Foreign & Commonwealth Office

Wilton Park

Report

Verification in multilateral nuclear disarmament: preparing for the UN Group of Governmental Experts

Wednesday 24 – Friday 26 January 2018 | WP1595

In association with:

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Key points

- The GGE will have a limited timescale in which to operate, and will need to focus on specific areas. The GGE has only three meetings over one year, while the development of multilateral nuclear disarmament verification is going to take decades. Given this time restriction, the GGE should not be overly ambitious in what it hopes to achieve. A key success may be the fact that it is happening; verification is about trust and confidence and the GGE can help build this.
- A verification regime consists of both political and technical elements, which are intrinsically linked. Working on one without the other will not result in long term, concrete success for disarmament. It can be a necessary choice to work on the two separately, and there is value in continuing to work on the technological tools before a legally-binding instrument is negotiated. However, arguably it is the political hurdles that need the most work. The GGE will need to consider its approach to the technical and political challenges that persist in disarmament verification.
- Disarmament verification cannot be separated from the broader security context. The international environment is becoming increasingly complex and is currently not conducive for progress on nuclear disarmament. Nonetheless, important preparatory work is possible and important in view of making use of an environment more conducive in the future.
- Various types of verification regimes have been developed over the years. A one-size-fits-all approach, that can be applied to nuclear disarmament verification easily, does not exist, as different treaties – for example bilateral or multilateral - will require specific measures. However, lessons can be drawn out from other treaties, both nuclear and non-nuclear. The GGE is not starting work on a blank sheet of paper, and can learn from these processes where applicable.

The GGE: purpose and goals

1. The introductory session served to highlight the importance of nuclear disarmament verification (NDV) and the objectives and purpose of the Group of Governmental Experts (GGE). The GGE will run in three sessions: 14-18 May 2018; Autumn/ Winter 2018; and Spring 2019. The first session will probably focus on procedural decisions and a programme of work. Session two will consider in depth issues and limited scope. Session three will produce a report, to be adopted by consensus, and submitted to the 74th UN General Assembly.
2. This discussion made it quite apparent that views on the purpose and goal of the GGE differed amongst participants. This provides the GGE with some flexibility for determining its activities, but also keeps the scope extremely broad.
3. The UNGA resolution that established the GGE specifically mentions ‘advancing

nuclear disarmament'. In this context it will be worthwhile for the GGE to consider related work, such as that being carried out in the International Partnership for Nuclear Disarmament Verification (IPNDV) or the FMCT GGE, to understand how they contribute to this specific goal and to ensure that the GGE does not duplicate efforts.

4. Some participants stressed that the Group's mandate is explicitly linked to advancing nuclear disarmament. Given this, the purpose of the GGE might be seen as akin to a chicken and egg dilemma: what is the value of developing technical verification tools in the absence of treaty negotiations? Although some noted this chicken and egg dilemma should not be overstated, others recognised that technical verification work alone can only go so far. However, the majority of participants agreed that the time to develop verification elements for a later NDV regime is now, especially when considering the long term perspective of such work. Discussing whether a treaty or verification tools should come first though is less relevant for the goal of the GGE. This chicken and egg debate will always occur, but for the GGE and disarmament verification, participants acknowledged the value comes from proactivity and exploration; verification concepts/technology work will eventually be required, once a treaty is negotiated.

5. Irrespective of these complexities, the discussions highlighted that the GGE does not have to begin its work on a blank sheet. On the contrary, it can build on a solid conceptual, technical and practical base, from work already undertaken in various settings and forums. Some participants suggested the GGE should able to build on existing work, and possibly validate/confirm this work. However, participants also noted there is no one size fits all approach to disarmament verification, and the tools and mechanisms will need to be adapted to support the treaty text.

6. The session positioned the GGE in the broader context of an ongoing global security challenge, where the international environment is becoming increasingly complex. This was continually highlighted as a determining factor. Verification work was recognised as vitally important for obtaining and maintaining disarmament. In the current context, such a commonality is rare and should be exploited, and the GGE could play a role here. Some participants clarified that this is not equivalent to the GGE substituting existing machinery, despite some mechanisms not having much success recently.

7. Advancing technical work in view of future disarmament steps was characterized as all the more important given this broader security context, which results in a shrinking space for disarmament or significant reductions. It was highlighted that. It is possible to agree on practical and beneficial steps that can be taken even when disagreement exists in other areas, such as the Treaty on the Prohibition of Nuclear Weapons. The GGE can help the international community. The GGE and verification efforts more broadly are a demonstration of both nuclear weapons states and non-nuclear weapons states taking their NPT Article 6 commitments seriously. The process needs to be developed by nuclear weapon- and non-nuclear weapons states to help foster trust, and technical and political 'buy-in' and ownership of outputs.

