuclear weapons; the right to develop research, production and use of nuclear energy for peaceful purposes; and nuclear disarmament – with a special focus on controversial issues and existing interdependencies between the three pillars. A Preliminary Report on key elements of the practice regarding nuclear energy,

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\(^1\) Treaty on the Non-Proliferation of Nuclear Weapons (1 July 1968), 729 UNTS 161.
non-proliferation and the regulation of nuclear weapons was presented at the Sofia Conference (2012).²

The Second Report, which was discussed at the Washington Conference (2014),³ has concluded that steps towards fulfilling nuclear disarmament obligations and providing appropriate access to nuclear energy for peaceful uses may substantially influence compliance with nuclear non-proliferation obligations. It has also emphasized that effective non-proliferation may not only support developments towards nuclear disarmament, but also help to improve security and safety of peaceful uses.

The Third Report, presented at the Johannesburg Conference (2016),⁴ has addressed legal issues of verification within a broader context, covering also general legal aspects of compliance control, dispute settlement, and enforcement. This Report has benefited from a research project, conducted in November 2014 by the Rapporteur in cooperation with the Institute of International Peace and Security Law at the University of Cologne and kindly supported by the Fritz Thyssen Stiftung für Wissenschaftsförderung. Assessing legal controversies raised in the literature and relevant State practice, this Report emphasized that the International Atomic Energy Agency (IAEA) has a broad institutional mandate to verify correctness and completeness of national reports. To secure verification by the IAEA, States must cooperate to implement new safeguards practices.

The Fourth Report, discussed at the Sydney Conference (2018),⁵ was devoted to legal aspects of the use of nuclear energy for peaceful purposes. It explained the right to develop research, production and use of nuclear energy for peaceful purposes as an inalienable right which is, however, subject to verification and control of compliance with nuclear security and non-proliferation obligations. Nuclear non-proliferation agreements and the relevant Security Council Resolutions 1540 (2004) and 2325 (2016), indeed, do not conflict with, or alter the rights and obligations of States Parties to the NPT. Furthermore, the Fourth Report completed the discussion initiated at the Johannesburg Conference on measures to ensure compliance, an issue of relevance for all three pillars of the NPT. A second research project, conducted in November 2015 by the Rapporteur in cooperation with the Walther Schücking Institute of International Law at the University of Kiel, and again kindly supported by the Fritz Thyssen Stiftung für Wissenschaftsförderung, had provided a particularly valuable opportunity to analyse contentious legal issues of nuclear safety and security.

Further input and support have been received by the Panel on ‘Pathways to Nuclear Disarmament’, conducted by the Rapporteur at the Sydney Conference,⁶ and a series of Round

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Tables\textsuperscript{7} hosted by the Committee Chairman with kind support by the Canadian Museum for Human Rights and the University of Manitoba. Results of these meetings have been and will be published in the book series co-edited by the Chairman and the Rapporteur.\textsuperscript{8}

2. The present \textit{Fifth Report} completes earlier discussions on open issues identified by the Committee in its work so far. It is divided into four parts: current legal efforts (\textit{Part I}), new economic, military and technological developments (\textit{Part II}), present and future legal challenges (\textit{Part III}) and the proposed ILA Declaration on Legal Issues of Nuclear Weapons, Nuclear Non-Proliferation and Peaceful Uses of Nuclear Energy (\textit{Part IV and Attachment}).\textsuperscript{9}

\textbf{Part I: Current Legal Efforts (TPNW, Review Conferences, Iran, Korean Peninsula, UN and Autonomous Sanctions)}

3. Global and regional developments show an increasing importance of and awareness for legal aspects of nuclear deterrence and security. Efforts towards nuclear disarmament have not kept pace with wide-spread expectations. There is a significant degree of sobriety towards nuclear disarmament, mixed with increased controversies between States Parties to the NPT.\textsuperscript{10} While these controversies exclude any qualification of relevant State practice as ‘subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation’ under Art. 31 (3) (b) of the Vienna Convention on the Law of Treaties,\textsuperscript{11} a reconsideration of relevant treaty obligations including those under Article VI NPT is in place.

4. The \textit{Treaty on the Prohibition of Nuclear Weapons} (TPNW),\textsuperscript{12} negotiated and adopted by more than 120 States without participation by any nuclear-armed State, has condemned the development, testing, production, manufacture, acquisition, possession, stockpiling, transfer, and

\begin{itemize}
\item \textsuperscript{7} Round Tables on ‘Human Dimensions and Perspectives in a Nuclear World’ (Winnipeg, 2017); ‘Regional Nuclear Non-Proliferation and Disarmament’ (Winnipeg, 2018); ‘Legal Challenges for Nuclear Deterrence and Nuclear Security’ (London, 2019); and ‘Harnessing the Winds of Change in a Shifting Nuclear World’ (Winnipeg, 2019).
\item \textsuperscript{9} Special gratitude may be expressed to Committee members and friends, in particular to Masahiko Asada, Jonathan Black-Branch, Brian Drummond, Tom Coppen, Dirk Roland Haupt, Ulf Haeussler, Jonathan Herbach, André de Hoogh, Konstantinos Magliveras, Yolandì Meyer, Tariq Rauf, Daniel Rietiker, Marco Roscini, Vasilka Sancin, and Gabriella Venturini for critical comments on earlier drafts of this Report.
\item \textsuperscript{11} Vienna Convention on the Law of Treaties (VCLT), 23 May 1969, 1155 \textit{UNTS} 331.
\item \textsuperscript{12} Treaty on the Prohibition of Nuclear Weapons, UN Doc A/CONF.229/2017/8 (7 July 2017); UNGARES 72/31 (11 December 2017); 729 \textit{UNTS} 161. The Treaty will enter into force 90 days after the 50\textsuperscript{th} instrument of ratification, acceptance, approval or accession has been deposited. This quorum has been fulfilled on 24 October 2020, see https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVI-9&chapter=26.
\end{itemize}
use of nuclear weapons in public opinion and at the same time revealed a chasm between those States and experts considering it appropriate to rely on nuclear deterrence in the maintenance of external security and other States and experts who are convinced that nuclear armament is jeopardising security and must be abolished.

Nuclear-weapon States have adapted their nuclear postures and associated doctrines as nuclear weapons technology has evolved alongside broader innovations in the area of military capability development. Contemporary nuclear deterrents as well as the command and control architectures established to exercise effective political control over the forces operating them reflect technological breakthroughs such as, but not limited to, precision, miniaturization, digitization, and automation. At the same time nuclear deterrents are exposed to the same emerging vulnerabilities and security challenges as other military capabilities, including in the cyber and space domains.

