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### General and complete disarmament: nuclear disarmament verification

## Group of Governmental Experts to further consider nuclear disarmament verification issues\*\*\*

### Note by the Secretary-General

The Secretary-General has the honour to transmit herewith the final report of the Group of Governmental Experts to further consider nuclear disarmament verification issues established pursuant to paragraph 6 of General Assembly resolution [74/50](#).

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\* Reissued for technical reasons on 3 October 2023.

\*\* [A/78/50](#).

\*\*\* The present report was submitted for processing after the deadline for technical reasons beyond the control of the submitting office.



## **Final report of the Group of Governmental Experts to further consider nuclear disarmament verification issues\*\*\*\***

### *Summary*

The present report of the Group of Governmental Experts to further consider nuclear disarmament verification issues, established pursuant to General Assembly resolution 74/50, provides a thorough overview of the discussions that took place in the Group. It contains general considerations on which the discussions of the Group were based on, and presents its deliberations on conceptual issues, capacity building and the concept of a group of scientific and technical experts. It also contains a section on conclusions and recommendations.

The Group made several conclusions on nuclear disarmament verification. The Group, inter alia developed a working definition of nuclear disarmament verification to guide its work; identified the primary purpose and objective of nuclear disarmament verification; highlighted the importance of trust and confidence-building measures, and the value of taking stock of existing experiences; recognized the amount of work done on the concept of a Group of Scientific and Technical Experts; recognized the utility of continuing work on nuclear disarmament verification; and underlined that equal opportunities for women and men should be provided, and discussed that awareness raising of nuclear disarmament verification, through peace and disarmament education, could be considered part of capacity building.

The Group of Governmental Experts recommended, inter alia, that Member States of the United Nations, as well as relevant bodies of the international disarmament machinery, in accordance with their respective mandates, consider this report and continue discussions on nuclear disarmament verification.

The Group also recommended that Member States of the United Nations continue the work on nuclear disarmament verification issues, as well as consider capacity building efforts, including on regional approaches to capacity building, as appropriate, and that Member States of the United Nations take appropriate measures to ensure equal opportunities for women and men to enable their full and meaningful engagement in nuclear disarmament efforts, including nuclear disarmament verification.

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\*\*\*\* The present report is being issued without formal editing.

## Contents

	<i>Page</i>
Foreword by the Secretary-General .....	4
Letter of transmittal .....	5
I. Introduction .....	8
II. Issues considered by the Group of Governmental Experts .....	8
A. General considerations .....	9
B. Conceptual issues .....	10
1. Introduction .....	10
2. Working definition .....	10
3. Objectives and purposes .....	11
4. Institutional arrangements and governance .....	12
5. Scope .....	12
6. NDV activities .....	12
7. Contexts and measures .....	12
8. Past experiences .....	14
C. Capacity building on NDV .....	15
1. General considerations on capacity building .....	16
2. Regional approaches to capacity building .....	16
3. The value of exercises .....	16
4. Sustainability .....	17
D. The concept of a Group of Scientific and Technical Experts on NDV .....	17
1. General considerations .....	18
2. Objectives .....	18
3. Mandate .....	19
4. Modalities .....	19
E. Issues to be further developed .....	20
III. Conclusion and Recommendations .....	21
A. Conclusions .....	21
B. Recommendations .....	22
Annexes	
Annex I: Input from the Chair's Informal Intersessional Consultative Meetings with Member States .....	23
Annex II: Chair's summary of the presentations to the Group .....	25
Annex III: List of Working Papers .....	27

## Foreword by the Secretary-General

The Group of Governmental Experts to further consider nuclear disarmament verification issues, established by the Secretary-General pursuant to General Assembly resolution [74/50](#), met in Geneva for four sessions of one week each in 2022 and 2023.

As mandated by the General Assembly, the Group of Governmental Experts, during its meetings, further considered nuclear disarmament verification issues, including, inter alia, the concept of a Group of Scientific and Technical Experts. The Group built upon the report of the Group of Governmental Experts to consider the role of verification in advancing nuclear disarmament ([A/74/90](#)) and on the views of Member States contained in the report of the Secretary-General on nuclear disarmament verification ([A/75/126](#)).

I welcome that the Group was able to adopt a consensual report that presents in detail its in-depth discussions and conclusions, which cover, inter alia, a working definition of nuclear disarmament verification, the importance of trust- and confidence-building measures, capacity building, equal opportunities for women and men and the utility of continuing work on nuclear disarmament verification.

I am also pleased that the participation of women in the Group increased to 40 per cent when compared to the previous Group, which unfortunately is still below the equitable representation of women and men required by the General Assembly in its resolution [74/50](#).

I invite States Members of the United Nations and relevant bodies of the international disarmament machinery to implement the recommendations made by the Group of Governmental Experts.

I take this opportunity to thank the Chair, Mr. Jørn Osmundsen of Norway, and all the Experts for their work.

## Letter of transmittal

I have the honour to submit herewith the report of the Group of Governmental Experts to further consider nuclear disarmament verification issues. The Group, which you appointed pursuant to paragraph 6 of General Assembly resolution 74/50, comprised the following Experts selected on the basis of equitable geographical representation and equitable representation of women and men:

Nader Louafi (Algeria)

Deputy Director of Disarmament and International Security, Ministry of Foreign Affairs

Salim Berkat (Algeria)

(Alternate expert- Second and Fourth sessions)  
Counsellor, Permanent Mission of Algeria in Geneva

Maite Milagros Unzaga (Argentina)

(First and Fourth sessions)  
Secretary of Embassy, Directorate of International Security, Nuclear and Space Affairs, Ministry of Foreign Affairs, International Trade and Worship

Martín Dieser (Argentina)

(Third session)  
First Secretary, Directorate of International Security, Nuclear and Space Affairs, Ministry of Foreign Affairs, International Trade and Worship

Ruth Hill (Australia)

Deputy Permanent Representative, Australian Delegation to the Conference on Disarmament

Marcelo Câmara (Brazil)

Director, Department of Strategic, Defence and Disarmament Affairs, Ministry of Foreign Affairs

Leslie Norton (Canada)

Ambassador and Permanent Representative of Canada to the United Nations in Geneva and the Conference on Disarmament

Alfredo Labbé (Chile)

Ambassador (Ret.), Vice-President, International Humanitarian Fact Finding Commission; Professor, National Academy for Political and Strategic Studies

Feng Xu (China)

First Secretary of Department of Arms Control and Disarmament, Ministry of Foreign Affairs

Bassem Hassan (Egypt)

Minister Plenipotentiary, Director of Department of the Disarmament and Peaceful Uses of Nuclear Energy, Ministry of Foreign Affairs

Laura Gounon (France)

(First session)  
Department of Strategic and Disarmament Affairs, Nuclear Disarmament and Non-proliferation Division, Ministry for Europe and Foreign Affairs

Chloé Le Nalbaut (France)

(Second, Third and Fourth sessions)  
Desk Office for Nuclear Disarmament, Ministry of Foreign Affairs

Irmgard Niemeyer (Germany)  
Head of Division, Nuclear Safeguards and Security at Institute of Energy and  
Climate Research (IEK-6: Nuclear Waste Management), Forschungszentrum Jülich

György Molnár (Hungary)  
(First, Second and Third Sessions)  
Ambassador, Special Representative of the Minister of Foreign Affairs and Trade  
for Arms Control, Disarmament and Non-Proliferation

Tamás Talpai (Hungary)  
(Fourth session)  
Senior Advisor, Department for Security Policy and Non-proliferation, Ministry of  
Foreign Affairs and Trade of Hungary, Budapest

Anupam Ray (India)  
Ambassador and Permanent Representative of India to the Conference on  
Disarmament