8. One aspect that became apparent in the discussion was that the GGE will be a product of its membership. Nuclear weapons states and non-nuclear weapons states need to get into each other's mindset to understand the demands and limitations being discussed. Important limitations such as ensuring non-proliferation and the security of sensitive information were highlighted, along with ways to address these challenges, such as information barriers. This can help advance discussion and understanding, and participants agreed that this is a purpose of the GGE.

Applying lessons: transferable experiences from nuclear and non-nuclear negotiations

Comprehensive Test Ban Treaty (CTBT)

9. In discussing the experience and lessons of the CTBT negotiation, three key points

were made:

1. There is value in pressing ahead with technical and scientific work even when the political elements face hurdles.
2. Leadership and relationships are important.
3. Preparation and engagement in between formal meetings were vital to keep momentum going.

10. The CTBT is often viewed as key for the step by step approach to nuclear disarmament. In negotiating the Treaty, verification provisions were central but challenging. A range of views on the role and tools on verification needed to be incorporated, and scientific advisors were crucial in aiding this discussion.
11. A Group of Scientific Experts (GSE), mandated by the UN Conference on Disarmament, was used for a range of activities including developing the international monitor system and data centre, and conducting joint research for CTBT detection. Beyond this technical requirement, the scientific discussions helped breach political boundaries. All member and observer states of the Conference on Disarmament could send scientists to participate. The scientists and technologists could hold workshops and would present back to the GSE, and this engagement went on despite political hurdles. Politics played less of a role for the scientific discussions on technical tools than for the diplomatic negotiators, meaning progress on the verification elements of the CTBT was still able to continue in times of treaty discussion stalemates. Additionally, technical progress had the benefit of driving forward ongoing support for the political work.
12. Separation of the political and scientific was less simple when discussing the role of on-site inspections. Given the intrusive nature of this verification mechanism, detachment from political reservations and restrictions was a major challenge for Treaty negotiation. On-site inspections will only become an available verification tool once the CTBT enters into force. Given the rarity of using these provisions in other treaties and verification bodies, and the political limitations of invoking such an inspection, this verification tool will likely remain redundant even after entry into force is achieved. In practice, on-site inspections have additional difficulties when nuclear material is in question, especially relating to how quickly on-site inspection could take place; there is a need to consider the scientific elements here, such as the half-life of materials.
13. During the 20 years of the GSE, leadership was important. The efforts were focused, with long term mandates that didn't need to be reviewed every year, and didn't require a change of chair monthly or yearly; there were two chairs over a twenty-year time span. This helped underpin a multiyear agenda and ongoing technical work as well as develop and maintain institutional memory. Although the GGE on disarmament verification is bound to three meetings, it will be important for the Chair to note the role of personal and working relationships and the need for an ongoing agenda should not be underestimated.
14. In the CTBT context, preparation ahead of the GSE meetings was valuable. Communication was not restricted to the set meetings and teleconferences, review meetings and preview meetings between different stakeholders frequently took place. It was noted that although this level of engagement requires greater resources which might be difficult to achieve without political buy in, the value is tremendous. It was this continuity of work that was a key factor in setting up the International Monitoring System (IMS) so quickly. The framework and tested system were set up before negotiations concluded and thus provided value in helping to push the political side of the treaty along.

Biological and Toxin Weapons Convention (BTWC)

15. Text Given the lack of a verification protocol under the BTWC, the direct lessons for the GGE on nuclear disarmament verification were less obvious. However, lessons of

value do exist:

1. Resources are important.
2. Small groups and a manageable mandate are important.
3. The broader political context can help or hinder progress.

16. Resources played a big role in the BTWC. It was noted that, for example, there is importance in practicing techniques and procedures for inspection, trial running and identifying challenges and then reworking. One participant characterised this as negotiations falling victim to talking the talk but not being able to walk the walk. Although the GGE is not focusing on negotiating a treaty, and is therefore not bound to achieving a specific output, limited resources can impact its outcome and the future of the momentum of disarmament verification.

17. Participants noted that, similar to the GSE of the CTBT, there is a need to have the ability to test work in small groups and then communicate back to larger forums. This creates efficiency and transparency, both of which are extremely valuable. For the BTWC a major challenge was that the mandate of the ad hoc group was too broad. The process became overloaded with too many things when it was establishing a verification regime for the BTWC was not a political priority. Some participants went on to note that establishing verification for the BTWC is dead for this reason.

