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Consideration of the status and operation of the Treaty and other matters important for achieving the objectives and purpose of the Treaty: other matters important for achieving the objectives and purpose of the Treaty: consultative process on the security concerns of States under the Treaty on the Prohibition of Nuclear Weapons

Report of the coordinator for the consultative process on security concerns of States under the Treaty on the Prohibition of Nuclear Weapons (Austria)

I. Executive Summary

1. All States have the responsibility to protect their populations from threats to their security. Nuclear weapons represent an acute and fundamental threat to the security of all States. This is the case whether or not a State possesses nuclear weapons, relies on nuclear deterrence or is directly involved in a nuclear conflict. Responding to this threat by seeking to remove it is thus a prime responsibility and legitimate concern for all Governments and an entirely “realist” pursuit of their national security interest.

2. Any use of nuclear weapons would result in catastrophic humanitarian and security consequences. Beyond immediate devastation, such an event would overwhelm humanitarian response capacities, produce transboundary and global effects and have short- and long-term impacts on the environment, socioeconomic and sustainable development, food security and the health of current and future generations. The cumulative, complex and cascading nature of these consequences – including displacement and threats to the right to life – would make an adequate response impossible and endanger the security of all humanity.

3. Given these grave consequences, the continued existence of nuclear weapons and their role as an “essential” means of providing security and stability for the States that possess or rely on them represent a direct and critical threat to the security of States parties to the Treaty on the Prohibition of Nuclear Weapons. This threat is exacerbated by the continued and increasing salience of and emphasis on nuclear weapons in nuclear postures and doctrines, coupled with the qualitative modernization and quantitative increases in nuclear arsenals amid heightened geopolitical tensions. In addition, the growing insistence on nuclear weapons as an

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essential and indispensable “security guarantee” is inciting nuclear proliferation, undermining the global non-proliferation regime and thus increasing the security risks still further.

4. There is no certainty regarding the effectiveness of nuclear deterrence, nor for its ineffectiveness. However, the fact that nuclear deterrence can fail is undisputed. The ability of nuclear-armed States to control escalation and to avoid miscalculation or accidents is uncertain, as evidenced by past cases of near misses, accidents, miscalculations and lucky escapes. The claim that nuclear deterrence has prevented large-scale war and nuclear conflict in the past is equally impossible to prove conclusively and does not provide certainty that nuclear deterrence will work as assumed in the future. And the use of new and emerging technologies in the military domain has the potential to dramatically increase uncertainty and introduce new risks.

5. Nuclear deterrence is often distinguished from coercion, blackmail or compellence, but all rely on the threat of nuclear use in (often vaguely defined) scenarios. From the perspective of States parties to the Treaty on the Prohibition of Nuclear Weapons, these risks and consequences are the same. Being exposed to these risks, created without their control and without accountability, is unacceptable. Yet efforts by nuclear-armed States to reduce risks focus on refining deterrence rather than addressing the risks inherent in the practice of nuclear deterrence itself. The argument that disarmament must wait for a future “secure” environment is disingenuous and perpetuates inaction. Instead, the increasingly volatile global security landscape underscores the urgent need for a paradigm shift away from nuclear deterrence.

6. Much of the discussion and analysis of nuclear deterrence and scenarios for use of nuclear weapons is conducted in predominantly abstract terms. Little information is available on the extent to which nuclear planning and targeting assessments in nuclear-armed States consider in concrete terms the consequences of nuclear weapon use on human beings and societies, including compliance with the obligations of international humanitarian law. Given the transboundary and possible global effects of nuclear weapon explosions, such assessments are of vital importance for States not parties to a conflict. Similarly, there is a lack of information on what remedial measures, if any, are in place to address the consequences and compensate third States from the effects of nuclear explosions. Nuclear-armed States have a history of lack of transparency and acknowledgement of the humanitarian and environmental effects of nuclear weapons, including cases of obfuscation and misrepresentation.

7. From the perspective of States parties to the Treaty on the Prohibition of Nuclear Weapons, policy decisions regarding nuclear weapons should be based primarily on the available scientific facts about the consequences and risks of nuclear weapons rather than on the uncertain security benefits of nuclear deterrence. The growing body of new scientific research demonstrates that the humanitarian and environmental consequences of nuclear weapons and their inherent risks are more serious, cumulative, transboundary, cascading, long-lasting and complex than previously known. This body of research must be further expanded and developed, in order to better understand both primary and complex, inter-relating, cascading effects in different time-scales and to bring in cross-sectional consideration and research from a systems analysis perspective.

8. Together with all other States parties to the Treaty on the Non-Proliferation of Nuclear Weapons, States parties to the Treaty on the Prohibition of Nuclear Weapons share the goal of a world without nuclear weapons with undiminished security for all. This can only be achieved by active steps towards disarmament. Instead, the security of States parties to the Treaty on the Prohibition of Nuclear Weapons is actively diminished by nuclear weapons and the perpetual reliance – in the face of extensive

and growing evidence of the consequences and risks – on a dangerous and speculative system of nuclear deterrence, which illegitimately and unjustly transfers risk to all States and threatens the future of humanity.

9. The consultative process generated a range of recommendations with regard to improving messaging, engaging with the public, various bodies and forums and States that rely on nuclear weapons and conducting further research to strengthen the case against nuclear weapons.

II. Introduction

10. At the second Meeting of States Parties to the Treaty on the Prohibition of Nuclear Weapons, States parties established an intersessional consultative process, between the second and third Meetings of States Parties, to consult and submit a report to the third Meeting of States Parties containing a comprehensive set of arguments and recommendations:

(a) To better promote and articulate the legitimate security concerns, threat and risk perceptions enshrined in the Treaty that result from the existence of nuclear weapons and the concept of nuclear deterrence;

(b) To challenge the security paradigm based on nuclear deterrence by highlighting and promoting new scientific evidence about the humanitarian consequences and risks of nuclear weapons and juxtaposing this with the risks and assumptions that are inherent in nuclear deterrence.

