CENTRE FOR SCIENCE
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KING'S College LONDON

Meeting in the middle

Opportunities for progress on disarmament in the NPT

SWP
Stiftung Wissenschaft und Politik
German Institute for International and Security Affairs

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Preface

AMBASSADOR
RAFAEL GROSSI

Director General, International Atomic Energy Agency

The conference *Towards the 2020 NPT Review Conference: Exploring Common Ground,* jointly organized by the German Institute for International and Security Affairs (SWP) and King's College London on 20-21 May 2019 in Berlin, captured creative ideas in preparation for the Review Conference (RevCon) of the Nuclear Non-Proliferation Treaty (NPT).

It demonstrated the commitment of a significant number of NPT States Parties to establish a common ground on nuclear disarmament around which others could coalesce. While it is obvious that discussions on the role of nuclear weapons show significant differences since the previous RevCon, there are also a large number of states that are dedicated to the logic embodied in the NPT, including its provisions on disarmament. The 50 participants from approximately 25 countries demonstrated that agreement and success are possible.

Participants also proved that consensus is possible on a range of nuclear disarmament steps that are both meaningful and feasible. There is a rich menu here of ideas to pursue, proposals to implement and steps to be taken that can help to reduce nuclear risks and promote the principles of the NPT itself. These are important measures that would help us to move towards a world free of nuclear weapons and will be discussed, together with others, at the RevCon in New York.

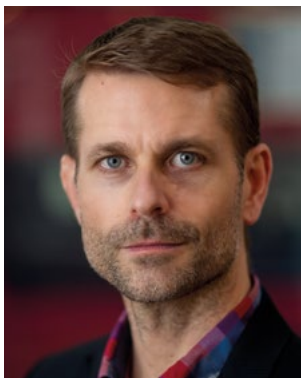
I would like to thank the organizers for inviting me and for highlighting core themes for a broader audience – indeed, participants did not fall into any single 'camp,' but rather represented the diversity of perspectives we see every day in the nuclear community and at NPT meetings. The recommendations assembled should be of interest to stakeholders in arms control, disarmament and non-proliferation, and to policymakers and non-governmental organizations alike. I encourage this type of discussion to continue, as it is helpful and conducive to a better understanding of different positions among practitioners and experts.

In this regard, all participants during the conference *Exploring Common Ground* in Berlin demonstrated qualities that will be essential for RevCon success. They were imaginative, respectful, honest and willing to work hard. Nothing less will be required from RevCon participants in New York.

Ambassador Rafael Grossi

> **THERE IS A RICH MENU HERE OF IDEAS TO PURSUE, PROPOSALS TO IMPLEMENT AND STEPS TO TAKE.**

Introduction: Exploring common ground



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RE-ESTABLISHING CONSENSUS ON THE VALUE OF DISARMAMENT AND ARMS CONTROL IS VITAL TO SAFEGUARD THE NPT REGIME AND THE RULES-BASED INTERNATIONAL ORDER.

As we approach the 50th anniversary of the entry-into-force of the Nuclear Non-Proliferation Treaty (NPT) in 2020, it is essential the NPT can evolve to meet contemporary security challenges, including by contributing meaningfully to nuclear disarmament. More broadly, re-establishing international consensus on the security value of disarmament and arms control is vital to safeguard not just the disarmament and nonproliferation regime, but also the rules-based international order of which it is a core part.

This collection of policy papers presents analysis from a diverse set of international experts on key political and technological issues related to nuclear disarmament. The objective is to contribute constructively to debates around pathways to disarmament. The contributing authors acknowledge the significant challenges facing policymakers in today's security environment, but look beyond those constraints to identify areas of common interest and suggest concrete options for cooperative action to advance nuclear disarmament.

The papers are based on the authors' participation in the conference, *Towards the 2020 NPT Review Conference: Exploring Common Ground*, which was co-hosted by the German Institute for International and Security Affairs (SWP) and King's College London, and took place on 20-21 May 2019 at SWP in Berlin. The conference brought together more than 50 senior governmental and non-governmental experts from over 25 countries, including most NPT Nuclear Weapon States (NWS – China, France, Russia, the United Kingdom and the United States), nuclear weapons possessors outside of the NPT, and supporters of the 2017 Treaty on the Prohibition of Nuclear Weapons (TPNW). By design, the conference featured a strong diversity of regional representation, political perspectives, age and gender. Like all events held at SWP, the meeting took place under the Chatham House Rule.

The *Exploring Common Ground* conference took place at an important moment in the NPT's review cycle, immediately after the final Preparatory Committee (PrepCom) of the cycle and exactly one year ahead of the 2020 Review Conference (RevCon). The conference focused specifically on disarmament in the NPT context, seeking ways to bridge divisions that have been a source of significant international discord in recent years (the images on the cover of this volume represent this pursuit, and recent track 1.5 and track 2 dialogues suggest it enjoys strong support among NPT States Parties and experts). This focus meant the conference did not directly address the non-proliferation and peaceful uses pillars, nor did it focus on the Iran nuclear deal, North Korea or the proposal for a Middle East Zone Free of Weapons of Mass Destruction, though the organisers recognise the importance of these topics in the NPT context.

This introductory section briefly outlines the background to the *Exploring Common Ground* conference, including the issue areas covered in conference plenaries and breakout sessions, the innovative approach to facilitating complex and potentially controversial disarmament discussions, and the key overarching themes that emerged. In the individual papers that follow, experts provide more detailed analyses of the issue areas addressed at the conference and offer their personal views on options to advance cooperation in those areas. These analyses will be of interest to anyone who follows NPT dynamics, or nuclear disarmament and arms control more broadly.

> VARIOUS GOVERNMENTS HAVE LAUNCHED INITIATIVES AIMING TO BUILD BRIDGES, RECTIFY POLARISATION IN THE NUCLEAR COMMUNITY AND IDENTIFY PRODUCTIVE WAYS FORWARD.

International context

Since the early 1970s, the NPT has evolved to become the core of a global network of agreements and institutions designed to reduce the risks associated with nuclear weapons by advancing a disarmament agenda. Today, that network is under threat. Its norms are rapidly eroding due to the abandonment of existing arms control and non-proliferation agreements, the resurgence of great power competition and the rise of multipolar arms racing. Meanwhile, the Conference on Disarmament has failed to produce any disarmament negotiations for more than two decades.

There is broad agreement among practitioners and experts that nuclear risks are increasing. Many states are turning increasingly to unilateralism, and new dual-use (civilian/military) technologies complicate and, in some cases, challenge existing nuclear weapons policies. The likelihood of nuclear weapons use appears to be rising as the entanglement of nuclear and non-nuclear military systems gathers pace, and states invest in plans to modernise and expand the range of weapons in their nuclear arsenals. Non-Nuclear Weapon States (NNWS) regularly express increasing frustration at the lack of multilateral disarmament progress, and many appear to be losing faith in the commitment of the five NWS to their disarmament obligations.

The lack of a consensus outcome at the 2015 NPT RevCon both reflected and exacerbated the divisions in the disarmament and non-proliferation community With negotiation of the TPNW taking place despite staunch opposition from several NWS, international opinion appears more divided than ever as to how best to advance disarmament. These dynamics were on full display in multilateral disarmament gatherings in 2016 and 2017, such as meetings of the UN General Assembly's Open-Ended Working Group on nuclear disarmament and First Committee, and the NPT PrepCom, where officials and civil society representatives clashed. This prompted the Group of Eminent Persons for Substantive Advancement of Nuclear Disarmament – an international group of experts convened by the Japanese government to try to help break the disarmament deadlock – to call, among other things, for discussants to 'restore civility' so that diplomatic cooperation might resume.[1]

A path forward

Faced with these challenges, various governments have launched initiatives aiming to break the nuclear disarmament deadlock, build bridges to rectify polarisation in the nuclear community and identify productive ways forward. The Swedish government, for example, launched a disarmament 'Stepping Stones' initiative in June 2019, with a high-level ministerial meeting of sixteen NNWS. The resulting Stockholm Ministerial Declaration was short on detail, but committed the signatory governments to constructive political and diplomatic engagement to break the disarmament deadlock.[2] The US-led Creating an Environment for Nuclear Disarmament (CEND) Working Group (CEWG) held its first plenary meetings in July and November 2019, with 42 states participating at the first meeting, including the five NWS as well as nuclear-armed India, Israel and Pakistan, and members of the TPNW.[3]

The *Exploring Common Ground* conference in Berlin aimed to contribute to such dynamics, seeking to identify and define common interests for a shared agenda that could inform the NPT review process at the 2020 RevCon and beyond. The conference organisers designed the form and content of the meeting to facilitate meaningful dialogue on disarmament issues, and encouraged delegates to go beyond entrenched positions and to think creatively about potential areas of common ground.

An inclusive and participatory dialogue

All participants at the Berlin conference had opportunities to help shape the agenda and outcomes. In a pre-conference survey, participants ranked various disarmament-related issue areas in terms of their importance for the health of the NPT regime and the feasibility of making progress on them in 2020. The results of this informal survey guided the conference organisers in determining the content of plenary and breakout sessions. On that basis, the organisers commissioned and circulated eight policy memos from expert participants prior to the conference, each addressing one of the following issue areas:

- The relationship between the security and humanitarian discourses
- Next steps on nuclear arms control
- Nuclear-weapon-free zones
- Engaging non-NPT States Parties
- Reducing the role of nuclear weapons
- Addressing the challenges of emerging technologies
- Nuclear disarmament verification
- Nuclear responsibility

At the conference, each attendee participated in breakout sessions on two of the issues above. Using the pre-conference memos as a springboard for discussions, breakout groups were tasked with agreeing to language, by consensus where possible, on three concrete policy proposals to progress their respective issue. Finally, in the closing plenary, all participants voted on the policy proposals from each breakout group – again ranking them for perceived feasibility and impact, as per the pre-conference survey.[4] The infographic on page 8 below summarises participants' collective responses to the policy proposals, with the 'combined' score for each proposal being an average of its combined ratings on feasibility and potential impact. Table 1 on page 10 presents the full text of the policy recommendations and voting results.

Clearly, these voting results are not statistically representative, but they nonetheless offer a useful, informal snapshot of expert opinion on the feasibility and impact of 24 specific options to help advance nuclear disarmament. The eight policy papers that follow are updated versions of the pre-conference memos, written by the same authors but revised in light of the conference proceedings. These revised papers represent the personal views of the author—they do not claim to speak for the conference organisers or participants.

Emerging themes

> **THE *EXPLORING COMMON GROUND* CONFERENCE AIMED TO IDENTIFY COMMON INTERESTS THAT COULD INFORM THE NPT REVIEW PROCESS AT THE 2020 REVCON AND BEYOND.**

Beyond the issue areas listed above, three broad themes emerged from the conference, which are discussed in greater detail in the Conclusion section by Oliver Meier and Heather Williams. First, many participants saw transparency as an area ripe for action and positive impact. Since transparency means different things to different people, however, much more work is needed for NPT States Parties to turn this into tangible progress. Second, the value of and urgent need for risk reduction action emerged as the strongest area of consensus among participants, rating highly on both feasibility and impact. Third, there are a range of ideas to address the institutional deficits of the NPT through greater dialogue among all NPT States Parties beyond the RevCon – a process we call 'institutional thickening.'

Many options exist for immediate, concerted action on these fronts. On the path to the 2020 RevCon and beyond, coordinated efforts in these areas of common ground are

> **ALL PARTICIPANTS AT THE *EXPLORING COMMON GROUND* CONFERENCE EXPRESSED AN APPETITE TO WORK TO BRIDGE DIVISIONS ON DISARMAMENT AND AVOID FURTHER POLARISATION.**

likely to reap significant political and security benefits. The most encouraging take-away from the Berlin conference is that all participants expressed an appetite to work to bridge divisions on disarmament issues and avoid further polarisation. This includes ensuring that the strong differences of opinion over the TPNW can be acknowledged, but do not inhibit constructive collaboration on other issues.

Endnotes

1 Japan, 'Note Verbale Dated 20 April 2018 from the Government of Japan to the Conference on Disarmament Addressed to the Chair of the Committee (NPT/CONF.2020/PC.II/WP.37),' Working Paper presented to the *NPT Preparatory Committee* (New York, 2018), Annex I, 6, para. 26 (b).

2 'Stockholm Ministerial Declaration,' issued at the Stockholm Ministerial Meeting on Nuclear Disarmament and the Non-Proliferation Treaty, June 11, 2019. https://www.government.se/statements/2019/06/the-stockholm-ministerial-meeting-on-nuclear-disarmament-and-the-non-proliferation-treaty/.

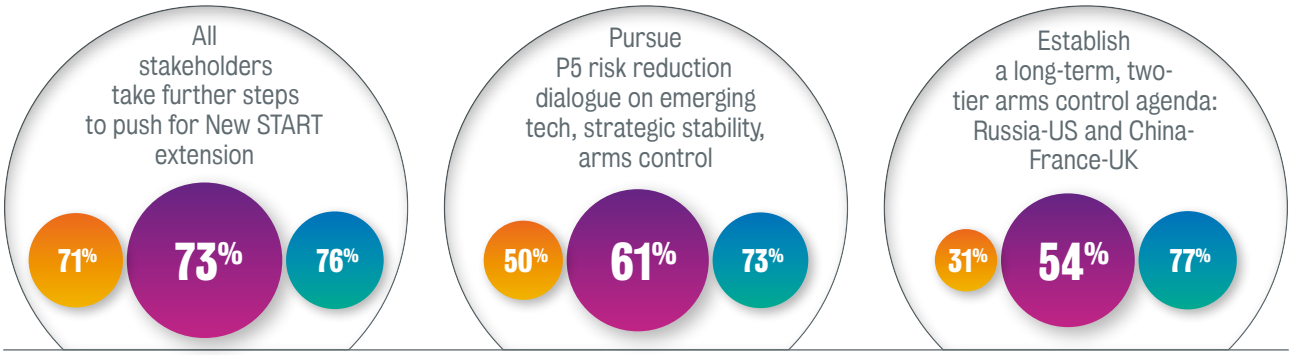
3 For details of the CEND initiative issued prior to the first meeting, see United States, 'Operationalizing the Creating an Environment for Nuclear Disarmament (CEND) Initiative (NPT/CONF.2020/PC.III/WP.43),' Working Paper submitted to the *NPT Preparatory Committee* (New York, April 26, 2019).

4 This was done using the real-time, online voting platform 'Mentimeter.' See www.menti.com.

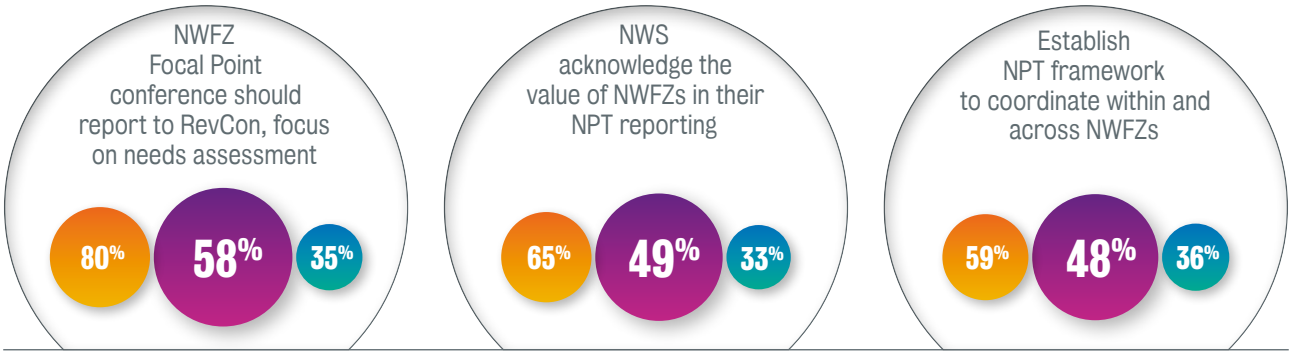
This infographic summarises NPT-related policy proposals generated by issue experts at the conference *Towards the 2020 NPT Review Conference: Exploring Common Ground* on 20-21 May 2019 in Berlin. The numbers represent the average rating by conference participants of each proposal's feasibility and potential impact. For the full text of the policy proposals, see p. 10-11.