18. On the contrary of not being able to establish a verification regime for the BTWC, it was raised that the international community does not have a good track record in responding to non-compliance with WMD treaties, and that this needs to be considered when discussing verification.

Fissile Material Cut-off Treaty (FMCT)

19. After drawing on a successful and an unsuccessful case of verification negotiation, the work of the FMCT High Level Expert Group, running partly in parallel to the nuclear disarmament verification GGE, was discussed. The case of the FMCT is an interesting as it continues to work on the role and tools of verification. Ongoing work has been valuable in gathering more information on how such a treaty could be verified, and this has direct parallels to the broader disarmament verification regime.

20. A key part of the FMCT's appeal is the verification components, but not just for the FMCT; the technical challenges being solved as part of this process will also have value for other disarmament efforts.

21. The process the FMCT is going through highlights valuable lessons and questions that might be relevant for the GGE on disarmament verification. On a practical level, the process has raised the question of where verification should or could be set out in the text of a treaty: in the main body, or in an annex. It has also raised the question of whether there is a role for the IAEA in FMCT verification, or whether a separate, specific FMCT body would be required. There is also a need to engage with all the right people, with diplomats and policy experts in the same place as the science and technical experts. These considerations are applicable to verification discussions broader than the FMCT, and could benefit the GGE on disarmament verification also.

22. The bulk of verification obligations under a FMCT will fall to un-safeguarded facilities. But the process still leads to a useful discussion between nuclear weapon states and non-nuclear weapon states on the verification possibilities and scope. Participants emphasised how important this inclusive discussion is; all states have a right to confidence in a treaty and its verification mechanisms.

23. Some participants highlighted that a challenge that the FMCT will face is the interdependence between treaty text and verification measures. As work in both areas progresses, changes to any text will likely impact the verification mechanisms. However, this is not unique to the development of an FMCT, and the lessons will be

beneficial for future negotiations elsewhere.

24. The previously held GGE on FMCT verification focused largely on enrichment and reprocessing facilities. Whilst a narrower focus is less strenuous on resources, it does leave gaps. The trade-off between this and more comprehensive approaches requiring greater resources is certainly something the GGE on disarmament verification should be aware of. The GGE on the FMCT also looked at the verification tools and existing approaches in bilateral forums, but acknowledged that the area is in desperate need of scientific and technical research. The following Preparatory Group continued the work of FMCT GGE, sustaining the conversations and addressing the questions the FMCT GGE outlined. This scoping lesson is important; the technical issues that disarmament verification faces will not be solved in the GGE setting, but the group can provide steer on how to get there.

25. Considering these three treaties, there is a lot for the GGE to contemplate. A lesson that can be drawn from the CTBO, BTWC and FMCT experience is that it is important to not be too ambitious. In the first instance the GGE's greatest success may be the fact that it is happening; verification is about trust and confidence and the GGE will help build this. The GGE is only three meetings over one year; the process and development of disarmament and verification is going to be over decades. Given this timeframe members need to be realistic about what the GGE can achieve. Differing from the above examples, the GGE is not aiming for a treaty, and this is a crucial difference to recognise when considering these examples.

26. Reflecting on the chicken and egg dilemma posited in the opening session, participants discussed the role of technical work in the absence of political developments. The technical and the policy areas will need to blur and overlap in the long-term, but it can be a necessary choice to separate them in the shorter term, to move things forward and advance the process in a structured way. This doesn't mean that these two elements can't interact, and indeed it is vital that they do - the issue of timing and sequence is one example where close cooperation between the two communities will be necessary. Others noted that because verification is so intimately connected to other aspects of a treaty that indefinite separation is not possible. This does not mean work cannot start on one aspect before the other though, but meaningful progress can only be made with both. Given the mandate of the GGE, this should be considered.

27. However, many participants noted that there is a huge risk of overload if the technical and political are not separate, like in the BTWC. This doesn't mean isolating one from the other, but the GGE should be mindful of balancing these two aspects. The GGE will need to identify a slice of the work that is manageable but contributes to meaningful progress. Treaty first, verification later is problematic as by this point the political boundaries will be established. Verification first can help states understand what is and is not feasible. Some disagreement existed on this point, with the recognition that technical verification work can only go so far absent of treaty negotiations. Yet this should not undercut the value of scientific work in the absence of the political. In the case of the CTBT, the scientific work did help the treaty to manifest quicker.