The ICJ has refrained from pronouncing on the legality of the policy of deterrence. As far as customary international law is concerned, Nikolas Stürchler has shown that the Court ‘seems to have considered the practice of deterrence and the fortunate abstention from nuclear war since 1945 of equal significance.’ While the law has been and still is ‘in flux’ here, and realistic measures to overcome the existing chasm are still absent, it is clear that international cooperation is necessary to avoid a nuclear armageddon; to deny non-State actors access to nuclear explosive devices and material that could be used for the purposes of developing a nuclear bomb; and to achieve nuclear disarmament under strict and effective international control, an obligation that goes ‘beyond that of a mere obligation of conduct […] but […] ‘is an obligation to achieve a precise result. Many experts argue that current nuclear deterrence policies are unlawful in at least some respects. In any event a political exchange will be necessary between nuclear-weapon States and umbrella States on the one side and States supporting the TPNW on the other (see below, para. 19).

5. Efforts towards global and regional Nuclear Disarmament are still characterized by a lack of progress.


17 Stürchler, ibid.

18 ICJ, id., para. 99.

The New START Treaty,\textsuperscript{20} which had established lower limits for Russian and U.S. nuclear forces of 1,550 deployed strategic warheads and 700 deployed ICBMs, SLBMs, and heavy bombers equipped for nuclear armaments, was concluded for a duration of ten years with an option to extend by no more than five years. The Treaty will expire on 5 February 2021, but neither an extension nor a follow-up has been arranged for so far.\textsuperscript{21} While Russia has proposed an extension, U.S. Secretary of State Mike Pompeo told his Russian counterpart that ‘any future arms control talks must be based on President Trump’s vision for a trilateral arms control agreement that includes both Russia and China.’\textsuperscript{22} China whose arsenal of an estimated 280 nuclear warheads is far smaller than those of Russia and the United States, has rejected such talks.

The U.S. has provided its six-month notice of withdrawal from the INF Treaty\textsuperscript{23} on 2 February 2019, which has become effective on 2 August 2019.\textsuperscript{24} At the December 2019 summit of the North Atlantic Treaty Organization (NATO) the Heads of States and Government had stated: ‘We are addressing and will continue to address in a measured and responsible way Russia’s deployment of new intermediate-range missiles, which brought about the demise of the Intermediate-Range Nuclear Forces Treaty and which pose significant risks to Euro-Atlantic security.’\textsuperscript{25} Although European countries and the European Union as such are not parties to the INF Treaty, the former EU High Representative for Foreign Affairs and Security Policy declared on the day prior to the U.S. notice of withdrawal that ‘Europe has been probably the one that has benefited the most from this Treaty that we have valued enormously, that we value enormously. Our wish and our call is for this Treaty to be preserved with full compliance by both parties’.\textsuperscript{26} The Ministers of Foreign Affairs of the then 28 EU Member States, however, did not agree to a statement on the issue at their informal meeting preceding the High Representative's Press Statement. While there is still no political solution for this problem, and meanwhile even new Russian hypersonic air-to-ground weapons have been tested,\textsuperscript{27} a multilateral rather than bilateral

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\item[21] An extension has been discussed by President Vladimir Putin in a meeting with Defence Ministry leadership and heads of defence industry enterprises in December 2019, http://en.kremlin.ru/events/president/news/62250.
\item[25] London Declaration Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in London 3-4 December 2019, para. 4.
\item[26] Remarks by High Representative/Vice-President Federica Mogherini at the press conference following the informal meeting of the EU Foreign Affairs Ministers (Gymnich), Bucharest, 1 February 2019, https://www.pressclub.be/press-releases/remarks-by-high-representative-vice-president-federica-mogherini-at-the-press-conference-following-the-informal-meeting-of-the-eu-foreign-affairs-ministers-gymnich. See also President Emmanuel Macron’s speech at the École Militaire, on 7 February 2020 pleading that Europe should not confine itself to a spectator role here (‘les Européens doivent être parties prenantes et signataires du prochain traité car il s’agit de notre sol et d’une discussion qui ne doit pas passer par-dessus notre tête.’), https://www.elysee.fr/emmanuel-macron/2020/02/07/discours-du-president-emmanuel-macron-sur-la-strategie-de-defense-et-de-dissuasion-devant-les-stagiaires-de-la-27eme-promotion-de-lecole-de-guerre. See further https://www.defencechronicles.eu/inf-treaty-story-where-is-europe/.
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settlement may be more adequate to convincingly address security concerns that are connected with intermediate range missiles.

- The Conference on the Establishment of a Middle East Zone Free of Nuclear Weapons and Other Weapons of Mass Destruction held its First Session from 18-22 November 2019 at the United Nations Headquarters in New York, adopting a Political Declaration and a Final Report.28 The Second Session of the Conference was scheduled to take place from 16-20 November 2020.

It is true that since 1986 more than 54,000 nuclear warheads have been decommissioned and dismantled. But whilst the U.S. and Russia have been reducing the numbers of their nuclear warheads, other nuclear-armed States seem to have been pursuing different policies. The remaining 14,465 warheads, the absence of disarmament negotiations, and even retrogressive developments including the withdrawal from or termination of relevant treaties and the development of new types of nuclear weapons show a deplorable lack of compliance with Art. VI of the NPT. Significant differences of views and a lack of competence and willingness to find political solutions entail a risk for nuclear security. Nuclear-armed States could follow a Graduated Reciprocity in Tension-Reduction (GRID), by which one side would take small steps towards disarmament, thus inviting others to follow,29 but contemporary practice is different. It has been observed that if the two nuclear super powers would reduce their warheads to 200, this could not only drastically reduce the risk of accidents, but might also reduce the risk of nuclear winter as a result of the use of nuclear weapons.30 But in reality all nuclear-armed States have modernized their nuclear forces and many have improved their nuclear capabilities, in particular those in the cyber and space domains.

6. **Iran.** The Joint Comprehensive Plan of Action (JCPOA), was endorsed by SC Res 2231 (2015). In May 2018, the United States announced its withdrawal and reimposed U.S. sanctions on the Iranian regime.31 Iran has resumed some of its nuclear activities. SC Res 2231 (2015) is, however, still in force.32 Following the death of Iran’s Al Quds commander Qasem Soleimani in the course of a U.S. strike in January 2020, Iran announced plans to halt most of its commitments to the deal. On 14 January 2020 France, Germany and the UK have invoked the Dispute Resolution Mechanism under para. 36 of the JCPOA and referred the issue to the Joint Commission.33

7. **Korean Peninsula.** Issues on the Korean Peninsula remain on heightened alert. The Democratic People’s Republic of Korea (DPRK) had announced its withdrawal from the NPT on 12 March 1993, citing the resumption of joint U.S.-Republic of Korea (ROK) military exercises

32 Acting under Art. 41 of the UN Charter, the Security Council has decided that ten years after the JCPOA Adoption Day (i.e. on 17 October 2025) ‘all the provision of this resolution shall be terminated, and none of the previous resolutions [1696 (2006), 1737 (2006), 1747 (2007), 1803 (2008), 1835 (2008), 1929 (2010), and 2224 (2015)] shall be applied, the Security Council will have concluded its consideration of the Iranian issue, and the item “Non-proliferation” will be removed from the list of matters of which the Council is seized’ (cf. para. 8 of SC Res 2231 (2015).
which it claimed amounted to a nuclear war rehearsal against the DPRK and also alleging the IAEA’s lack of impartiality in dealing with its nuclear issues. Following diplomatic efforts by the U.S. and other Parties the DPRK suspended that declaration on 11 June 1993. Yet on 10 January 2003 it declared an immediate effectuation of its withdrawal.