Kazuko Hikawa (Japan)  
Professor, Graduate School of International Collaboration and Coexistence in the  
21 Century, Osaka Jogakuin University

Ameen Alrefai (Jordan)  
Director of Military Laboratories for Quality Control, Jordanian Armed Forces

Timur Zhantikin (Kazakhstan)  
Director General, Kazakhstan Nuclear Power Plants LLP

Sandra Paola Ramírez Valenzuela (Mexico)  
Alternate Permanent Representative, Permanent Mission of Mexico to the UN  
Agencies in Rome

Yusuf Aminu Ahmed (Nigeria)  
Director, Special Duties, Nigeria Atomic Energy Commission

Anreti Damazio (Nigeria)  
(Alternate expert – Second session)  
Counsellor, Permanent Mission of Federal Republic of Nigeria to the United  
Nations Office and other international organizations in Geneva

Jørn Osmundsen (Norway)  
Special Envoy for Disarmament Affairs at the Ministry of Foreign Affairs

Usman Jadoon (Pakistan)  
Director General (United Nations), Ministry of Foreign Affairs

Iulia Vladescu (Romania)  
(First, Second and Third sessions)  
Counsellor, Ministry of Foreign Affairs

Bogdana Biris (Romania)  
(Fourth session)  
Diplomatic Attaché, OSCE Directorate, non-proliferation and arms control, Ministry  
of Foreign Affairs

Olga Kuznetsova (Russian Federation)  
Chief Counsellor, Department for Non-Proliferation and Arms Control,  
Ministry of Foreign Affairs, Russian Federation

Marthinus van Schalkwyk (South Africa)  
Director, Disarmament and Non-Proliferation, Department of International  
Relations and Cooperation

Sara Lindegren (Sweden)  
Deputy Permanent Representative, Permanent Mission of Sweden, Geneva

David Chambers (United Kingdom of Great Britain and Northern Ireland)  
Arms Control and Disarmament Research Unit, Foreign, Commonwealth and  
Development Office

Michael Edinger (United States of America)  
Foreign Affairs Officer, Office of Multilateral and Nuclear Affairs, Bureau of Arms  
Control, Verification and Compliance, Department of State

I wish to extend my gratitude to my fellow experts for their readiness to engage in constructive discussions with a view to seeking common understanding.

I also wish to thank Silvia Mercogliano, Political Affairs Officer, who served as Secretary of the Group, as well as James Revill and Andreas Persbo (United Nations Institute for Disarmament Research), who served as consultants, for the invaluable support provided.

The report was adopted by consensus by the Group. It is structured into three sections, where sections II and III are the main substantive parts. Section II contains the nuclear disarmament verifications issues discussed by the Group, which can be placed into four categories: general considerations, conceptual issues, capacity building and the concept of a GSTE. Section III outlines the conclusions and recommendations of the Group. As mandated in paragraph 6 of resolution 74/50, in the conduct of its work the Group took into account the report from the first Group of Governmental Experts to consider the role of verification in advancing nuclear disarmament (A/74/90), and the views of Member States on Nuclear disarmament verification (A/75/126). As mandated in paragraph 7 of resolution 74/50, I also organized two informal intersessional consultative meetings in New York, open-ended, allowing all Member States to engage in interactive discussions and share their views. A Chair's summary of these meetings is reflected in Annex I.

On behalf of the Group of Governmental Experts, I am honoured to submit to you the present report, which was adopted unanimously on 19 May 2023.

*(Signed)* Jørn Osmundsen  
Special Envoy for Disarmament Affairs  
at the Ministry of Foreign Affairs, Oslo

## I. Introduction

1. In its resolution [74/50](#), the General Assembly requested the Secretary-General to establish a group of governmental experts (GGE) of up to 25 participants, chosen on the basis of equitable geographical representation and equitable representation of women and men, to meet in Geneva for four sessions, to further consider nuclear disarmament verification issues. In its decision 76/515,<sup>1</sup> the General Assembly called upon the Secretary-General to transmit the report of the GGE to the General Assembly at its 78th session and to the Conference on Disarmament.
2. The GGE was composed of Experts from Algeria, Argentina, Australia, Brazil, Canada, Chile, China, Egypt, France, Germany, Hungary, India, Japan, Jordan, Kazakhstan, Mexico, Nigeria, Norway, Pakistan, Romania, Russian Federation, South Africa, Sweden, United Kingdom of Great Britain and Northern Ireland and United States of America, acting in their personal capacity.
3. At its first session on 21 February 2022, the Group adopted its agenda (GE-NDVF/2022/R.1) and methods of work. The methods of work stated, inter alia, that the Group will take decisions by consensus. The Group also adopted a programme of work at the start of each session. As a contingency measure due to travel restrictions during the pandemic, technical arrangements were made to facilitate the virtual participation of Experts unable to travel, in English only, in the meeting(s) of the Group.
4. The Chair of the Group conducted two informal consultative meetings with UN Member States in New York on 29 August 2022 and 4 April 2023, as required under operative paragraph 7 of resolution [74/50](#), to facilitate that all Member States could engage in interactive discussions and share their views. The Chair subsequently conveyed the views expressed by Member States to the Group for its consideration, as reflected in Annex I.
5. The present report reflects the work of the Group conducted in accordance with the programmes of work agreed at the beginning of each session.

## II. Issues considered by the Group of Governmental Experts

6. In its resolution [74/50](#) the General Assembly mandated the Group to further consider nuclear disarmament verification issues, including, inter alia, the concept of a Group of Scientific and Technical Experts, building on the 2019 report of the Group of Governmental Experts to consider the role of verification in advancing nuclear disarmament ([A/74/90](#)) and the views of Member States as contained in the Report by the Secretary-General ([A/75/126](#)).<sup>2</sup>
7. The Group emphasized that, in building on the work of the previous GGE, the principles, conclusions and recommendations in [A/74/90](#) served as a basis for the work of the Group. The Group noted that its mandate differed. The previous group considered the role of verification in advancing nuclear disarmament, while this Group was mandated to further consider nuclear disarmament verification issues.
8. The Group focused its deliberations on the following nuclear disarmament verification (NDV) issues:

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<sup>1</sup> The first session of the GGE took place from 21 to 25 February 2022, the second session from 26 to 30 September 2022, the third session from 6 to 10 February 2023, and the fourth session from 15 to 19 May 2023.

<sup>2</sup> The previous GGE was established pursuant to General Assembly resolution [71/67](#).



- **Conceptual issues related to NDV:** The Group considered several conceptual issues related to NDV, including a working definition, objectives and purposes, institutional arrangements and governance, and the scope of NDV. The Group also discussed how NDV can be further conceptually developed, and discussed how to approach activities related to NDV. Ideas on identifying contexts and measures, past experiences and existing tools and methods for NDV were also discussed.
- **Capacity building on NDV:** The General Assembly in its resolution [74/50](#) welcomed efforts on capacity building on NDV. Accordingly, the Group considered this topic, focusing on general considerations for capacity building, regional approaches for capacity building, sustainability, youth and ensuring equal opportunities for women and men.
- **The concept of a Group of Scientific and Technical Experts (GSTE):** The General Assembly in its resolution [74/50](#) specifically requested the GGE to consider the concept of a GSTE. The Group therefore discussed the merits, demerits, and possible mandates and modalities for a GSTE.

9. Some Experts underlined the fact that, with ten women, the GGE benefited from a 40% representation of women, which is a significant increase compared to the previous group, established by the Secretary General pursuant to General Assembly resolution [71/67](#), towards achieving the equitable representation of women and men as envisaged by General Assembly resolution [74/50](#).<sup>3</sup>

10. The deliberations benefited from presentations and working papers submitted by the Experts which enhanced the Group's understanding of a number of topics and facilitated the deliberations of the Group. Working papers from Experts are listed in Annex III.