11. Austria was appointed to facilitate this consultative process among States parties and signatories, with the involvement of the Scientific Advisory Group, the International Committee of the Red Cross, the International Campaign to Abolish Nuclear Weapons and other stakeholders and experts and in close collaboration with the Co-Chairs of the informal working group on universalization.

12. Through the Treaty on the Prohibition of Nuclear Weapons, States parties can state and articulate their threat perceptions and security concerns regarding nuclear weapons and the urgency of nuclear disarmament. Central to the Treaty is its underlying rationale about the catastrophic humanitarian and environmental consequences of and the complex risks associated with nuclear weapons. This is supported by a growing body of scientific research. Peoples of all States and anywhere on Earth are at considerable risk of becoming collateral damage of nuclear conflict or nuclear explosions. The evidence is becoming ever more compelling that the security of all humanity is diminished by the continued possession of and reliance on nuclear weapons by nuclear-armed States.

13. Despite the entry into force of the Treaty on the Prohibition of Nuclear Weapons and its fact- and science-based rationale, readiness to engage constructively with the legitimate security concerns and risk and threat perceptions formulated in and through the Treaty is still lacking from some States. This points to a fundamental disconnect between the arguments about security and the role of nuclear weapons put forward by States relying on nuclear threat on the one hand and, on the other, the security concerns about the humanitarian consequences and risks that stem from the existence of and reliance on nuclear weapons on which the Treaty is based.

14. Conflicting security approaches have been present in the nuclear weapons discourse since the dawn of the nuclear age: one that justifies nuclear weapons primarily in terms of deterring threats to the national security of States by other States, and one that considers that very practice a fundamental threat to the common security of humanity. The former perspective held by States relying on nuclear threat has been

dominant in the global nuclear discourse. It is currently re-emphasized in response to the worsening geopolitical situation. The latter security perspective has been held by the non-nuclear majority of States and has increased with the addition of new States to the United Nations system, the process of proliferation and the lack of implementation of multilateral nuclear disarmament obligations and commitments. It has been further strengthened by the growing body of scientific evidence on the humanitarian and environmental consequences and risks of nuclear weapons that would affect all States.

15. The extent to which divergent security perceptions can be bridged or at least addressed constructively in order to forge a more common path ahead on how to deal with the existential threat of nuclear weapons is a key challenge for international security and the future of the nuclear disarmament and non-proliferation regime.

16. The purpose of this consultative process and the present report is, thus, to develop a more joined-up approach, refining the argumentation of States parties to the Treaty on the Prohibition of Nuclear Weapons about their security concerns regarding nuclear weapons and to contribute to Treaty universalization efforts. This is intended to assist States parties to the Treaty in better developing and advocating their positions in relevant forums. Foremost of all, however, it is the hope and its declared goal that this consultative process will contribute to a more meaningful international discourse on nuclear weapons, the different conceptions on security and nuclear weapons, their “attraction” versus their risks, and the collective quest for international security. As nuclear risks are increasing, the urgency of this cannot be overstated.

17. In February 2024, the facilitator circulated a workplan as well as existing agreed text (see annex I)¹ on security concerns, threat and risk perceptions, humanitarian consequences and nuclear deterrence from the Treaty on the Prohibition of Nuclear Weapons and the political declarations of the first (2022) and second (2023) Meetings of States Parties to the Treaty as well as a set of suggested guiding questions for the consultations (see annex II). Between the second and third Meetings of States Parties, six virtual consultations took place with the participation of States parties and signatories and with the involvement of the Scientific Advisory Group, the International Committee of the Red Cross and the International Campaign to Abolish Nuclear Weapons. Several invited experts² gave briefings and provided valuable input to address the guiding questions. Several States parties provided written input to the consultative process and guiding questions and/or oral comments during the virtual consultations.

18. The present report contains a synthesis of the collective input received during the consultative process and an analysis of how it pertains to the two questions that this process was mandated to address. As mandated, it also includes a set of recommendations to States parties to the Treaty on the Prohibition of Nuclear Weapons on how they could take this work further through activities in different forums and by engaging different stakeholders.

¹ Supplementary information comprising the annexes to the present document is available at <https://meetings.unoda.org/meeting/73413/documents>.

² The experts invited to the virtual consultations included Beatrice Fihn, Marianne Hanson, Patricia Jaworek, Christopher King, Astrid Kause, Hans Kristensen, Moritz Kütt, Richard Lennane, Patricia Lewis, Magnus Lovold, Zia Mian, Gaukhar Mukhazhanova, Benoit Pelopidas, Emma Pike, Nick Ritchie and Alicia Sanders-Zakre. Some invited experts preferred not to be named. Several other experts were consulted and provided valuable informal input.

III. Security concerns, threat and risk perceptions enshrined in the Treaty

19. All States have the responsibility to protect their populations from threats to their security. Nuclear-armed States invoke this principle to justify their nuclear weapons policies, but it applies equally to the non-nuclear majority of States, especially in the face of global, existential threats. Next to pandemics, catastrophic climate change and potential risks of artificial intelligence, nuclear war and the permanence of nuclear weapons therefore create one of the most acute global and existential threats to all States, their populations, the biosphere and human civilization.

20. Responding to this threat by seeking to remove it is a prime and legitimate concern and national responsibility. It is, however, a significant challenge when this threat is justified by nuclear-armed States with the claim that maintaining this threat is in pursuit of their own national security interest in order to deter aggression from other nuclear-armed States. As a result, the security of all other States is severely diminished and put at an existential risk. The absence of nuclear weapon use in war since the Second World War may obscure but does not change the fact that, at any time, nuclear conflict or nuclear weapon accidents or inadvertent use can occur, thus materializing the global catastrophic impact for all States.

21. At the same time, the nuclear disarmament and non-proliferation regime, intended to safeguard the international community against these risks, prevent nuclear proliferation and advance disarmament, is severely challenged. Backtracking on obligations and commitments has heightened nuclear risks.