Humanitarian and security discourses

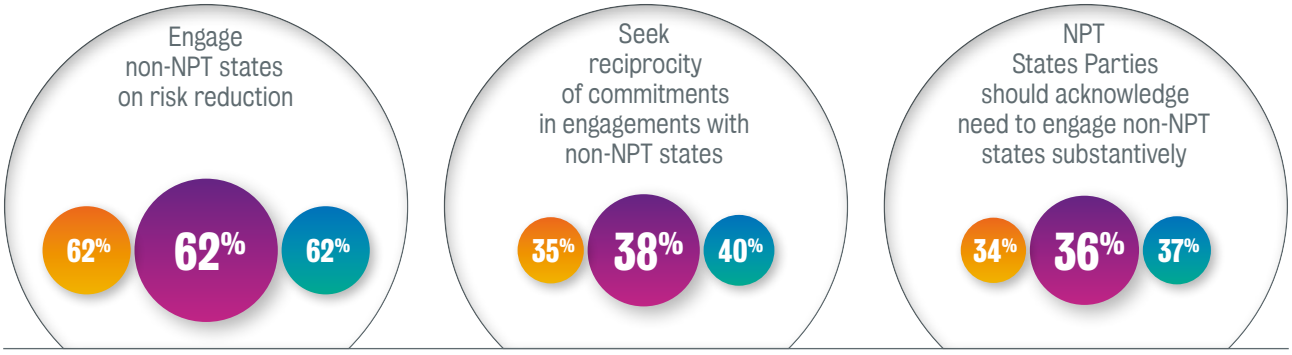
Opportunities for arms control



Nuclear-weapon-free zones

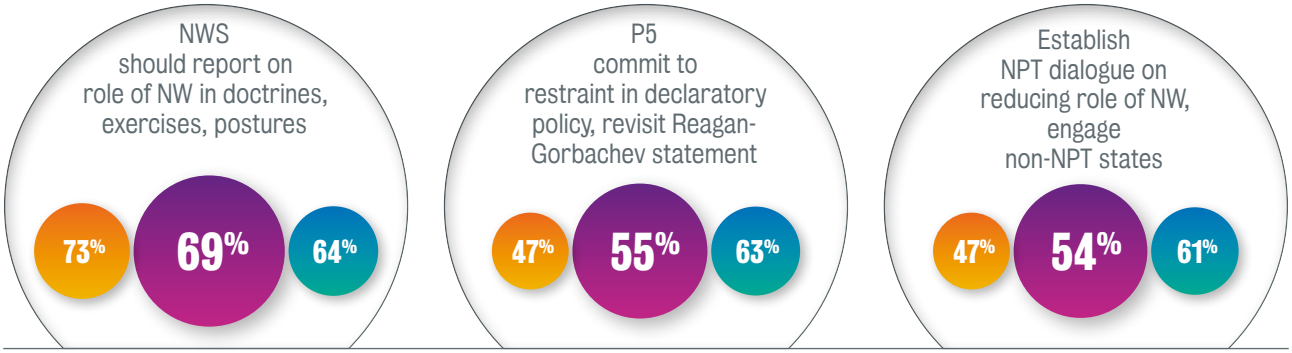


Engaging non-NPT states



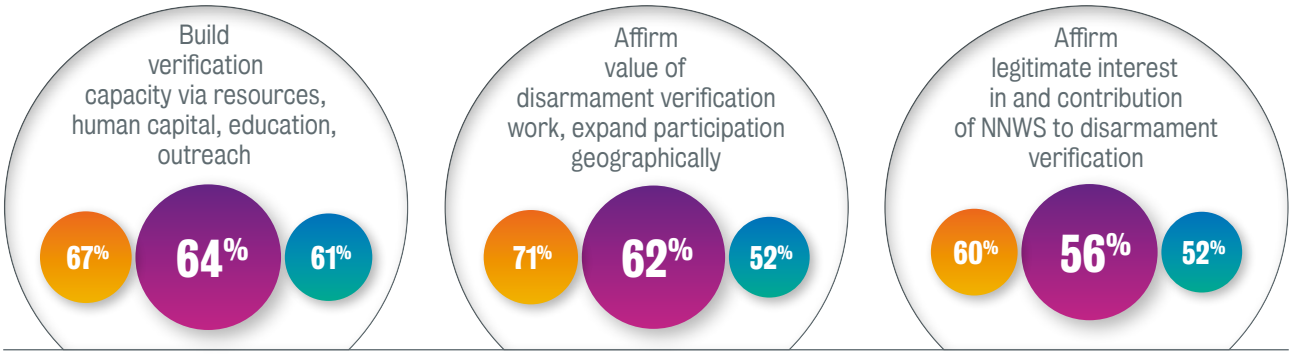
KEY: FEASIBILITY COMBINED (AVERAGE) IMPACT

Reducing the role of nuclear weapons

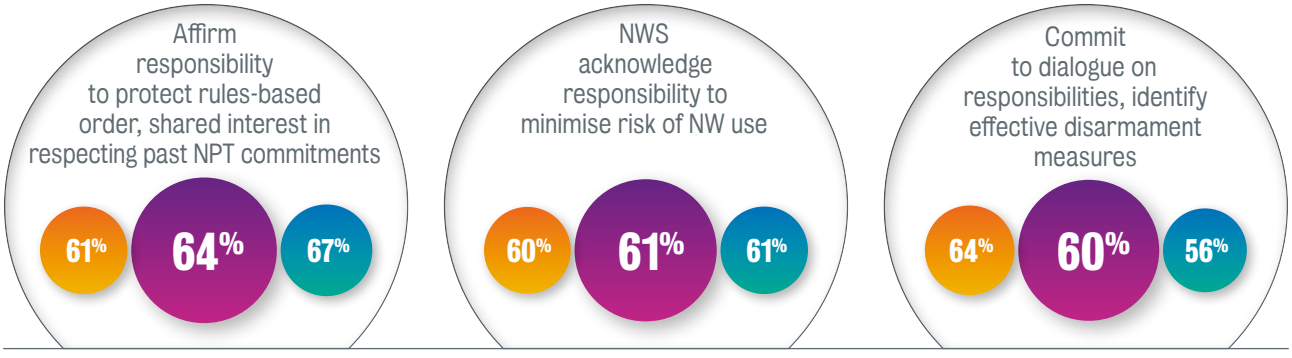


Addressing the challenges from emerging technologies

Nuclear disarmament verification



Nuclear responsibilities



KEY: FEASIBILITY COMBINED (AVERAGE) IMPACT

Humanitarian and security discourses	Combined	Feasibility	Impact
To safeguard the security of the peoples, NPT States Parties commit to concrete steps to ensure the 70-year-plus record of non-use of nuclear weapons continues, pending their total elimination	**68%**	75%	60%
Given the deteriorating security situation, all states should commit to rebuild trust in the rules-based international order and to comply at all times with applicable international law	**66%**	67%	66%
Non-use is imperative, as no one state, nor the international community, can respond effectively to the humanitarian, political and environmental consequences of nuclear use	**53%**	50%	56%

Opportunities for arms control	Combined	Feasibility	Impact
There should be constant public and political pressure for extension of New START, and for resolution of disagreements via the Treaty's Bilateral Consultative Commission	**73%**	71%	76%
On emerging technologies, strategic stability/deterrence, intermediate-range systems etc, the P5 should affirm shared understandings, and consult widely with NPDI, NAC, NAM, 1st Committee, CD etc	**61%**	50%	73%
Establish a two-tier, long-term arms control agenda with monitoring, multinational inspections, binding treaties – tier 1: Russia/US limits, and tier 2: lower-level limits for China, France, UK	**54%**	31%	77%

Nuclear-weapon-free zones	Combined	Feasibility	Impact
Report the results of the NWFZ Focal Point Conference (August 2019) to the 2020 NPT RevCon, focusing on needs-assessments	**58%**	80%	35%
Include statements in the NWS' national NPT reports about the value of NWFZs to international security etc	**49%**	65%	33%
Establish a framework under the NPT to institutionalize communication within and across NWFZs, and work with NWS to drop reservations to NWFZ protocols, by appointing NWFZ champions	**48%**	59%	36%

Engaging non-NPT states	Combined	Feasibility	Impact
Risk reduction should be a key agenda item for dialogue with non-NPT states	**62%**	62%	62%
Engagement with non-NPT states should not undermine the legitimacy of the non-proliferation regime, and must be based on some degree of reciprocity of commitments	**38%**	35%	40%
The 2020 NPT RevCon should go beyond agreed language calling for NPT universality, and recognize the need to engage substantively with the non-NPT states	**36%**	34%	37%

Reducing the role of nuclear weapons	Combined	Feasibility	Impact
NWS should report back on discussions among themselves and with NNWS, regarding the role of nuclear weapons, including in nuclear doctrines, exercises, and postures	**69%**	73%	64%
The P5 should commit to exercise restraint in declaratory policies, including by stating that a nuclear war can never be won and must never be fought	**55%**	47%	63%
Establish an ongoing dialogue between formal NPT meetings on how to reduce the role of nuclear weapons, including engagement with non-NPT states	**54%**	47%	61%

Addressing the challenges from emerging technologies	Combined	Feasibility	Impact
Undertake a collective scoping initiative: what challenges do emerging tech pose for the NPT, and how can the NPT address them? How advanced is the tech? How does it impact arms control?	**73%**	79%	67%
Potential forums for dialogue: regional, track 1.5, expert, public-private partnership, Group of Scientific Experts, working groups to develop understanding and initiatives; eventual summit?	**67%**	71%	63%
Priorities: prohibition of nuclear weapons on fully autonomous systems; no cyberattack on NC3 / Codes of Conduct across parallel forums – P5 / bilateral / non-NPT nuclear armed states	**59%**	46%	72%

Nuclear disarmament verification	Combined	Feasibility	Impact
Encourage capacity-building and elaboration of nuclear disarmament verification means, via commitment of resources, human capital, ideas, approaches, education and outreach	**64%**	67%	61%
Commit to, and express appreciation of, nuclear disarmament verification activity; affirm its contribution to fulfilling 2010 NPT Action 7; affirm value of continued, geographically inclusive development	**62%**	71%	52%
Acknowledge the importance of NNWS having confidence in, and being able to contribute to, the direction and outcome of verification processes, through direct involvement or otherwise	**56%**	60%	52%

Nuclear responsibilities	Combined	Feasibility	Impact
All states have a responsibility to protect the rules-based order, and respect of past commitments is in the interest of all NPT States Parties	**64%**	61%	67%
Nuclear weapons possessors should declare their responsibility to minimize the risk of nuclear weapons use	**61%**	60%	61%
NPT States Parties commit to a dialogue on n-responsibilities and to identify effective measures to further nuclear disarmament and strengthen nuclear non-proliferation	**60%**	64%	56%

Policy papers

The security and humanitarian discourses: A 'false dichotomy' in the NPT

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The security and humanitarian discourses should not be treated as mutually exclusive. Indeed, treating them as such creates a 'false dichotomy' in the context of the Nuclear Non-Proliferation Treaty (NPT). The foundations of these respective discourses are the doctrine of nuclear deterrence and international humanitarian law (IHL). For advocates of the 'security discourse', global security is fundamentally underwritten by the nuclear deterrent. From that perspective, humanitarian considerations are not irrelevant; they are, if anything, a part of the logic behind nuclear deterrence – forestalling the humanitarian calamity of nuclear war.

For champions of the 'humanitarian discourse' on the other hand, deterrence is a justifiable strategy, but not with *nuclear* weapons. The use of such destructive and inherently indiscriminate armaments is seen as incompatible with IHL. Failure of nuclear deterrence could entail a humanitarian tragedy of regional, if not global proportions. Beyond humanitarian consequences, adherents of this approach argue that the existence of nuclear weapons and threat of their use are causes of global insecurity. The New Agenda Coalition (NAC: Brazil, Egypt, Ireland, Mexico, New Zealand and South Africa) goes as far as to assert that 'nuclear weapons ultimately constitute a security risk for all States, including nuclear-weapon States, and that nuclear disarmament is as much a security imperative as it is a humanitarian one.'[1]

Based on this summary of the essences of the two discourses, overlaps are inescapable and warrant cataloguing if they are to serve as seeds for nurturing constructive engagement by nuclear-armed states and their military alliance partners on one hand and all other states on the other.

What areas of overlap or common interest exist between the humanitarian and security discourses?

At the level of lowest common denominator, States Parties to the NPT must base their commonality on three main areas. First, they must avoid the use of a nuclear weapon. Any such use would directly and indirectly impact the five NPT-recognised Nuclear Weapon States (NWS) and Non-Nuclear Weapon States (NNWS). Second, as the NPT Preamble says, States Parties share an interest in preventing 'the devastation that would be visited upon all mankind by a nuclear war' and in the 'easing of international tension and the strengthening of trust between States.' It also commits them to achieving 'at the earliest possible date the cessation of the nuclear arms race' and effective nuclear disarmament measures, and to ensuring 'the prevention of wider dissemination of nuclear weapons.' A final point of commonality is mutual recognition of the need to resume efforts to reduce nuclear arsenals in order to fulfil obligations under Article VI of the NPT.

> **AS A STARTING POINT, THERE SHOULD BE RECOGNITION THAT ACTUAL USE OF NUCLEAR WEAPONS IS UNACCEPTABLE.**

These points are not, of course, mutually exclusive or exhaustive, and they can be articulated in a variety of ways. Other possible issues or alternative framings include

> **REDUCING THE RISKS ASSOCIATED WITH NUCLEAR ESCALATION IS AN IMPORTANT STEP TOWARDS DISARMAMENT AND AN AREA OF COMMON GROUND.**

exploring mutual acceptance of the need to sustain the 74 years of non-use of nuclear weapons – the nuclear taboo; committing to strategic restraint and to rebuilding habits of cooperation;[2] and recognising (as did Presidents Reagan and Gorbachev)[3] that a nuclear war cannot be won and must never be fought. As a starting point though, there should be recognition that actual use of nuclear weapons is unacceptable.[4]

One proposal for finding common ground, therefore, is for the NPT States Parties, via a representative group of both NWS and NNWS, to draw up a set of generalised points of common interest during the next five-yearly NPT review cycle as a first step in a collaborative, confidence-building engagement.

How could these areas of common interest facilitate nuclear disarmament in the lead up to the 2020 Review Conference and beyond?

Reducing the risks associated with nuclear escalation is an important step towards disarmament and an area of common ground. To facilitate nuclear disarmament, all NPT States Parties should urge the extension of the New Strategic Arms Reduction Treaty (New START) and the updating and strengthening of crisis avoidance mechanisms between the United States and Russia. All nuclear weapon possessors should be encouraged in appropriate forums to 'step back and to assess whether their own security and economic interests are served by ... intensified competition,' and to highlight the 'dangers posed by growing great power competition and a breakdown of the arms control endeavour, particularly for the legitimacy, effectiveness, and support for the NPT.'[5]

More broadly, nuclear armed states and their allies should develop ways and means for peace and security to be maintained with reduced reliance on, or without, nuclear weapons.[6] In the interim, the NWS should clarify whether and how their nuclear policies and force postures are consistent with applicable international law, especially IHL.[7]

Transparency is an additional area of common ground that can contribute to risk reduction and merge deterrence and IHL approaches.[8] Transparency-building measures could be aimed at reducing uncertainties about the details of strategic modernisation programmes, and developing rules of the road on potentially destabilising military activities in peacetime, crisis or conflict, including cyber and space activities. Such an exercise – albeit conducted outside the NPT – should also involve non-NPT States Parties. Relatedly, the NWS should explain and share information regarding their nuclear doctrines, deterrence policies, risk reduction measures and security assurances.[9]

The NWS should implement measures to ensure the safety and security of nuclear weapons, weapon-usable nuclear materials and related infrastructure, including through de-alerting, because the use of nuclear weapons could come about by accident or miscalculation. In this regard, states should weigh actions that could be taken unilaterally and multilaterally to prevent any such use of a nuclear weapon. The increasing risk of use and lack of risk reduction measures provided momentum to the negotiation of the 2017 Treaty on the Prohibition of Nuclear Weapons and amplified the 'uneasiness that the NPT cannot deliver on its nuclear disarmament promise.'[10] A Code of Nuclear Responsibilities is warranted. On this point, Lewis Dunn writes, 'it would be important to find ways also to seek out the views of NNWS on those responsibilities perhaps in the context of the 2020 NPT Review Conference.'[11]

Finally, all states should help shape a vehicle akin to the US-proposed Creating an Environment for Nuclear Disarmament (CEND) Working Group (CEWG) to identify in a constructive dialogue various ways to make the security environment more conducive to further progress toward nuclear disarmament.[12] A truly geographically and politically diverse group of participants[13] will be needed to allay concerns that the

> **A CODE OF NUCLEAR RESPONSIBILITIES IS WARRANTED**

United States is raising the bar on disarmament progress by 'linking it to transformations in the international security landscape far removed from NPT-specified obligations.'[14]

What state groupings are best placed to cooperate on shared disarmament interests?

Within the NPT, a unique state grouping may be able to play a central role in identifying points of commonality in the security and humanitarian discourses, if it is seen as truly bridge-building in orientation by both NWS and NNWS. The classic NPT example is the role played by the NAC in brokering agreement on the 13 steps at the 2000 NPT Review Conference (RevCon) between the Non-Aligned Movement on the one hand and the NWS on the other.

Beyond the NPT, a state grouping in which all nuclear-armed states are represented is the Conference on Disarmament (CD), which has 65 members. If and when the CD overcomes its longstanding stagnation, it could potentially operate as a cooperative state grouping, as it was initially constituted to do. Problematically, however, its limited membership and conservative rules on participation would be a handicap in addressing shared disarmament interests. The First Committee of the UN General Assembly may be a more appropriate bridge-building forum.

In a deteriorating global security environment, it is open to the UN Secretary-General to consider invoking Article 99 of the UN Charter to bring to the attention of the Security Council any matter which the Secretary General judges 'may threaten the maintenance of international peace and security.' Whether this prospect would force leaders and governments to address the situation of rising nuclear risks can only be surmised, given that the permanent members of the Security Council coincidentally are all nuclear-armed.[15]

Irrespective of the appropriate mechanism or grouping, the seriousness of matters related to nuclear use warrant ministerial-level attention. For example, in June 2019 the foreign minister of Sweden convened the Stockholm Ministerial Meeting on Nuclear Disarmament and the Non-Proliferation Treaty, which was attended by senior government ministers, including several foreign ministers, from 16 NNWS.[16] As consideration of these issues matures including at ministerial level, NPT and CD presidents could consider if and when to consult their members on ways for initiating cooperation to identify:

(i) possible key shared interests recognised by the respective bodies
(ii) optimal groupings for pursuing them.

In the meantime, informal, but inclusive groupings are likely to be more productive in preparing the ground for carrying out the activities envisaged above.[17]

Conclusion

The inherent challenges of merging deterrence and IHL approaches are daunting. But if the NPT is truly the cornerstone of international security, making efforts to try to resolve those matters is unavoidable. Focusing on process is not to discount the difficulties that lie ahead. Rather, it offers a rare subject on which diverse actors can potentially come together. Capitalising on overlaps between the security and humanitarian discourses offers a way forward. Identification of points of commonality among NWS and NNWS – without ignoring respective differences – would constitute the kind of political cooperation that itself might 'make a major contribution to the lessening of risks and international enmity.'[18]

In the context of this topic, modest first steps might include to address whether any use of nuclear weapons can be reconciled with the rules of IHL. Additionally, NPT States Parties might explore ways in which the doctrine of nuclear deterrence could be constrained, potentially to include further reductions, de-alerting and offsetting nuclear forces with conventional ones. To assuage the scepticism of NNWS about a staggered process of reductions towards elimination would entail some inventiveness given their concerns that progress towards disarmament would simply get stuck at a 'minimisation point.'

Renewing New START could help generate momentum for this kind of approach. At the same time, it would tacitly revive the ethos of and compulsion for nuclear disarmament as a process in which elimination is the ultimate goal. At this point, however, the key is to find a modus vivendi for getting senior representatives of NWS and NNWS around a table to 'rebuild the basis for cooperation within the international community.'[19] The 2020 NPT RevCon provides an opportunity to test whether there *is* a will to make progress towards nuclear disarmament, and if so, on what issue or issues. Drawing up a shopping list of these issues is a modest but practical beginning to a much-needed process of trust and confidence building.

Key recommendations

1. NPT States Parties, via a representative group of both NWS and NNWS, should draw up a set of generalised points of common interest building on various current initiatives such as the CEWG and the Stockholm Ministerial Declaration of 11 June 2019.

2. Nuclear armed states and their allies should make practical proposals to improve the security environment through reduced reliance on nuclear weapons. These could include offsetting nuclear with conventional forces, improving transparency of deterrence doctrines, ceasing modernisation and development of nuclear arsenals and resuming warhead reductions.

3. The NPT NWS should reaffirm their commitment to the letter and spirit of all three pillars of the NPT as vital for the Treaty's future and wellbeing.