The Security Council requested the DPRK to retract its withdrawal and abandon all nuclear weapons and weapons programs in a complete, verifiable and irreversible manner. This request deplored ‘the DPRK’s announcement of withdrawal from the Treaty on Non-Proliferation of Nuclear Weapons (the Treaty) and its stated pursuit of nuclear weapons in spite of its Treaty on Non-Proliferation of Nuclear Weapons and International Atomic Energy Agency (IAEA) safeguards obligations’, emphasizing that the Council acted ‘under its special responsibility for the maintenance of international peace and security’. 

UN sanctions and condemnations in this case cover both nuclear warheads and means of delivery (in particular ballistic missiles). Yet they remain ineffective and there is little reason to believe that the UN resolutions will accomplish their objective to convince the DPRK to discontinue these prohibited programs. On 12 December 2012 the DPRK had launched a Unha-3 (three stage) rocket from the Sohae Space Centre on the west coast and on 12 February 2013 it announced that it has conducted a nuclear test which the Preparatory Commission for the Comprehensive Test-Ban-Treaty Organization’s seismic network confirmed detecting ‘an unusual seismic event [in the DPRK], which measured 4.9 in magnitude’. The UN Security Council released a press statement declaring: ‘The members of the Security Council strongly condemned this test, which is a grave violation of Security Council resolution 1718 (2006), 1874 (2009) and 2087 (2013), and therefore there continues to exist a clear threat to international peace and security…..’.

Successive Security Council resolutions have extended the mandate of the Panel of Experts which remains actively seized of the matter, but little real progress has been made. It

appears difficult to deal with such threats by sanctions, even if UN sanctions are accompanied by national (‘autonomous’) sanctions.

After a Joint Statement of President Donald J. Trump and Chairman Kim Jong Un, North Korea and South Korea issued a Joint Statement on 19 September 2018 laying out more steps North Korea is prepared to take to denuclearize, but offering few details as to how they will get there. Apparently Chairman Kim Jong Un pledged to permanently shut down the Tongchang-ri missile launch and engine testing facilities as well as his nuclear production facility at Yongbyon, but only if the U.S. takes reciprocal steps in the region. Recent developments do not confirm such expectations. Secretary of State Mike Pompeo still declared on 31 December 2019 ‘President Trump has taken an approach where we've tried to develop a diplomatic pathway. We hope that the North Koreans will reconsider, that they'll continue down that pathway’. In new tests on 21 and 29 March 2020 North Korea fired short-range ballistic missiles into the sea.

8. **Review Conferences.** A general discussion on how the outcomes (or lack thereof) of review cycle meetings have supported (or impaired) the effectiveness of the nuclear non-proliferation regime remains necessary.

(a) The *NPT Review Conference 2020*, originally scheduled for 27 April – 22 May 2020, but postponed in light of the situation related to the global coronavirus (COVID-19) pandemic to a later date, as soon as the circumstances permit, but no later than April 2021, comes at an important time soon after the fiftieth anniversary of the Treaty’s entry into force on 5 March 1970. The unique status of the NPT is based on its near universal membership, indefinite extension in 1995, legally-binding obligations on disarmament, verifiable non-proliferation safeguards regime, and commitment to the peaceful use of nuclear energy. The Review Conference is facing a heavy agenda. The review of the operation of the Treaty, as provided for in its Article VIII (3), will take into account the Decisions and the Resolution adopted by the 1995 Review and Extension Conference, the Final Document of the 2000 Review Conference and the Conclusions and Recommendations for follow-on actions of the 2010 Review Conference—while no reference can be made to the 2015 Review Conference as it had failed to agree to a final document.

The Conference will consider the following three specific blocs of issues: nuclear disarmament and security assurances; regional issues, including with respect to the Middle East and the implementation of the 1995 resolution on the Middle East; and peaceful uses of nuclear energy and other provisions of the Treaty. Main Committee I will review the implementation of the provisions of the Treaty relating to nuclear disarmament—Articles I and II together with the preambular paragraphs 1–3, and Article VI along with preambular paragraphs 8–12. It will also consider security assurances from nuclear weapon States to non-nuclear weapon States, including Security Council resolutions 255 (1968) on positive assurances and 984 (1995) on negative

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assurances. Main Committee II will review the implementation of the provisions of the Treaty related to nuclear safeguards (verification) and nuclear-weapon-free zones—Article III along with preambular paragraphs 4 and 5, especially in the relationship to Article IV and preambular paragraphs 6 and 7; Articles I and II and preambular paragraphs 1–3 in their relationship to Articles III and IV; and Article VII—regional issues, including the Middle East. Main Committee III will review the implementation of the provisions of the Treaty related to the inalienable right of all parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II; Article V on benefits of peaceful nuclear explosions (to be overtaken by the CTBT once it enters into force); and other provisions of the Treaty—withdrawal, strengthened review process, disarmament and nonproliferation education.

From the interventions made and the documents submitted by States Parties to the NPT in the preparatory work leading up to the 2020 Review Conference, the following legal clusters may be extrapolated:

1. Nuclear safeguards standards under the NPT and procedures in relation to exports of nuclear materials and certain categories of equipment and material under Article III (2) of the NPT.

2. Elaboration of measures that can contribute to building confidence and to reduce the risk of the use of nuclear weapons, either intentionally, by miscalculation, or by accident, in the context of achieving nuclear disarmament.

3. Effective and credible nuclear disarmament verification aimed at promoting trust and confidence among nuclear-weapon States and non-nuclear-weapon States, as well as the development of appropriate multilateral technical capabilities.

4. Legal aspects of the so-called ‘Vienna issues’, i.e. the Comprehensive Nuclear Test-Ban Treaty; compliance and verification; export controls; cooperation in the peaceful uses of nuclear energy; nuclear safety; nuclear security; and discouraging withdrawal from the NPT.

5. Implementation of the Action Plan agreed at the 2010 NPT Review Conference, which, in light of the 2018 ILC Draft Conclusions on Subsequent Agreements and Subsequent Practice in Relation to the Interpretation of Treaties, raises the questions (a) whether and to what extent decisions adopted by NPT review conferences constitute subsequent practice in relation to the NPT and (b) which international legal consequences can reasonably be expected to result therefrom.