22. States parties to the Treaty on the Prohibition of Nuclear Weapons have already expressed themselves in some detail on their security concerns, threat and risk perceptions and perspectives, the humanitarian consequences and nuclear deterrence. The following provides an overview of the security concerns of States parties to the Treaty with a particular focus on additional elements considered in the informal process.

A. Humanitarian and environmental consequences of nuclear weapons

23. The security concerns about the humanitarian consequences of nuclear weapons are integral and foundational to the Treaty on the Prohibition of Nuclear Weapons and the process that led to its adoption. This includes the Conferences on the Humanitarian Impact of Nuclear Weapons and the statements thereon, which united up to 159 countries.

24. Nuclear weapons explosions have short- and long-term impacts on the environment, socioeconomic and sustainable development, economy, food security and the health of current and future generations; they would have an impact on the right to life and lead to displacement. Moreover, these consequences would likely be transboundary, cumulative, complex and cascading and, hence, concern the security of all humanity.

25. Beyond the suffering of those immediately affected by nuclear explosions, the catastrophic and possibly global humanitarian and environmental consequences on States and populations not involved in a conflict are of grave concern. Moreover, the International Committee of the Red Cross and humanitarian organizations of the United Nations system have underscored the impossibility of mounting an adequate response to these humanitarian impacts of nuclear weapons explosions in a populated area, let alone in the case of large-scale nuclear use.

26. Harms are not limited to nuclear weapon use. The production and testing of nuclear weapons have left a legacy of long-term environmental destruction and severe health consequences, particularly for vulnerable communities. For local populations, often Indigenous, environmental contamination renders their natural environment – conveniently distant from the metropolitan heartlands of the nuclear-armed States – unsuitable for agricultural production, affecting their health and cultural practices. This creates obstacles to integral human development in areas facing high levels of poverty and numerous public health challenges that are ongoing. Exposure to ionizing radiation left over from uranium mining, nuclear explosive testing, radioactive waste dumping or nuclear fuel cycle accidents exacerbates these problems.

27. There is also clear evidence that ionizing radiation disproportionately affects women and girls, children and Indigenous Peoples. Research and regulatory analyses largely ignored these impacts due to male-centric reference models, resulting in systematic underreporting of harm from ionizing radiation exposure in the global population. In addition to pregnancy development, women and children are particularly sensitive to exposure to radioactivity, suffering more damage per dose than adult males. Children are more likely than adults to die or suffer severe injuries, given their greater vulnerability to the effects of nuclear weapons: heat, blast, radiation, and their dependency on adults for their survival in the aftermath of a nuclear attack.

28. Many of these concerns stem from first-hand experience with nuclear testing. These experiences, in addition to the more general concerns about the humanitarian consequences and risks of nuclear weapons, helped to drive the establishment of several nuclear-weapon-free zones, such as in Africa with the Declaration on the Denuclearization of Africa adopted in 1964, as well as in the Pacific and in Central Asia. States parties to the Treaty on the Prohibition of Nuclear Weapons have supported General Assembly resolutions addressing nuclear legacies, including declassifying data on past nuclear use and testing. For affected States parties, the elimination of nuclear weapons is not just a question of eliminating risks to their security but also an issue of addressing injustices.

29. Advances, in particular in climate modelling and fallout analysis, have deepened understanding of nuclear detonations' cumulative, long-term, complex and cascading humanitarian and environmental effects. Furthermore, regions affected by nuclear testing and the resulting humanitarian and environmental consequences are being increasingly – albeit still only partially – studied, documenting elevated levels of illness and death from cancers and other health conditions, displacement, forced changes to diet and food supplies and long-lasting psychosocial impacts. Climate change exacerbates the negative effects of existing environmental contamination. Yet this has frequently not been acknowledged, and transparency around these consequences has often been obstructed – evident in past attempts to misrepresent nuclear winter research and International Atomic Energy Agency radiation assessments at former test sites.

30. Funding for research that promotes pro-nuclear-weapons perspectives outnumbers the resources available for research on the humanitarian and environmental consequences, as well as inherent risks, of these weapons, marginalizing the security concerns of non-nuclear States. This imbalance raises additional security concerns, underscoring the need for more research and leveraging stronger engagement by international organizations that could provide relevant expertise.

31. Despite the benefit of additional research, the transboundary, cumulative, long-term, complex and cascading nature of the humanitarian and environmental consequences have been put beyond dispute by rigorous peer-reviewed scientific

research and acknowledged also by the Academies of Sciences of the Group of Seven States. Nevertheless, most nuclear-armed States continue to dispute that this evidence includes new conclusions requiring urgent policy consideration about the sustainability of a security approach based on the threat of mass destruction.

32. Questions also remain about the extent to which the data available on the full scale of the short-, mid- and long-term humanitarian and environmental consequences of nuclear weapons as well as their potential transboundary and global impact are appropriately integrated into military nuclear command, control and operations planning at all relevant levels.

33. Although the catastrophic consequences and risks of nuclear weapons are beyond doubt, there continues to be a need for a more granular understanding of the direct, indirect and compounding effects of nuclear explosions, as well as of the interaction of these effects. This is crucial for a deepened assessment of nuclear weapons' security impact and compliance with international law.

34. While risks such as large-scale famine, economic disruption, migration crises and systemic collapse are recognized also by nuclear-armed States, research efforts, thus far, remain limited. For example, the National Risk Register of the United Kingdom of Great Britain and Northern Ireland and a 2023 report of the National Academy of Sciences of the United States of America highlight gaps in knowledge, including of nuclear winter, electromagnetic pulses, societal breakdown and long-term economic consequences. Critical areas needing further study include cascading environmental effects, radioactive fallout under real-world conditions and in a changing climate, intergenerational health and migration crises, and disruptions to global supply chains. A compilation of possible research areas is provided in annex IV. Without a deeper, more integrated analysis of these risks, the full scale and complexity of humanitarian and security consequences of nuclear war remain underexplored.