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Small steps for arms control and the NPT review process

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The Nuclear Non-Proliferation Treaty (NPT) is arguably the most important nuclear agreement in the world. It is the only multilateral nuclear agreement to which all five NPT Nuclear Weapon States (NWS, ie China, France, Russia, the United Kingdom and the United States) belong and the only one that commits them to disarmament.

It would be difficult, however, to argue that all States Parties to the NPT are doing everything they can to implement the obligations outlined in Article VI of the agreement, which require the pursuit of negotiations in 'good faith on effective measures relating to the cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.'[1] Debates about the original intent of Article VI aside, the fact is that in order to secure indefinite extension of the NPT in 1995, the NWS committed to a series of disarmament-related actions. A quarter century later, many of those commitments remain unfulfilled.

Multiple obstacles block global nuclear stockpile reductions. These obstacles are both political and technical in nature; however, instead of focusing on what is impeding progress, NWS should look at the small and sensible steps that can help put arms control efforts back on track. Not only are these steps practical, they are vital to efforts aimed at preserving the very health of the Treaty at the foundation of the global nuclear order. NPT States Parties should pursue such steps over the coming months prior to the 2020 Review Conference (RevCon), and in the immediate aftermath of the Conference.

A first step

When faced with a complex problem, it helps to delineate a single helpful action, and then build on its successful implementation. The clearest first step in advancing arms control is simple – extension of the New Strategic Arms Reduction Treaty (New START).

With the collapse of the Intermediate-Range Nuclear Forces (INF) Treaty,[2] New START is the last standing bilateral arms control agreement between the United States and Russia. Given that the two countries possess over 90 per cent of the global nuclear arsenal, extension is a low-hanging next step from a security perspective. Without New START capping these stockpiles, the NPT will be further weakened, as some NPT States Parties will tie the absence of such a cap to the failure to fulfil Article VI of the NPT.[3]

> **INSTEAD OF FOCUSING ON WHAT IS IMPEDING PROGRESS, THE NUCLEAR WEAPON STATES SHOULD LOOK AT THE SMALL, SENSIBLE STEPS THAT CAN HELP PUT ARMS CONTROL BACK ON TRACK.**

The easiest way to accomplish this step is for President Trump and President Putin to meet and agree to extend New START before the RevCon. New START allows the States Parties to extend it for 'a period of no more than five years.'[4] The obstacles to simple extension are two-fold. First, the United States has expressed a desire to expand the scope of the agreement, and for it to become multilateral.[5] And second, Russia has expressed concerns about US implementation of the Treaty.[6] For the first obstacle, if the US desire is to cover more nuclear systems and commit China to binding arms control agreements, that is understandable. Such an objective, while extremely difficult to achieve, would certainly contribute to NPT disarmament goals. But if the desire stems from an interest in derailing New START extension, the United States is putting

the future of arms control at risk. New START is working, and limitations on deployed strategic systems covered by the agreement benefit both American and Russian security. Further, there is no reason to lose the constraints on 1,550 deployed strategic nuclear weapons just because there are other Russian and Chinese nuclear weapons that do not fall neatly within the confines of New START. The United States should take the proverbial bird in hand and worry about new arms control agreements from the comfortable position of having extended New START.

The second obstacle is Russian concern about various conversion processes the United States has pursued in its efforts to comply with the central limits of New START.[7] These issues should be dealt with quietly and professionally in the Bilateral Consultative Commission, the Treaty's implementation body. Further complicating matters, however, President Putin is now publicly musing that Russia is growing tired of being the 'demandeur' regarding New START extension and that perhaps they could do without it.[8] That kind of posturing might play well for domestic political audiences, but Russia cannot afford a strategic arms race from a military or economic perspective. If Russia wants the security that comes from the Treaty, then it should work to keep the agreement in place.

Finally, other NPT States Parties, the nuclear policy community, and the broader public should bring collective pressure to bear in support of New START extension. All NPT States Parties should insist upon extension as evidence that the United States and Russia are mindful of – and in compliance with – their Article VI obligations. Countries with stronger ties to Washington and Moscow, including other members of the P5 (a formula that also refers to China, France, Russia, the United Kingdom and the United States), should use their ties to press the case for extension, and for solving implementation issues through the proper channels. Legislative leaders, nuclear policy experts and the broader public must also make clear that they expect New START extension as soon as possible, and preferably before RevCon.

Managing potential crises

On 2 August 2019, the INF Treaty was abandoned. Formal announcements from both sides suggested they were resigned to the Treaty's demise; however, the consequences of the end of INF can and should be managed.

The United States and Russia should publicly outline their short-term plans on intermediate-range missile production and deployment. In addition to that transparency effort, the two countries should open a conversation about post-INF measures for guarding against a new missile race. That could include geographic restrictions on the deployment of new intermediate-range missiles or prohibitions on placing nuclear warheads on intermediate-range missiles. Longer-term, the United States and Russia should work to include other states with intermediate-range missiles in such dialogues, particularly China.

> **“THE UNITED STATES SHOULD WORRY ABOUT NEW ARMS CONTROL AGREEMENTS FROM THE COMFORTABLE POSITION OF HAVING EXTENDED NEW START.”**

Leaders in Washington and Moscow should also be prepared to brief NPT States Parties before, during, and after the 2020 RevCon, about their plans and efforts to deal with the aftermath of the INF collapse.

Reaffirming and establishing common understandings

After some modest progress on expanding the disarmament conversation has occurred in the P5 Process over the last ten years,[9] most notably China's increased engagement with NPT issues, momentum has slowed. The P5 Process is a structure that could and should

> **THE P5 EXPLAINING THEIR SHARED UNDERSTANDINGS TO NPT STATES PARTIES WOULD BE A CONFIDENCE-BUILDING PROCESS IN AND OF ITSELF.**

be better nurtured and strengthened. Members of the P5 will undoubtedly continue to have disagreements over arms control priorities, but there are basic fundamentals on which they can all agree.

Between now and the 2020 RevCon, the P5 should work together to reaffirm or establish a set of common understandings that would help to reduce nuclear risks. Increased interactions would be necessary, but some could take place on the margins of previously scheduled international gatherings. P5 states could also bring new voices to the negotiating table in the hopes of bringing fresh and innovative ideas into the discussions, such as civil society and next generation participation. They could also draw concepts and ideas from discussions among Non-Nuclear Weapons States (NNWS) and non-governmental institutions.

Many common understandings have already been established in various P5 statements over the years, but given the global rise in nuclear tensions, reiterating those common understandings in explicit detail would be both timely and necessary. The process of offering mutually-acceptable, fulsome explanations of shared understandings to NPT States Parties would be a confidence-building process in and of itself.

To begin, the P5 could state or reiterate their support for the principle that a nuclear war cannot be won and must never be fought, and that they intend to extend the 74-year record of non-use of nuclear weapons in perpetuity. They could also affirm that they will not conduct explosive nuclear tests or place nuclear weapons in space, and that they will work to ban the production of weapons-grade fissile material. Finally, they could publicly reaffirm their commitment to the long-term health of the NPT and acknowledge that more progress must be made on disarmament. While none of these statements would fundamentally change policy, their reiteration and re-emphasis can serve to lay a better foundation for more substantive discussions on reducing nuclear threats.

Creating new dialogues

The extension of New START and the adoption of shared principles among the P5 would represent positive steps in arms control, but are insufficient to address the challenges presented in the new global security environment. Emerging technologies will reshape strategic stability and the potentially destabilising impact of new tools of war and new domains of military conflict cannot be overstated. With this in mind, all NPT States Parties, both NWS and NNWS, must create and engage in a sustained dialogue about the future of arms control.

In theory, the Conference on Disarmament (CD) is the appropriate venue for discussing new arms control measures, but it has become hopelessly deadlocked. Attempts to revive the CD as a useful venue for dialogue have thus far failed. Before and during the 2020 RevCon, NPT States Parties should commit to engage in discussions at the heads-of-government level on how to revamp and reshape the organisation.

At the same time, states should support and expand standing efforts like the International Partnership for Nuclear Disarmament Verification (IPNDV).[10] The next generation of arms control agreements will require new and enhanced kinds of verification tools and technologies, such as those that IPNDV is developing. Whatever the venue, new dialogues should be created to address the connections between nuclear weapons and drones, precision strike weapons, hypersonic weapons, and ballistic missile defences, and the connections between offense and defence, lethal autonomous systems, and Artificial Intelligence (AI).[11] Ad hoc dialogues with or without official government participation can also provide opportunities to discuss the form and function of asymmetric arms control agreements.

> **THE P5 SHOULD COMMIT TO BEGIN DISCUSSIONS ON JOINT STATEMENTS THAT TAKE INTO ACCOUNT NEW THREATS TO STRATEGIC STABILITY.**

Further, given the potential for catastrophe, there is a pressing need to explore options for restraint from the targeting of nuclear command and control systems with cyber weapons. At the same time, the NWS should work with NNWS to establish confidence-building measures that will help the international community manage the connection between nuclear weapons and advances in cyber technology, including AI.

The P5 should commit to begin discussions on joint statements that take into account new threats to strategic stability. In a world where misinformation can spread easily through both public and private channels, the NWS should consult with each other about the expansion of nuclear risk reduction communication channels. The multilateralisation of 'hotline'-type structures can help avoid misunderstandings that could contribute to military escalation.

The NWS can also take steps to preclude destabilising applications of emerging technology before they become a reality. For example, while it is unclear whether a country would ever place nuclear weapons on a fully autonomous delivery system, it would nevertheless be prudent to pre-emptively prohibit such deployments. When it comes to the most destructive weapons in history, there should always be a 'human in the loop.' In fact, there is a wealth of options to explore for pre-emptive arms control. This concept could be pursued not only by policy makers in governments, but also by academics and independent experts.

Finally, and perhaps most importantly, the P5 should commit to forego expansion of their nuclear arsenals past current numerical levels. Instead of trying to create a new way to slow arsenal expansion, these countries should look to successful examples from the past. Specifically, the P5 should discuss successes in the 1972 Strategic Arms Limitation Talks (SALT I) and how those negotiations, subsequent agreements and the lessons learned from them, can be applied today.[12] US President Richard Nixon referred to SALT I as 'the beginning of a process that is enormously important that will limit now and, we hope, later reduce the burden of arms, and thereby reduce the danger of war.'[13] It is hard to imagine a more apt description for what needs to happen among the P5 going forward.

No matter the specific steps, the opportunities for arms control in the lead up to the 2020 NPT RevCon and beyond will be what the P5 make of them. For the sake of the NPT, the world can only hope that the world's five recognised nuclear states are willing to take actions to match their legal obligations.

Key Recommendations

1. The United States and Russia should extend New START for five years and publicly outline their short-term plans on intermediate-range missile production and deployment.

2. The P5 should work together to reaffirm or establish a set of common understandings that would help to reduce nuclear risks in advance of the 2020 NPT RevCon. They should also commit to begin discussions on new threats to strategic stability, with the goal of preventing destabilising applications of emerging technology.

3. The P5 should publicly commit to forego expansion of their nuclear arsenals past current numerical levels.

Endnotes

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Towards the 2020 NPT Review Conference: Action on nuclear-weapon-free zones

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Experts and diplomats alike fear that the 2020 Review Conference (RevCon) of the Nuclear Non-Proliferation Treaty (NPT) will fail to adopt a consensus outcome document.[1] Despite this danger, constructive debate on a diversity of themes and practical actions to strengthen nuclear-weapon-free zones (NWFZs) can help to sustain the viability and authority of the NPT. At the upcoming RevCon, States Parties to the NPT should aim to achieve a substantive consensus document that includes specific NWFZ recommendations.

Objectives of NWFZs cut across non-proliferation, disarmament and regional security, and can usefully engage both Nuclear Weapon States (NWS) and Non-Nuclear Weapon States (NNWS) in dialogue. Discussions on the existing five regional NWFZ treaties offer opportunities to explore actions toward achieving their universality, and ways to foster inter-zone cooperation and achieve unconditional security guarantees for zone members. But what are possible avenues for action and ways to improve the prospect of achieving a consensus outcome at the 2020 NPT RevCon?

Achieving universal adherence to NWFZ treaties

One of the best ways to strengthen a NWFZ is to achieve universal adherence among regional states to the relevant treaty, and adherence to its protocols by eligible NWS and extra-regional states. Adherence to each NWFZ treaty varies across the existing zones. As of June 2019, four of the existing five NWFZ treaties had achieved regional universality: the 1967 Treaty of Tlatelolco, the 1985 Treaty of Rarotonga, the 1995 Bangkok Treaty, and the 2006 Semipalatinsk Treaty.[2] Only the 1996 Treaty of Pelindaba is yet to achieve such universal adherence, with 13 regional states, including Egypt and Morocco, yet to ratify it.[3]

The 2020 NPT RevCon provides a platform and an opportunity for the Signatories and outliers to the Pelindaba Treaty to discuss their concerns and join the zone. A positive step in this direction would be for NWFZ outliers, Signatories and States Parties to issue statements that reaffirm the crucial role that universal regional adherence to NWFZ treaties plays, both within and outside the NPT, in helping to effectively address non-proliferation, disarmament and security challenges. NPT States Parties must renew with determination their collective commitment to vigorously pursuing the realisation of each zone's universality.

> **OBJECTIVES OF NWFZs CUT ACROSS NON-PROLIFERATION, DISARMAMENT AND REGIONAL SECURITY.**

While regional states have made significant progress in attaining universal adherence to their respective NWFZ treaties, achieving adherence from NWS remains a challenge. Discussion on how to increase NWS adherence to the treaties provides an opportunity to engage many NPT States Parties. Dialogue on the implementation of zones globally is a major mechanism that NWFZ States Parties can use to engage the NWS. Each year, prior to the UN General Assembly, one of the regional implementation agencies could convene a dialogue to examine opportunities to strengthen NWFZ effectiveness.

Action points adopted during the dialogue have the potential to increase the political attention of NWS to NWFZ matters, and foster the sharing of best practices in addressing outstanding issues. Importantly, NWFZ States Parties can nominate zone champions to engage Signatory NWS on efforts toward achieving full ratifications.

Statements by NWS in multilateral forums that reflect on NWFZ developments can help to demonstrate that NWFZs constitute an important tool in combatting proliferation and fostering disarmament. At the 2020 RevCon, for example, NWS should reaffirm the crucial importance of achieving the universality of NWFZ treaties. This would be a positive statement on strengthening the NPT's underlying principles. In their statement, NWS must commit to consult on outstanding issues on NWFZ treaties, reach an agreement and take steps to sign or ratify the protocols of each treaty within some reasonable period. Each additional signature and ratification are meaningful steps toward universality, which underpins the achievement of a comprehensive and legally-binding framework to implement the objectives of each NWFZ.[4]

Inter-zone cooperation

Cooperation among the zones is the second significant thematic area to strengthen a NWFZ. In practice, there has been limited cooperation among the zones.[5] At the 2020 RevCon, the various NWFZ implementation agencies and more than 100 States Parties to NWFZs could engage and share practices as a possible venue for action. Two tools – institutionalised communication and capacity-building, particularly in the form of non-proliferation and disarmament education – can enhance consultation and foster cooperation among the zones.

Institutionalised communication

Regular and sustained information distribution is one form of institutionalised communication that enhances inter-zone consultation and fosters cooperation. Establishment of a global NWFZ web portal covering activities and events, and including reports, statements and media coverage about NWFZs, would keep the diplomatic community, media and other audiences abreast of developments across the zones and opportunities for cooperation. The portal can be hosted by the UN Office for Disarmament Affairs or the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL). The concept of a portal could be examined in detail at the 24 April 2020 NWFZ Conference in New York, for example.[6] The outcome of that meeting forms an important practical contribution to general preparations for the 2020 NPT RevCon. At the 2020 RevCon, NWFZ States Parties could issue a joint statement on the establishment of a NWFZ global portal. Such a statement would not only demonstrate a significant step toward fostering cooperation among the zones but would also signal positive momentum in strengthening the NPT regime.

> **AT THE 2020 REVCON, THE NUCLEAR WEAPON STATES SHOULD REAFFIRM THE CRUCIAL IMPORTANCE OF ACHIEVING THE UNIVERSALITY OF NWFZ TREATIES.**

One essential feature of a NWFZ treaty is the provision for establishing a Commission or Agency to assure the zone's implementation and the compliance of States Parties. Such bodies offer another way of fostering cooperation and institutionalising communication practices among the zones. The Pelindaba and the Tlatelolco Zone each has a full-fledged implementation organization. The Semipalatinsk Zone is implemented by a Consultative Committee comprised of 'focal points' in each State Party, the meetings of which are hosted on a rotational basis among Member States.[7] The Bangkok Zone is implemented by an Executive Committee of Member State representatives who meet as necessary.[8] Unlike other zones, the Rarotonga Treaty does not establish any implementing Commission or Agency, but the Zone has a Consultative Committee of Member State representatives who meet periodically as necessary. The mechanism for the Semipalatinsk Treaty is a good model for zones that lack the finances

> **INSTITUTIONALISED COMMUNICATION AND CAPACITY-BUILDING, PARTICULARLY THROUGH NON-PROLIFERATION AND DISARMAMENT EDUCATION, CAN ENHANCE COOPERATION AMONG NWFZs.**

and capacity to establish and operationalise a secretariat. NWFZ States Parties could designate a point of contact within the Ministry of Foreign Affairs or at the UN Mission in New York, who would be responsible for keeping track of contacts and maintaining communication with counterparts in other NWFZs on all zone-related matters.

Nuclear non-proliferation and disarmament education

Educational initiatives on NWFZ implementation and performance also enhance consultation and foster cooperation among zones. The need for education is driven by, among other factors, the growing key role of NWFZs in non-proliferation and disarmament that requires a significant number of well-prepared diplomats and technical staff to address NPT issues. There exists a knowledge gap among the young generations – government officials, legislators and academics – working on nuclear issues including disarmament and non-proliferation.[9] States Parties to the NWFZs and their implementation agencies need coaching and appropriate resources to build and grow personnel knowledge and skills to meet organisational needs. Running and sustaining educational programmes in nuclear non-proliferation and disarmament require investment by all stakeholders including NWFZ agencies, academia and others.

Investment can be achieved through the formation of active partnerships among the zones and other stakeholders to organise joint educational initiatives. Partnerships leverage limited resources and expertise and complement and fill gaps in existing and emerging programmes. For example, graduate degree programmes in nuclear non-proliferation and arms control, such as those offered by King's College London in the United Kingdom, the Middlebury Institute of International Studies in the United States and St. Petersburg State University in Russia, could be expanded.[10] Similarly, short-course fellowship programmes offered to young professionals and diplomats by organisations such as James Martin Center for Nonproliferation Studies and the Vienna Center for Disarmament and Non-Proliferation need improved and sustained support to build the much-needed capacity of States Parties to NWFZs.