(i) In its 2018 Draft Conclusions, the ILC addressed decisions adopted within the framework of Conferences of States Parties as a particular form of action by States that may result in a subsequent agreement or subsequent practice under Article 31(3), or in subsequent practice under Article 32 VCLT. In Conclusion II, the ILC

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48 International Law Commission: Draft Conclusions on Subsequent Agreements and Subsequent Practice in Relation to the Interpretation of Treaties, with Commentaries, (2018), https://legal.un.org/docs/?path=_/ilc/texts/instruments/english/commentaries/1_11_2018.pdf&lang=EF. Reflecting important new developments concerning the law of treaties at an abstract level of analysis, this document provides significant insights informing the interpretation of the NPT.

defined a Conference of States Parties as ‘a meeting of parties to a treaty for the purpose of reviewing or implementing the treaty, except where they act as members of an organ of an international organization’ (paragraph 1).

(ii) As the ILC explains, expressly quoting the example of the Review Conference under Article VIII (3) of the NPT, there are types of conferences of States Parties which are convened with respect to treaties that do not establish an international organization. Such treaties may provide, or allow, for periodic meetings of the Parties for treaty review and implementation. Review conferences—which might be qualified as ‘treaty bodies’—are frameworks for Parties’ cooperation and subsequent conduct with respect to the treaty. As is the case in Article VIII (1) and (2) of the NPT, this type of conference of States Parties may also have specific powers concerning amendments and/or the adaptation of treaties.

(iii) In paragraph 2 of Conclusion 11, on the legal effects of decisions adopted by conferences of States Parties and on the issue whether these decisions possibly embody a subsequent agreement or subsequent practice or provide a range of practical options, the ILC observes that ‘the legal effect of a decision adopted within the framework of a Conference of States Parties depends primarily on the treaty and any applicable rules of procedure. Depending on the circumstances, such a decision may embody, explicitly or implicitly, a subsequent agreement under article 31, paragraph 3 (a) VCLT, or give rise to subsequent practice under article 31, paragraph 3 (b), or to subsequent practice [as a supplementary means of interpretation] under article 32’. 52

(iv) The legal effects of a decision adopted at a NPT review conference depend on the circumstances of each case, and such decisions need to be properly interpreted. A relevant consideration may be whether States Parties uniformly or without challenge apply the treaty as interpreted by the decision of the Review Conference. As confirmed in Conclusion 11, a decision adopted by consensus would not necessarily be equated with agreement in substance in the context of Art. 31(3)(a) and (b) VCLT. Discordant practice following such a decision may be an indication that States did not assume that the decision would be a subsequent agreement under Article 31(3)(a) VCLT. The NPT Review Conference generally adopts its Final Document by consensus or, alternatively, without any objection. 53 Decisions of a Review Conference that do not qualify as subsequent agreements under Article 31(3)(a), or as subsequent practice under Article 31(3)(b), may nevertheless be a subsidiary means of interpretation under Article 32. 54

(v) The principle that agreements among all the Parties regarding the interpretation of a treaty under Article 31(3) VCLT must relate to the content of the treaty, is set forth in paragraph 3 of Conclusion 11: ‘A decision adopted within the framework of a Conference of States Parties embodies a subsequent agreement or subsequent practice under article 31, paragraph 3, in so far as it expresses agreement in substance between the parties regarding the interpretation of a treaty, regardless of the form and the procedure by which the decision was adopted, including adoption by consensus.’ 55 Thus, what is important is the substance of the agreement embodied in the decision of the review conference and not the form or procedure by which that decision is reached. 56

(b) The 2021 Review Conference for the Amended Convention on the Physical Protection of Nuclear Material. The Amendment to the Convention on the Physical Protection of Nuclear Material (CPPNM) entered into force on 8 May 2016. 58 The original CPPNM, which had entered into force in 1987, is the only multilateral treaty requiring States Parties to secure nuclear material used for peaceful purposes during international transport. The Amendment to the CPPNM

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51 Ibid., at p. 83 (commentary 2).
52 Ibid., at pp. 82 and 84–85 (commentaries 5–9).
53 It should be noted, however, that a distinction needs to be made between decisions without objection against the ‘taking of the decision’ as such, and decisions without objections in ‘substance’.
54 Ibid., at p. 90 (commentary 27).
55 Ibid., at p. 82
56 Ibid., at p. 90 (commentary 28).
significantly expands the scope of the original text, requiring States Parties beyond the original treaty to establish, implement and maintain a physical protection regime for nuclear material used for peaceful purposes in domestic use, storage and transport, as well as for nuclear facilities. Pursuant to the CPPNM Amendment, a conference of States Parties will be convened in 2021 (five years following its entry into force) with the objective 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’.  

Review conferences under the amended CPPNM thus have a dual function, to look both at the implementation of the treaty as well as at its adequacy. The reference in Article 16.1 to ‘adequacy’ means that the very suitability of the treaty to realize the aims that led to its adoption is part of the review discussion, in addition to operation of the treaty. It is an added element, requiring States Parties to go beyond article-by-article analysis, that leads one to believe that the process under the amended CPPNM is designed to involve broader consideration and debate of nuclear security requirements and how the treaty contributes to nuclear security governance. It should be noted that the review conference provision of the treaty does not provide specific guidance on the procedure or substance of the review conference.

The preparatory process, which follows a provisional roadmap agreed to by States Parties in 2018, commenced in 2019 with two informal meetings of legal and technical experts from States Parties to the amended CPPNM as well as States that are Parties only to the original CPPNM. A Preparatory Committee for the 2021 Review Conference, originally scheduled for 29 June to 3 July 2020, is to be held in late 2020 or early 2021. There is no real precedent for this review conference. Previously, a single review conference took place in 1992 under the original CPPNM five years after its entry into force. The 1992 Review Conference took roughly a half-day at which participating States Parties affirmed the adequacy of the convention and proclaimed the usefulness of updating IAEA guidance on physical protection of nuclear material. It is to be considered in this context that only 17% of all nuclear materials in the world are in civilian use and under IAEA safeguards, while 83% are in military use and, following Art. I NPT, under the exclusive political control of the respective nuclear-weapon State.