11. The deliberations also benefited from the following presentations from experts external to the Group: on confidence in verification by Ms. Amy Woolf (Library of Congress, USA); on the concept of a Group of Scientific and Technical Experts by Ms. Alisha Anand (United Nations Institute for Disarmament Research (UNIDIR)); on the verification toolbox by Mr. Pavel Podvig (UNIDIR); on efforts for capacity building by Ms. Melanie Reddiar (Council for the Non-Proliferation of Weapons of Mass Destruction, South Africa); on past and present verification practices by Mr. James Reville (UNIDIR); and on gender and NDV by Ms. Renata Hessmann Dalaqua (UNIDIR). A Chair's summary of these presentations is found in Annex II.

12. The considerations, conclusions and recommendations in this report are not intended to prejudge any future nuclear disarmament negotiations or agreements and their related verification provisions.

## A. General considerations

13. Building on the report of the previous GGE and the views of Member States as contained in the Secretary General's report ([A/75/126](#)), the Group underscored the following general considerations:

- All UN Member States have a stake in achieving and maintaining a world free of nuclear weapons, as underlined in the Final Document of the First Special Session of the General Assembly devoted to Disarmament (SSOD-I) ([A/S-10/4](#)).

<sup>3</sup> The GGE to consider the role of verification in advancing nuclear disarmament that met in 2018–2019 had three women among its experts (12% women representation).

- For States Parties to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), NDV should be considered within the context of the practical implementation of its relevant provisions.
- NDV is an essential element of the nuclear disarmament process. Work on NDV is not an end in itself and is not a prerequisite to progress on nuclear disarmament. Such work should aim to promote progress on nuclear disarmament.
- Any NDV regime will always be dependent on a specific treaty, agreement or arrangement, with all its parties having an equal right to participate in the process of verification in accordance with the provisions of such a treaty, agreement or arrangement.
- There is value in considering general aspects of NDV that could be applicable in unilateral, bilateral and multilateral nuclear disarmament efforts. Knowledge and capabilities from past and present verification experiences can help develop feasible options for treaty provisions for verification in ongoing or future efforts aimed at achieving and maintaining a world free of nuclear weapons.
- The engagement and participation of non-nuclear-weapon States (NNWS) in NDV-related activities could contribute to developing and maintaining trust and confidence.
- NNWS may have insights to offer on NDV, including from their past experiences acquired in nuclear and other verification activities.
- While the primary goals of arms control and nuclear disarmament may differ, there are NDV lessons to be learnt from arms control arrangements.
- Equal opportunities for women and men should be provided to enable their full and meaningful engagement in nuclear disarmament efforts, including in NDV.
- NDV must conform to applicable international legal non-proliferation obligations, national safety and security requirements and the need to protect otherwise sensitive information.

## **B. Conceptual issues**

### **1. Introduction**

14. The Group agreed on the importance of achieving a common understanding on key terms throughout the Group's deliberations on conceptual issues related to NDV, including a working definition, objectives and purposes, institutional arrangements and governance, and the scope of NDV. The Group also discussed general aspects of NDV, including insights and capabilities developed through past and present work on verification that could inform ongoing or future nuclear disarmament efforts aimed at reaching and maintaining a world free of nuclear weapons.

### **2. Working definition**

15. The Group was mindful that an internationally agreed definition of NDV has not been established, but agreed on the value of developing a working definition to guide the work of the Group. Such a working definition would not prejudice the outcome of any future negotiations or agreements on nuclear disarmament and associated verification regimes.

16. The Group considered several suggestions for a working definition of NDV that were either developed by Experts or drawn from the existing literature on the matter.<sup>4</sup>

17. With this in mind, the Group developed the following working definition to guide its work: nuclear disarmament verification is a process driven by states parties to a specific treaty, agreement or arrangement, of gathering and analysing information, based on agreed technologies, methodologies and procedures, to enable assessment of compliance with relevant nuclear disarmament commitments and obligations, or an assessment of adherence to unilateral undertakings as set out in a verification arrangement, with the overarching goal of achieving and maintaining a world free of nuclear weapons.

### 3. Objectives and purposes

18. The Group further considered the objectives and purposes of NDV. Several working papers addressed this issue.<sup>5</sup>

19. The Group identified that the primary purpose and objective of NDV are to enable an assessment as to whether a state is in compliance with its commitments and obligations under a specific treaty, agreement or arrangement.

20. The Group discussed the mutually re-enforcing relationship between credible NDV and trust and confidence building. The Group noted that verification helps build confidence that a treaty, agreement or arrangement are being implemented and all its parties are meeting their commitments and obligations, and thereby assists in maintaining political and other support for ongoing and future nuclear disarmament efforts, greater predictability and transparency with regard to the treaty implementation of States, and facilitating mutual confidence, trust and understanding, easing tensions, and reducing the risk of misperception.

21. The Group discussed the role of NDV in achieving and maintaining a world free of nuclear weapons and to contribute to the irreversibility of nuclear disarmament.

22. The Group discussed the technical objectives and purposes of NDV. Some Experts argued that these objectives should include providing assurances that a declared number of nuclear weapons have been eliminated and that the fissile material involved can no longer be used in nuclear weapons, and confirm the correctness and completeness of relevant declarations. Other Experts argued that these objectives will be dependent on the scope of the agreement. The Group also discussed the role of NDV in relation to other components of a nuclear weapons programme, such as related facilities and delivery vehicles.

23. There were different views expressed on these issues, but it was understood that future negotiators on nuclear disarmament may have to consider them.

24. NDV must be effective in helping to assess non-compliance by parties with relevant nuclear disarmament obligations and commitments under the relevant treaty,

<sup>4</sup> Ameen Alrefai, Bassem Hassan, Sandra Paola Ramírez and Marthinus Van Schalkwyk, “Conceptual Framework: Definitions, Scope, and Available Methods” (GE-NDVF/2022/WP.3); Olga Kuznetsova, “Views concerning working definition, scope and nature of NDV” (GE-NDVF/2023/WP.2); and Irmgard Niemeyer, “Elements for a Conceptual Framework for Nuclear Disarmament Verification”, GE-NDVF/2022/WP.4/Rev.1.

<sup>5</sup> Ameen Alrefai, Bassem Hassan, Sandra Paola Ramírez Valenzuela, and Marthinus van Schalkwyk (GE-NDVF/2022/WP.3); Irmgard Niemeyer and György Molnár, “Objectives and Purposes of Nuclear Disarmament Verification (NDV)” (GE-NDVF/2022/WP.4/Rev.1); Chloe le Nalbaut, “Position Paper” (GE-NDVF/2022/WP.2) Olga Kuznetsova, “Nuclear Disarmament Verification: Russian Perspective” (GE-NDVF/2023/WP.12).

agreement or arrangement, while also being mindful of the need for efficiency in the application of financial, human and other resources.

#### **4. Institutional arrangements and governance**

25. The Group discussed institutional arrangements and approaches to the governance of NDV on the basis of working papers.<sup>6</sup> The Group stressed the importance of institutional arrangements and governance in a NDV regime to ensure its credibility, effectiveness, inclusivity and legitimacy. Depending on the obligations of a specific nuclear disarmament treaty, institutional arrangements and governance may take different forms.

#### **5. Scope**

26. The Group further addressed the scope of NDV activities. Experts agreed the scope would be contingent upon the disarmament commitments and obligations a State has undertaken.

27. In the discussion, some Experts expressed the view that NDV should focus on fissile materials and related facilities, arguing that other topics were important, but could be dealt with through other tools, such as transparency and confidence building measures. Other Experts supported a wider approach to cover nuclear warhead dismantlement, non-nuclear components and delivery systems, addressing the full lifecycle of nuclear weapons. Yet others argued that the focus would be determined by the parameters of a specific treaty, agreement or arrangement.