B. Risks

35. States parties to the Treaty on the Prohibition of Nuclear Weapons have also formulated serious security concerns about the risks associated with nuclear weapons and the practice of nuclear deterrence (see annex I). They consider that an international security paradigm that is based on the implicit or explicit threat of global mass destruction runs counter to the legitimate security interests of humanity as a whole and that nuclear deterrence theory is a dangerous, misguided, unsustainable and unacceptable approach to security

36. Global nuclear risks stem from the continued existence of approximately 12,000–13,000 nuclear weapons held by 9 States and present in 15, many on high alert. The potential for detonation – whether by accident, inadvertently or by miscalculation or design – is exacerbated by the growing salience of and emphasis on nuclear weapons in nuclear postures and doctrines, qualitative modernization and quantitative increases in nuclear arsenals and the heightening of geopolitical tensions. States parties have condemned threats to use nuclear weapons, the increasingly strident rhetoric, and the use of nuclear weapons as instruments of policy, linked to blackmail, coercion, intimidation and the heightening of tensions. Such uses are contrary to international law, including the Charter of the United Nations, and contradict assertions that nuclear weapons are used only for deterrence. Finally, States parties to the Treaty on the Prohibition of Nuclear Weapons have expressed concern about the lack of or reduced transparency about nuclear weapons and the lack of meaningful progress on nuclear disarmament, which heightens nuclear risks.

37. Several States parties to the Treaty on the Prohibition of Nuclear Weapons are neighbours or located near nuclear-armed or -hosting States. They are thus exposed to particular nuclear risks. In case of nuclear conflict, nuclear facilities or other military/strategic facilities in such States may become direct and primary targets of nuclear attacks, causing severe radioactive contamination. Mass migration would likely follow, with populations fleeing both affected and neighbouring areas.

38. Nuclear detonations could also trigger electromagnetic pulses disrupting communications, emergency response capabilities, healthcare, social services, economic activities and supply chains – fuelling hoarding and criminal activities. The possible destruction of data centres holding knowledge vital for the functioning of societies could also have reverberating impacts far beyond the immediate area of impact. These cascading effects would likely result in severe social, medical and infrastructure breakdowns with grave consequences, including the possible breakdown of public order in neighbouring States also.

39. Severe consequences would likely also ensue globally. Mass displacement could dwarf previous experiences with refugee streams. Nuclear winter research demonstrates that the collapse of food production could lead to mass starvation throughout the world, with death tolls possibly in the billions. Even Southern regions seemingly distant from Northern hemisphere conflicts would struggle to maintain health services, agriculture and so on. Therefore, no region in the world can be considered immune from risks posed by nuclear weapons.

40. Nuclear deterrence advocates often credit the avoidance of unwanted nuclear explosions to the assumed deterrence effect of implicit or explicit nuclear threats. However, they do not account for or underestimate luck, including cases of failure, disobedience or variables beyond the parameters of control of nuclear deterrence. Moreover, there are very different degrees of transparency regarding past occurrences of such cases. While academic compilations document a significant number of near-misses, nuclear-armed States have incentives to underreport “luck cases” and may display overconfidence. Past luck does not, however, guarantee future luck. Given the potentially global consequences, it is in the vital interest of all States to ensure maximum transparency and precautionary measures.

41. Research into escalation pathways and war games show the extreme dangers of nuclear escalation and the inability to control the escalation of tactical nuclear use. Increased strategic bomber and submarine activities, as well as more tactical exercises, raise the risks of misunderstandings, accidents and escalation. The presence of nuclear ballistic-missile submarines present a particular challenge near Treaty States or nuclear-weapon-free zones, as they could be targeted and thereby lead to hostilities or even nuclear exchanges in the territories of uninvolved States.

42. New and emerging military technologies further heighten nuclear risks, such as cyberattacks on early warning systems and command and control systems. Artificial intelligence may heighten risks of misinterpretation and the inadvertent use of nuclear weapons, while automation may limit the role of humans in launch decisions, despite the central historical role of rational humans as crucial to preventing catastrophe. Compressed, confused or misinformed decision-making, as well as automation bias and enhanced remote sensing to track previously shielded technologies like submarines, can increase the likelihood of conflict.

43. Given these risks, any measure that reduces such risks is therefore urgent and complementary and parallel to nuclear disarmament. There is, however, a stark divide between the approach to risk reduction by countries relying on nuclear deterrence and Treaty on the Prohibition of Nuclear Weapons States. For Treaty States, the consequences of nuclear explosions are the risks to which they, too, are exposed, against their will and without control. These risks result from the very existence of

nuclear weapons and policies based on implicit or explicit nuclear threats. Risk reduction should therefore focus on eliminating any possibility of deliberate, inadvertent, accidental or miscalculated detonations.

44. Pending nuclear weapons elimination – the risk-reduction gold standard – nuclear weapons should be as far removed from any use or accident as possible, inter alia through de-alerting, de-targeting, taking weapons out of operational service, no “first use” commitments, arsenal reductions, and greater transparency about postures and actual use scenarios. Nuclear risk reduction is also undermined by new nuclear weapons programmes, provocative and escalatory actions, reductions of transparency about arsenals or doctrines, forward movement of nuclear weapons, including to third countries, and dual-use military installations and weapon platforms.

45. Nuclear-armed States, by contrast, focus on “strategic risk reduction”, understood as countering risks that could undermine nuclear deterrence relationships. This focus is to make nuclear deterrence less risky rather than to consider the risks of nuclear deterrence itself and therefore reject measures that limit nuclear weapon use, which is considered to negatively affect the credibility of nuclear deterrence. This approach ignores the reality that nuclear deterrence itself is the root of nuclear risks.

46. These different perceptions of risk reduction demonstrate an inherent contradiction: deterrence requires demonstrating readiness to use nuclear weapons, while a more comprehensive approach to risk reduction would ensure that they are never used, intentionally, unintentionally, inadvertently or through human or technical error. This is the perspective corresponding to the security concerns of States parties to the Treaty on the Prohibition of Nuclear Weapons.