The CPPNM now has an expanded scope, more States Parties, and nuclear security has been placed high on the international agenda, following the Nuclear Security Summit process from 2010-2016 as well as continued recognition of the threat of nuclear terrorism. There are a number of issues, both procedural and substantive, which may deserve consideration for a successful 2021 review conference of the amended CPPNM. First, the review conference agenda does not only give States Parties the opportunity to discuss implementation practice, challenges and lessons learned, but also should include a discussion of the treaty’s ability to deal with emerging threats and challenges, such as cyber threats to nuclear material and facilities. Second, Parties might agree on the role of the IAEA Nuclear Security Series Recommendations on Physical Protection of Nuclear Material and Nuclear Facilities (NSS No. 13, INFCIRC/225/Rev.5) as implementation guidance for the amended CPPNM, and call for this non-binding instrument to be updated regularly. Parties could agree, unanimously or by consensus depending on the rules of procedure adopted for the review conference, that the provisions of INFCIRC/225/Rev.5 are the appropriate measures necessary for establishing, implementing and maintaining an appropriate physical protection

59 CPPNM as amended, Art. 16.
61 INFCIRC/225.
62 As of 5 December 2019, 123 States and EURATOM are party to the amended CPPNM, see https://www.legacy.iaea.org/Publications/Documents/Conventions/cppnm_amend_status.pdf. 37 States remain party only to the original CPPNM.
regime applicable to nuclear material and nuclear facilities under a State Party’s jurisdiction (Article 2A). Third, Parties could commit to undergoing IAEA International Physical Protection Advisory Service missions (including follow-up missions) in order to assess the state of national nuclear security regimes, and should commit to acting in accordance with the missions’ recommendations. Fourth, States could make a commitment to share information on laws and regulations giving effect to the treaty, as required by Article 14, and provide updates as necessary. The more information provided, the better it serves to build trust and confidence in compliance with the treaty, and the information provided by states parties could form the basis for discussing issues related to implementation and adequacy during review conferences. Finally, Parties will be expected to agree to the convening of further review conferences in the interest of ensuring the continued viability of the treaty framework. Effectively dealing with these five issues, the review conference for the amended CPPNM could become an important instrument for strengthening the international legal framework for nuclear security.

9. UN and Autonomous Sanctions in Nuclear Non-Proliferation Law. The Security Council has on numerous occasions ordered an array of coercive measures (sanctions) against Member States for not complying with their obligations in the area of non-proliferation of nuclear weapons. Apart from such measures, a practice which has developed in certain States to order so-called autonomous sanctions might offer another legal avenue to address those States which deliberately fail to observe their non-proliferation obligations. Such autonomous sanctions are separate and independent of any enforcement measures that the Security Council has taken pursuant to Chapter VII of the UN Charter and/or of similar action adopted by other international organizations (e.g. the European Union). In essence autonomous sanctions relate to unilateral coercive measures in the form of retorsions or countermeasures. EU measures targeting third States, too, are retorsions or countermeasures of a unilateral nature and not akin to collective coercive measures in the nature of sanctions decided upon by an international organization against its members.

The practice of adopting autonomous sanctions has been principally recorded in common law jurisdictions. The underlying theme of autonomous sanctions is that they are adopted on the basis of domestic legislation, which regards the measures that are taken against a third State, which is held not to have complied with its international obligations, including nuclear proliferation, as a legitimate manner to further foreign policy objectives (in casu, to maintain peace and security globally). More specifically, autonomous sanctions may be taken on the initiative of a single State to tackle what the State in question considers to be matters affecting national interests.

The State best known for its comprehensive unilateral sanctions is the United States. But there are also other States which rely on autonomous sanctions.

The Government of Canada is authorized under Section 4 of the Special Economic Measures Act (SEMA) of 1992, to inflict sanctions on foreign jurisdictions and on persons, provided that the Government believes that a grave breach of international peace and security has taken place potentially resulting in a serious international crisis and no relevant action is taken by an international organization in which Canada partakes as a Member State. Policies pursued by States for the proliferation of weapons of mass destruction, including nuclear proliferation, are

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63 See e.g. Countering America’s Adversaries Through Sanctions Act – CAATSA – (Public Law 115–44, 131 Statutes 886); Comprehensive Iran Sanctions, Accountability, and Divestment Act (Public Law 111–195, 120 Statutes 1344); and Iran Threat Reduction and Syria Human Rights Act (Public Law 112–158, 126 Statutes 1214).
64 Statutes of Canada 1992, Chapter 17, as currently in force.
included in the scope of SEMA. North Korea, and Iran are currently under such autonomous sanctions.

Australia, by using as legal basis its Autonomous Sanctions Regulations 2011, has adopted autonomous sanctions against, inter alia, North Korea for pursuing nuclear proliferation and Iran for its nuclear programme.

Even though autonomous sanctions may be regarded as lawful under domestic law and their legality may be tested before domestic courts, their compatibility with public international law is particularly difficult to ascertain, especially if the measures concerned would not comply with the conditions for the imposition of countermeasures (Articles 42, 48, and 49-54 ARSIWA). If the States involved have not accepted the compulsory jurisdiction of the ICJ, the targeted States may find other legal avenues to dispute the legality of such sanctions and to seek compensation of any damage caused.

An example is the case lodged by Iran against the United States on 16 July 2018 and currently pending before the ICJ. In this case, Iran brought an action against the United States claiming that the sanctions announced by the US President in May 2018 relating to its nuclear programme violated a specific bilateral agreement, namely the Treaty of Amity, Economic Relations and Consular Rights. Iran also asked the ICJ to rule that the United States must fully compensate it for the violation of its international legal obligations in an amount to be determined by the ICJ itself. The basis for jurisdiction of the ICJ is Article XXI (2) of the Treaty of Amity, which stipulates that any dispute between the two contracting parties pertaining to the interpretation or application of the Treaty, and which has not been satisfactorily resolved by diplomatic means, shall be submitted to the ICJ, unless the two Parties have agreed to a different peaceful settlement means. Article XXI (2) constitutes what is known as a compromissory clause, which gives jurisdiction to the ICJ to rule on disputes emanating from such treaties. While the ICJ does not function here as the principal judicial organ of the United Nations, but as the transnational court of choice of the Parties to the treaty, proceedings conducted before it follows the relevant provisions of the ICJ Statute. Upon Iran’s request for provisional measures the ICJ, by its Order of 3 October

66 For consolidation, see Special Economic Measures (Iran) Regulations SOR/2010-165, last amended on 4 March 2019.
69 They were last amended by the Autonomous Sanctions Amendment (Iran) Regulation 2016, 1 March 2016, F2016C00267, which were ended on 5 July 2017.
73 Treaty of Amity, Economic Relations and Consular Rights between the United States and Iran (15 August 1955), 284 UNTS 93.
2018, \textsuperscript{74} unanimously requested the United States to not obstruct the free exportation to the Iranian territory of medicines and medical devices, of foodstuffs and agricultural commodities, and of spare parts, equipment and services necessary for the safety of civil aviation. Thus, regardless of the final outcome of this case, Iran has already been successful in obtaining an order prohibiting the author of the unilateral sanctions to apply at least some of them.

**Part II: New Economic, Military and Technological Developments**

10. New economic, military and technological developments have shown a need for further legal limitations in the use of nuclear energy.