Through active partnership initiatives, young professionals and diplomats from NWFZs can learn about the appalling legacy of nuclear weapons, the NPT regime and about NWFZs as a necessary step on the road to global nuclear disarmament. Equipped with knowledge, they can help the NWFZ States Parties to highlight the actions of governments, diplomats and international institutions to raise awareness about the dangers of nuclear weapons to the public. On top of enhancing education within and among the zones, outreach efforts can extend discussion of NWFZ issues to states in Central Europe, the Middle East and North East Asia. This would help countries within those regions identify common interests that, in turn, create an enabling environment and prospects for establishing a NWFZ.

Negative security assurances

Negative security assurances (NSAs) are the third significant thematic area to strengthen NWFZs and have the potential to contribute to a successful 2020 NPT RevCon. An NSA – an essential principle in non-proliferation and disarmament regimes – is a guarantee that a NWS will not use or threaten to use nuclear weapons against NNWS. This would include all members of a regional NWFZ.

To date, no international legally-binding treaty or UN Security Council Resolution contains NSAs, despite repeated calls by several NNWS at previous RevCons. Currently, NSAs are provided through unilateral declarations by the NWS under the NPT in their nuclear posture reviews, ratification of NWFZ protocols or both.[11] By signing and ratifying the relevant protocols to NWFZ treaties, the five NWS recognized by the NPT would give legally-binding NSAs to NWFZ members, but

this arrangement has mostly been diluted in recent years through the imposition of unrelated pre-conditions by the NWS. Therefore, the 2020 NPT RevCon will likely include continued attention on the question of a legally-binding instruments granting NSAs to NWFZ States Parties. Importantly, unlike positive security assurances that were designed to encourage NNWS to join the NPT, NSAs under the NWFZs aim to strengthen a sense of security for states that have renounced nuclear weapons, and they delegitimise nuclear weapons as a currency of strategic stability for NWS.

NSAs are vital to strengthening the NPT. They help to discourage the NNWS from pursuing nuclear weapons. During the 2020 RevCon, a statement by the NWS that reaffirms their commitment to provide NSAs to NWFZ States, as agreed by consensus at the 1995 NPT Review and Extension Conference, for instance,[12] would help remedy divisions among NPT States Parties, especially NWFZ members. Going a step further, the commitment of NWS could take the form of an international legally-binding instrument on NSAs.

Actions that the NWS could and should adopt at the 2020 NPT RevCon to bolster NSAs include:

- Withdrawal or modification of existing reservations, interpretative statements or declarations attached to the relevant NWFZ protocols, whether imposed at the time of signature, ratification or both.
- Unilateral declarations of a policy of No First Use (NFU) with regard to NWFZ territories.[13] In other words, the NWS should declare they will not be the first to launch nuclear weapons from within NWFZs, or against other NWS' assets that are transiting the zone. This is a voluntary, interim step which the NWS could take immediately without having to complete the complex negotiations involved in ratifying NWFZ protocols or NSAs, and which would serve as a confidence-building measure to increase the incentive for regional states to ratify the relevant NWFZ treaties.

Conclusion

Achieving success at the 2020 RevCon, and beyond, is vital and should be the objective of all NPT States Parties. To avoid failure, NPT States Parties must show more flexibility and willingness to explore common ground and accelerate steps that strengthen international confidence in the NPT regime, and the collective commitment to its improvement. NWFZs reinforce the international non-proliferation regime and strengthen regional stability by decreasing the probability that a state will seek nuclear weapons to counterbalance a threatening neighbour. Failure to produce a consensus document at the 2020 RevCon would lead to more significant disappointment across the world.

The prospect of achieving success at the 2020 NPT RevCon will improve to the degree States Parties take steps to attain the universality of all five existing regional NWFZ treaties, foster inter-zone cooperation and achieve unconditional NSAs from all NWS under the NPT. Unfortunately, the obstacles to achieving these objectives are formidable, so realistically we must recognise that complete success is improbable. In light of this, a primary focus should be on identifying feasible steps that can contribute to an agreement on practical, meaningful progress towards nuclear disarmament and a strengthened non-proliferation regime. Achieving this progress at the 2020 NPT RevCon, and beyond, is vital and if achieved, will be celebrated as a success.

“NEGATIVE SECURITY ASSURANCES UNDER THE NWFZs AIM TO STRENGTHEN A SENSE OF SECURITY FOR STATES THAT HAVE RENOUNCED NUCLEAR WEAPONS.”

Key recommendations

1. NWFZ outliers, Signatories and States Parties should issue statements that reaffirm the crucial role that universal regional adherence to NWFZ treaties plays for the NPT.

2. NWFZ States Parties should create implementing bodies for the five existing regional NWFZ treaties to institutionalise communication practices and foster inter-zone cooperation.

3. Through active partnership initiatives, young professionals and diplomats from NWFZs could learn about the appalling legacy of nuclear weapons, the NPT regime and about NWFZs as a necessary step on the road to global nuclear disarmament.

Endnotes

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Divergent attitudes about engaging non-NPT states

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It may sound a bit clichéd to say that we are at a crossroads when it comes to nuclear proliferation but, like all clichés, there is also an element of truth in it. There is a strong possibility that the nuclear non-proliferation regime could deteriorate and more countries could seek nuclear weapons unless quick action is taken. President John F. Kennedy's prediction that there could be 25 nuclear states by the 1970s did not come to pass, because of the negotiation of the Nuclear Non-Proliferation Treaty (NPT) and the establishment of a norm of non-proliferation. One of the main reasons for this is that the two superpowers of the day – the United States and the Soviet Union – agreed that it was not in their interests to see more proliferation. Without consensus among key powers, dealing with non-NPT states becomes a problem.

There are disagreements among the great powers about what to do with most of the recalcitrant non-NPT states – India, Pakistan, Israel and North Korea. In South Asia, for example, China has actively helped Pakistan match India's nuclear weapons capability, and it continues to object to letting India enter the Nuclear Suppliers Group (NSG).[1] On the other hand, the United States sees Pakistan's nuclear weapons programme as a serious risk because of Pakistan's efforts to sell nuclear weapons technology to other countries. And the United States has pushed through an exemption for India from NSG rules so that it can receive nuclear technology from NSG participants and is actively pushing for Indian membership in the NSG.

As per the definition in the NPT, 'a nuclear-weapon State [NWS] is one which has manufactured and exploded a nuclear weapon or other nuclear explosive device prior to 1 January 1967.'[2] The circumstances of the non-NPT nuclear-armed states – India, Israel, North Korea and Pakistan – as well as their relationship to the nuclear order are slightly different. India is a reluctant nuclear power, which is also keen on portraying itself as a responsible state. Its keenness is demonstrated by its efforts to get into the four associated technology control regimes, of which it has become a member of three – the Missile Technology Control Regime (MTCR), Wassenaar Arrangement (WA) and Australia Group (AG). This suggests that India will be both more interested in and more willing to negotiate a deal with the nuclear order. On the negative side, being a democracy also constrains its manoeuvring room in negotiations, as demonstrated during negotiations over the US-India nuclear deal.

> **THE NUCLEAR WEAPON STATES MUST COMMIT NOT TO LET OTHER STRATEGIC OBJECTIVES COME IN THE WAY OF PREVENTING FURTHER PROLIFERATION.**

Though Pakistan has been more reckless with its nuclear technology, including supplying nuclear technology to other countries, it does have an interest in joining the nuclear mainstream for at least two reasons. First, it wants parity with India. Second, given the bad reputation that it has garnered, Pakistan also has an incentive to improve its international reputation. For example, Pakistan has expended a lot of effort in trying to convince the international community that it has improved its record on nuclear behaviour. Nevertheless, parity with India will be a key issue for Pakistan and it is unlikely to accept any arrangement that does not provide that. Pakistan's conventional military inferiority with regard to India has also led it to refuse a No First Use (NFU) policy and Islamabad is unlikely to change that.

In Israel's case, it does not officially acknowledge having nuclear weapons because of the fear that such acknowledgement would both spur a regional nuclear arms race

and invite global pressures on Israel to give up its nuclear weapons. This makes Israel a difficult case to consider bringing into global nuclear order.

In the North Korean case, there is clearly some interest in becoming a legitimate nuclear power, and thus, North Korea might be keener to consider negotiating with the global nuclear regime. The unsuccessful Kim-Trump Summits both illustrate North Korea's interests but also suggest that North Korea will not be willing to entirely give up its nuclear weapons in order to reach a modus vivendi with the global community.

Despite the different circumstances of these four non-NPT nuclear-armed states, it will be extremely complicated to consider individual negotiations with each of these countries. Such separate negotiations would be cumbersome and would have negative spill-over effects because none of the four are likely to accept terms that they perceive as being more unfavourable than terms offered to others. Moreover, none of these countries are likely to give up their nuclear weapons, short of global nuclear disarmament. Indeed, Pakistan, North Korea and possibly even Israel are likely to be reluctant to give up their nuclear weapons even in the context of a global nuclear disarmament agreement. All three perceive existential threats (in the North Korean case, it is a threat to the regime rather than a threat to the state), primarily from relative conventional military inequality (in the case of Israel, possible future inequality) and perceive nuclear weapons as the ultimate guarantor of national survival. Considering these commonalities, it will be much more prudent to take the four as a group rather than have four parallel set of negotiations.

The divergent Chinese and US attitudes towards the Indian and Pakistani nuclear programmes have little to do with the latter two countries' nuclear weapons capabilities and more to do with the political relationship between these great powers and the regional powers. India and China are old adversaries, which makes Beijing sympathetic to Pakistan's concerns and interested in curtailing India's scope for action. On the other hand, China's rise has pushed the United States and India closer together, with a covert interest in balancing China, making the United States more sympathetic to India's interests.[3]

Such divergence among the great powers is clearly visible in other cases. On North Korea, for example, China is more interested in ensuring stability in North Korea and protecting the country's regime than in rolling back its nuclear weapons programme. While the United States is concerned about stability on the Korean Peninsula and might not want a precipitous North Korean collapse, it emphasises de-nuclearisation much more because of the direct nuclear threat that North Korea poses to US forces in the region, to US Allies South Korea and Japan and to the US mainland. Such disagreements about proliferation threats were far less visible during the Cold War between the United States and Soviet Union. But the more complex international geopolitical situation today has resulted in far less consensus among the great powers about the need to prevent proliferation.

Re-establishing consensus on non-proliferation

> **IT WILL BE PRUDENT TO TAKE THE NON-NPT STATES AS A GROUP RATHER THAN HAVE FOUR PARALLEL SETS OF NEGOTIATIONS.**

The need for consensus among key powers means that the first suggestion is for the key powers – either the five NPT NWS or a slightly larger group – to meet to identify areas of convergence. There must be a clear commitment from all NWS that they will not let other strategic objectives come in the way of preventing the further spread of nuclear weapons. The nuclear non-proliferation regime continues to be dominated by the great powers, and they have greater responsibility for managing current stresses than lesser powers.

Unless there is consensus among the key powers about the value of the NPT and the way forward, there is little point in discussing the matter with the non-NPT

> **NON-NPT STATES ARE LIKELY TO EXPLOIT DIVISIONS IF THEY SEE THE NUCLEAR WEAPON STATES USING THE NPT AS ANOTHER FORUM FOR COMPETITION.**

states. Non-NPT states will be understandably cynical if they see the NWS using the NPT to further their own narrow national interests rather than acting in the interest of the community as a whole. Moreover, non-NPT states are likely to exploit any divisions between the NWS if they see that NWS are using the NPT as another forum for competition.

At the same time, the existing review mechanism of the NPT – the five-yearly Review Conferences (RevCons) and associated Preparatory Committee meetings (PrepComs) – is not likely to be the best venue to address this issue. Progress will be unlikely if two hundred countries are part of this dialogue, though, obviously, all of them will be affected by the issue. The RevCons will still have utility for a couple of different reasons. For one, discussions at recent RevCons covered many issues other than NPT 'universality'. In fact, some of the fiercest debates in recent RevCons have been about Article IV and Article VI obligations (regarding the peaceful uses of nuclear energy and disarmament, respectively).[4] Moreover, if a mechanism can be found to bring the non-NPT states into the NPT system, the RevCons will benefit from their participation (as discussed below).

A new forum for engagement

In the short-term, however, a different format is required for engaging non-NPT states. One solution might be to bring together the NWS with the four non-NPT nuclear-armed states and select key states from different regions – countries such as Japan, Germany, South Africa, Brazil, Argentina and Mexico. These powers should attempt to identify a new consensus on non-proliferation objectives, the common risks they all face and potential solutions that will be acceptable to all.

Such an effort, while not very democratic, probably has a better chance of generating a fresh perspective on non-proliferation away from the high-pressure grandstanding that goes on at NPT RevCons. There will obviously be resistance, especially from the existing NPT powers in this group, so it may not be possible to begin this dialogue as an official meeting of States Parties. The dialogue may need to start at track 1.5 or track 2 levels, and the ideas and approaches generated could subsequently be considered at the inter-governmental level.

Even if current NPT members may resist such a move, there is reason to expect that non-NPT states will be interested in the exercise. Most non-NPT states also do not want further proliferation, even if they do want to maintain their own nuclear weapons capability. This stands to reason, as most non-NPT states made difficult choices that involved a lot of pain in acquiring nuclear weapons, because they perceived significant security threats and defence needs that only a nuclear weapon capability could fulfil. The further spread of nuclear weapons will only hurt the security interests of these non-NPT states, directly or indirectly, such as indirectly prompting a nuclear proliferation cascade in their region.

This means that existing non-NPT states will obviously have little interest in promoting or empathising with further proliferation. Even cases like Pakistan are the exception and the A.Q. Khan network appeared more concerned with commercial objectives than political or strategic ones. For this reason, these non-NPT states are likely to be as interested in developing measures to prevent the further spread of nuclear weapons as NPT States Parties. This basic understanding and acceptance can form the basis of a discussion between the NWS and the non-NPT nuclear-armed states.

Moving beyond non-proliferation

While the basis of discussion can be the common purpose of preventing further nuclear proliferation, obviously the discussion needs to go beyond this single point of focus. One important issue that is in the common interest of all nuclear powers – indeed, of non-nuclear powers, as well – is the necessity of ensuring that these weapons are never used intentionally or otherwise. Recent experience with non-NPT nuclear powers suggests that they will be careful in ensuring the safety and security of their new capabilities. Nevertheless, a dialogue such as the one suggested here can help in promoting sensible policies such as maintaining or moving towards de-targeted, de-alerted and potentially even de-mated nuclear weapons, with strict, unified and centralised political control. In addition, several non-NPT nuclear-armed states have invested in medium-range missiles that would fall under the Intermediate-Range Nuclear Forces (INF) Treaty, if the Treaty were to be broadened to include them. With the end of the INF Treaty, one solution might be a new, broader agreement to include these other countries, especially because this is a key reason the United States cites for walking out of the Treaty. This is likely to be a difficult sell to the non-NPT nuclear states, but it could form part of the give-and-take in the larger discussions.

Non-NPT nuclear states are likely to have many of the same demands as the NPT Non-Nuclear Weapon States (NNWS). Moreover, all of the non-NPT states (except possibly Israel) see themselves as part of the developing world and would like to promote some of the common demands of this sub-group of NNWS. This includes, most prominently, the demand for greater emphasis on the NPT Article VI commitment to nuclear disarmament. At the very least, they would expect some definite commitment from the NWS to further nuclear arms reductions. Though the reductions process is fast reaching its limits because of the significant nuclear arms reductions over the last two decades, there are associated efforts that may satisfy the non-NPT nuclear powers. This includes measures to reduce nuclear dangers, such as de-alerting or even more radically, a global NFU pledge, possibly codified in an international treaty. Other avenues that can be explored could include negotiated controls on non-nuclear strategic technologies such as hypersonic weapons or the weaponisation of outer space. These technologies add to the insecurities of the non-NPT nuclear states and therefore, these states may be willing to consider a dialogue if it included these issues. India is reported to have started a programme to develop hypersonic weapons, but it is at the very early stage, which makes it likely that India will also be interested in controlling that technology.

Another possibility is tackling the difficult subject of the relationship between NPT Articles IV and III, respectively: how can (all) nuclear-armed states ensure that legitimate civilian nuclear technology is available to the NNWS, while also addressing concerns about the spread of weapons technology? This issue has generally pitched NWS against NNWS, but the voices of non-NPT nuclear-armed states have not been heard within the NPT forums. The non-NPT nuclear powers have a foot in both camps: as nuclear-armed states that do not want nuclear weapons to spread further, their interests are similar to those of the NPT NWS. But as developing states, they also have an interest in freer civilian nuclear technology transfers. A dialogue between the NWS and the non-NPT nuclear powers can be useful if the non-NPT powers are willing to become a bridge between the NWS and the NNWS. Whether there is an actual deal to be made between NWS and NNWS on Article IV remains to be seen, but the exercise can also be useful in bringing the NWS and non-NPT nuclear powers together.

> **NON-NPT STATES ARE LIKELY TO BE AS INTERESTED AS NPT STATES PARTIES IN PREVENTING FURTHER PROLIFERATION.**

Finally, the time may have come to start an informal discussion about integrating the four non-NPT nuclear powers within the NPT structure, given that it is in the interests of both sides. Though this might incentivise others to break out, the punishment suffered by these non-NPT nuclear powers so far should provide adequate warning

> **NON-NPT STATES PARTIES ARE LIKELY TO HAVE MANY OF THE SAME DEMANDS AS NON-NUCLEAR WEAPON STATES.**

to any NNWS state contemplating such a move. Most of the states that pursued nuclear weapons at some point in recent years – Libya, India, Pakistan, North Korea and Iran – have suffered debilitating technology denials and economic sanctions. This is not a path others would want to follow unless their security concerns are very serious. Nevertheless, integrating non-NPT nuclear powers into the NPT system is not likely to be easy. A discussion need not lead to an immediate solution, or even one in the foreseeable future, but could be an important means by which to foster a deeper dialogue between the NPT nuclear powers and the non-NPT ones.

Key recommendations

1. The NWS should meet with the four non-NPT nuclear-armed states and key states from different regions, such as Japan, Germany, South Africa, Brazil, Argentina and Mexico. These states should attempt to identify a new consensus on non-proliferation objectives, the common risks they all face and potential solutions that will be acceptable to all.

2. A group of NPT States Parties could start an informal discussion about integrating the four non-NPT nuclear powers within the NPT structure, given that it is in the interests of both sides.