28. Despite the divergence in views on the sequencing of technical and political work, the view that verification regimes should make use of scientists was unanimous. The CTBT made effective use of outside scientists to present on recent technical developments and their applicability. One participant noted it is difficult to predict or foresee how science and technology will evolve, but ongoing interaction with the technical community can help mitigate this somewhat. Amending treaty text to consider new technological developments is possible, but limitations do exist. For example, in the CTBT context the treaty needs to enter into force for this can happen. It is also important to note that the BTWC has difficulty in keeping up with technical developments; what is possible now was barely imaginable at the time the treaty was negotiated. This puts the chicken and egg debate into context, demonstrating the infeasibility of complete, long-term separation of text and verification.

29. Disarmament will not come by signing a treaty, but at the end of a lengthy technical process. The current environment was again touted as not conducive to the exploitation of disarmament verification work in political realms, meaning this is a useful time for technical preparation for when the time is right.

30. Participants made the important point that the role of verification systems and context varies in all cases. Lessons learnt from other treaties do not have to be specific provisions from previous WMD treaties with verification provisions, with the aim of copy and paste arms control. Whether verification comes first (CTBT) or after (attempted in the BTWC) or in tangent with politics (FMCT), varies each time. In the nuclear disarmament context, there will also be different verification requirements for different levels of capability: capability and weapons; just capability, no weapons; no capability. There cannot be a blanket verification regime for all stages of the step by step process, and it will be important to identify which approaches are most appropriate for different levels. But there must be a balance between the technical and the political. The GGE on disarmament verification should draw on these examples to help shape its work.

Achieving disarmament: the role of verification (I)

31. The focus of this session drew on experience from nuclear-specific treaties, theoretical considerations about monitoring and verification processes, and on-the-ground experience of verification in practice, drawing on insights related to the START, New START, and the INF treaties.

32. Irrespective of its remit, a treaty needs a protocol, a notification process and a set of ground rules. But treaties set these rules to varying degrees of detail. Regarding the political and technical goals of the monitoring and verification provisions, it was noted that different treaties – developed in specific times and negotiated in specific settings – have different obligations and verification procedures. In this context, it was argued that a treaty and its verification system are inseparably linked, as the treaty lays out what compliance looks like and describes the process of getting to the endpoint set by the treaty. Irrespective of this, four key components applicable to all verification regimes were identified:

    1. treaty text – what is/is not permitted, the rules, the tools you can use
    2. monitoring – going out and collecting data; inspections, data exchange
    3. analysis of data – Examination of data to check consistency with treaty text
    4. political implications of data analysis and forward action; non-compliance reaction, annex/ treaty amendments.

33. A good treaty text is the cornerstone of verification, but advancing work on verification in advance of that text is meaningful, so negotiators can understand what verification is possible before agreeing on a text. Very often, political pressure emerges for solutions that are not technically sound, and politics can sometimes supersede technical logic. Furthermore, politicians need to be able to understand the science and technical tools to trust and buy into the verification. Confidence building measures can be formal, but also built through informal mechanisms, such as the personal relationships between inspectors, technicians and scientists. Relationships can really help in this regard, or hinder if they are not positive. Whilst verification tools mostly have a technical and scientific underpinning, they can also be used politically. In past arms control negotiations verification measures have been suggested by one negotiating state which are known to be unacceptable to another.

34. How the monitoring aspect of a treaty is conducted will depend on what is agreed in the treaty text, and to some extent the resources that are available. A common selection to make this more efficient is confirming the inspected party complies with the respective treaty obligations, rather than seeking non-compliance; this does however require high levels of trust. The session also noted that states are required to maintain verification

capacities and the know-how needed in the pools of inspectors.

35. The resources and costs required to implement and maintain a treaty will be high. There will need to be consideration of the cost of personal, transport of equipment, travel costs, training, and reporting. Governments will need to ask real questions of budget and resources allocated to the issue. This does not just apply in the long-term scenario of treaty implementation, but for the groundwork that can be laid in advance. Participants noted that verification capacities and know-how of inspectors needs to be maintained. It was explained that, in times without negotiations or implementation of arms control treaties, a country may experience loss of individual capacities and institutional memory.

36. The session discussed that usually a certain constructive ambiguity results from any treaty, because the treaty text can be interpreted differently. It was highlighted that constructive ambiguity can be helpful, as it gives flexibility for both the inspecting and inspected party. However, it was also noted that too much ambiguity can result in uncertainty, which inevitably represents a significant challenge for implementers on the ground. In this regard, it was set out that current challenges relating to compliance of the INF treaty do not resolve from uncertainties in the treaty text. Rather, one participant stated, that any treaty is only as good as parties to the treaty believe it is in their interest.