11. *Foreign Assistance in Establishing and Operating Nuclear Power Plants.* Currently the Russian Federation is the predominant supplier of nuclear plants to States looking to establish or expand their nuclear energy capabilities, holding over 50\% of worldwide nuclear reactor exports,\textsuperscript{75} as US-based Westinghouse Electric Co. was going bankrupt and Areva of France is going through a challenging restructuring phase.\textsuperscript{76} Other nuclear plant exporters include China and South Korea.\textsuperscript{77} China is probably the only country that can rival Russia in its amount of exports, however China’s export capacity is still significantly lower than that of Russia.\textsuperscript{78} Export of nuclear power plants is a more lucrative option for Russia, which has always been a prolific energy exporter mainly in the form of oil and gas. In addition to the significant gain to be made from selling reactors, the sale of a nuclear reactor usually also involves supplying training, nuclear fuel and consultation with the receiving State on an on-going basis, cementing their political relationship.\textsuperscript{79} Rosatom provides nuclear plants to countries that have been described as ‘great grand middle’ countries – those that are close allies of neither Russia nor the United States.\textsuperscript{80} Russia has started building nuclear power plants in countries such as Turkey, Belarus, Egypt, Hungary, India, Bangladesh and, perhaps most controversially, Iran.\textsuperscript{81} Nuclear power plant construction agreements have been signed between

\textsuperscript{74} ICJ, Alleged Violations of the 1955 Treaty of Amity, Economic Relations, and Consular Rights (Islamic Republic of Iran v. United States of America), Provisional Measures, Order of 3 October 2018, *I.C.J. Reports* 2018, p. 623. It may be noted that the provisional measures taken by the Court were in fact not congruent with those requested by Iran: compare para 5 (p. 6 et seq.) and paras 95-99 (p. 650 et seq.).
\textsuperscript{76} N Schepers ‘Russia’s Nuclear Energy Exports: Status, Prospects and Implications’ EU Non-Proliferation and Disarmament Consortium Non-Proliferation and Disarmament Papers No 61 (February 2019) [https://www.sipri.org/sites/default/files/2019-02/eunpdc_no_61_final.pdf](https://www.sipri.org/sites/default/files/2019-02/eunpdc_no_61_final.pdf) at 3.
\textsuperscript{78} Ibid.
\textsuperscript{80} Ibid.
Russia and countries including Armenia, Egypt, China, Iran, India and Uzbekistan. Rosatom has signed nuclear co-operation agreements with Nigeria, Bolivia, Cuba, Cambodia, Ghana, Paraguay, Saudi Arabia, Tunisia, Tajikistan, the UAE, Rwanda, Zambia, Egypt, Kenya, Sudan, Algeria, Morocco and Uganda.

The failed nuclear deal between South Africa and Russia in 2017 illustrated by the *Earthlife Africa* case demonstrates the potential for abuse of political power and influence in the procurement of nuclear contracts. In the *Earthlife Africa* case the Supreme Court of the Republic of South Africa (Western Cape Division) determined that the agreement under review granting liability indemnification to the supplying State does not qualify as an international agreement of a technical, administrative, or executive nature not requiring parliamentary consent under Article 231 of the Constitution of the Republic of South Africa. The Court assessed that the agreement ‘stands well outside the category of a broad nuclear cooperation agreement and, at the very least, sets the parties well on their way to a binding, exclusive agreement in relation to the procurement of new reactor plants from that particular country’. This jurisprudence could suggest that nuclear procurement will be subject to increasingly tight constitutional scrutiny which in turn could become an important contribution, *sub specie* judicial decisions, to the corpus of subsidiary means for the determination of rules of law. Developing States are particularly vulnerable to abuses

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85 At para. 110.
of power, because they are dependent on sustainable methods of energy production because of the current shortages and difficulties in sustaining a consistent energy supply.

12. **Nuclear Activities in Outer Space.** The Outer Space Treaty\(^6\) prohibits placing nuclear weapons or any other weapons of mass destruction in orbit around the earth, installing them on celestial bodies, and stationing them in outer space.\(^7\) It also provides that the moon and other celestial bodies be used exclusively for peaceful purposes. This was further specified in the Moon Agreement,\(^8\) a treaty that provides in Article 11 for an international regime to oversee the disposition of natural resources found on the moon, but has been ratified by only few States.\(^9\) The prohibition on placing WMD into orbit round the earth or stationing them in outer space does not extend to fractional orbit bombs, i.e., those which travel through space but reach their target before completing an orbit of the earth. However, their use may be limited under other applicable law, such as international humanitarian law.\(^10\)

The UN Principles relevant to the use of nuclear power sources in outer space (UNGA Res 47/78 of 14 December 1992) have envisaged safety standards for nuclear energy applications which have been further developed by the UNCOPUOS Scientific and Technical Subcommittee jointly with the IAEA since 2009.\(^11\) In 2010 the UN General Assembly requested the Secretary-General, with the assistance of a group of governmental experts, to carry out a study on the specific aspects related to the application of different confidence-building measures in outer space (UNGA Res. 65/68 of 8 December 2010). The group of experts adopted by consensus a study on outer space transparency and confidence-building measures and recommended that States (a) consider transparency and confidence-building measures for outer space activities (including exchange of information relating to national space policy such as major military expenditure on outer space, notifications on outer space activities aimed at risk reduction and visits to space launch sites and facilities); and (b) implement them on a voluntary basis (UN Doc A/68/189 of 29 July 2013).

The Group of Governmental Experts on the Prevention of an Arms Race in Outer Space (GGE PAROS) established pursuant to UNGA Res. 72/250 (24 December 2017) ‘to consider and make recommendations on substantial elements of an international legally binding instrument’ could not reach consensus on a final report.

No binding definition of the concept of ‘peaceful uses’ could be provided either in the Outer Space Treaty itself or in subsequent instruments. The Outer Space Treaty strikes a difference between the notions of ‘for peaceful purposes’ and ‘exclusively for peaceful purposes’, a difference that is highlighted by the *opinio juris* and practice of many States. The German Government, e.g., has explained in Parliament that non-aggressive military uses of outer space including the exercise of the inherent right of self-defence acknowledged by Article 51 of the UN Charter is an integral

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part of the use of outer space for peaceful purposes. NATO Heads of State and Government have declared space ‘an operational domain for NATO, recognising its importance in keeping us safe and tackling security challenges, while upholding international law’. NATO will essentially exercise a coordinating role rather than intending to develop space capabilities of its own or becoming a space actor in its own right.

In quantitative terms, according to current estimates, there are about 2,000 satellites in the Earth’s orbit, both for civilian and military purposes. Half of them are owned and operated by States that are also members of NATO. All nuclear-weapon States have deployed nuclear command and control as well as early warning capabilities to outer space. As no single case is known where such actions were questioned from an international law perspective, they reflect State practice confirming the lawfulness, under the Outer Space Treaty, of such capability deployments, as well as, from an international space law perspective, of the use of these capabilities.