3. Given the stalemate prevailing in the Conference on Disarmament in Geneva, alternate venues and platforms must be explored to make progress in controlling the security risks associated with nuclear proliferation.

Endnotes

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Reducing the role of nuclear weapons: A role for international law

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The processes associated with the Nuclear Non-Proliferation Treaty (NPT) have arguably demonstrated some potential to reduce the role of nuclear weapons in military and security concepts, doctrines and policies. The commitment that the Nuclear Weapon States (NWS) made at the 2010 NPT Review Conference (RevCon) is the most recent example of this point:

> The nuclear-weapon States commit to accelerate concrete progress on the steps leading to nuclear disarmament ... To that end, they are called upon to promptly engage with a view ... (c) To further diminish the role and significance of nuclear weapons in all military and security concepts, doctrines and policies; ... (e) Consider the legitimate interest of non-nuclear-weapon States in further reducing the operational status of nuclear weapons systems in ways that promote international stability and security...[1]

This commitment did not simply come out of the blue; rather, it was based upon state practice, and while it is not legally binding,[2] it may be considered to be part of 'soft law.'[3] In this vein, it plays a role in concretising Article VI of the NPT,[4] as understood through a rule of general international law that subsequent state practice can be used to interpret and develop existing treaty rules. This rule, firmly rooted in customary international law, has been codified in Article 31(3) of the 1969 Vienna Convention on the Law of Treaties (VCLT), which states that when interpreting a treaty text,

> There shall be taken into account, together with the context: a. Any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions; b. Any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation...

In the context of treaty interpretation, the Action Plan that NPT States Parties agreed to at the 2010 RevCon can be considered either as a subsequent (political) agreement in line with Article 31(3)(a) of the VCLT, or as subsequent practice on the basis of Article 31(3)(b) of the VCLT, especially since NPT States Parties adopted the RevCon Final Document by consensus.[5] The Action Plan is therefore instrumental in understanding how States Parties view the obligations included in NPT Article VI.

In the context of the 2020 RevCon specifically, NPT States Parties should emphasise and further develop specific steps which all NPT States Parties, including Non-Nuclear Weapons States (NNWS), can agree upon to reduce the role of nuclear weapons in security, doctrine and policy. Reference to international law may serve as a means to demonstrate that there is already a common understanding upon which to build. In this respect, national (and international) security concepts, doctrines and policies are the proper place to integrate considerations of international law in the context of nuclear arms control.

> **REFERENCE TO INTERNATIONAL LAW MAY SERVE TO DEMONSTRATE THERE IS ALREADY A COMMON UNDERSTANDING ON WHICH TO BUILD.**

The following three recommendations are options that NPT States Parties might take up in the Final Document of the 2020 RevCon. The 'specific steps' associated with each recommendation are action items that NPT States Parties could include in a possible Action Plan to be agreed upon by the Conference.

> NPT STATES PARTIES SHOULD UNDERLINE THEIR COMMITMENT TO INTERNATIONAL HUMANITARIAN LAW IN THEIR SECURITY CONCEPTS, DOCTRINES AND POLICIES, INCLUDING WITH REGARD TO NUCLEAR WEAPONS.

NPT States Parties should demonstrate that they take note of concerns that any use of nuclear weapons may be hard to reconcile with the rules of international humanitarian law.

International legal experts generally accept that it is hard to envisage situations where nuclear weapons can be used in such a way as to distinguish between non-combatants and military targets, or be employed in a manner which does not cause superfluous injury or unnecessary suffering.[6] These are principles which, due to their status as international customary law, are binding for all NPT States Parties.[7] NPT States Parties should also make clear that they understand that any use of nuclear weapons may have catastrophic humanitarian consequences.[8] Accordingly, they should affirm that they will uphold an attitude of respect for the rules of international humanitarian law (IHL).[9]

Specific steps

NPT States Parties can take several specific steps in such a direction. First, they should explicitly underline their commitment to the rules of IHL as part of their military and security concepts, doctrines and policies, including with regard to nuclear weapons. While the use of nuclear weapons is bound by the rules of humanitarian law, this is not always explicitly stated within military and security concepts. By underlining this commitment, NPT States Parties contribute to strengthening these rules and to building confidence that they will be upheld.

Second, NPT States Parties should affirm that IHL should be considered within the NPT framework, rather than having this addressed outside of the NPT. They could aim at the establishment of an open working group, including NWS and NNWS, on ways and means to better integrate IHL into their nuclear weapons-related security concepts, aiming to submit a report to the 2025 RevCon on these issues. This is different from the approach pursued by the Humanitarian Initiative,[10] which did not successfully integrate all NPT States Parties into the process, thereby limiting its possible effect. By placing the issue within the NPT, there is an increased possibility of securing participation of the NWS.

Third, NPT States Parties should not only stick to the letter of the law, but also demonstrate their attitude of respect for the rules of IHL. According to Common Article 1 of the Geneva Conventions of 1949, states have the obligation to respect and ensure respect for IHL. In this regard, states can demonstrate their respect for IHL through different avenues, such as training and dissemination of IHL according to their obligations under the 1949 Geneva Conventions and their Additional Protocols.[11]

NPT States Parties should acknowledge that the meaning of NPT Article VI has been informed by subsequent state practice, including treaty-based practice and practice performed within and through international organisations.[12]

One of the most important documents in this regard is the Final Document of the 2000 NPT RevCon, which outlined thirteen practical steps on which 'the conference agrees [...] for the systematic and progressive efforts to implement Article VI of the Treaty on the Non-proliferation of Nuclear Weapons.'[13] These steps included the urgency of achieving signatures and ratifications to achieve the entry into force of the Comprehensive Nuclear-Test-Ban Treaty; an unequivocal undertaking by NWS to the total elimination of their arsenals leading to nuclear disarmament; the necessity of negotiating in the Conference on Disarmament a treaty banning the production of fissile material for nuclear weapons; applying a principle of irreversibility to nuclear disarmament, arms control and nuclear reductions; and development of verification capabilities to assure compliance with disarmament agreements, among other things. Another relevant document in terms of subsequent state practice is the Final

Document of the 2010 RevCon, which also sets out specific commitments towards the implementation of NPT Article VI.

Specific steps:

NPT States Parties should state that, while they believe that quantifiable obligations remain important,[14] they will carefully consider signing and ratifying existing instruments and report back to the next NPT RevCon on their efforts, as agreed at the 2000 RevCon.[15] They should also take into account the above-mentioned reading of NPT Article VI by developing new instruments and by revising existing instruments in light of recent geostrategic and other changes. This could include, for example, considering the establishment of an open-ended NPT working group on how technological progress relates to NPT Article VI. This suggestion is based on the first decision on the Final Document of the 1995 NPT Review and Extension Conference, which establishes the necessity not just to evaluate results by looking backward, but also to look forward and identify the areas that need further progress in the future.[16] States Parties should also continue to address how the implementation of the NPT can be strengthened to achieve its universality.

NPT States Parties should agree to create better conditions for nuclear disarmament.

While this recommendation obviously goes further than only considering existing international law, international law can be used as a platform for common understanding. In this regard, it is necessary to safeguard and further develop existing concepts and rules of international law and implement these within military and security concepts and policies. Through the use and implementation of existing international law, a common standard can be attained which will create an environment conducive to moving further on the issue of nuclear disarmament.

Specific steps:

NPT States Parties should affirm that they will safeguard existing nuclear-weapon-free zones (NWFZ) and promote negotiations aiming to expand existing zones and develop new zones.[17] There are currently five NWFZ treaties: the Treaty of Tlatelolco for Latin America and the Caribbean, the Treaty of Rarotonga for the South Pacific, the Treaty of Bangkok for South-east Asia, the Treaty of Pelindaba for Africa and the Treaty of Semipalatinsk in Central Asia. The importance of such agreements is that they all aim to ensure a total absence of nuclear weapons within a specific region, which has helped strengthen global nuclear non-proliferation and assisted in regional peace and security.[18] The expansion of existing zones and the creation of new zones could help to limit security risks. Further examples exist in other treaties that deal with denuclearisation, such as the Antarctic Treaty and the Seabed Treaty, or even Mongolia's self-declared nuclear-weapon-free status, which is internationally recognised.

> **NPT STATES PARTIES SHOULD CONSIDER THE ESTABLISHMENT OF AN OPEN-ENDED NPT WORKING GROUP ON HOW TECHNOLOGICAL PROGRESS RELATES TO NPT ARTICLE VI.**

Article 2(4) of the UN Charter provides that states shall refrain from the threat or use of force against any state or in any other manner inconsistent with the purpose of achieving and maintaining international peace and security. With that obligation in mind, NPT States Parties should contribute to the development of cooperation and the reduction of tensions, by strengthening all modes for the peaceful settlement of disputes in line with Article 2(3) of the UN Charter and the NPT Preamble, thereby helping facilitate a reduced role for nuclear weapons.

Finally, NPT States Parties should take up the concept of de-alerting as a strategic step in de-emphasising the military role of nuclear weapons.[19] Currently, there are a significant number of nuclear weapons on high alert, increasing the importance of nuclear weapons in security policies and the danger of their use. A process of de-alerting would decrease the number of nuclear weapons on high alert through reversible changes

> **NPT STATES PARTIES SHOULD CONTRIBUTE TO THE REDUCTION OF TENSIONS BY STRENGTHENING ALL MODES FOR THE PEACEFUL SETTLEMENT OF DISPUTES.**

to lower their readiness level. De-alerting would allow for a reduction of the threat of use of nuclear weapons, which would decrease the tensions in this field. Subsequently, it would encourage security policies that are not based on the threat of use of nuclear weapons, which in turn creates the possibility to decrease the hurdles towards nuclear disarmament. Reversible changes can also be seen as an incremental step towards irreversible changes, allowing for the elimination of nuclear weapons and thereby an important step towards implementing NPT Article VI.

Key recommendations

1. NPT States Parties should acknowledge that any use of nuclear weapons may be hard to reconcile with the rules of IHL.

2. NPT States Parties should affirm that IHL should be considered within the NPT framework, rather than having this addressed outside of the NPT.

3. NPT States Parties should consider establishing an open-ended NPT working group on how technological progress relates to NPT Article VI.

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Addressing the challenges to the NPT regime from emerging technologies

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A new technological arms race is underway between the United States, Russia and China. These three Nuclear Weapon States (NWS) are investing billions into the research and development (R&D) of emerging technology programmes, including on hypersonic weapons, Artificial Intelligence (AI), autonomous weapons, offensive and defensive cyber capabilities, advanced space-based sensors and high-energy lasers, among other systems. The potential military utility of these technologies is driving the perceived need for military superiority across operational domains. In general, these technologies will lead to significantly faster and more intense military operations whilst reducing the decision-making time for political and military leaders.

The intersection of modern kinetic forces (conventional and nuclear military capabilities) and non-kinetic tools (including cyber capabilities and AI) raises questions on whether nuclear deterrence and strategic stability will continue to hold, and what effects this will have on the Nuclear Non-Proliferation Treaty (NPT) regime. In its preamble, the NPT warns of 'the devastation that would be visited upon all mankind by a nuclear war and the consequent need to make every effort to avert the danger of such a war and to take measures to safeguard the security of peoples.'[1] Many argue that the NPT Preparatory Committee (PrepCom) or Review Conference (RevCon) meetings are not the appropriate forum for states to discuss and attempt to mitigate the more dangerous effects of emerging technologies on nuclear weapons possession and use. However, the Treaty's preambular language lays the foundation for the adoption of nuclear risk reduction measures by States Parties and provides the justification to address and counter relevant technological developments that could increase the 'danger of nuclear war' to which it refers.

In the current environment, the deep distrust between nuclear adversaries increases the prospect of a nuclear war through 'worst case' military planning. The application of emerging technologies increase the risks through a 'use it or lose it' mentality, fostered by the vast speed with which these systems operate, and the growing motivation and means to carry out a disarming first strike. Even if there are no plans for such an attack, the perceived risk of a disarming first strike could provoke more dangerous nuclear postures. Smaller nuclear powers may be incentivised to grow their nuclear arsenals to ensure that they have a survivable second-strike capability – which is why many states support the idea of negotiating and bringing into force a Fissile Material Cut-off Treaty to reduce the likelihood of this prospect. And some states may be less willing to take systems off 'hair-trigger alert' or launch-on-warning status, whereas others may wish to adopt it. All these factors increase the risks of nuclear weapons use through accident or miscalculation between NWS, and stress the nuclear non-proliferation regime by decreasing the impetus to eliminate nuclear weapons, at least in the short term.

> **THE NPT PREAMBLE PROVIDES JUSTIFICATION FOR STATES PARTIES TO ADDRESS RELEVANT TECHNOLOGICAL DEVELOPMENTS TO 'AVERT THE DANGER OF [NUCLEAR] WAR'.**

The emerging technology arms race therefore poses inherent risks to the NPT regime as well as to strategic stability and crisis escalation. All NWS have an obligation under NPT Article VI to reduce the number and salience of their nuclear weapons, irrespective of technological developments.[2] Moreover, many Non-Nuclear Weapon States (NNWS) expect the NWS to adopt risk reduction steps in light of the developments outlined above. If NNWS believe that that new technologies are increasing nuclear risks and reducing the potential for states to reduce nuclear weapon

stockpiles, the knock-on effect on the nonproliferation regime could potentially undermine the viability of and continued adherence to the NPT.

This paper focuses on two such emergent technologies: hypersonic weapons and AI. The risks and opportunities identified here could apply to other capabilities and are relevant to assessing the effects and mitigating the dangers that some of these technologies pose to the NPT regime. The United States, Russia and China have a special responsibility to manage the consequences of technological developments for international stability. As such, the paper highlights and assesses developments in these countries in particular.

Hypersonic weapons

Advanced conventional precision strike systems provide improved targeting accuracy, undermining confidence in the ability for an enemy to retaliate. Hypersonic weapons have the ability to travel at five times the speed of sound (Mach 5) and beyond. Their unprecedented speed and manoeuvrability at relatively low altitudes mean that these systems can be invisible to radar detection, evade existing missile defences and strike almost any target in the world in minutes.[3] Once deployed they have the ability to fly at the edge of orbital space (between aviation and space systems) which means they are not currently accessible to ground or ship-based missile defence interceptors. Their dual-capable nature means it may not be clear whether they are carrying conventional or nuclear warheads. This generates a great deal of unpredictability and the uncertainty over their final target; when coupled with high speeds that reduce decision-making and reaction times, it increases the potential for crisis escalation.

The state of play

The United States, Russia and China are aggressively pursuing hypersonic development programmes. US Undersecretary of Defense for Research and Engineering Michael Griffin has publicly advocated for accelerating R&D of US hypersonic capabilities, citing them as among the top priorities for the 2018 US National Defense Strategy.[4] For fiscal year 2020, the US Department of Defense (DoD) requested $2.6 billion for hypersonic capabilities. Over the next five years, the DoD will almost double the investment from $6 billion to $11.2 billion with the plan to carry out around 40 flight tests.[5] The US Army, Navy and Air Force are all investing in and developing hypersonic capabilities with the aim of creating two deployable systems by the mid-2020s.[6]

Meanwhile, Russia has been conducting research on hypersonic systems for the past three decades and in March 2018, Russian President Vladimir Putin announced that Russia had two operational hypersonic missile systems.[7] Russian officials announced in December 2018 that a successful test of Avangard, one of the systems, had been conducted.[8] It is estimated that Russia will be able to deploy a hypersonic glide weapon in the 2020s.[9]

> **THE UNITED STATES, RUSSIA AND CHINA HAVE A SPECIAL RESPONSIBILITY TO MANAGE THE CONSEQUENCES OF TECHNOLOGICAL DEVELOPMENTS FOR INTERNATIONAL STABILITY.**

In comparison, China has rapidly increased its development and testing of hypersonic weapon systems over the past five years. It successfully flight-tested hypersonic systems including the DF-17, a medium-range ballistic missile with an estimated range of 1,000-1,500 miles. It has tested the DF-41 ballistic missile, which could carry a hypersonic glide vehicle. Chinese media reported in August 2018 that Beijing successfully tested a new hypersonic glider, the Starry Sky-2, which reportedly flew at Mach 6.[10] In December 2018, the DoD's Michael Griffin criticised this development, stating 'in the last year, China has tested more hypersonic weapons than [the United States had] in a decade.'[11]

Policy consequences

Hypersonic weapons development is taking place at an accelerated rate, and government decision- and policy-making is struggling to keep pace. The difficulty in

> **THE P5 DOCTRINES DISCUSSIONS SHOULD ALREADY BE ADDRESSING AREAS WHERE RESTRAINT IN THE USE OF NEW TECHNOLOGIES WOULD BE MUTUALLY BENEFICIAL.**

detecting and countering hypersonic weapons increases the possibility of these systems being used for surprise disabling attacks. Their dual-capable nature, and the inherent difficulty in determining if weapons are conventional or nuclear, increases uncertainty and nuclear instability. Further thought is required in order to avoid accidental conflict and manage potential crises, as well as to manage and limit systems development and deployment. There are currently no plans or discussions taking place between governments on how to control such systems, nor do any international regulations or agreements on the use or limits of hypersonic missile systems exist. One solution would be to introduce caps on the number of deployed missiles, as per the New Strategic Arms Reduction Treaty (New START); another would be a ban on nuclear-armed hypersonic missiles, akin to what the Intermediate-Range Nuclear Forces Treaty (INF) achieved. Some of these systems could also be captured in existing treaty frameworks, such as New START. This is relevant for the NPT, as the consensus Final Document of the 2010 NPT RevCon encouraged Russia and the United States 'to continue discussions on follow-on measures [to New START] in order to achieve deeper reductions in their nuclear arsenals,'[12] and according to some experts, New START would require relatively minor amendments to include hypersonic glide vehicles.[13] Finally, within the P5 Process, the NWS could consider discussing how to limit and control hypersonic systems as part of their discussions on doctrines.

AI and autonomous systems

The use and application of conventional AI and AI-informed autonomous systems, such as unmanned vehicles or military robotics, also accelerate the pace of decision-making and warfare. In military applications, they provide increased accuracy and intelligence. Similar to hypersonic weapons, military uses of AI and AI-informed autonomous systems, in particular, could cause crisis instability through a fear that second-strike capability is no longer secure, leading to more dangerous launch postures. Because of the range of different applications and potential for AI, there is no commonly agreed definition for the technology. Experts have described AI as a general-purpose enabling technology, analogous to electricity.[14] AI and militarised automation increase the ability to analyse and assess vast quantities of data and strike adversary targets with greater precision.