#### **6. NDV activities**

28. The Group discussed past and present verification capabilities and experiences, and explored and elaborated options for the verification of ongoing or future efforts aimed at reaching and maintaining a world free of nuclear weapons.

29. Some Experts argued that nuclear disarmament will be a complex undertaking, the verification of which will require addressing a range of political, legal, scientific, technical and institutional issues. In exploring relevant options, the Group discussed proposals set out in working papers on ways to break down NDV into more manageable parts and the advisability of such an approach.<sup>7</sup> The Group's deliberations were not intended to design a prescriptive stepwise process for undertaking NDV, nor to prejudge future negotiations on nuclear disarmament.

30. The point was raised that NDV should be considered within the context of the practical implementation of the Final Document of SSOD-I. For States Parties to the NPT, NDV should also be considered in the context of the relevant provisions of the NPT.

31. Another point was raised that the Group should explore possible options that would be useful for future negotiators to consider in any future agreement, or during the implementation of any nuclear disarmament commitments or obligations.

#### **7. Contexts and measures**

32. The Group explored two possible ways of breaking down NDV. Both ways are examples of how NDV could be broken down into parts that would help identify

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<sup>6</sup> Irmgard Niemeyer, "Elements for a conceptual framework for nuclear disarmament verification" (GE-NDVF/2021/WP.5); Nader Louafi, "Nuclear verification disarmament as a regime – Possible elements to further consider nuclear disarmament verification issues" (GE-NDVF/2023/WP.9).

<sup>7</sup> David Chambers, "How to Approach Working on Nuclear Disarmament Verification" (GE-NDVF/2023/WP.4); Olga Kuznetsova (GE-NDVF/2023/WP.12).

options for possible NDV activities in the future. In its deliberations, the Group referred to these ways as *contexts* and *measures*.

33. Based on a working paper,<sup>8</sup> the Group discussed approaching NDV by looking at the context in which verification might take place. Three different contexts for NDV activities were presented:

- Reductions and limitations in the number of nuclear weapons.
- Approaching zero nuclear weapons.
- Maintaining zero nuclear weapons.

34. In the discussion, some Experts argued that depending on the context in which NDV is taking place, the strategic considerations of States, as well as the level of assurances required, may vary. For example, States may require greater transparency and timeliness of information in verification processes when approaching zero; whereas at zero, States might have to assume new responsibilities and continue to demonstrate their compliance with relevant obligations. Exploring these three contexts can help in consideration of NDV options for the future.

35. Different views were expressed on the contexts. It was argued that two contexts were sufficient, i.e. achieving and maintaining zero, as this distinction would capture the most relevant aspects for how verification activities might vary. Experts acknowledged that any context would be hypothetical in the absence of defined parameters under a treaty, agreement or arrangement.

36. The Group's discussion on measures was based on a working paper on the main nuclear disarmament actions that a State might take if it were to commit to irreversibly eliminate its stockpiles of nuclear weapons and related fissile material, and to provide assurances that it will not acquire such weapons in the future.<sup>9</sup> These actions are not intended to be prescriptive, and, while they are broad, they are not exhaustive:

- Declarations, including initial and progress declarations.
- Removal of deployed nuclear warheads.
- Dismantlement and storage of warhead components.
- Conversion of nuclear material with classified characteristics.
- Elimination or irreversible conversion of all nuclear-weapon-related facilities.
- Placement of nuclear material and facilities under international safeguards.
- Confirming the correctness and completeness of the baseline declarations of nuclear material once the State concerned declares that it no longer possesses nuclear weapons or nuclear explosive devices.

37. Different views were expressed on the benefit of listing these measures, and some Experts argued that measures would be determined by the scope of an agreement. The Group also discussed whether it would be instructive to look at non-nuclear components and delivery vehicles in determining possible NDV activities, or whether the focus should be on nuclear materials and facilities and/or nuclear warheads.

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<sup>8</sup> Ruth Hill, Sara Lindegren and Yusuf Aminu Ahmed, "Nuclear disarmament verification when approaching and maintaining zero", (GE-NDVF/2023/WP.11).

<sup>9</sup> Bassem Hassan, "The Role of Nuclear Verification in Nuclear Disarmament Verification" (GE-NDVF/2023/WP.1); Ameen Alrefai, Bassem Hassan, Sandra Paola Ramírez Valenzuela, and Marthinus van Schalkwyk (GE-NDVF/2022/WP.3).

38. Some Experts argued that the measures might be applicable throughout the three contexts to varying degrees. The contexts and measures can be used to explore options for future negotiators to identify NDV activities related to technologies, methodologies and procedures and identify specific activities for which verification options exist, and for which they can be developed. Some Experts argued that this can help flag possible gaps in knowledge or capabilities for which NDV solutions can be further developed, including through the work of scientific and technical experts, bilateral and/or multilateral technical initiatives, and scenario-based exercises.

39. However, some Experts argued that breaking down NDV and the identification of gaps only make sense in the context of a treaty, agreement or arrangement, which would outline the relevant NDV activities according to the rights and obligations of its parties.

40. Some Experts made the point that distinguishing between the nuclear and non-nuclear components of a State's relevant nuclear weapons infrastructure is necessary to have a realistic approach towards NDV activities. However, it was also argued that verification activities might be required for non-nuclear components as well; for example, in circumstances where States sought to make the reconstitution of a nuclear weapons capability as difficult as practicably possible.

41. The Group had differing perspectives on whether NDV should be applied to delivery systems. Some Experts were of the view that the elimination of delivery systems for nuclear weapons should be considered as a key nuclear disarmament measure and thus be subject to verification. Other Experts underscored that there was no clear definition of delivery systems, highlighting that, if all nuclear material and facilities were subject to safeguards, the relevant delivery systems would be unrelated to nuclear disarmament.

## 8. Past experiences

42. The Group discussed the value of looking at verification experiences, tools and methods applied in past and present disarmament and arms control processes. Several disarmament and arms control agreements and initiatives were indicated as valuable in exploring options for future NDV activities, including the Treaty on Conventional Armed Forces in Europe (CFE), the Intermediate-Range Nuclear Forces Treaty (INF), the Treaty on Open Skies, the Strategic Arms Reduction Talks (START), the Treaty on Measures for the Further Reduction and Limitation of Strategic Offensive Arms (New START), and the Trilateral Initiative. Mapping the methods and approaches employed in these agreements could provide ideas for options for NDV.<sup>10</sup>

43. Technologies, methodologies and procedures from non-nuclear verification regimes were also seen as potentially useful sources of information. The Chemical Weapons Convention verification regime was highlighted as an example of a regime, with verification procedures and techniques, that was implemented by an independent non-discriminatory international inspectorate.

44. The Group also exchanged views on the experience the international community has in the placement of nuclear material and nuclear facilities under international oversight by an independent, impartial, and international inspectorate. Some Experts argued for drawing upon various safeguards agreements under the IAEA safeguards system to inform future NDV efforts. Other Experts opposed this idea, describing it as inapplicable. Some Experts argued that subjecting nuclear materials and facilities to strict, comprehensive, and adequately intrusive verification under safeguards is not

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<sup>10</sup> UNIDIR, *Illustrative Compendium of Past and Present Verification Practices* ([GE-NDVF/2022/WP.10](#)); Ameen Alrefai, Bassem Hassan, Sandra Paola Ramírez Valenzuela, and Marthinus van Schalkwyk ([GE-NDVF/2022/WP.3](#)).

a new practice, including in States that have previously possessed nuclear weapons. Some Experts argued that subjecting nuclear material and facilities to verification under safeguards constitute the core activity for conducting NDV while others disagreed on this point.

45. Some Experts argued that these methods and approaches from past experiences can help develop options for the verification of ongoing or future efforts aimed at reaching and maintaining a world free of nuclear weapons.