Whilst proposals aiming at cooperative measures to increase transparency and confidence building in this fast developing technological area (by no-first-use commitments, limited test bans and shared space situational awareness activities) still remain to be implemented, international groups of experts are engaged in preparing manuals on the international law of military operations in space.

13. **Human Rights Standards for the Authorisation and Operation of Nuclear Power Plants.** When authorising or conducting the operation of nuclear power plants, States are under an obligation to observe internationally recognised human rights standards, such as right to development, the right to life, the right to health, the right to respect for private life, and the right to an adequate standard of living, including sufficient food and drinking water. These rights limit an unfettered exploitation of uranium which may affect miners and local population, in particular indigenous communities, challenging present and future generations. Furthermore, the full respect and enjoyment of human rights must also be guaranteed during the exploitation of nuclear energy for peaceful purposes. Therefore, strict safeguards must be applied to ensure nuclear security and non-proliferation during the operation of nuclear power plants. In both uranium

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93 London Declaration Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in London 3-4 December 2019, para. 6. Already at their meeting on 20 November 2019, NATO Foreign Ministers had formally recognised outer space as frontier new operational domain for NATO, alongside air, land, sea and cyber, in response to growing concerns over protecting satellite and navigation assets from enemy interference, [https://www.nato.int/cps/en/natohq/news_171028.htm](https://www.nato.int/cps/en/natohq/news_171028.htm).


mining and operating nuclear power plants, special attention must be paid to the enhanced needs of particularly vulnerable people, such as indigenous peoples, women or children. Civil society as well as the UN Committee on the Rights of the Child, implementing the 1989 Convention on the Rights of the Child, have criticised the Japanese authorities for not having effectively protected the health of children in the aftermath of the 2011 Fukushima nuclear disaster.

Deliberations under UN auspices have led to activities towards a new core human rights treaty dealing with human rights obligations of corporations and companies. The fifth session of the United Nations open-ended intergovernmental working group on transnational corporations and other business enterprises with respect to human rights met in Geneva from 14 to 18 October 2019 to discuss a revised draft legally binding instrument, which had been prepared by the Permanent Mission of Ecuador. Pursuant to draft Article 2, the instrument will have a three-fold purpose: (a) to protect and fulfill human rights in the context of business activities (not limited to those of a transnational character); (b) to prevent human rights’ violations and abuses by transnational corporations and other business enterprises when pursuing their commercial activities, while ensuring that victims have effective access to justice and remedies; and (c) to strengthen international cooperation so as to prevent such violations and abuses and to ensure access to justice and be entitled to remedies. The term ‘human rights violations or abuses’ has received a quite broad definition in draft Article 1(2) and includes any harm committed by a State or a business enterprise, through acts or omissions when pursuing its activities, against persons or group of persons, including physical or mental injury, emotional suffering, economic loss or substantial impairment of their human rights, including environmental rights.

It should also be noted that draft Article 4(9) obliges contracting States to adopt adequate and effective measures to guarantee a safe and enabling environment for those persons, groups and organisations defending human rights and the environment, for the purpose of being able to perform their mandate without threats, restrictions and insecurity.

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99 For the particular vulnerability of these three groups facing activities causing radioactivity see D. Rietiker, Humanization of Arms Control, Paving the Way for a World Free of Nuclear Weapons, Routledge 2017, 222-238.

100 In its report of 1 February 2019, the UN Committee on the Rights of the Child made seven recommendations to the government of Japan, including to “(a) reaffirm that radiation exposure in evacuation zones is consistent with internationally accepted knowledge on risk factors for children; (b) continue providing financial, housing, medical and other support to evacuees, children in particular, from the non-designated areas [and] … (d) conduct comprehensive and long-term health checkups for children in areas with radiation doses exceeding 1mSv/year.” A/HRC/23/41/Add.3, https://tbinternet.ohchr.org/Treaties/CRC/Shared%20Documents/JPN/CRC_C_JPN_CO_4-5_33812_E.pdf.

Greenpeace argues that the current Japanese government policy is clearly in violation of its obligations under the CRC by not preventing childhood exposure to radioactive contamination in Fukushima resulting from the 2011 nuclear disaster, and recalling that this obligation flows naturally from the right of children to physical integrity and from the fact that such exposure makes it nearly impossible to realize every child’s right to the highest attainable standard of health, to survival and to maximum development, given their extreme sensitivity to pre- and postnatal exposure. Greenpeace, On the Frontline of the Fukushima Nuclear Accident: Workers and Children. Radiation risks and human rights violations, March 2019, p. 44, see: https://reliefweb.int/report/japan/frontline-fukushima-nuclear-accident-workers-and-children-radiation-risks-and-human.


As laid down in draft Article 5, the draft instrument has a preventive character. It would thus apply to ensure the safe operation of nuclear power plants. In particular, contracting States will be obliged to take those measures which will be necessary to ensure that those conducting business activities (including transnational activities) shall, inter alia, undertake environmental and human rights impact assessments in relation not only to their own activities but also to those under their contractual relationships. These assessments shall be incorporated into the relevant internal functions and processes of the corporations and other businesses concerned.

It remains to be seen, whether this revised draft legally binding instrument will culminate to a so-called United Nations core human rights treaty. Previous attempts to conclude such a core treaty have not been successful.103

14. **Environmental Standards for the Use of Nuclear Energy.** The use of nuclear energy presents major challenges for the natural environment that may be caused by the discharge of radioactive materials into the environment in the course of the production process of uranium and plutonium, by accidents or malfunctioning of nuclear installations, by nuclear-propelled vehicles, and during nuclear transports. The operation of some nuclear power plants has resulted in serious environmental disasters and, more generally, in environmental degradation. Health effects of uranium production and storage problems of radioactive waste (see also below, para. 18) are further examples showing the need for environmental impact assessments in the planning of all nuclear applications, irrespective of whether these are serving civilian or military purposes.

Environmental challenges, coinciding with health risks for humans, are not fully met by applicable treaty law. They affect the fate of future generations and are prompting an enhanced responsibility for relevant decision-makers. The basic rule in customary law is the so-called no-harm rule, recognized in the *Trail Smelter* arbitration and reaffirmed by the ICJ in *Nuclear Weapons*.105 International norms addressing transboundary harm and an international liability regime based on operator liability may not suffice to protect current victims and future generations. This underlines the need for international standard setting procedures creating soft law in this field.106

15. **The Role of the IAEA in Developing and Monitoring Nuclear Security.** The IAEA, established to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity worldwide,107 is the primary international organization involved in developing and monitoring nuclear security. The IAEA’s functions in this area are clearly and inextricably linked to its work on non-proliferation of nuclear weapons and facilitating the peaceful uses of nuclear energy. While the term ‘security’ is not explicitly mentioned in the IAEA Statute, there are certain

103 Currently, at UN level this matter is addressed by the *Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework*, which the Human Rights Council endorsed by virtue of Resolution 17/4 of 16 June 2011. The *Guiding Principles* have been published as UN Doc. HR/PUB/11/04 (2011).
107 Statute of the International Atomic Energy Agency (IAEA Statute), Article II.
statutory functions of the IAEA to which the Agency’s role in nuclear security is attributable. These include *inter alia* provisions concerning training and technical advice, or provision of equipment or supplies, as well as the facilitation of information exchange and related services. More generally, the nuclear security functions of the Agency are based on decisions of the Board of Governors, as well as on the annual nuclear security resolutions adopted by the General Conference. The Board of Governors approves quadrennial nuclear security plans, which are developed by the Secretariat in consultation with the Member States, and provide the primary legal basis to the nuclear security functions of the IAEA. The yearly General Conference resolutions, in addition, direct the Agency and recommend to the Member States to take certain actions in the area of nuclear security. These legal mandates apply to the work of the Agency, but do not necessarily entail legal obligations for States.