Several countries have identified AI as an important element of economic national power, but also for military applications. AI is being used to improve weapons technologies and use, which could vastly increase the speed and complexity of warfighting. Applications of AI are being developed in the context of cyber operations, logistics, Intelligence, Surveillance and Reconnaissance (ISR), situational awareness and target recognition, among others.[15] Additionally, militaries are examining and testing the ability of AI-enabled autonomous systems to conduct swarming operations on the battlefield. There are concerns over the engagement between autonomous weapons at machine speeds, as such systems have the potential to escalate tensions in a crisis as they engage with each other.

The state of play

China, Russia and the United States are racing to become the global leader in AI through increasing funding, research and development. In 2018, the United States established the Joint Artificial Intelligence Center (JAIC) with a budget request of $208.8 million. In September 2018, DARPA announced 'a multi-year investment of more than $2 billion in new and existing programs called the "AI Next" campaign.'[16] The United States also established an executive-led Artificial Intelligence Commission, which will run until October 2020.[17] It is investing in a range of AI projects including DARPA's Target Recognition and Adaptation in Contested Environments (TRACE) programme as well as Project Maven, an ISR programme. In February 2019, the White

> **EXISTING ARMS CONTROL FRAMEWORKS COULD BE USED TO FACILITATE BILATERAL OR MULTILATERAL DISCUSSIONS ON EMERGING TECHNOLOGIES.**

House issued an Executive Order to create the American AI Strategy, which was immediately followed by the launch of the DoD's Artificial Intelligence strategy.

Russia will publish its AI strategy in late 2019, but is reported to have aggressive targets for the use and application of advanced robotics for the military. In 2017, President Putin declared that whoever became a leader in AI technology would become ruler of the world, and Russia has since made a number of public announcements about the development and use of its autonomous weapons systems.[18]

In July 2017, Beijing announced its New Generation AI Development Plan calling for China to be a world leader in AI technology and application by 2025, and to become the world's foremost AI innovation centre by 2030.[19] The plan sets out to create a $150 billion AI industry over the next few years and, like the United States, aims to spend considerable sums investing in the development of AI for battlefield decision-making, including the development of military autonomous vehicles.

Policy consequences

AI systems allow for the rapid assimilation and assessment of information, offering better intelligence but also reducing leaders' decision-making time in a crisis, potentially disrupting the offensive-defensive balance between nuclear states. The use of autonomous systems, including unmanned aerial vehicles and unmanned surface and subsurface naval vessels, could be marshalled into 'attack swarms' capable of detecting and attacking enemy land and sea-based systems such as missile launchers or ballistic missile submarines (SSBNs).[20]

US military leaders are explicit that they have no interest in autonomous systems armed with nuclear weapons; however, the more a country fears that its nuclear arsenal could be placed at risk by a first strike, the stronger its incentives are to operate faster. The United States might be confident in its second-strike capabilities, meaning it has less of an incentive for full automation, but weaker nuclear armed states may be more inclined to adopt full automation because they fear the risk of being disarmed through a first strike. These dynamics pose risks to strategic stability and are potentially harmful to the NPT regime, with the risks of nuclear use rising due to the increased adoption and application of AI technologies.

Recommendations

The United States, Russia and China have different threat perceptions and risk tolerances with respect to their nuclear arsenals, which have different degrees of survivability. They all have the perceived need for a secure second-strike retaliatory capability. The more that a nuclear state fears that its arsenal could be at risk from a first strike, the greater the incentives to operate faster than its adversary. Similar incentives and motivations can be applied to other nuclear-armed, non-NPT states with advancing and/or dual-capable systems. The core issue with the application of emerging technologies in the nuclear and military domain is the fear of a disabling first strike. Reduced decision-making time could lead to more dangerous launch postures, crisis instability and escalation risks, increasing the likelihood of misinterpretation, miscalculation and/or accident.

Strategic restraint talks

If emerging technologies threaten to undermine strategic stability between nuclear weapon possessors, regular discussions between these governments should take place through 'strategic stability' or 'strategic restraint' talks. Governments could discuss areas where restraint in the use of new technologies would be mutually beneficial, including the adoption of confidence-building measures. The P5 doctrines discussions

should ideally already be addressing these issues. In addition to hosting a side-event on doctrines at the 2020 NPT RevCon, the P5 must make more meaningful contributions and advancements. This may include the establishment of a formal, regular and multilateral dialogue on strategic stability, which would be linked to the NPT review cycle by reporting back during PrepComs and RevCons.

Risk reduction – political and technical approaches

Following agreement by President Reagan and General Secretary Gorbachev in 1985, the United States and Soviet Union established Nuclear Risk Reduction Centers (NNRC) in 1988 to exchange information and notifications for existing arms control treaties and confidence-building agreements.[21] If and when arms control agreements are established for emerging technologies, NRRCs could be used to provide notifications and communications between different governments. If political discussions between governments are stalling, a group of scientific experts (GSE) could be convened to examine mutually beneficial applications of emerging technologies to increase trust and confidence. This could follow the GSE model that laid the groundwork for the negotiation of the Comprehensive Nuclear Test Ban Treaty (CTBT). This could be discussed, again, as part of the P5 Process or at the 2020 RevCon.

Pursuing risk reduction or confidence-building measures through expert and military dialogues

Time and resources should be devoted to developing a detailed understanding of the limitations and risks posed by emerging technologies. To pave the path for governments to understand fully the risks and current state of developments, discussions could begin at track 1.5 level, bringing in industry leaders and expert communities, then move to track 1, either through bilateral or intergovernmental talks (ie through bilateral meetings between the NATO Supreme Allied Commander Europe and the Russian Chief of the General Staff). Eventually these discussions could work towards expanding risk reduction measures. Mitigating new vulnerabilities and managing these threats calls for the promotion and adoption of responsible controls. One measure could be to adopt codes of conduct on the use of AI-informed autonomous systems and their interaction with nuclear systems. Specifically, governments should consider limiting the capabilities, and the use of AI in nuclear complexes. Militaries could work to establish new confidence-building measures through military-to-military dialogues. This is all the more necessary in adversarial relationships. Existing agreements on managing misinterpretation and establishing rules of engagement and conduct at sea and in the air, such as existing Incidents at Sea agreements, could be updated to include robotics or unmanned autonomous air and sea vehicles. This may be useful in establishing clearer rules for regulating air-to-air and sea encounters.

Adapting existing arms control

Existing arms control frameworks could be used to facilitate bilateral or multilateral emerging technologies discussions. Governments and experts should be exploring the technical feasibility of incorporating autonomous or hypersonic weapons systems into the existing arms control regime. This could include, for instance, including hypersonic weapons into a future bilateral or multilateral treaty by adapting New START to include hypersonic systems.[22] Other steps could include adapting the Hague Code of Conduct to include the use of autonomous weapons systems, cruise missiles and hypersonic technology, or the Humanitarian Code of Conduct for military grade systems, as well as to assure the stricter implementation of existing rules.

While most of the proposed recommendations may be pursued outside of the NPT context, the states involved – in particular those in the P5 – should report back to all NPT States Parties on discussions, and how they are addressing such challenges.

> **THE P5 COULD ESTABLISH A FORMAL, REGULAR, MULTILATERAL DIALOGUE ON STRATEGIC STABILITY, REPORTING BACK TO NPT PREPCOMS AND REVCONS.**

> **NUCLEAR WEAPON STATES NEED TO UNDERSTAND HOW EMERGING TECHNOLOGIES AFFECT NUCLEAR POSTURES AND HOW TO PREVENT NUCLEAR PROLIFERATION TO COUNTER ENHANCED CONVENTIONAL CAPABILITIES.**

Conclusion

Strategic rivalries and competition between the United States, Russia and China are intensifying, which has implications for their respective threat perceptions. These countries, and others, must consider the broader security implications of the use of emerging technologies and work to contain their negative impacts, particularly concerns over force survivability. New technologies will make military systems faster, more lethal and more capable. NWS need to understand better how this will affect their nuclear postures and how to prevent the further proliferation of nuclear weapons to counter these enhanced conventional capabilities. The international non-proliferation community must consider how best to manage state behaviour and capabilities, and in particular, how to construct and adhere to new norms of behaviour and restraint in a faster military environment. Although technologies can shape and alter how militaries act, it is individuals within government and the military who make choices on how to use and integrate these technologies. Substantive discussions must take place to understand new risks. Human involvement is not just about keeping a human 'in the loop', but is necessary in the form of diplomacy and dialogue.

Key Recommendations

1. NPT States Parties should agree at the 2020 RevCon that a group of scientific experts (GSE) should be convened to examine mutually-beneficial applications (and possibly negative aspects) of emerging technologies, to increase trust and confidence between States Parties.

2. As part of their discussions on doctrines, the P5 should establish a formal, regular dialogue on strategic stability and/or strategic restraint, and link this to the NPT review cycle by reporting back during PrepComs and RevCons.

3. Existing arms control frameworks such as New START should be adapted to incorporate hypersonic weapons systems and possibly other autonomous weapons systems.

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Multilateral nuclear disarmament verification

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Nuclear disarmament verification now commands substantial international interest. It features regularly and prominently in statements, working papers and side events in the review process of the Nuclear Non-Proliferation Treaty (NPT) and beyond. There are several international initiatives underway that aim to build capacity and assess various verification options. Disarmament verification has also become the focus of interest and activity by research centres and in academia.[1] In short, multilateral nuclear disarmament verification has entered the mainstream of nuclear policy.

This paper offers a forward-looking examination of disarmament verification in four sections. The first situates the topic within broader developments in disarmament diplomacy and the evolving practice of nuclear verification. The second section lists some of the recent and current international initiatives on the issue. Third, the paper highlights some key general trends that characterise the new interest in this field, and a final section provides some forward-looking recommendations.

Growing salience

It is only relatively recently that multilateral nuclear disarmament verification emerged as a coherent concept and a focus of several collaborative international activities. During the Cold War and since, reductions in nuclear weapons holdings took place predominantly in a bilateral arms control process involving the United States and the Soviet Union, then Russia. This bilateral context meant that whenever agreed, the two states negotiated and implemented verification measures without broader multilateral involvement. Other states frequently endorsed or encouraged the two countries to pursue these bilateral agreements in the context of the NPT or the wider UN disarmament machinery. Yet the bilateral context of arms reductions meant that the wider international community was marginal to the process of nuclear reductions and verification.

Multilateral nuclear verification thrived in other contexts, such as the challenging task of verifying nuclear non-proliferation. The International Atomic Energy Agency (IAEA) has developed and refined an elaborate system of nuclear safeguards to achieve this, and over the years its activities have evolved from item-specific safeguards to a state-wide focus through Comprehensive Safeguards Agreements, and enhanced verification powers under the IAEA Additional Protocol.[2] Another area of multilateral nuclear verification was linked to nuclear testing: the Comprehensive Test Ban Treaty (CTBT) Organisation has established an advanced regime of multilateral verification that includes a multi-layered International Monitoring System, as well as provisions for on-site inspections.[3]

Interest in developing multilateral disarmament verification can be seen as a function of two long-term trends. First, the expansion of NPT membership during the 1990s along with its indefinite extension in 1995 meant that emphasis on nuclear disarmament has grown significantly.[4] This translated into demands for achieving clear and tangible progress toward disarmament by states now empowered to claim a stake in the global nuclear order.

> **MULTILATERAL NUCLEAR DISARMAMENT VERIFICATION HAS ENTERED THE MAINSTREAM OF NUCLEAR POLICY.**

> **THERE IS GROWING APPRECIATION BY MANY STATES THAT VERIFICATION IS AN ESSENTIAL TOOL FOR EFFECTIVE ARMS CONTROL.**

The second trend is the growing appreciation by many states that verification is an essential tool for effective arms control. The adoption of the Intermediate-Range Nuclear Forces (INF) Treaty in 1987 was an important verification breakthrough, allowing intrusive, on-site verification for the first time in a strategic arms control agreement.[5] Furthermore, the progressive elaboration of multilateral verification regimes under the IAEA and in the context of the CTBT have set new standards and underlined verification as a key component of effective arms control. The growing salience of calls for nuclear disarmament – coupled with growing recognition of the role of verification – fuelled the demand to directly address the question of how states can verify disarmament in a reliable and effective manner, and highlighted that the issue deserves dedicated consideration.

Recent international collaborations

The United Kingdom-Norway Initiative (UKNI) [2007-2015] was the first initiative to study nuclear dismantlement verification through a collaboration between a Nuclear Weapon State (NWS) and a Non-Nuclear Weapon State (NNWS). Work in the early phases of the initiative was divided into two strands.[6] The first focused on developing managed access methodologies that could be applied to verification of warhead dismantlement. The second concentrated on researching 'information barriers' – technologies that can verify the presence or absence of specific nuclear materials during verification missions while protecting proliferation-sensitive information.

Under these strands, UKNI ran a number of simulations between 2008 and 2010, and participants developed design requirements and a prototype for an information barrier.[7] The Initiative also sponsored a series of simulations with King's College London to assess the role of human factors in disarmament verification, and in 2011 organised an international workshop to share the findings from all strands with an international audience.[8]

The Quad Initiative can be considered as an expanded, multi-year follow up to the UKNI, launched in 2015. Two additional states joined the collaboration – another NWS, the United States, and another NNWS, Sweden. At the outset, the Quad Initiative highlighted three objectives: building capacity, offering a test-bed for evaluating monitoring technologies and developing standard operating procedures for disarmament verification.[9] As with the UKNI, the Quad has emphasised the value of hands-on, practical simulations.

In 2017, the Quad Initiative organised a simulation called 'LETTERPRESS', which ran in a former nuclear weapons facility in the United Kingdom (Royal Air Force Honington).[10] The exercise focused on addressing the front-end of the dismantlement process when warheads are removed from deployment and delivered for verification. It introduced a multi-party arrangement for inspections going beyond the bilateral format that was used under the UKNI. A new phase of the Quad started in 2019, in which the four states will engage in substantive collaboration through two working groups on verification strategies and verification technologies.

The International Partnership on Nuclear Disarmament Verification (IPNDV) is a US-led initiative with a broad multilateral outlook. Since it was launched in 2014, more than 25 states have taken part in IPNDV activities.[11] Similar to the UKNI and Quad Initiative, its explicit focus is on examining technical and operational aspects of verification rather than addressing broader policy or political questions. Most of its activities so far have focused on conceptual development and collaborative table-top analysis of dismantlement and verification processes. This has involved outlining and examining verification options and assessing their requirements in terms of technology and verification equipment. More recently, the initiative has started to increasingly emphasise practical exercises and demonstrations.[12]

The IPNDV has developed in two back-to-back phases from 2015-2017 and then 2017-2020. Substantive work under the Partnership is done through working groups, each dedicated to studying a specific verification angle. Currently, the IPNDV structures its work around three topics: nuclear weapons declarations and their verification, verifying nuclear reductions and verification technologies.

The Partnership has developed a nuclear dismantlement 'life cycle' of 14 key steps.[13] These steps capture generic dismantlement stages, tracking the notional journey of a warhead from a deployment site to the ultimate disposition of its components. IPNDV participants are using this life cycle to inform a systematic evaluation of verification options at each stage. The Partnership has also examined several available technologies that can be used in the verification process and developed a series of 'technology data sheets.'[14] The IPNDV will report findings from its current phase to the 2020 NPT Review Conference (RevCon).

Key trends

Recent initiatives on disarmament verification have focused on applying verification and transparency measures to nuclear warheads and their dismantlement process, rather than strictly focusing on delivery vehicles. The latter had been the primary verification focus of bilateral reductions between the United States and the Soviet Union, then Russia. Focusing on warheads introduces new challenges – they are smaller and easier to hide, and it is almost impossible to verify their dismantlement using only national technical means or remote monitoring.[15] Establishing the identity of warheads can also divulge secret information and the dismantlement process takes place under high-security conditions in classified facilities. Many of the activities under the current initiatives focus on understanding these challenges and developing options for how to address them.

Involvement of NNWS has become one of the defining features of the recent disarmament verification work. Earlier efforts only involved either NWS working internally, bilaterally (examples include UK-US and Russian-US cooperation), or in one case, with the involvement of the IAEA, Russia and the United States in the 'Trilateral Initiative.'[16] By contrast, NNWS are directly involved in the newest wave of initiatives as full members. Sometimes, they take leading roles in shaping the agenda of this collaborative research, in addition to the outputs and findings. The success of the collaboration between a NWS and a NNWS under UKNI played a key role in demonstrating that cooperation across the nuclear divide is not only possible but also useful.

It might be useful to consider these initiatives as part of an evolving research programme that is still in development. Some progress has been achieved in terms of understanding the dismantlement process and examining the universe of verification options available, but no solutions have fully emerged yet.

Collectively, the substantive work under current disarmament verification initiatives appears to address four main themes: conceptual development to understand the dismantlement process, verification priorities and choke points; verification strategies examining the possible modalities of managed inspection; the development of equipment and technology needed for physical measurements, such as information barriers; and operational exercises to test the emerging concepts, strategies and technologies.

> **INVOLVEMENT OF NON-NUCLEAR WEAPON STATES HAS BECOME A DEFINING FEATURE OF RECENT DISARMAMENT VERIFICATION WORK.**

Looking ahead

A large majority of states have lent their support to advancing the nuclear disarmament verification agenda. For example, 175 states voted in favour of the 2016 Norway-led

> **THE P5 PROCESS COULD BE A FOCUS FOR EFFORTS TO ENGAGE RUSSIA AND CHINA ON THE ISSUE OF NUCLEAR DISARMAMENT VERIFICATION.**

UN General Assembly resolution in support of disarmament verification.[17] However, active participation in the initiatives discussed above remains limited to relatively few states.

Looking ahead, efforts to widen participation can be directed towards several areas. Supporters of verification research should seek more diverse participation from NNWS, specifically encouraging regional diversity. This will likely require a new and dedicated long-term strategy and resources to recruit new countries, but also to facilitate the building and retention of human and technical capacities to sustain their long-term engagement.

Russian and Chinese participation could also significantly strengthen current initiatives. The two countries were initially recruited to participate in the IPNDV but then pulled out, and both also abstained on the 2016 UN General Assembly resolution cited above. The P5 Process that combines the five NWS could be a focus for efforts to engage Russia and China on the issue of nuclear disarmament verification. In addition, proponents should continue to engage some non-NPT nuclear-armed states in disarmament verification activities, as recently occurred in the UN Group of Governmental Experts on Nuclear Disarmament Verification.

Lastly, the IAEA is a valuable repository of multilateral nuclear verification expertise and can be a useful partner in efforts to further develop the disarmament verification agenda. The Agency had a useful experience between 1996 and 2002, alongside Russia and the United States, under the Trilateral Initiative. The Agency's 2018 medium-term strategy highlights the importance of being ready to contribute to disarmament verification. These factors can serve as a good basis for the Agency's re-engagement with the topic.