46. It was further argued that examples from past experiences also point to potential methods and approaches to address security and proliferation concerns related to NDV. These could be further developed to increase the level of confidence in NDV, including through innovative approaches. Some Experts suggested there is value in continuing research and technical work on technologies which avoid the exposure of sensitive information.

### C. Capacity building on NDV

47. The General Assembly in its resolution [74/50](#) welcomes efforts on capacity building for NDV. The Group's discussion was based on several working papers, and included general considerations on capacity building, regional approaches, sustainability and the value of exercises.<sup>11</sup> There were different views on the value of capacity building in the Group.

48. Some Experts pointed to the relevance of the Final Document of SSOD-I, in which it is declared that all States have the right to participate on an equal footing in those negotiations which have a direct bearing on their national security. The Final Document also states that the process of disarmament affects the vital security interest of all States. It was therefore argued that capacity building activities on NDV could effectively help empower the international community and increase the legitimacy of, and confidence in, nuclear disarmament processes. The point was made that being able to participate on an equal footing in these processes necessitates developing the right capacities.

49. Other Experts argued that as provided for in the document "Verification in all its aspects" adopted by the United Nations Disarmament Commission in 1988 ([A/51/182/Rev.1](#)) all States have equal rights to participate in the process of international verification of agreements to which they are parties and that this consideration has a direct bearing on the practicality of promoting capacity-building efforts.

50. Some Experts argued that capacity building could include enhancing the understanding of relevant technologies, methodologies and procedures for NDV; building readiness for future negotiations; raising awareness; and preventing misunderstandings that could undermine the credibility of nuclear disarmament processes. On this basis, it was argued that sustainable capacity building on NDV is of great significance and a vital part of the nuclear disarmament process.

51. Other Experts argued that capacity building efforts have no practical value absent clear subject of NDV and agreed approaches and framework for its realization.

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<sup>11</sup> Jørn Osmundsen and David Chambers, "Capacity building on Nuclear Disarmament Verification – assuring sustainability" ([GE-NDVF/2022/WP.9](#)); Timur Zhantikin, "Role of Centers of Competence in the Verification of Nuclear Disarmament" ([GE-NDVF/2023/WP.5](#)).

## 1. General considerations on capacity building

52. The Group discussed general considerations that could guide capacity building on NDV, and different proposals were made by some Experts:

- Capacity building should be oriented to raising awareness of and generating support for NDV in order to advance the goal of nuclear disarmament.
- Capacity building efforts should be inclusive, enabling States to be involved at a level of their own interest, and on a voluntary and non-discriminatory basis, taking full consideration of the importance of equal participation of women and men.
- Capacity building should contribute to the development of all aspects of NDV, including building confidence in available technologies.
- Capacity building should facilitate the transfer of knowledge, technology and equipment relevant to enhancing NDV capabilities, and include voluntary exchanges of experiences, lessons learned and good practices among States.
- Capacity building initiatives should take into consideration the protection of national security information and address proliferation-related concerns.
- Awareness raising on NDV, through peace and disarmament education, could be considered part of capacity building.

## 2. Regional approaches to capacity building

53. The Group discussed regional approaches to capacity building on NDV. Some Experts argued that there is merit in adopting regional approaches to capacity building, which could be anchored in established regional institutions, such as the African Union, the Association of Southeast Asian Nations (ASEAN), the African Commission on Nuclear Energy (AFCON) and the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL).

54. A working paper proposed that regional approaches to NDV capacity building could take the form of regional Centres of Competence, which could provide a focal point for the accumulation of knowledge and associated skills needed for NDV.<sup>12</sup> The Centres could further contribute through organizing workshops and training courses on different aspects of NDV and facilitating networking between organizations and experts interested in NDV.

## 3. The value of exercises

55. Based on a working paper, the Group further discussed the value of exercises in building capacities on NDV,<sup>13</sup> including in the context of the International Partnership for NDV (IPNDV), the Quad Nuclear Verification Partnership and the NuDiVe exercises. There were different views on this issue.

56. Some Experts argued that past and present NDV initiatives and experiences show the utility of developing and adhering to well defined procedures, ensuring the proper chain of custody, and suitably preparing participants for future work on NDV. Furthermore, those Experts argued exercises and simulations play a central role through refining, testing and validating concepts, methods and technologies related to NDV in realistic settings.

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<sup>12</sup> Timur Zhantikin ([GE-NDVF/2023/WP.5](#)).

<sup>13</sup> Chloé Le Nalbaut and Irmgard Niemeyer, “Nuclear Disarmament verification (NuDiVe) exercises – Working paper” ([GE-NDVF/2022/WP.1](#)).



57. Some Experts further argued that experience had shown that exercises are an important element of capacity building efforts, need to be inclusive, and could contribute to building readiness for all States for future negotiations, including NNWS. These Experts suggested that past experiences with exercises also demonstrated that there is a need to build more capacities across all aspects of NDV.

58. However, other Experts were skeptical of the value of exercises in general to prepare for future negotiations.

#### **4. Sustainability**

59. The Group discussed the importance of sustainability in capacity building initiatives, and the need to include the younger generation to contribute to developing future expertise on NDV.

60. Some Experts raised the value of gender-sensitive approaches to capacity building initiatives on NDV, including by providing equal professional and educational opportunities for women and men.

61. Some Experts argued that it is important to empower and enable women in order to attain equitable representation of women and the meaningful engagement and contribution in NDV-related activities, including in capacity building. Further data and analysis could improve knowledge of the role and impact of gender in NDV processes.

62. Some Experts argued that the issue of ensuring equal opportunities for women and men should not be an obstacle or critical factor to work on nuclear disarmament, including in NDV.

63. Building on a working paper,<sup>14</sup> the Group discussed a proposal to establish a voluntary multilateral trust fund for NDV under the auspices of UNODA. Some experts argued that the establishment of such a voluntary fund could ensure the sustainability of funding and serve several purposes, including supporting participation from interested States in NDV activities and facilitating capacity building in the development of the technologies, methodologies and procedures needed for NDV. On the other hand, some Experts questioned the sustainability of trust funds, as well as the advisability of establishing such a fund in the UN, in view of the unpredictability of the content of future treaties, agreements, or arrangements.

#### **D. The concept of a Group of Scientific and Technical Experts on NDV**

64. The General Assembly, in its resolution [74/50](#), requested the Group to consider, among other issues, the concept of a Group of Scientific and Technical Experts (GSTE). The Group focused its discussion on merits, demerits, a possible mandate and modalities, though recognizing that its mandate was not to determine the details of how such a group should function.

65. There was no consensus on these issues. Some Experts argued to consider the merits or demerits of the concept of a GSTE requires first a discussion on the details of its mandate and modalities. Other Experts argued that it was premature to discuss these elements in the absence of clear objectives. Some Experts argued it is premature to discuss this concept.

<sup>14</sup> Jørn Osmundsen and David Chambers ([GE-NDVF/2022/WP.9](#)).

66. The Group recognized that the previous GGE had undertaken substantial work on a potential GSTE and the Group sought to build on this work in its discussions.<sup>15</sup> The discussion of the Group was facilitated by Expert working papers.<sup>16</sup> The Group also recognized that much work on the concept of a GSTE had been undertaken.

67. A working paper sought to summarize key elements of a proposal on a GSTE.<sup>17</sup> The proposal argued that the establishment of a GSTE would provide unique practical benefits in support of the long-term goal of nuclear disarmament, and would enable States to work collaboratively on NDV in a multilateral setting; and a recommendation for such a group would be a constructive outcome of this GGE. The proposal included suggestions on possible objectives and a possible mandate which were discussed by the Group.