47. Negative security assurances, as a means to address nuclear risks for non-nuclear States, remain a patchwork, not legally binding in most cases and likely inadequate to address the concerns highlighted above. The continued potential to use nuclear weapons for blackmail and coercion also against non-nuclear-weapon States deepens these concerns. While some progress has been made through nuclear-weapon-free zones, decades without progress within the framework of the Non-Proliferation Treaty, the Conference on Disarmament and the United Nations General Assembly leave States parties to the Treaty on the Prohibition of Nuclear Weapons and other non-nuclear-armed States with no guarantees that they would not be threatened, coerced or blackmailed with nuclear weapons, despite their strict adherence to non-proliferation obligations.

IV. Challenging the security paradigm based on nuclear deterrence with the new scientific evidence about the humanitarian consequences and risks of nuclear weapons and juxtaposing it with the risks and assumptions inherent in nuclear deterrence

48. States parties to the Treaty on the Prohibition of Nuclear Weapons have underscored their concern that nuclear deterrence doctrines are based and rely on the threat of the actual use of nuclear weapons and the risks of inflicting global catastrophic consequences. They have highlighted that the justification of nuclear deterrence as a legitimate security doctrine promotes the value of nuclear weapons for security and fuels horizontal and vertical nuclear proliferation. They also noted the growing number of States under extended nuclear security guarantees and nuclear stationing arrangements and voiced concern about any placement of nuclear weapons in non-nuclear-armed States.

49. Proponents of nuclear deterrence maintain that nuclear threats are essential for their security, crediting them with having maintained stability among the nuclear-armed States over the past decades. They see nuclear deterrence as a “guarantor” of international security and stability and as an “ultimate insurance policy”. Extended nuclear deterrence guarantees are claimed to have curbed nuclear proliferation. Current geopolitical tensions appear to re-enforce these perspectives.

50. At the same time, the technological basis underpinning the threat of nuclear weapons has continually evolved, undermining the notion that nuclear arsenals provide stability. Nuclear-armed States are continuously seeking to enhance the credibility, efficiency and severity of their nuclear threats, driving technological innovation and transforming arsenals from the fission bombs used in Hiroshima and Nagasaki to the wide range of modern nuclear weapons and delivery systems, with further developments under way. This ongoing technological evolution effectively created a perpetual cycle of modernizing arsenals, pursuing military advantages and hedging against adversaries, all of which contribute to arms race dynamics.

51. Nuclear weapons and threats to use them have always been driven by both domestic and international political motivations. Changes in the politics of nuclear-armed States, their relationships with adversaries, allies and non-nuclear States, and broader international dynamics influence how the role and utility of nuclear capabilities are perceived. Post-cold-war shifts in global politics are reshaping how nuclear threats are made and how nuclear arsenals are sized, planned and managed. New and disruptive technologies add new and unpredictable layers of risks. For States parties to the Treaty on the Prohibition of Nuclear Weapons, addressing this evolving landscape requires ongoing attention to both the persistent nuclear threats and the potential consequences. It requires active engagement with and challenging of new and emerging ideas, practices and tools related to nuclear threats, rather than relying on outdated cold war frameworks.

52. Rising geopolitical tensions and more actors involved in different nuclear deterrence relationships increase the risks of deliberate, inadvertent or accidental use of nuclear weapons. Current trends and dangers of nuclear proliferation further increase these risks. Arms control and transparency have broken down and are not available for the management of today’s multipolar nuclear challenges. Given these multiple and complex trends, security policy approaches that are based on the threat of nuclear weapons are developing in a direction that is increasingly dangerous, fragile, and fraught with known and unknown risks. Despite this, proponents of nuclear deterrence appear to advocate an even stronger reliance on nuclear weapons as an appropriate and sustainable response to address security challenges, deepening security concerns of States parties to the Treaty on the Prohibition of Nuclear Weapons.

A. Nuclear deterrence assumptions of stability, predictability and rationality

53. Nuclear deterrence is a psychological and communicative construct that relies on assumptions of stability, predictability and rationality. Nuclear deterrence advocates assume and project behaviour and sequences of actions, intentions, consequences and expected outcomes, as if they were controllable. Consequently, nuclear deterrence theory and deterrence stability have been characterized as “articles of faith”.

54. A key uncertainty is the potential for confirmation bias in assessing presumed stability provided by implicit or explicit nuclear threats, as well as the predictability of and ability to control possible escalation and to avoid miscalculations and

inadvertent use or accidents, both human and technical. Underlying this are assumptions, which are subjective and carry the inherent risk of overconfidence in one's own views and a reluctance to consider alternative arguments that challenge these assessments. Confirmation bias can create a false sense of validation of nuclear deterrence without acknowledging other factors. There are several past examples where luck rather than procedure prevented calamitous developments. The notion that nuclear escalation would be controllable under the chaotic and stressful conditions of a crisis situation demands much greater critical public examination.

55. Claims that nuclear deterrence has prevented large-scale war for the past decades are based on limited data and statistically too short a period and ignore other contributing factors. The causality between the presence of nuclear threats and the absence of nuclear war is impossible to prove conclusively and may reflect an optimism bias. Anecdotal evidence does not amount to a reliable guarantee of future effectiveness. Moreover, nuclear weapons have repeatedly not deterred conflicts involving nuclear-armed States or even deterred non-nuclear-armed States from attacking nuclear-armed States. Assertions of nuclear deterrence stability are therefore not reassuring given the risks involved and the catastrophic global consequences of nuclear explosions, let alone a nuclear conflict.

56. Nuclear deterrence theory presents the use of nuclear weapons predominantly as an abstract issue. Different threat perceptions are addressed with various nuclear weapon use scenarios as a response. However, the underlying rationale of such use scenarios assumes that credible threats and mutual vulnerabilities will result in mutual restraint and deterrence stability and not that nuclear weapons will actually be used or, at least, that their use will not be escalated into a nuclear war.

57. This raises fundamental questions: does nuclear planning go beyond an assumption of non-use and only an abstract consideration of the consequences of nuclear use? Are counterforce and countervalue nuclear targeting assessments considered in terms of what the consequences for human beings and societies would mean in sufficient detail? To what extent is the wider impact on and in States not parties to the conflict ever considered in nuclear planning and targeting?