Achieving disarmament: the role of verification (II)

Organisation for the Prohibition of Chemical Weapons (OPCW)

37. There are three parts of verification that fall under the OPCW's remit: production facilities; destruction facilities, both old and abandoned; dual use and industrial facilities. All of these require slightly different processes when approaching on-site inspections. The aim of inspections in the OPCW is to build confidence between state parties and to deter non-compliance. The OPCW only verifies the information in state declarations. The deterrence aspect of verification as a secondary role that is often forgotten was also emphasised, with discussants acknowledging that deterrence can play a big part in treaty adherence.

38. In the context of the CWC, challenge inspections have never been used. Allegations that could lead to challenge inspections are perceived as highly politicised and accusatory. Yet by not using challenge inspections, lack of use becomes the norm and further entrenches political concern, withering the tool. Participants agreed that for reasons such as this, the technical and political are intrinsically linked. Although this has similarity to the discussion in the case of the CTBT, where the technical drove forward the political, in the case of the OPCW the link has been negative, with the political restraining the technical.

39. A number of lessons from developing and setting up of the CWC's challenge inspection system were highlighted as relevant for the upcoming GGE. Intrusive inspection procedures in sensitive military sites were tested in numerous exercises before, during and after the conclusion of the treaty. The session also discussed that many organizational, procedural aspects and concepts of such inspections were transferable from chemical to nuclear disarmament verification. It was highlighted that it was sometimes important to overcoming internal, domestic, resistance against intrusive verification measures.

40. Drawing on this and applying it to the context of nuclear disarmament verification, participants noted it is important to realise different facilities within a treaty might require slightly different verification approaches. Although this will not likely be something the GGE is able to address, it is worth noting in the broader verification context as an issue that could arise.

41. The OPCW learnt that in the early days of treaty implementation there was much uncertainty about the process as the experience of verification was minimal. Therefore,

the verification processes were slow and time consuming. Verification is at the heart of the convention on paper but what it meant on the ground was a steep learning curve. Although this will not be directly relevant to the GGE in an implementing context, it was mentioned that the chair should be mindful that some participating nations have more experience and understanding of nuclear disarmament verification than others.

Treaty on Conventional Armed Forces in Europe (CFE)

42. For the Treaty on Conventional Armed Forces in Europe, military considerations, rather than political, drove negotiations. The treaty balances forces at lower levels and imposes geographical limitations.

43. The verification regime confirms validity of information and compliance with the ceilings on capabilities. It was designed to achieve confidence in compliance with the scope of treaty. Verification provisions include inspections of declared sites and challenge inspections. Yet differences in interpretation exist despite the verification mechanism. The Treaty has the provision to resolve ambiguities during inspections. If resolution is not possible the ambiguity will be documented and reported back to capitals for analysis. Additionally, when issues and challenges arise it is important to correctly identify them as technical, political or political masquerading as technical. Some participants noted that constructive ambiguity can leave the door open for further development, and highlighted that there is benefit in doing so to keep the dialogue and cooperation active. Others noted that this must be carefully considered and should not purposefully hinder treaty progress and goals, or intentionally limit the treaty if consensus can be achieved.

44. In the CFE verification also contributes to transparency, to meet the specific goal of early warning. If direct access is not permitted, negotiators and implementers should work to find alternatives in the verification tool kit. Participants discussed how this could be relevant for the nuclear disarmament realm where non-nuclear weapons states will have an interest in monitoring, but might not be part of the treaty (if bilateral, for example), or cannot be included due to proliferation concerns. Furthermore, if we are verifying zero, all states will be on a level playing field and the commitment to not have nuclear weapons will be equal. In this circumstance transparency will be vital, but could conflict with preferred methods of verification.

45. The verification regime under the CFE is intrusive and has a high inspection quota, which as noted with the OPCW can be resource intensive. Yet at the height of implementation this provided military-to-military contact regularly and therefore gave insight into adversary force postures, increasing confidence. Until 2009, the CFE was called the cornerstone of European security, because of the transparency it provided.

46. The limited regime did become outdated as forces changed and new military equipment was integrated; the scope of the Treaty has not been updated to keep up with force modernisation. Participants noted that a similar occurrence is relevant to the BTWC, and whilst might not have direct application to nuclear disarmament verification at this stage, is something to keep in mind.

47. Furthermore, irrespective of the trust and confidence verification provisions bring the CFE was not immune to the broader security environment. Political developments and NATO enlargement were damaging for the CFE. This lesson is more directly relevant to discussions of nuclear disarmament verification and the maintaining a world with lower or no nuclear weapons.