68. There were different views on the content of this proposal.

## 1. General considerations

69. The Group had different views on the value of establishing such a GSTE. Some Experts argued that the establishment of a GSTE could provide unique practical benefits in support of the long-term goal of nuclear disarmament and facilitate collaboration between States on NDV in a multilateral setting. Some Experts also argued that by building a repository of knowledge related to NDV, a GSTE would be better placed to consider the gaps in knowledge on NDV and inform further efforts within this field. This could include the development of future NDV options for consideration by States, including work on technologies, methodologies and procedures for NDV.

70. Some Experts were concerned about the establishment of a GSTE without a common understanding and agreement on its objectives and purpose. They also argued that the GGE should not recommend the GSTE to the exclusion of other forms of work on NDV. Some Experts argued that abstract deliberations around science and technology that were detached from practical efforts to implement treaty measures, such as the preamble and article VI of the NPT, would be premature at this stage. It was argued that different treaties require different verification mechanisms, and the modalities for verification should be agreed upon by parties to a treaty, agreement or arrangement. Some Experts argued that the international community already possesses considerable scientific and technical expertise that would allow verifying core nuclear disarmament measures.

## 2. Objectives

71. On the discussion on objectives for a GSTE, some Experts proposed that a GSTE would: a) consider technical challenges in NDV in terms of technologies, methodologies and procedures; b) appraise knowledge on NDV, derived from past and ongoing initiatives on NDV or related areas; c) enable States to participate in technical NDV discussions on a voluntary basis; and d) incorporate and preserve knowledge on NDV within the UN system and provide assurances to the international community that States are focused on this matter.

<sup>15</sup> Marcelo Câmara, “Further considerations on the concept of a Group of Scientific and Technical Expert on nuclear disarmament verification” (GE-NDVF/2022/WP.6); Marcelo Câmara, “Final working paper on GSTE and its relationship with SSOD-I final document” (GE-NDVF/2023/WP.8); Marcelo Câmara, “Synopsis of the proposal for a Group of Scientific and Technical Experts on NDV (GSTE-NDV)” (GE-NDVF/2023/WP.13).

<sup>16</sup> David Chambers, “Concept of a Group of Scientific and Technical Experts for NDV” (GE-NDVF/2022/WP.5); Marcelo Câmara, (GE-NDVF/2022/WP.6); Marcelo Câmara, (GE-NDVF/2023/WP.8); Marcelo Câmara (GE-NDVF/2023/WP.13)”; and Olga Kuznetsova (GE-NDVF/2023/WP.2).

<sup>17</sup> Marcelo Câmara (GE-NDVF/2023/WP.13).

72. However, some Experts argued that the objectives were not clear, and that such a group should not be established without clarity on what it should achieve.

### 3. Mandate

73. Some Experts proposed that the following areas in the field of NDV should be considered for inclusion in the scope of a GSTE:

- Declarations, including initial and progress declarations;
- Removal of deployed nuclear warheads;
- Dismantlement and storage of warhead components;
- Conversion of nuclear material with classified characteristics;
- The elimination or irreversible conversion of all nuclear weapon-related facilities;
- Placement of nuclear material and facilities under international safeguards;
- Verification of the correctness and completeness of the baseline declarations of nuclear material once the State concerned declares that it no longer possesses nuclear weapons or nuclear explosive devices; and,
- Delivery vehicles of nuclear weapons.

74. In the discussion on a potential mandate for a GSTE, some Experts argued that a GSTE should have a degree of freedom to determine the scope of its mandate, while others argued that a GSTE should be provided with a specific mandate, and provided examples to that effect focusing on areas where there might be gaps in the existing verification capabilities.

75. Some Experts reiterated their in principle objection to discussing practical aspects of a GSTE and argued that the mandate of the GGE was limited to considering only the concept of such a group. Some Experts also argued that it was premature to discuss a mandate for a GSTE, in the absence of either clear objectives or a treaty to verify.

### 4. Modalities

76. The Group also discussed potential modalities for a GSTE, including the location and reporting structures for such a group. It was proposed that its work would be deliberative, focusing on scientific and technical exchanges that enhance knowledge of NDV options and their benefits and challenges. Its deliberations would not be legally binding. It would not be tasked to negotiate any treaty on nuclear disarmament. The establishment of a GSTE would not imply any commitment that negotiations might follow, nor would it prejudge the possible outcome of any negotiations. There were different views on these modalities, as well as the merits of discussing such modalities at this stage.

77. Some Experts argued that the GSTE should be located in Geneva under the auspices of the CD, and its mandate should be approved by the CD. It was also argued that the GSTE should report to the CD, noting that the Group of Scientific Experts to the CD provided options for the verification regime underpinning the Comprehensive Nuclear-Test-Ban Treaty. Others proposed Vienna, to underline the scientific and technical nature of the GSTE and link this with competencies residing within Vienna-based organizations. Yet others proposed that it did not necessarily have to be based anywhere, but could hold meetings in several UN cities.

78. Some Experts argued against considering the CD as a setting for a GSTE, taking into account that the CD has not fulfilled its negotiating mandate in more than two decades. Also, there is a concern about setting a GSTE under the limited composition of the membership of the CD.

79. Some Experts argued that deliberations around scientific and technological aspects of NDV lack value without a clear and agreed understanding of key treaty provisions and are thus premature. It was argued that different treaties require different verification mechanisms and that there are no one size fits all solutions in this area. It was also argued that lack of access to classified information concerning design and technical specificities of nuclear weapons makes it impossible for Experts to make a meaningful contribution to the development of an effective verification mechanism. It was further argued that modalities for verification should be elaborated and agreed upon by states parties to a specific treaty, agreement or arrangement. Therefore, it was argued that the establishment of a GSTE under the auspices of the United Nations or UN Disarmament Machinery, including the CD, has no added value and is unlikely to promote its effectiveness.

80. The Group also discussed possible formats and the duration of a GSTE, but noted that many of those aspects would be closely interlinked with a potential mandate of a GSTE and its relationship with the disarmament machinery. Some Experts argued that any such a group should be as inclusive as possible, with equitable geographical representation and equitable representation of women and men by all states, on a voluntary basis.

81. The Group also discussed how a GSTE should be closely connected to efforts on disarmament education and capacity building in general. Some Experts argued that overall, scientific and technological undertakings through a GSTE would be complementary to, not separate from, efforts on nuclear disarmament education and capacity building. Other Experts underlined the importance of education on NDV, and that this could take place within established programs on nuclear disarmament without establishing new entities like a GSTE.

82. Some Experts reiterated their in principle objection to discussing practical aspects of a GSTE, including its modalities and argued that the mandate of the GGE was limited to considering only the concept of such a group. Other Experts argued that the conceptualization of the GSTE requires further discussion on its modalities.

## **E. Issues to be further developed**

83. The Group recognized the utility of continuing work on NDV including further deliberations on its conceptual aspects. As the Group had to focus the available time for its deliberations, there was no opportunity to discuss all the issues and proposals in detail. Issues that could merit further discussion include:

- The relationship between NDV, transparency and irreversibility,
- The relationship between NDV and trust and confidence building.
- Further consideration on principles for NDV, taking into account the principles identified by the SSOD-I and the 1988 UNDC Principles of Verification first Group of Governmental Experts to consider the role of verification in advancing nuclear disarmament with a view of harmonizing them.
- Preparation of a compilation of verification methods, procedures and techniques, including those applied in existing arms limitation and disarmament agreements. Such a compilation would be illustrative and would exemplify the range and scope of methods, procedures and techniques applicable to the verification of compliance.
- Such a compilation could be instrumental in conducting a survey of methods, procedures and techniques, that could provide the groundwork for producing a directory of sources of verification expertise, and also serve to identify current research activities relating to verification and indicate areas where more research would be beneficial.