58. Even the concept of “mutually assured destruction” is discussed primarily as an argument in favour of nuclear deterrence stability and its assumed outcome, namely that nuclear escalation and conflict will be avoided. “Mutually assured destruction” is discussed as a hypothetical outcome of the game-theoretical logic of nuclear deterrence. The details of what it would actually mean in concrete terms for humanity, including the survivors of nuclear conflict, appear not to be considered. The trust in the steps and actions to underpin nuclear deterrence theory and to – always – avoid this catastrophic endpoint could reflect a highly precarious “optimism bias”.

59. By focusing on deterrence stability, survivability, second-strike capabilities and mutual vulnerabilities, deterrence theory abstracts the reality of nuclear consequences. This abstraction sidesteps the concrete examination of the catastrophic human and planetary consequences of failure, as well as serious ethical, moral and legal scrutiny, including intergenerational justice and the legitimacy of maintaining a system with the potential for failure.

60. Moreover, nuclear deterrence theory assumes that actors will act in predictable and prudent ways and that nuclear escalation and genocidal and suicidal consequences can therefore be avoided or controlled. At the same time, its proponents hold that nuclear deterrence works because it will lead to “rational” and – hopefully – “responsible” behaviour of all actors. However, the reasoning that rational actors avoid using nuclear weapons and that nuclear deterrence leads to “rational” behaviour is a circular argument and ultimately an assumption with very high stakes. The dependence on prudent, non-suicidal and non-genocidal behaviour of all nuclear

actors hardly provides assurances to the non-nuclear majority of States. The uncertainties of escalation and the “fog of war”, where time-pressured decisions may have to be taken on the basis of potentially incomplete, flawed, manipulated or misunderstood information, are a high-risk gamble with the security of all humanity given the potential consequences of one single failure and are of grave concern.

61. Nuclear deterrence proponents argue that the threat of nuclear retaliation will hold actors at bay that may have resorted to nuclear coercion or blackmail or that could find themselves in an extreme situation, such as a failing, disintegrating or radicalized nuclear-armed State. Even such actors, it is assumed, will ultimately act in a self-preservation manner and avoid escalation to a nuclear conflict. While self-preservation may look like a convincing argument, it is also an assumption that carries enormous risks, including for third countries and all of humanity.

62. Nuclear deterrence is practiced by humans and relies on machines and processes designed by humans, carrying with it inherent and unpredictable risks. No human construct is infallible, just as humans are fallible. Accidents, miscalculations and human or technical error must be minimized but cannot be eradicated from the human construct of nuclear deterrence. Given the gravity of the potential consequences, even a low probability of failure translates into an unacceptably high level of risk

63. Undeniable differences exist between nuclear-armed States, and “responsibility” may also be perceived differently. For States parties to the Treaty on the Prohibition of Nuclear Weapons, however, this is not the central issue. The nuclear policies of all nuclear-armed States are based on implicit or explicit nuclear threats, which create an aggregated and interconnected set of global and existential risks that undermine the security of States not engaged in this practice. From this perspective, the theory of nuclear deterrence is a highly precarious gamble: one that no human being or Government should be entrusted to make.

64. The non-nuclear majority of States are de facto requested to put their trust in and entrust their security to the infallibility of political and military decision makers and decision-making structures in nuclear-armed States. Given that the fate of the entire planet and of current and future generations may be at stake, this requires a giant leap of faith.

B. Weighing the “benefits” of nuclear deterrence against the risks of global catastrophic consequences

65. Weighing the supposed security “benefits” of nuclear deterrence against the existential threats that it poses for all humanity is an extremely difficult task. The entire framework rests on uncertainties, assumptions and a precarious balance of mutual threats. Does the fragile stability that mutual nuclear threats are argued to provide justify the global existential risks if something goes wrong? Would the absence of nuclear weapons increase the risk of great power conflicts, and if so, does this make it worthwhile to accept the risks of nuclear annihilation? Who decides that such risks can be taken and based on what criteria and which legitimacy? Or does prudence demand the urgent removal of the existential threat of nuclear weapons, as the Treaty on the Prohibition of Nuclear Weapons contends, since a world where such a threat is reduced and removed is in any case safer?

66. There are no easy answers to these questions and the corresponding strongly held beliefs. There is no certainty that nuclear deterrence has worked in the past or will work in the future, nor that nuclear weapons have not prevented conflict in the past or will not do so in the future. Even if nuclear deterrence appeared to “succeed” in a particular crisis, this does not provide assurance that it will in the next, different

situation. Prediction of behaviour has become increasingly uncertain, as has the understanding of what deters and why. Nuclear deterrence therefore may not even exist currently between nuclear-armed States in high-tension situations. In which case, it is not so much that nuclear deterrence may fail, rather, it may be that there was no nuclear deterrent effect at all.

67. The appropriate question is not whether nuclear weapons can deter, ever, but whether there is certainty that they will deter, always. The answer to this question is likely to be negative. As long as this discussion remains a hypothetical – which must be hoped for – this uncertainty persists and should be acknowledged. From the perspective of States parties to the Treaty on the Prohibition of Nuclear Weapons, the aforementioned uncertainties, assumptions, ambiguities and risks inherent in nuclear deterrence are highly concerning. The fact that nuclear deterrence can fail is undisputed. If nuclear threats are carried out, conclusive scientific evidence is available to show that this would result in catastrophic and likely global and potentially existential consequences.

68. This makes claims that nuclear weapons exist only to deter and prevent conflict unconvincing. The alleged effectiveness of nuclear deterrence relies on the readiness to use these weapons. Every day, nuclear-armed States exercise the actual use of nuclear weapons and signal their readiness to other actors to use them and to inflict, if necessary, catastrophic global consequences. This is not an unfortunate byproduct of deterrence but its foundation.