Multilateral nuclear diplomacy is currently witnessing a high level of polarisation. Fundamentally, this is about divergent positions towards the value and role of nuclear weapons in international politics. This is then reflected in interpretations about the extent of disarmament obligations and the evaluation of progress achieved towards disarmament. These divergent views are likely to persist through the 2020 RevCon and beyond. It is therefore important to shield technical research on disarmament verification from this polarisation. This would involve refraining from using the topic to score rhetorical or tactical points on disarmament. Striving to shield this verification work from political polarisation is key to allow it to grow and develop further.

Effective communication, to states and non-governmental organisations, of the process and outcomes of the current work on disarmament verification is essential. This is key to expanding the debate, stirring new ideas and recruiting additional participation, all of which would positively contribute to developing a solid foundation for disarmament verification. Transparency with regard to activities and findings has the added value of engaging with actors outside the process and can also enable wider engagement with researchers and academics to build a wider community invested in the topic.

The UKNI broke new ground in demonstrating that collaboration between a NWS and NNWS is possible without compromising non-proliferation standards. The IPNDV and the Quad continue to demonstrate that such cooperation is possible. There are, however, concerns about the potential for proliferation or security breaches from such cooperation. It is important to take these concerns seriously and address them openly rather than dismiss them. It might be worthwhile to commission a credible examination of the proliferation risks arising from multilateral disarmament verification, drawing on legal, operational and technical factors, as well as openly addressing possible ways to minimise and address these risks.

> **SHIELDING NUCLEAR DISARMAMENT VERIFICATION WORK FROM POLITICAL POLARISATION IS KEY TO ALLOW IT TO GROW AND DEVELOP FURTHER.**

Key Recommendations:

1. Current initiatives for nuclear disarmament verification should explore opportunities to widen participation in their activities, to include a more diverse group of states from different regions, and to use the 2020 NPT RevCon to communicate their activities and outcomes to a wider audience.

2. The technical nature of discussions on disarmament verification provides a good basis for collaborative international activities and research. The 2020 RevCon should support efforts to build multilateral capacity for disarmament verification and, to the extent possible, shield the topic from political polarisation over nuclear disarmament.

3. To support further collaborative work in this area, interested states can consider commissioning a credible examination of the proliferation risks arising from multilateral disarmament verification, drawing on legal, operational, and technical factors, as well as openly addressing possible ways to minimise and address these risks.

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Nuclear responsibilities and the 2020 NPT Review Conference

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In the disarmament diplomatic community in recent months, there has been an increase in references to states' responsibilities connected with nuclear weapons.[1] The nuclear responsibilities dimension is not a specific agenda for action, but rather a framework for discussion in a deeply complex policy environment with a great deal of diversity in perspective and a complex balancing of competing responsibilities.[2] This sits within a context of increasing danger and despair about the future of the international disarmament and non-proliferation machinery. The challenge is in finding shared language and objectives. The nuclear responsibilities frame is an attempt to rebuild the basis for cooperation within the international community.

The responsibilities frame has been greeted by some scepticism, triggered by a belief that it could have unintended consequences. At present, there is division within the international community as to the binding nature of obligations contained within consensus documents from previous NPT Review Conferences (RevCons). There is a fear that discussion from first principles associated with nuclear responsibilities could distract from more focused attention on implementation of existing commitments. Specifically, there was some concern that discussions of responsibility could be distorted by Nuclear Weapon States (NWS) to justify continued nuclear deterrence postures; resist moves to reduce the salience of nuclear weapons; and distinguish between responsible and irresponsible nuclear-armed states. It could be used to shift attention onto the Non-Nuclear Weapon States (NNWS) and their responsibilities and away from the NWS who carry the largest burden in terms of disarmament. In short, there are fears that a responsibility frame could simply exacerbate the existing divisions and play up to the blame culture.

The frame of responsibility, which has a universal dimension (everyone believes in some form of responsibility), offers a chance to explore underlying common and contrasting beliefs surrounding the regulation of nuclear weapons. It also offers an opportunity for respectful dialogue desperately needed in the run-up to and at the 2020 RevCon, and the possibility of focusing on common ground. In addition, it is commonly understood that the NPT and its RevCon decisions codify the collective responsibilities of states on the three pillars, but the Treaty offers limited guidance on the specific individual responsibilities of states as they work together.

> **THE RESPONSIBILITIES FRAME OFFERS AN OPPORTUNITY FOR RESPECTFUL DIALOGUE IN THE NPT AND THE POSSIBILITY OF FOCUSING ON COMMON GROUND.**

What are nuclear responsibilities?

Living in any community entails responsibilities to others, and this is just as true for the international community. Talking about responsibilities entails a degree of self-awareness, as the point of departure is in considering one's own responsibilities. The most obvious responsibilities all states have are the first obligations of governments – both to protect the territorial integrity of the state and the security of its institutions and political mandates, and to ensure the human security and welfare of its citizens. These latter, human security obligations are more recently recognised in the Universal Declaration of Human Rights, and in references to the humanitarian impacts of nuclear use referred to in the 2010 NPT RevCon consensus Final Document. All these responsibilities extend internationally, most obviously to a state's allies and

partners, and to the international community as a whole. All states are accountable through the treaties they join and to the wider international legal acquis. They have obligations to respect the security rights of other states, especially their neighbours, and to international security more broadly. As members of the United Nations they have responsibilities explicitly expressed in the Charter, and to respect the decisions taken legitimately within the United Nations. In this respect, all states have responsibilities to improve the security environment, and thereby assist in improving the chances of disarmament.

In addition to the above responsibilities that are common to all states, nuclear possessors have particular responsibilities. These may start with aspects of stewardship, including the safety and security of nuclear weapons, ensuring that command and control facilities are secure and robust, and that the chances of accident or unauthorised use are minimised. Some would say this may imply a responsibility to modernise forces if this offers the possibility of reducing risks, and there is clearly a commitment to retaining forces in future. The responsibilities of nuclear possessors also extend to ensuring the fulfilment of shared goals around nuclear weapons relevant to force structure, declaratory policy, regulation of the nuclear industrial complex and, most especially, to non-proliferation, arms control and disarmament.

Review Conference agenda

Three areas in which states could consider their individual and collective responsibilities include rebuilding habits of cooperation, reducing nuclear risks and reducing the salience of nuclear weapons, including by strengthening negative security assurances (NSAs).

Rebuild habits of cooperation

Transparency is essential to confidence-building, stability and disarmament processes. NWS need to consider how they can improve the level of reporting on their nuclear postures and meet their obligations to the international community, in accordance with their commitments made within consensus agreements at the 2000 and 2010 NPT RevCons. Step 9 of the 13 steps outlined in the 2000 Final Document explicitly referred to the need for increased transparency by the NWS.[3] The Non-Proliferation and Disarmament Initiative (NPDI – a diverse group of NNWS states established to help implement the disarmament and nonproliferation Action Plan agreed at the 2010 RevCon) has recommended standardised reporting by NWS, covering all key aspects of activities relevant to nuclear issues, from engagement in international agreements, nuclear doctrine and postures and the management of arsenals and fissile material, to measures that prevent the spread of proliferation-sensitive technologies.[4] The NPDI has proposed that the accountability arising from clarifying responsibilities is reciprocal, and has suggested that all States Parties report on their obligations.

> **THE NUCLEAR RESPONSIBILITIES FRAME IS AN ATTEMPT TO REBUILD THE BASIS FOR COOPERATION IN THE INTERNATIONAL COMMUNITY.**

The United Kingdom received some positive response at the 2019 NPT PrepCom for publishing its paper on nuclear capabilities, posture and doctrine, holdings and plans, and other NWS could follow with a similar or greater level of transparency in advance of the 2020 RevCon, taking a leaf out of the guidelines suggested by the NPDI.[5] The NWS discussions within the P5 Process over doctrines and strategic stability are also welcome, as is the P5 statement at the 2019 PrepCom committing to a 2020 RevCon side event outlining their nuclear postures.[6] NNWS would do well to communicate their particular needs regarding NWS transparency, and to prepare to engage effectively at this event. NWS could see this as an ongoing process of accountability, education and dialogue and to create other opportunities to explain their nuclear postures, which could include some explicit recognition of the nuclear responsibilities they acknowledge.

> **NUCLEAR WEAPONS POSSESSORS SHOULD DECLARE THEIR RESPONSIBILITY TO MINIMISE THE RISK OF NUCLEAR WEAPONS USE.**

Progress within the international community in various areas, such as building up the International Monitoring System to detect nuclear tests under the Comprehensive Nuclear-Test-Ban Treaty, the development of technologies and understanding around verification, and establishing a process relating to fissile materials should be acknowledged and built upon.

One of the most important responsibilities of all states is to uphold the rules-based international order. Whilst this includes sustained respect for obligations, this responsibility goes beyond the specific, including respect for the institution itself and abiding by international law, particularly when it does not feel convenient. One recommendation, therefore, is for nuclear armed states and indeed all NPT States Parties to issue a declaration along the following lines: All states have a responsibility to protect the rules-based order, and their respect of past commitments (acknowledging them and working to implement them) is in the interest of all States Parties.

Reduce nuclear risks

Minimising nuclear risk could be seen as a common point of departure when considering nuclear responsibilities. The agenda, obviously of intrinsic value, goes to the heart of why states engage in diplomatic initiatives and underpins the drive for disarmament. Differences of opinion arise in what risk minimisation actually entails, who is responsible and what the priorities are within the agenda. For example, the US Department of Defense in the 2018 US Nuclear Posture Review controversially claimed that expanding the set of circumstances in which the United States would consider using nuclear weapons sends a strong signal to would-be aggressors of US intent, and therefore reduces risks. This understanding was not shared within much of the rest of the international community.

Risk reduction measures could include:

a. Mutual crisis management, to reduce the risk of escalation from misperception and miscalculation. This may involve proposals to strengthen military-to-military contacts and to establish nuclear risk reduction and crisis management centres. Regular contact for improved understanding of postures and signalling would help.
b. Greater clarity in the purpose and doctrine of specific nuclear weapon systems, especially dual-capable systems, and how they fit within the broader military doctrine.
c. International discussions between partners, strategic adversaries and the rest of the international community on the utility of various nuclear signals, and on the impact of disruptive emerging technologies, such as offensive cyber capabilities, and their likely impact upon strategic stability. The level of understanding, at least in the public domain, of these impacts and potential mitigating strategies is woefully inadequate, and is an important arena for responsible states to cooperate in managing complex interlinkages and their impacts, and to agree on red lines.
d. Efforts to extend decision times in crisis and reduce the operational status of nuclear weapon systems, particularly those on a launch-on-warning operational posture.
e. Revisiting the contribution of arms control to stability, balances and risk reduction, as well as to reducing the severe costs arising from arms racing. It is essential that states collaborate to build a new cooperative system of arms control measures relevant to emerging technologies and strategic balances.

Based on these ideas, a second recommendation is that nuclear weapons possessors should declare their responsibility to minimise the risk of nuclear weapons use, as an opening to a coordinated agenda on how best to operationalise this responsibility, and with a view to implementing proposals that arise. This would include identifying best practice principles behind minimising risks of accidental or unauthorised use, and cooperative measures to reduce strategic risks.

> **MINIMISING NUCLEAR RISK COULD BE SEEN AS A COMMON POINT OF DEPARTURE WHEN CONSIDERING NUCLEAR RESPONSIBILITIES.**

Reduce nuclear salience and strengthen negative security assurances

NWS have a shared responsibility to engage in multilateral efforts that reduce the salience of nuclear weapons, as explicitly expressed in the Final Document of the 2010 RevCon.[7] This is essential to achieving progress towards nuclear disarmament. They also have a responsibility to consider tighter declaratory policy, with the intention of a gradual, mutual reduction in the purposes of nuclear weapons and scenarios for their use. Similarly, whilst nuclear deterrence requires some ambiguity to avoid the dangers of hard red lines, opacity can also undermine deterrence signalling, drive security dilemmas and harm the diplomatic agenda. This suggests several recommendations:

- States could have a more open discussion of the costs and benefits of differing degrees of nuclear ambiguity.
- NWS have a responsibility to regularly declare limits to their use of nuclear weapons, and to refrain from expressing any intention to fight a nuclear war.
- These responsibilities could be extended to declarations to refrain from policies that use nuclear weapons to achieve strategic dominance or for compellence.

NWS have special responsibilities toward the security of NNWS, who have given up any potential nuclear weapon capabilities. These responsibilities have a formal legal basis in relation to those states within nuclear-weapon-free zones (NWFZs), who receive guarantees in the form of protocols to the treaties establishing the zones. Yet NWS have singularly failed to agree to all NWFZ protocols and have articulated exceptions that are often criticised as being too wide-ranging, and which damage the credibility of the assurances, the security benefits of the zones and the wider non-proliferation regime.[8] This is irresponsible. NWS should commit to strengthening their NSAs by reducing or clarifying the exceptions they make, and by ratifying protocols that currently are missing.[9]

Conclusion

Talking about responsibilities will not solve the challenges experienced within disarmament diplomacy, but it can significantly assist in deepening understanding of the underlying assumptions and perspectives that drive differing state positions. Too often, nuclear discussions revert to either an extreme 'realist' perspective in which hard power determines outcomes, or to a legalistic perspective that draws diplomats into complex and conflicting interpretations of international law. Discussing responsibilities introduces a reasonable, normative angle to the discussion in an open and respectful manner that makes the possibility of dialogue and progress more possible. A final recommendation would be for all NPT States Parties to commit to a dialogue on nuclear responsibilities as an explicit means to identify effective measures to further nuclear disarmament and strengthen nuclear non-proliferation.

Key recommendations

1. NNWS should communicate their expectations to NWS regarding transparency measures by the latter and prepare to engage effectively on these requests at the 2020 NPT RevCon. All states should discuss the costs and benefits of nuclear ambiguity.

2. NPT States Parties should issue a declaration affirming their responsibility to protect the rules-based order and to respect past commitments.

3. All nuclear weapons possessors should declare their responsibility to minimise the risk of nuclear weapons use, and refrain from expressing any intention to fight a nuclear war or to use nuclear weapons to achieve strategic dominance or for compellence.

Endnotes

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Conclusion

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A key goal of the conference *Exploring Common Ground* was to identify opportunities for consensus among a diverse group of actors for the 2020 Nuclear Non-Proliferation Treaty (NPT) Review Conference (RevCon). Discussions also provided a snapshot of the challenges of the current nuclear landscape, which will affect the RevCon.

Progress on arms control and disarmament by the NPT Nuclear Weapon States (NWS - China, France, Russia, the United States and the United Kingdom) has slowed in recent years. The demise of the Intermediate-Range Nuclear Forces (INF) Treaty is a serious setback for the arms control agenda. There is now only one agreement left that limits the number of nuclear weapons – the New Strategic Arms Reduction Treaty (New START), which binds Russia and the United States – and its future is uncertain. The security environment for nuclear reductions has not improved. At the same time, some supporters of the Treaty on the Prohibition of Nuclear Weapons (TPNW) are increasing pressure on nuclear weapon possessors to move faster on nuclear disarmament.

One of the conference's chief goals was to explore where and how NPT States Parties' positions on nuclear disarmament might overlap. But conference participants were well aware that there are other issues – some of them related to Article VI commitments – which will also be formidable obstacles on the way to a successful RevCon. The biggest challenge, for example, might be agreement on how to make progress towards a WMD Free Zone in the Middle East.[1] While there is consensus among NPT members on the value of non-proliferation efforts and the importance of the NPT as a framework to reduce proliferation risks, differences over the Joint Comprehensive Plan of Action agreed with Iran and rolling back North Korea's nuclear weapons programme might also be difficult to overcome.

The papers in this collection as well as discussions at the *Exploring Common Ground* conference in May 2019 show that there are practical actions for all NPT States Parties – the Non-Nuclear Weapon States (NNWS) as well as the NWS – to pursue on nuclear disarmament. These measures are meaningful, and a significant number of NPT members are likely to support them. NPT States Parties should focus on these issues, while not trying to brush aside differences over the role of nuclear weapons in international security.

Twenty-four recommendations emerged from the conference. They are included in the infographic in the introduction. Participants collectively rated these ideas with regard to their impact on nuclear disarmament and their feasibility. The ideas that received the highest scores are the ones also supported by several authors in this publication:

1. Russia and the United States should extend New START as the first step in a longer-term arms control agenda.
2. NWS and NNWS should collectively scope the challenges that emerging technologies pose for the NPT and arms control.
3. The NWS should report on the role of nuclear weapons in doctrines, exercises and postures.

Drawing on the conference discussions, votes and the papers included in this volume, we identify three distinct, substantive themes that have the potential to build bridges at the RevCon and beyond, namely: transparency, risk reduction and institutional thickening to provide more opportunities for engagement among NPT States Parties.

> **“ONE KEY GOAL OF THE CONFERENCE WAS TO EXPLORE WHERE AND HOW NPT STATES PARTIES’ POSITIONS ON NUCLEAR DISARMAMENT MIGHT OVERLAP.”**

> **THE PAPERS IN THIS COLLECTION SHOW THAT THERE ARE PRACTICAL ACTIONS FOR ALL NPT STATES PARTIES TO PURSUE ON NUCLEAR DISARMAMENT.**

Transparency

To prevent the further erosion of cooperation and trust, the NWS can provide greater transparency into their nuclear policies. Many experts propose that the NWS report on their doctrines, exercises and postures. Tim Caughley suggests that 'Transparency-building measures could be aimed at reducing uncertainties about the details of strategic modernisation programmes, and developing rules of the road on potentially destabilising military activities in peacetime, crisis or conflict, including cyber and space activities.' These practical measures could be taken up in the P5 Process among China, France, Russia, the United States and the United Kingdom; among regional groupings; or in new forums such as the Creating an Environment for Nuclear Disarmament (CEND) initiative launched in 2019, to include a diverse mix of NWS and NNWS.

As Alexandra Bell points out, extension of New START is essential also because it would prevent an early collapse of the Treaty's data exchange and on-site verification arrangements. Greater transparency on nuclear weapon command and control systems might also be useful in reducing ambiguities about the safety and security of nuclear arsenals. Of course, steps towards greater openness would have to take into account classification requirements.

Outreach regarding verification initiatives and collective scoping exercises on nuclear arms control in and of itself would provide more openness. But it remains to be seen whether the NWS are willing to be more open about other issues, such as their nuclear stockpiles and their evolving nuclear postures. Transparency on issues not directly related to nuclear weapons might be less controversial. To put this in a broader context, Tim Caughley points out that transparency can help to 'merge' deterrence and international humanitarian law (IHL) approaches.