### III. Conclusions and recommendations

#### A. Conclusions

84. Building on the work of the previous GGE (A/74/90), including agreed principles and conclusions, and the report of the Secretary General containing the views of Member States (A/75/126), the conclusions of the Group are as follows:

- i. All UN Member States have a stake in achieving and maintaining a world free of nuclear weapons.
- ii. NDV is an essential element of a nuclear disarmament process. Work on NDV is not an end in itself and is not a prerequisite to progress on nuclear disarmament. Such work should aim to promote progress on nuclear disarmament.
- iii. All States have an equal right to participate in the process of international verification of agreements to which they are parties.
- iv. The Group conducted in-depth discussions on conceptual issues, capacity building and the concept of a GSTE. There was no consensus on these issues. These discussions could inform future work on NDV.
- v. Without prejudging future negotiations and agreements, the Group developed the following working definition to guide its work: nuclear disarmament verification is a process driven by States parties to a specific treaty, agreement or arrangement, of gathering and analysing information, based on agreed technologies, methodologies and procedures, to enable assessment of compliance with relevant nuclear disarmament commitments and obligations, or an assessment of adherence to unilateral undertakings as set out in a verification arrangement, with the overarching goal of achieving and maintaining a world free of nuclear weapons.
- vi. The Group identified that the primary purpose and objective of NDV are to enable an assessment as to whether a State is in compliance with its commitments and obligations under a specific treaty, agreement or arrangement.
- vii. The Group also discussed the additional benefits of NDV. These include building transparency in nuclear disarmament and facilitating mutual confidence, trust and understanding.
- viii. The Group discussed ways of ensuring the credibility, effectiveness, inclusivity and legitimacy of a NDV regime. The Group was of the view that institutional arrangements and governance may take different forms depending on a treaty or agreement.
- ix. The scope of NDV activities will be contingent upon the disarmament commitments and obligations a State has undertaken.
- x. There are political, legal, scientific and technical, and institutional aspects to NDV.
- xi. The Group discussed how NDV is a complex process that could take place in different contexts that may require different measures, and discussed whether breaking down NDV related activities into contexts and measures could help identify practical work.
- xii. Work on NDV and trust and confidence-building measures are mutually reinforcing, progress on one could help progress on the other.

- xiii. It would be valuable to take stock of existing experiences in NDV activities to be factored into future efforts.
- xiv. The Group discussed the value of exploring gaps in NDV experiences or capabilities to identify areas for further development and coordination.
- xv. The Group discussed how capacity building efforts could enable interested States to be involved in work on NDV, at a level of their own choosing, while respecting existing mechanisms and arrangements.
- xvi. The Group discussed how capacity building on NDV could be undertaken, on a voluntary and non-discriminatory basis, and could, inter alia, be pursued through regional approaches including through the development of Centres of Competence.
- xvii. Equal opportunities for women and men should be provided for in NDV education, training and capacity building.
- xviii. For sustainability of NDV efforts, it is important to develop a new generation of experts.
- xix. Awareness raising on NDV, through peace and disarmament education, could be considered part of capacity building.
- xx. The Group recognized the amount of work that has been done over time on the concept of a Group of Scientific and Technical Experts (GSTE). Different and sometimes opposing views were expressed on the merits, demerits, objectives, possible mandate and modalities of such a group.
- xxi. The Group recognized the utility of continuing work on NDV including further deliberations on its conceptual aspects.

## **B. Recommendations**

85. The Group recommends that:
- i. United Nations Member States, as well as relevant bodies of the international disarmament machinery, in accordance with their respective mandates, consider this report.
  - ii. UN Member States continue discussions on NDV. The elements contained in Part II E of this report and working papers from Experts (Annex III) provide ideas.
  - iii. UN Member States continue to consider capacity building efforts, including on regional approaches to capacity building on NDV, as appropriate.
  - iv. UN Member States continue the work on NDV issues, as well as on possible modalities and format of such work.
  - v. UN Member States take appropriate measures to ensure equal opportunities for women and men to enable their full and meaningful engagement in nuclear disarmament efforts, including NDV.

## Annex I

### **Input from Chair's Informal Intersessional Consultative Meetings with Member States**

#### **Informal consultative meeting with UN Member States, 29 August 2022**

The First Informal Intersessional Consultative Meeting of the Group of Governmental Experts (GGE) to further consider nuclear disarmament verification (NDV) took place at the UN in New York on the 29 August 2022.

At the start of the meeting, I outlined the objectives of the GGE and presented my plan work for the Group over the course of the next session and beyond – in line with the shared remarks. I welcomed the submission of several working papers and substantive input from Experts. I thereafter invited comments and questions from Member States.

Several UN Member States took the floor. All recognized the importance of the work of the GGE and several specific issues were discussed.

Some States stressed the importance of rooting NDV in the context of a specific agreement and considering the current proliferation challenges related to weapons and delivery systems. It was suggested that the GGE was best suited to a conceptual exploration of the topic and the Conference on Disarmament was the most suitable venue for negotiations. Accordingly, it was argued the Group should maintain realistic expectations. Others felt the Group should look at what, how and who of verification with a view to understanding the practical needs of NDV in a range of scenarios.

Some States emphasized the importance of adhering to the principles and conclusions from the 1978 Special Session of the General Assembly devoted to Disarmament and the 16 principles agreed by the UN Disarmament Commission in 1998. Others highlighted the value of learning lessons from other initiatives including the International Partnership for Nuclear Disarmament Verification (IPNDV), the Quad Nuclear Verification Partnership and the UK-Norway initiative.

It was noted by some States that non-nuclear weapon States can make an important contribution to verification as well as wider nuclear safety and security related activities. It was suggested that capacity building would be critical to effective and broad participation in the NDV process.

Some Member States raised the topic of the Group of Scientific and Technical Experts (GSTE). One Member State reminded parties that major agreements including the CTBTO and the CWC were founded on extensive scientific and technical input. It was suggested that the GSTE was an interesting concept that could explore how multilateral NDV could work in practice, as well as raise awareness of NDV and contribute to a growing body of knowledge around this topic. There was also raised a question on my expectations on what the GGE could achieve on the concept of a GSTE. I noted that intersessional work on this topic was ongoing through working papers, which will be distributed to Experts ahead of the second session of the GGE in September and then addressed at this meeting.

#### **Informal consultative meeting with UN Member States, 4 April 2023**

On 4 April 2023, I organized, at the UN headquarters in New York, the second informal intersessional consultative meeting with Member States. As laid out in my remarks, shared with the Group prior to the meeting, I provided Member States with information on our mandate as laid out in resolution [74/50](#) and the timeline for our

work as adjusted for by decision 76/515. I also provided information on the nature of the informal work undertaken prior to our first session and in between sessions.

I outlined that our discussions on NDV issues could be put in three main categories: conceptual issues, capacity building, and the concept of a group of scientific and technical experts (GSTE). The topics discussed under each of these categories were listed, and I underlined that these were areas of discussions of the Group, not conclusions from the Group. I also emphasized that the Group has conducted its discussions on the understanding that it was not to prejudge any future nuclear disarmament processes or negotiations. I also mentioned our discussions on cross-cutting issues related to NDV, specifically: gender, youth, and education.

I believe the amount and quality of working papers produced have been instrumental in moving the work of the Group forward, and in New York I praised this engagement by all Experts, as well as the constructive and collegial tone established through our work.

I also explained that in its fourth and last session, the Group would be expected to agree on a final report by consensus, as is common practice for GGEs and I made clear to the Member States that I would continue my efforts with this ambition in mind. Member States were then invited to provide comments and questions.

One country commented that while NDV has to be rooted in specific treaties, there is value in a conceptual discussion to better understand challenges and the general measures required to address them. A reference was made to the seven overarching principles and key conclusions of the previous GGE, as well as to the group's emphasis on the First Special Session devoted to disarmament (1978) and the United Nations Disarmament Commission's principles of verification (1988).