48. Considering lessons learnt from the OPCW and CFE, common threads across verification implementation are difficult to draw out; there is no one-size-fits-all approach or model. However, participants mostly agreed on reiterating the analogy that it is sometimes easy to forget the forest because you are so focused on the trees; both the CFE and OPCW have been impacted by their political environments. It is important to know how verification tools and equipment fit into the bigger picture, and the concerned parties should not lose sight of this. Verification will not solve all the issues

alone, and must be viewed as a piece of a much larger puzzle.

49. Participants recognised that it is difficult to pin down what the GGE should do in this context. The most important thing is that it considers the objective of verification in an inclusive manner, with multiple states and perspectives on board. The GGE is in a unique position to identify the intersection of differing views. The GGE might conclude that an intersection doesn't exist at present, but that is still valuable for the next steps of work in this area.

Maintaining a world without WMD: the role of verification

50. Having considered the examples of the OPCW and CFE treaty, this session focused on nuclear disarmament verification explicitly. The major question that arose from discussion was how the verification enterprise shifts, once disarmament has been achieved, from monitoring reduction to 'policing zero'. There is a need to be aware that verifying reductions and verifying abolition will likely look very different. The framework will shift, as could the role of the non-nuclear weapons states.

51. The session looked at the IAEA experience as well as at the verification methods under the Chemical Weapons Convention. With regard to expertise available at the IAEA, it was argued that the IAEA "may, can or should" have a key role. The role of the IAEA was however noted as deserving wider consideration. It was agreed that there is a possible role for the Agency, but whether it would be the correct actor or indeed has sufficient resources to conduct disarmament verification work was debated. Participants discussed that the IAEA indeed has – according to its statutes – the mandate to monitor a world without nuclear weapons. The IAEA, verifying on a routine basis in the context of comprehensive safeguards agreements and additional protocol, has relevant experience and has conducted disarmament related work in South Africa and Iraq. It was also argued that given the existence of the IAEA and its experiences, it would make little sense to create a new organization for such work.

52. Drawing on a non-nuclear example of the CWC ensuring a world without chemical weapons also had some benefit. Accurate baseline declarations, confidence in the verification system, trusted technical equipment and time to feel comfortable with agreed methods were identified as key challenges in the set-up of a good verification system. Careful consideration was also needed to decide where you inspect, and how often, depending on risks identified. Although in the near term these considerations are likely going to be beyond the scope of the GGE, noting their long-term importance is necessary.

Developing new measures – assessing previous nuclear verification work

International Partnership for Nuclear Disarmament Verification (IPNDV)

53. The IPNDV includes states who strongly support the Treaty on the Prohibition of Nuclear Weapons, as well as those who are staunchly opposed to it, and benefits from this diversity.

54. The IPDNV has a strong technical orientation, but this is not its sole purpose. It also engages with conceptual work. However, there is an awareness that this should not lead the IPNDV into the space of pre-negotiations: the initiative is not intended as a forum for negotiating a disarmament treaty, but to collaboratively explore technical possibilities for disarmament verification.

55. The exploratory nature of the IPNDV removes the challenge of needing to reach consensus. However, a key and common challenge is getting buy-in when treaty negotiation is not imminent. This can act as a disincentive for both nuclear- and non-nuclear weapons states. Nuclear weapons states can be dis-incentivised from participating because the time is not right for a treaty and thus little imminent value in this work; non-nuclear weapons states can be dis-incentivised because an immediate

goal is not to work towards a binding commitment. This challenge could be directly applicable to the GGE.

56. The GGE should be aware that there is never any guarantee that efforts will not be obstructed. For example, if nuclear weapons states withdrew from the IPNDV, the initiative would likely collapse. In the short term these concerns are alleviated, but there is always that risk that links to the broader security environment. There is a balance to be struck between carrying out activity quietly with little attention and reduced risk, and carrying out initiatives with a lot of publicity to demonstrate activity with potentially increased risk.

57. However, both the GGE and IPNDV – and other disarmament verification for a – have a role in diving deeper into the more divisive issues. These initiatives do not need to directly collaborate, but should absolutely be aware of the other.

The UK-Norway Initiative (UKNI)

58. Like the IPNDV, the UKNI had a technological focus. However, given the more exclusive nature of the bilateral engagement, it was much easier to take technical exploration a step further and run exercises to test the technologies.

59. A key technical challenge is the need to verify that a weapon *is* a weapon, before then verifying it is no longer a weapon, without revealing sensitive details. Disarmament verification requires the ability to monitor an item until it is no longer exhibiting weapons characteristics. In this context it is likely that the priorities of the scientists and policy people will be different, and collaboration between the two is essential in the long-term. As a political forum, the GGE should be mindful of this, and acknowledge these useful lessons learnt elsewhere.