69. This threat of nuclear violence brings high risks not merely for the populations of nuclear-armed States but also for the security of States not relying on nuclear deterrence. Their populations would also end up as collateral damage in a variety of much more serious ways than previously understood. Nuclear deterrence is not a sustainable approach to security. It is built on creating extreme risks and an ethos of fear based on the threat of mutual annihilation and global catastrophic consequences.

70. The nuclear deterrence security paradigm comes at the expense of States not engaged in this practice. This raises important legal and ethical questions about the nuclear status quo, as well as issues of legitimacy and international and intergenerational justice. The “security benefits” of nuclear weapons for some must therefore be weighed against their inherent risks for all humanity. From the perspective of States parties to the Treaty on the Prohibition of Nuclear Weapons, this requires that their legitimate security concerns must be included and respected in the discourse on how nuclear weapons pertain to international security.

71. In the past, nuclear weapons have often been viewed also through the lenses of anti-colonialism, anti-imperialism and anti-racism. From these perspectives, nuclear inequalities are part of broader global injustices, where “security” is connected to fairness and justice, rather than just maintaining stability, which often supports existing power imbalances. The global nuclear order is widely viewed as unfair because it distributes the risks and harms of nuclear violence unequally. For Treaty on the Prohibition of Nuclear Weapons-supporting States, the Treaty constitutes a framework for security rooted in justice, aligning with broader international views that link security, justice and development.

72. The rest of the international community has not legitimized or consented to the holding of these existential risks over humanity by States that practice nuclear deterrence. Moreover, nuclear weapons policies and procedures are shrouded in (national) secrecy, leaving States parties to the Treaty on the Prohibition of Nuclear Weapons and other non-nuclear States with very little concrete information about the dangers that they are forced to live with. Moreover, there is no accountability – legal or otherwise – regarding the potential consequences of nuclear weapon explosions, even though these consequences would be borne by the entire world.

73. For example, there is little transparency regarding nuclear-armed States' plans to use nuclear weapons and select targets in a way that could comply with rules and principles of international humanitarian law. Given the transboundary and likely global effects of nuclear weapon explosions, such assessments are of vital importance also for States not parties to a conflict. Furthermore, what remedial measures, if any, are in place to address the consequences of and compensate third States for the effects of nuclear explosions, such as from radiation, environmental damage and other subsequent effects? From the perspective of States parties to the Treaty on the Prohibition of Nuclear Weapons, these issues need to be considered in weighing the security implications of implicit or explicit threats to use nuclear weapons.

74. States relying on nuclear threats highlight the "necessity" of nuclear weapons as an "ultimate security guarantee" for their own and for international security. However, to insist on nuclear weapons as being an essential "guarantee" for one's own security de facto proliferates and promotes the concept of nuclear deterrence and the desirability of nuclear weapons. One cannot both endorse nuclear deterrence and extended deterrence as a legitimate means of protecting certain countries and credibly oppose proliferation elsewhere. Such a double standard is counter to the object and purpose of the Non-Proliferation Treaty and the responsibility to prevent the proliferation of nuclear weapons and to pursue policies in line with the objective of achieving a world without nuclear weapons. Past cases of proliferation by nuclear-armed States have demonstrated this double standard to the detriment of the global nuclear disarmament and non-proliferation regime.

75. From the perspective of States parties to the Treaty on the Prohibition of Nuclear Weapons, nuclear deterrence is a theory, and its effects and effectiveness are fraught with risks and uncertainties. By contrast, detailed and reliable scientific and empirical data exist regarding the risks and consequences of nuclear explosions in case nuclear threats are carried out or in the event of accidents. Policy decisions regarding nuclear weapons should be based primarily on the available scientific facts regarding the consequences and risks, not on an uncertain faith in nuclear deterrence, which should be subject to much more critical scrutiny. Moreover, policy decisions should also be consistent with the fact that the prevention of existential risks is a common good for all States.

76. Rejecting nuclear weapons is not an idealistic aspiration, it is a rational and realist response to real dangers. Believing that nuclear deterrence will always hold, indefinitely, requires speculative, dogmatic and possibly idealist thinking. The reality is that humans make mistakes and are not always in control of technology, emotions and perceptions. The assumption that humans will always act rationally, that technology will never fail and that miscalculations will always be avoided is a dangerous illusion – rooted in hubris, not realism.

77. States parties to the Treaty on the Prohibition of Nuclear Weapons recognize today's global security challenges and have never argued that nuclear disarmament should be seen in isolation from the global security environment. However, the argument that one must wait for a future security environment in which nuclear deterrence is no longer necessary, as a precondition for progress on nuclear disarmament, is disingenuous. There will always be real or perceived security imbalances between States. This line of argument only provides excuses in perpetuity to not alter the nuclear status quo. Such ideal circumstances are unlikely ever to exist.

78. All disarmament, arms control and non-proliferation efforts, including the eventual elimination of nuclear weapons, must inevitably proceed in the face of ongoing security challenges and geopolitical competition. From the security perspective of States parties to the Treaty on the Prohibition of Nuclear Weapons, the challenging international security environment and the heightened nuclear risks

coupled with continued and rising reliance on nuclear weapons make a paradigm shift away from the threat of mass destruction through nuclear weapons, if anything, more urgent. But as long as nuclear weapons are equated with providing security, it is difficult to see nuclear-armed States taking transformative steps to move away from the nuclear deterrence paradigm. This contradiction turns nuclear disarmament into an endlessly deferred goal, tied to an undefined future.

79. States parties to the Treaty on the Prohibition of Nuclear Weapons have concluded that a security approach that is based and relies on the threat and readiness of inflicting devastating global consequences, including on their populations, only provides an illusion of safety and security and that it diminishes their and undermines global security.

80. This conclusion comes after weighing the risks, uncertainties and possible outcomes of a security paradigm based on the threat of nuclear weapons with the existing scientific evidence regarding the consequences and risks of nuclear weapon explosions and nuclear deterrence failure. States parties to the Treaty on the Prohibition of Nuclear Weapons conclude that the humanitarian consequences of nuclear weapon explosions are grave and potentially existential. They further conclude that the risks of their deliberate, inadvertent or accidental use are considerable and certainly not negligible. On balance, they conclude that nuclear weapons threaten the security of all and therefore necessitate an urgent move away from this paradigm.