It was further commented that verification is an essential element in ensuring adherence to any future agreement, and that an effective, multilateral verification mechanism would have to be to the satisfaction of all parties to a treaty. The same country added that this GGE could help in identifying the conceptual underpinnings of NDV and the capacity building needed for this.

On representative commented that the work of this GGE was a largely political examination of NDV that could guide future treaty negotiations; adding that this GGE could establish concepts and guidelines for verification, but not specific measures or scenarios; such specifics would be treaty dependent.



## Annex II

### Chair's summary of presentations to the Group

During the first session of the Group of Governmental Experts to further consider nuclear disarmament verification issues, **Ms. Amy Woolf** (Specialist in Nuclear Weapons Policy at the Library of Congress) provided a presentation on the topic of confidence in verification in which she addressed the question of what achieving and maintaining a world without nuclear weapons would entail. Woolf indicated there are several ways to monitor compliance and identify noncompliant activities. Such methods could collectively form an interlocking web of measures that both complicate non-compliance and allow States to demonstrate their commitment to an agreement. Woolf stressed that perfect confidence in compliance was not possible, adding that some risks of undetected non-compliance would remain. The “sweet spot” was an acceptable level of risk, and this boils down to judgements. Whether verification provisions provided sufficient confidence was based on a political, not technical, calculation. She further expressed that political will can change. Meaningful preparatory activity through the development of ideas and proposals can therefore be useful.

**Mr. Pavel Podvig** (Senior Researcher, UNIDIR) also provided a presentation during the first session on the “verification toolbox”. This presentation gave an overview of existing practices, such as declarations, data exchanges and notifications, inspections and consultative processes and examined how these had been applied in past arms control agreements, including: US-Soviet/Russian treaties; US-Russian agreements; and in multilateral treaties and agreements, such as the Treaty on Conventional Forces in Europe (CFE), Chemical Weapons Convention (CWC), Comprehensive Nuclear-Test-Ban Treaty (CTBT), Nuclear Non-Proliferation Treaty (NPT) and International Atomic Energy Agency safeguards. Podvig emphasized the political nature of reaching a judgement on compliance in verification processes and underscored the importance of tailoring tools and procedures to specific agreements.

An overview of science and technology expert processes in multilateral for a was provided by **Ms. Alisha Anand** (Associate Researcher, UNIDIR), also in the first session. She discussed key attributes of these processes and related considerations for establishing them. Anand highlighted six components of such expert bodies: objectives and mandates, selection and composition of participants, leadership, working methods, institutional support, outputs and funding. In conclusion, she noted there was great value in having a scientific and technical process to develop a common technically and scientifically informed foundation on which policy could be built.

The above presentations were followed by a presentation on capacity building by **Ms. Melanie Reddiar** (Chief Director, Secretariat of the South African Council for the Non-Proliferation of Weapons of Mass Destruction). The presentation noted that capacity building could take different forms: from developing individual competence, to enhancing institutional performance. Reddiar suggested that South Africa was an interesting case study, and there was much to be learned – both positive and negative – from the experience of disarmament, including the importance of ensuring cross-cultural understanding. She emphasized the importance of institutionalizing knowledge and ensuring that efforts towards capacity building were sustainable noting that this entailed financial and human resources.

In the second session of the GGE, **Ms. Renata Hessmann Dalaqua** (Head of the Gender and Disarmament Programme, UNIDIR) provided a presentation on Gender and Disarmament. Dalaqua introduced the concept of gender and the role of gender in NDV. She suggested that diverse teams working on NDV can enhance

verification and challenge assumptions and assessments related to compliance. Suggestions were provided to redress the gender imbalance, including developing gender-sensitive guidelines for capacity building and through developing practical tools and resources to capture data related to gender. Also in the second session, **Mr. James Reville** (Head of the WMD and Space Security Programmes, UNIDIR), provided an overview of an Illustrative Compendium of Past and Present Verification Practices.

## Annex III

### List of working papers submitted\*

<i>Symbol</i>	<i>Title</i>
GE-NDVF/2021/WP.1	The Role of Nuclear Verification in Nuclear Disarmament Verification
GE-NDVF/2021/WP.4	Nuclear disarmament verification to achieve and maintain a world free of nuclear weapon
GE-NDVF/2021/WP.5	Elements for a Conceptual Framework for Nuclear Disarmament Verification
GE-NDVF/2021/WP.6	Possible Deliverables
GE-NDVF/2021/WP.7	German Position
GE-NDVF/2021/WP.8	Chair-Designate Working Paper on the Work of the Group of Governmental Experts
GE-NDVF/2021/WP.9	Key issues related to non-nuclear States perceptions on disarmament verification
GE-NDVF/2022/WP.1	Nuclear Disarmament Verification (NuDiVe) Exercises
GE-NDVF/2022/WP.2	Position Paper
GE-NDVF/2022/WP.3	Conceptual Framework: Definitions, Scope, and Available Methods
GE-NDVF/2022/WP.4	Objectives and Purposes of Nuclear Disarmament Verification (NDV)
GE-NDVF/2022/WP.5	Concept of a Group of Scientific and Technical Experts (GSTE) for nuclear disarmament verification
GE-NDVF/2022/WP.6	Further considerations on the concept of a Group of Scientific and Technical Experts on nuclear disarmament verification
GE-NDVF/2022/WP.7	Chair's non-paper on objectives and structure for the work of the Group and a suggested outline for the next session
GE-NDVF/2022/WP.8	Overview of Selected Nuclear Disarmament Verification (NDV) Research and Development Initiatives and the Need for Greater Information Sharing and Deconfliction
GE-NDVF/2022/WP.9	Capacity building on Nuclear Disarmament Verification assuring sustainability
GE-NDVF/2022/WP.10	Illustrative Compendium of Past and Present Verification Practices
GE-NDVF/2023/WP.1	Governance of Nuclear Disarmament Verification (NDV)
GE-NDVF/2022/WP.4/Rev.1	Objectives and Purposes of Nuclear Disarmament Verification (NDV)

\* The documents referenced in the present annex have been circulated in English only.

<a href="#">GE-NDVF/2023/WP.2</a>	Views concerning working definition, scope and nature of Nuclear Disarmament Verification
<a href="#">GE-NDVF/2023/WP.3</a>	Food for thought on ways to take forward nuclear disarmament verification
<a href="#">GE-NDVF/2023/WP.4</a>	How to approach working on Nuclear Disarmament Verification
<a href="#">GE-NDVF/2023/WP.5</a>	Role of Centers of Competence in the verification of nuclear disarmament
<a href="#">GE-NDVF/2023/WP.6</a>	Non-paper Compilation of inputs by the Experts and the possible structure of the Group's report
<a href="#">GE-NDVF/2023/WP.7</a>	Working paper on the substantive discussion for the third session
<a href="#">GE-NDVF/2023/WP.8</a>	Final Working Paper on GSTE and its relationship with SSOD-I Final Document
<a href="#">GE-NDVF/2023/WP.9</a>	Nuclear verification disarmament as a regime - Possible elements to further consider nuclear disarmament verification issues
<a href="#">GE-NDVF/2023/WP.10</a>	Consideration of Gender in the Group of Governmental Experts on Nuclear Disarmament Verification
<a href="#">GE-NDVF/2023/WP.11</a>	Nuclear disarmament verification when approaching and maintaining zero
<a href="#">GE-NDVF/2023/WP.12</a>	Nuclear Disarmament Verification: Russian Perspective
<a href="#">GE-NDVF/2023/WP.13</a>	Synopsis of the proposal for a Group of Scientific and Technical Experts on NDV (GSTE-NDV)

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