60. However, a primary challenged faced by the UKNI was operating without the bounds of a treaty. Without some even loosely stipulated bounds, the field is completely open, and it becomes hard to determine what the goal of the technology should be. Yet this free exploration is valuable in laying the ground work for knowing how a treaty could be bounded, and for confronting the rules and environments implementers would likely need to operate in. Through having to consider, for example, the safety and security of facilities, the work of the UKNI moved beyond technical exploration to exploration of operation and implementation.

61. Participants again referenced the importance of the strategic framework in which the disarmament and associated verification will operate. Participants agreed that this cannot be undermined as this is the context states operate in; even when the international environmental conditions are considered more appropriate for concrete disarmament, strategic interests will persist. Some noted that this might present a risk to the GGE, or at minimum limit its success, but this was negated by the need to start laying a more groundwork in an inclusive forum.

Quad

62. The Quad is aimed at advancing practical work towards disarmament verification, in view of reducing the stockpiles of nuclear weapons states in a plurilateral setting.

63. Similar to the challenges highlighted by the UKNI, the Quad has recognised verification is difficult for practical reasons and material reasons. Practically, it is a challenge to keep control over an item when inspectors are not present constantly. Materially it is very difficult to know that a declared warhead *is* a warhead.

64. Cooperation in the Quad started by focusing on what could *not* be done. Exercises have been useful to identify challenges that weren't apparent or considered beforehand. However, preparing and conducting exercises requires immense work and is resource intensive. Given the scope and nature of the GGE it is probably not going to be appropriate for the Group to consider learning through simulations, but participants agreed that if necessary it should make use of the lessons derived from other activity in

this space.

65. Verification work needs to keep moving from the theoretical to the practical. Participants reiterated that the personalities involved can have both positive and negative impacts. Although trust had previously been raised as noteworthy between individuals, participants also acknowledged that there is a need to trust the verification equipment being used. Scientific and technical trust can be fostered through joint development and testing of equipment. Through this work, the Quad is potentially laying the groundwork for future disarmament of nuclear warheads.

66. Participants noted that much of the work on disarmament verification thus far has focused on the technical, rather than the political. Yet, both the technical and human elements need to be developed; 100% verification through technical means is extremely unlikely, so trust at a human level must also play a role. Additionally, when issues and challenges arise it is important to correctly identify them as technical, political or political masquerading as technical. Many participants maintained the use of exercises can have value here. Exercises can be a good tool for relationship building, but it is important to know why you are using them, especially as they will likely be resource intensive.

The way ahead

67. Participants noted that there will be a need to define what would constitute success for the GGE, and what outputs could be useful. Others also recognised however that there needs to be some caution in this discussion, to ensure that the GGE is not working to meet a pre-ordained outcome, potentially damaging its vital role as a facilitator of discussion. This will need to be balanced with time limitations that necessitate the GGE to be focused; the Group should also be realistic given its time span, and not have expectations set too high.

68. Broad ownership and sustainability will be key to the continuation of disarmament verification work, and the legitimacy of the UN system is a benefit for the GGE in this regard. Success for the GGE would be to demonstrate its own value and not do harm to other initiatives: that is to say, to create a positive narrative. The GGE has a great potential to be able to reflect the diversity of views, and has potential to benefit from engagement from all nuclear weapons states.

69. Participants discussed many options for GGE consideration, which can be broadly grouped into three key points:

    1. The GGE could act as an interface between existing initiatives.
    2. The GGE could work to establish a GSE.
    3. Capacity building to bring all states engaged up to the same level.
    4. Make use of intersessional work.

70. Verification will need to focus on a tool box of techniques and approaches that are ready for whatever future treaties look like. Understanding the flow and sequencing of disarmament is an important part of the process. Gaps exist in the current verification architecture, and these need to be addressed. Initiatives like the GGE can and should act as an interface between the science and technical work and the policy arena. This interaction is important, but a number of participants argued that at a minimum it is important to keep the scientific and technical work going without political noise. Although there is the possibility that scientific developments in the future could change the conclusions now, verification work should not fall too far behind broader technological developments because of political constraints. This will only make the work harder and more resource intensive later. As technological capabilities develop however, it could be useful to keep in mind technology as being on the side of disarmament verification versus technology as a new way of enabling evasion.