V. Recommendations

A. Messaging

81. The voices of Treaty on the Prohibition of Nuclear Weapons supporters tend not to be sufficiently heard in international forums, despite the fact that they constitute a majority and can draw on ample scientific evidence. Given the urgency of moving away from nuclear threats, the informal process generated several recommendations for stronger messaging, which can be further developed intersessionally:

(a) Clarify and strengthen messaging: Treaty-supporting States could be more specific about the humanitarian and environmental consequences of nuclear weapons in public statements, including the risks for their populations and their sovereign responsibility as States to address them. They could challenge the concept of nuclear deterrence as a “theory” rather than a “fact”, challenge the characterization of any nuclear-armed States as “responsible” and assert the security benefits of being nuclear-free. Treaty States could point out that nuclear deterrence has not been legitimized or consented to by the international community and develop common understandings and common messages for problematic and unclear concepts such as “existential threat”, “extreme self-defence” or “undiminished security”;

(b) Promote success stories: Treaty supporters could highlight more that the majority of countries reject nuclear weapons and nuclear deterrence and that this represents a widely held and positive narrative on international security. Positive examples such as South Africa and Kazakhstan could be emphasized to demonstrate how their decisions contributed to regional stability and enhanced security;

(c) Increase advocacy and public engagement: amplify Treaty perspectives and visibility through more high-level political engagement, using all relevant forums, including those where this perspective is not usually heard. Treaty stakeholders could conduct media work (including social media) and seek to develop partnerships with creative industries, as well as focusing on education initiatives to

increase widespread visibility and understanding of the Treaty States' security perspective.

B. Bodies and forums to engage

82. Treaty on the Prohibition of Nuclear Weapons-supporting States, as majorities in various international and regional organizations, could engage these more on the humanitarian consequences, risks and the resulting security concerns related to nuclear weapons. This would broaden and enrich the debate and increase international focus on nuclear weapons, raise awareness and unlock underexplored expertise and data. It would also counterbalance technocratic, State-security-focused debates about the utility of nuclear weapons by raising facts about the risks and consequences of nuclear weapons. A number of recommendations were made and could be developed further to operationalize such engagement:

(a) Leverage expert bodies: Treaty-supporting States could request the International Atomic Energy Agency, the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, the United Nations Scientific Committee on the Effects of Atomic Radiation and other relevant organizations to provide technical expertise on nuclear weapon use, testing, contamination and associated nuclear risks and risk mitigation, with concrete requests for input on these elements as well as on humanitarian and environmental impacts of past nuclear testing;

(b) Advocate Security Council/General Assembly action: Treaty States holding the Security Council presidency could convene open debates on the security concerns regarding nuclear risks and the humanitarian and environmental consequences of nuclear weapons. They could also consider promoting a joint approach to bring any nuclear threat, coercion or blackmail immediately before the Security Council or – in case of inaction – the General Assembly as a violation of the Charter of the United Nations and international humanitarian law, to strengthen the “nuclear taboo” and to raise the bar against any such violations;

(c) Engage multilateral and regional forums: Treaty-supporting States could strengthen advocacy by engaging relevant United Nations bodies that have a mandate with a bearing on the humanitarian and environmental consequences and risks of nuclear weapons and threats, inter alia in the areas of human rights, health and the environment, as well as international and regional organizations and United Nations-affiliated centres, including the United Nations Institute for Disarmament Research and regional disarmament centres, leveraging expertise to address nuclear disarmament's broader impacts and share research.

C. Engagement with States relying on nuclear weapons

83. States parties to the Treaty on the Prohibition of Nuclear Weapons and other non-nuclear-weapon States have very little concrete information on nuclear targeting, war planning, deployments and procedures, despite the transboundary and potentially existential risks that these pose to their populations. Transparency in these areas is essential for them to fulfil their sovereign responsibilities to protect their populations from these consequences. Treaty States could use all available avenues and forums to systematically and publicly demand detailed information from nuclear-armed and -hosting States. As an urgent immediate measure alongside nuclear disarmament, Treaty States could also amplify their voices by developing a joint approach to the discussion on risk reduction. Both suggestions could be developed and coordinated in the next intersessional period:

(a) Develop joint transparency information requests: questions to engage States relying on nuclear weapons could be raised in multilateral forums such as the Conference on Disarmament, the Disarmament Commission, the General Assembly and forums relating to the Non-Proliferation Treaty and the Comprehensive Nuclear-Test-Ban Treaty through joint statements, working papers and resolutions or international humanitarian law official channels. Regional frameworks and bilateral contacts with nuclear-armed States could also be used, as well as high-level contacts and contacts with legislators, together with engaging the wider public and media. A set of possible general and specific questions that Treaty on the Prohibition of Nuclear Weapons supporting States could consider raising in different formats and forums is contained in annex III.

(b) Develop a joint approach to the discussion on risk reduction: Treaty-supporting States could focus on framing the risk reduction discussion in a manner that is not limited to reducing strategic risks but rather aimed at addressing the risks inherent in the practice of nuclear deterrence and including concrete nuclear risk reduction measures to reduce the risk of any use or accident. They could challenge the notion that additional nuclear options produce positive results for their and everyone's security.

D. Recommendations on areas that merit additional study

84. The evidence on the humanitarian and environmental consequences, as well as associated risks, of nuclear weapons, is clear, unambiguous and confirmed even by leading scientific organizations in nuclear-armed States and continues to grow. Yet critical gaps remain, even regarding physical effects, let alone complex, cascading and/or long-term effects. A cross-sectional, systems-level analysis is needed to assess how nuclear use would disrupt the international system of interconnected cooperation and relationships. Filling these gaps could further strengthen the case against nuclear weapons, which is also related to their compatibility with international law, in particular international humanitarian law.

(a) Encourage (further) research and allocate funding: see the detailed indicative list of areas and questions in annex IV.