Opportunities for transparency could be particularly useful beyond the RevCon. NNWS have consistently complained about the uneven and often insufficient compliance with NPT reporting requirements. The Non-Proliferation and Disarmament Initiative (NPDI) has made this a focus of their engagement of the P5.[2] Creating several frameworks where all NPT NWS can consistently be engaged to be more open could be useful. Looking into the future, greater transparency would also contribute to progress in multilateral arms control, a stated goal of both the United States and Russia, along with disarmament in the NPT context, as Alexandra Bell points out.

Specific recommendations to promote transparency include:

- The NWS should consistently report on doctrines, exercises and postures at NPT Preparatory Committee meetings (PrepComs) and RevCons, either unilaterally or as part of P5 reporting.
- Russia and the United States should regularly and comprehensively brief NPT States Parties and outline their plans on intermediate-range missile development, production and deployment.
- The NWS should report on the safety and security of their nuclear command and control systems.
- Nuclear disarmament verification initiatives – and participants in verification exercises – need to engage in extensive outreach, informing NPT States Parties on processes and outcomes.
- Additional frameworks and forums for discussion of nuclear doctrines need to be created.

Risk reduction

There is a consensus in the community of nuclear experts that nuclear risks associated with intentional or unintended use of nuclear weapons have increased over the last

> **GREATER TRANSPARENCY WOULD CONTRIBUTE TO PROGRESS IN MULTILATERAL ARMS CONTROL, A STATED GOAL OF BOTH THE UNITED STATES AND RUSSIA.**

few years. The two most popular recommendations emerging from the conference link arms control to risk reduction. Proposals on 'Further steps to push for New START extension' and 'Collective scoping on NPT and arms control challenges from emerging technology' received the highest combined scores (73 per cent). Interestingly, the recommendation that received the highest impact score was to establish a long-term, two-tier arms control agenda between Russia and the United States, and China, France and the United Kingdom.

Bell offers numerous recommendations for the P5, in particular, to take up the topic of risk reduction as part of their efforts to increase transparency in nuclear doctrines. This might include risk reduction efforts unique to the P5, but could also include a P5 agreement to freeze nuclear stockpiles at current levels. Extending New START would also buy time for the United States and Russia to resolve issues associated with intermediate-range as well as novel types of nuclear weapons and to explore options for including other nuclear possessors in the arms control enterprise.

Both Bell and Shata Shetty see emerging technology as a potential risk to nuclear stability and disarmament. Hypersonic technologies and Artificial Intelligence, in particular, increase ambiguity in nuclear forces and could lead to inadvertent escalation. In line with these suggestions, conference participants rated a P5 risk reduction dialogue as significant in its potential impact on nuclear disarmament (73 per cent) but not very likely to be very feasible (50 per cent).

These opportunities for progress can make numerous contributions to a successful RevCon. First, risk reduction is one of the few areas of consensus among the majority of NPT States Parties. Second, progress in arms control could contribute to the fulfilment of past commitments, such as those in the Action Plan from the 2010 NPT RevCon and the 13 steps from the 2000 RevCon, thereby building confidence in NWS' commitment to past agreements.

Admittedly, many of the risk reduction measures included here are envisioned as long-term ambitions. While practical measures can be taken at present to lay the groundwork for tangible progress, these risk reduction recommendations will be particularly beneficial for the 2025 NPT review cycle. They provide opportunities for collaboration and bridge-building among a diverse group of actors, including both NWS and NNWS.

States parties should also tackle the different understandings of risk reduction that exist. NWS might view such measures as a means to stabilize the nuclear order and thus make their continued possession of nuclear weapons more acceptable. NNWS would see risk reduction as one step on the way to nuclear disarmament, but not as a way around that goal. These different understandings, ideally, should be clearly articulated and wherever possible reconciled by evaluating specific risk reduction measures against these purposes.

Specific recommendations for nuclear risk reduction include:

- The United States and Russia should extend New START and begin to develop a vision for the future of arms control, potentially through multiple stages and to incorporate more nuclear possessors.
- The United States and Russia should initiate a conversation about post-INF measures to prevent a missile race. This conversation could later include other states with similar/relevant capabilities, such as China.
- The P5 could initiate risk reduction dialogues, to create a common understanding of nuclear threats relating to miscalculation.
- NPT States Parties should establish a working group to explore the impact of emerging technologies on arms control, disarmament and nuclear risks. P5 members can take steps to preclude destabilising applications of such technologies

to nuclear command and control, for example by committing to always 'have a human in the loop.'
- The P5 need to ensure the safety and security of their nuclear weapon systems.
- The P5 should jointly affirm their commitment to maintaining the 74-year record of non-use of nuclear weapons. Reference to rules of IHL in military doctrines would further exemplify this commitment. Additionally, de-alerting presents a concrete measure to reduce the risks of nuclear use.
- The P5 and other relevant NPT States Parties need to re-establish consensus on non-proliferation. Non-proliferation as well as nuclear risk reduction form crucial points on an agenda for engagement between relevant NPT and non-NPT states.

Institutional thickening

Many proposals from conference participants called for greater dialogue among all NPT States Parties beyond the RevCon, and possibly even with non-NPT members – a process we refer to as 'institutional thickening', whereby there will be an increase in forums and networks for diverse states to engage on nuclear issues. Addressing the institutional deficit of the NPT, which unlike the Chemical Weapons Convention or the Comprehensive Nuclear-Test-Ban Treaty does not have an implementing body, has been on the agenda of meetings of States Parties for a long time. The promise of the 1995 Review and Extension Conference to establish opportunities for States Parties to engage substantively at PrepComs between the five-yearly RevCons remains largely unfulfilled.

Rather than looking at procedural improvements alone, many proposals emerging at the conference suggest a deepening and broadening of dialogue forums. Thus, there could be more dialogues between NNWS and NWS on nuclear doctrines, exercises and postures, and possibly a collective scoping of the challenges posed by emerging technologies. These would be complemented by existing and new discussions on nuclear disarmament verification.

Hubert Foy's proposal that a nuclear-weapon-free zone (NWFZ) Focal Point conference could report to the RevCon might be one way to broaden support for the NPT regime. Another, more controversial idea is engagement with non-NPT states. Probably, the NPT in its current state is too fragile to undertake such outreach to India, Israel, North Korea and Pakistan. But that might not preclude engagement of such states in some settings and/or on specific topics, most notably nuclear risk reduction, as Rajeswari Rajagopalan suggests.

Taken together, these frameworks already would establish a dense, de facto network of discussions that has the potential to strengthen the NPT. Should the RevCon be successful, participants could acknowledge the value of such working groups, initiatives and regular meetings etc in the Final Document. Should it turn out to be impossible to agree on a consensus outcome document, States Parties individually could emphasise that they see value in taking nuclear disarmament forward in these settings.

> **RISK REDUCTION IS ONE OF THE FEW AREAS OF CONSENSUS AMONG THE MAJORITY OF NPT STATES PARTIES.**

To be sure, at the RevCon, new discussion frameworks might be seen as a way to sidestep substantive differences. Great care should therefore be taken that new working groups are not merely efforts to deflect disarmament pressures or vehicles to undermine the NPT. It is primarily the responsibility of NWS to put on the table specific steps they are willing to take to fulfil their Article VI commitments. NNWS should hold them accountable to these promises and not shy away from leaving such frameworks if they turn out to be exercises in window dressing rather than honest endeavours to reduce the role and numbers of nuclear weapons.

Specific recommendations for thickening institutions and promoting forums for dialogue include:

- NPT States Parties need to rebuild habits of cooperation and dialogue, including by creating additional forums for dialogue, or expanding existing forums to include working groups for more free-flowing discussions.
- Stakeholders should use additional forums, such as the CEND Working Group, to identify common interests across a diverse group of states, potentially to include nuclear possessors outside of the NPT.
- NPT States Parties should establish forward-looking working groups on how to better integrate IHL into nuclear weapons-related security concepts, and on how technological progress relates to the NPT and to Article VI.
- NWFZ States Parties, as well as the P5, should make statements on the importance of NWFZs for the NPT, including a commitment to work for the universality of the Zones.
- States Parties to NWFZs should increase inter-zone cooperation, institutionalize their communications with each other and engage with relevant stakeholders to form active partnerships for education and capacity-building.
- Nuclear disarmament verification initiatives need to engage in outreach to widen participation (among NWS as well as NNWS), encouraging regional diversity and facilitating long-term capacity-building.

Opportunities for bridge-builders at the RevCon and beyond

The papers in this volume highlight various ideas for bridge-building and finding substantive common ground. Tim Caughley, for example, highlights the 'false dichotomy' between humanitarian and security-driven approaches to disarmament and offers solutions for merging diverse perspectives. In the same spirit, Thilo Marauhn suggests that NPT States Parties establish a working group on ways and means to better integrate international humanitarian law into their nuclear weapons-related security concepts. Hassan Elbahtimy points out that discussions on nuclear disarmament verification have only recently become a multilateral undertaking and demonstrates how building up technical expertise and experience in disarmament verification is a bridge-building opportunity towards a practical solution. Both Elbahtimy and Hubert Foy point to the importance of capacity-building around various issues, including verification and NWFZs. Foy suggests increased efforts on nuclear disarmament education. And both Shata Shetty and Paul Ingram suggest military-to-military dialogues as a means of promoting risk reduction and nuclear responsibility, particularly by increasing transparency.

The *Exploring Common Ground* conference and the papers assembled here highlight that there is an interest in bridge-building among NPT States Parties, which should not be taken for granted. However, the question is: which government or group of states is willing and able to lead such bridge-building exercises? Past RevCons have relied on such 'champions' to articulate the middle-ground, mediate between competing views, barter compromises across issues, convince outliers to drop their objections and work with the Conference secretariat to turn such compromises into documents.

> **MANY PROPOSALS EMERGING AT THE *EXPLORING COMMON GROUND* CONFERENCE SUGGEST A DEEPENING AND BROADENING OF DIALOGUE FORUMS.**

Some established groupings like the Non-Aligned Movement, the European Union and the P5 appear to be deadlocked internally on key nuclear disarmament issues. It is therefore all the more encouraging that many conference participants underlined the ambition of 'like-minded' groups of states to play a bridge-building role before, during and after the RevCon. Existing groupings like the New Agenda Coalition and the NPDI appear ready to step up their own efforts at consensus-building. New initiatives like the Swedish 'stepping stones' approach or the CEND Working Group, which met in July and November 2019, also have the potential to play a role in overcoming political

> **INCREASED AND TRANSPARENT DIALOGUE IS THE BEST HOPE FOR REDUCING POLARISATION AND PROMOTING PROGRESS TOWARDS DISARMAMENT.**

differences.[3] For many, the spotlight also falls on European governments; in particular, Germany, the Netherlands and Sweden are engaged in many activities of like-minded states. Whether they, the European Union collectively or some other grouping will be able to chart common ground, remains to be seen.

RevCons form bridges in time, building on past achievements and charting a way for the non-proliferation regime into the future. To build on what has been achieved, it is necessary to recognise the existence of past commitments as part of the history of the NPT, perhaps as 'soft law', as Marauhn argues. Others argue that these past commitments have to be re-evaluated in light of changes in the strategic environment. Whichever way the debate at the 2020 RevCon goes, its conduct and outcome will have repercussions for other multilateral regimes, which are built on the general approach of a consensual evolution of arms control, disarmament and non-proliferation regimes.

This volume shows that any government willing to take the lead in charting common ground could point to a large array of activities and ideas that can contribute to a successful RevCon. International cooperation on issues such as disarmament verification and other solutions-driven approaches offer ideas for practical disarmament measures.

In addition to facilitating practical measures, bridge-building efforts will have a positive impact on the atmospherics of RevCon. This is unlikely to be enough to produce a consensus document without substantive agreements; however, it creates an environment more conducive to cooperation and progress on issues such as risk reduction and transparency. It might be particularly beneficial in inspiring NWS to provide more insights into their nuclear doctrines and why they continue to rely on nuclear weapons for security reasons.

Efforts to find common ground should not be seen solely in the context of the RevCon. Rather, the health of the NPT ultimately depends on the credibility of the process and commitment of States Parties. Beyond the RevCon, States Parties must feel a sense of purpose and value in continuing to pursue disarmament through the NPT. The end goal of finding common ground is not simply a successful RevCon. Real progress towards disarmament must happen beyond May 2020. Ultimately, there is a need for more trust- and confidence-building measures among NPT States Parties. Increased and transparent dialogue is the best hope for reducing polarisation and promoting progress towards disarmament.

Endnotes

1 Disagreement on the WMD Free Zone in the Middle East was the reason why consensus at the 2015 RevCon was impossible, though differences over the role of nuclear weapons were also unresolved. See Oliver Meier, 'The 2015 NPT Review Conference Failure: Implications for the Nuclear Order,' Berlin: Stiftung Wissenschaft und Politik, Working Paper FG 03-WP No. 04, 2015. http://www.swp-berlin.org/fileadmin/contents/products/arbeitspapiere/mro_wp_NVV_October2015.pdf.

2 See Non-Proliferation and Disarmament Initiative, 'Enhancing National Reporting as a Key Transparency and Confidence-Building Measure (NPT/CONF.2020/PC.III/WP.24),' Working Paper submitted to the *NPT Preparatory Committee* (New York, April 18, 2019). http://reachingcriticalwill.org/images/documents/Disarmament-fora/npt/prepcom19/documents/WP24.pdf.

3 William C. Potter, 'Taking the Pulse at the Inaugural Meeting of the CEND Initiative,' Monterey, CA: Center for Nonproliferation Studies, 2019. https://www.nonproliferation.org/taking-the-pulse-at-the-inaugural-meeting-of-the-cend-initiative; 'Stockholm Ministerial Declaration,' issued at the Stockholm Ministerial Meeting on Nuclear Disarmament and the Non-Proliferation Treaty, June 11, 2019. https://www.government.se/statements/2019/06/the-stockholm-ministerial-meeting-on-nuclear-disarmament-and-the-non-proliferation-treaty/.

Authors' key recommendations

The security and humanitarian discourses

1. NPT States Parties, via a representative group of both Nuclear Weapon States (NWS) and Non-Nuclear Weapon States (NNWS), should draw up a set of generalised points of common interest building on various current initiatives such as the CEND Working Group and the Stockholm Ministerial Declaration of 11 June 2019.
2. Nuclear armed states and their allies should make practical proposals to improve the security environment through reduced reliance on nuclear weapons. These could include offsetting nuclear with conventional forces, improving transparency of deterrence doctrines, ceasing modernisation and development of nuclear arsenals and resuming warhead reductions.
3. The NPT NWS should reaffirm their commitment to the letter and spirit of all three pillars of the NPT as vital for the Treaty's future and wellbeing.

Small steps for arms control

1. The United States and Russia should extend New START for five years and publicly outline their short-term plans on intermediate-range missile production and deployment.
2. The P5 should work together to reaffirm or establish a set of common understandings that would help to reduce nuclear risks in advance of the 2020 NPT Review Conference (RevCon). They should also commit to begin discussions on new threats to strategic stability, with the goal of preventing destabilising applications of emerging technology.
3. The P5 should publicly commit to forego expansion of their nuclear arsenals past current numerical levels.

Nuclear-weapon-free zones

1. NWFZ outliers, Signatories and States Parties should issue statements that reaffirm the crucial role that universal regional adherence to NWFZ treaties plays for the NPT.
2. NWFZ States Parties should create implementing bodies for the five existing regional NWFZ treaties, to institutionalise communication practices and foster inter-zone cooperation.
3. Through active partnership initiatives, young professionals and diplomats from NWFZs could learn about the appalling legacy of nuclear weapons, about the NPT regime and about NWFZs as a necessary step on the road to global nuclear disarmament.

Engaging non-NPT states

1. The NWS should meet with the four non-NPT nuclear-armed states and key states from different regions, such as Japan, Germany, South Africa, Brazil, Argentina and Mexico. These states should attempt to identify a new consensus on non-proliferation objectives, the common risks they all face and potential solutions that will be acceptable to all.
2. A group of NPT States Parties could start an informal discussion about integrating the four non-NPT nuclear powers within the NPT structure, given that it is in the interests of both sides.
3. Given the stalemate prevailing in the Conference on Disarmament in Geneva, alternate venues and platforms must be explored to make progress in controlling the security risks associated with nuclear proliferation.

Reducing the role of nuclear weapons: International law

1. NPT States Parties should acknowledge that any use of nuclear weapons may be hard to reconcile with the rules of international humanitarian law (IHL).
2. They should affirm that IHL should be considered within the NPT framework, rather than having this addressed outside of the NPT.
3. States Parties to the NPT should consider establishing an open-ended NPT working group on how technological progress relates to NPT Article VI.

Addressing the challenges from emerging technologies

1. NPT States Parties should agree at the 2020 RevCon that a group of scientific experts (GSE) should be convened to examine mutually-beneficial applications (and possibly negative aspects) of emerging technologies, to increase trust and confidence between States Parties.
2. As part of their discussions on doctrines, the P5 should establish a formal, regular dialogue on strategic stability and/or strategic restraint, and link this to the NPT review cycle by reporting back during Preparatory Committee meetings (PrepComs) and RevCons.
3. Existing arms control frameworks such as New START should be adapted to incorporate hypersonic weapons systems and possibly other autonomous weapons systems.

Multilateral nuclear disarmament verification

1. Current initiatives for nuclear disarmament verification should explore opportunities to widen participation in their activities, to include a more diverse group of states from different regions, and to use the 2020 NPT RevCon to communicate their activities and outcomes to a wider audience.
2. The technical nature of discussions on disarmament verification provides a good basis for collaborative international activities and research. The 2020 RevCon should support efforts to build multilateral capacity for disarmament verification and, to the extent possible, shield the topic from political polarisation over nuclear disarmament.
3. To support further collaborative work in this area, interested states can consider commissioning a credible examination of the proliferation risks arising from multilateral disarmament verification, drawing on legal, operational, and technical factors, as well as openly addressing possible ways to minimise and address these risks.

Nuclear responsibilities

1. NNWS should communicate their expectations to NWS regarding transparency measures by the latter and prepare to engage effectively on these requests at the 2020 NPT RevCon. All states should discuss the costs and benefits of nuclear ambiguity.
2. NPT States Parties should issue a declaration affirming their responsibility to protect the rules-based order and to respect past commitments.
3. All nuclear weapons possessors should declare their responsibility to minimise the risk of nuclear weapons use, and refrain from expressing any intention to fight a nuclear war or to use nuclear weapons to achieve strategic dominance or for compellence.

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