71. Some argued the GGE Chair will need to focus on concrete issues, not on political hurdles. GGE should recognise disarmament verification as a mid to long term activity, and lead the way for future work. Others noted that as this stage, the importance of the GGE is fostering dialogue. There was some divergence on whether the GGE should avoid highly sensitive political issues, or whether it is the purpose of the GGE is to work through these issues. At a minimum, the GGE should be able to identify the areas of agreement and disagreement. The GGE should not shy away from political tension points, but reflect them in its report. In this regard, it was stated that dealing with political issues does not mean the GGE would be politicised.

72. In discussing the founding of a GSE, some participants raised the important question of whether three weeks would long enough to establish a mandate for a GSE. There is also a risk that a GSE could detract from other technical activities and divide other verification forums. This risk could be managed through the mandate of a GSE; it could be tasked to act as an intermediary between the existing activities, to identify overlap and gaps in their work and enhance these efforts.

73. Some participants also noted the importance of focusing on the politics, not solely on the technology, as it is the political challenges that need the most work. A GSE might get traction as a relatively easy recommendation, but it might not be the most appropriate action. However, drawing on the experience of the CTBT it was the technical verification work that helped drive the treaty forward, it was acknowledged that it might be necessary for the technical side of the house to keep momentum going and stimulate future political work.

74. Participants did agree that there needs to be further discussion on a GSE, especially on its potential mandate and associated costs. The GGE could have a role in identifying these, but given its limited timeframe might struggle to achieve this.

75. An open mind should be kept as to what follows on from the GGE; some participants noted a GSE, and others suggested that a second GGE could be feasible, but a third session would probably not be as it would start to appear to be nothing more than a talk shop and thus reduce resources allocated to participation. The process of continued engagement is valuable, but participants will need to find the right forum for the longer term.

76. A useful starting place could be a discussion on capacity-building and engagement, as these were common threads throughout the reports submitted by 27 countries to the UN in 2017. Some participants aired caution over this though, questioning whether capacity building is the most constructive use of time given that its practical importance is decades away. Developing a capacity to discuss the issues associated with verification disarmament could however be encouraged, to increase buy-in from the most relevant states and to be able to allocate resources to this important issue. This is also constructive for the broader context of prioritising dialogue ahead of 2020, especially to foster increased efforts for a step by step approach.

77. To mitigate some of the time restrictions on the GGE, participants discussed the value of intersession and outreach work. The GGE chair and engaged states should make use of intersessional work to maximise the time of the GGE, and this extended commitment could positively impact working relationships. It was noted that intersessional work will require additional resources, but at varying levels; this could include an exchange of working papers as opposed to in-person meetings. However, participants debated without conclusion whether or not the GGE should also seek views from external states and NGOs where applicable. It was noted that outreach is important, and NGO's can have a role to play, but given the sensitivity of the issue and challenge for achieving consensus, it might be best to keep engagement to state-state only in the early stage.

78. In discussing the final report there was broad agreement that the GGE should strive to achieve consensus for this. The report should be able to acknowledge existing work,

but not duplicate activities. The report should also be able to identify opportunities and trigger future work. This could just be an outline of the hurdles and questions still to be addressed, or could provide something more comprehensive.

79. In assessing the best way ahead for the GGE, it is important to remember how it came into being. Participants noted an awareness of the language used in the resolution that brought the GGE on disarmament verification into being. The specific reference to advancing disarmament could prove problematic for some participating states at the point of consensus, but generating discussion on these issues in the first instance should be considered a step in the right direction.

Conclusion

The GGE will not resolve the issues this work faces, but nor is it meant to. It can however draw on lessons from past arms control agreements and other initiatives in the field. This does not mean the GGE should be discussing “cut and paste” arms control, as the lessons learnt from previous treaties with verification provisions teach us that this is not a sound approach.

The work already done in both the nuclear disarmament world and as part of non-nuclear agreements should inspire the GGE, but not necessitate its output. Outcomes should balance the realistic and ambitious.

An important lesson to take away from previous work is that collaboration can foster confidence between participants, and personal relationships are central to progress. Both nuclear weapons states and non-nuclear weapon states are entitled to have confidence in disarmament; therefore, sustained efforts will be required from a range of participants. It will take a long time and the less engagement the slower progress will be. GGE is a space to exchange views and build confidence in the need for ongoing disarmament verification work. The central message of the GGE should be that verification work is important and revitalise disarmament efforts ahead of 2020. This will also help state participants keep in mind the big picture, and not get lost in the smaller details at this stage.

The GGE should be utilised to explore how nuclear disarmament verification can help us achieve the overall goal, within the broader security and disarmament context. At present the security environment is not conducive to deep reductions; but there is a need to prepare for when the time is right and ensure the groundwork exists for when the time for treaty negotiation is here. In this context, the GGE will be important for realising what can and can’t be achieved at this time.

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