Under the IAEA’s auspices, guidance for the establishment, development and maintenance of States’ nuclear security regimes has been and continues to be developed. While not legally binding, these guidance instruments, contained in the IAEA Nuclear Security Series, address a range of issues related to nuclear security, from laying out general goals of a State’s nuclear security regime, to presenting recommendations on measures that should be taken by States to achieve and maintain effective national nuclear security regimes, to providing technical guidance to assist States with implementing the measures contained in the recommendations, thereby elaborating on, for instance, technical aspects of border monitoring equipment or identifying vital areas at a nuclear facility.

The IAEA also functions as the depositary of the amended CPPNM, which includes, inter alia: receiving information from States Parties on the laws and regulations giving effect to the treaty provisions and outcomes of judicial proceedings – a purely collection function without the added step of reviewing the information for conformity with legal rules; receiving instruments of ratification, acceptance, approval or accession; receiving notifications of denunciation; convening review conferences five years after entry into force of the original treaty, five years after entry into force of the amendment to the convention, and at intervals thereafter of not less than five years upon request by the majority of States Parties; and circulating proposed amendments and convening amendment conferences upon request by a majority of member States.

The closest thing to monitoring mechanisms – the so-called peer review services, *inter alia*, International Physical Protection and Advisory Service (IPPAS) and International Nuclear Security Advisory Service (INSServ) missions – are completely voluntary, undertaken upon request of the receiving State. Acting in accordance with the results/recommendations of the missions is not mandatory. These services are set up to assess a State’s nuclear security system, including the legal and regulatory framework, in line with applicable international instruments (both legally binding and non-binding).

IPPAS missions focus on the State’s physical protection system and INSServ more generally examines a State’s nuclear security measures. The groups that carry out these missions

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109 The most recent General Conference resolution in 2019 affirmed ‘the central role of the Agency in strengthening the nuclear security framework globally and in coordinating international activities in the field of nuclear security’, GC (63)/RES/8.

110 CPPNM (as amended), Art. 14.

111 CPPNM (as amended), Art. 18.

112 CPPNM (as amended), Art. 21.

113 CPPNM (as amended), Art. 16. The first review conference under the amended convention is to take place in 2021.

114 CPPNM (as amended), Art. 20.
are not empowered to make determinations of non-compliance with any international instruments. These types of missions do, however, provide a form of confidence-building, especially when States choose to share non-confidential results and provide information on enactment of recommendations. These missions, in part, help the Agency develop, upon a State’s request, an Integrated Nuclear Security Support Plan (INSSP), which provides a comprehensive framework for reviewing national nuclear security regimes and identifying areas where they need to be strengthened. The Plans also highlight any assistance needed to support the development of an effective and sustainable nuclear security regime. The INSPPs are tailored to a State’s specific needs, based on the Nuclear Security Series guidance, and address five areas: the legal and regulatory frameworks, prevention, detection and sustainability.

Part III: Present and Future Legal Challenges (Compliance Control, Radioactive Waste Disposal, Nuclear Deterrence)

16. The study of the NPT’s three pillars that was conducted by the Committee over the previous years has provided more clarity on the requirements of nuclear non-proliferation, the use of nuclear energy for peaceful purposes, and nuclear disarmament. It has shown interdependencies between those pillars. It also revealed open issues that are not fully solved and are challenging the international community today and in future.

17. Cooperative Verification and Control. Compliance with nuclear non-proliferation commitments is an ongoing challenge for the international community. It is widely based on voluntary cooperation. Relevant principles and rules are limited. There is a continuing need to improve treaty law. Soft law with all its imprecisions and lack of international controls plays a dominating role. Measures taken by the Security Council under Chapter VII of the UN Charter, such as SC Res 1540 (2004) and 2325 (2016), require international cooperation. There is a continuing need to improve cooperative verification and control.

18. Radioactive Waste Disposal. There is a continuing need for the use of nuclear energy for peaceful purposes and this need will even increase in future. Nuclear power has many advantages in comparison with other sources, as it involves lower carbon dioxide emissions and damage caused by accidents, notably in Three Mile Island 1979, Chernobyl 1986, and Fukushima 2011, has been less frequent and perhaps comparably lower than the many damages caused by natural gas, biomass, mineral oil or coal production within the same timeframe. But, as explained in the Fourth Report the issue of radioactive waste management is far from being solved, as reliable technology is still not available, proliferation to non-State actors remains a serious problem, and the cost of waste management over thousands of years creates a hardly calculable burden upon future generations.

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19. **Nuclear Deterrence.** While there has been a continuing demand in public opinion for outlawing nuclear weapons over the years (see above, para. 4), a demand that has become more forceful through the adoption of the TPNW, the role of nuclear deterrence has not changed in the practice of nuclear-weapon States and many of their Allies. The major military powers have not been at war with each other now for more than seven decades. This may be widely due to the fact that deterrence is effective,\(^{118}\) but nuclear deterrence entails a constant risk that may affect its legality.\(^{119}\) While the *use* of nuclear weapons would be hardly in line with the principles and rules of international humanitarian law, political and legal aspects of the *threat of use* of nuclear weapons and the conditions of such threat require consideration. A no first use policy may be a necessary, but not sufficient, condition for the legality of that threat. Justification for threats of self-defence for securing the very survival of a State remains relevant in this context. There is still a lack of analysis on the issue of extended nuclear deterrence, which covers allies and not only the homeland of the deterring State, and its significance for global and regional security.

**Part IV: Draft Resolution**

20. The attached *Resolution on Legal Issues of Nuclear Weapons, Nuclear Non-Proliferation and Peaceful Uses of Nuclear Energy* is proposed for adoption by the 79\(^{th}\) Conference.

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\(^{118}\) ‘No safer system than deterrence is yet in view, and impatience would be a catastrophic guide in the search. To tear down the present structure, imperfect but effective, before a better one is firmly within our grasp would be an immensely dangerous and irresponsible act.’ Cf Quinlan, above (n 11), 183.