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B R I E F

# Defining a Group of Scientific Experts for Disarmament Verification

Verification and Monitoring Programme



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## Introduction

Effective nuclear disarmament verification is an essential precondition for achieving ‘a world without nuclear weapons’. Without verification and the two fundamental principles of transparency and irreversibility, nuclear disarmament activities may not credibly provide the trust and confidence needed by all states in a world where all nuclear weapons have been abolished.

This point has repeatedly been emphasised in many international forums including recently in Resolution 71/67 adopted on 14 December 2016 by the United Nations General Assembly (UNGA). The resolution, with 175 states voting in favour and none against, mandates the UN Secretary-General to establish a group of governmental experts (GGE) to consider the role of verification in advancing nuclear disarmament.

With this in mind, and possibly to feed into the GGE’s deliberations in 2018 and 2019, VERTIC has designed a series of four regional consultations: in Africa, Asia, Europe and Latin America. The purpose of these meetings is to gather stakeholder views on the potential to form a multilateral Group of Scientific Experts on Nuclear Disarmament Verification (GSE-NDV). VERTIC has based the consultation on the precedent set by the group of scientific experts which met from 1976 to 1996 in the lead up to the negotiations for a Comprehensive Nuclear-Test-Ban Treaty (CTBT). Following on from the GGE’s work, such a GSE-NDV could commence its work in the early 2020s.

The four workshops will result in an initial assessment of the potential of a GSE-NDV. VERTIC will base this report on the views gathered through the meetings and supplement them with further research into the international disarmament verification environment, the experiences of both past and present initiatives on nuclear disarmament verification, and, to an appropriate degree, lessons identified from GSEs in other areas.

This interim report covers the first two consultative workshops—the first for European states, in Vienna, Austria, on 11 and 12 April 2017, co-hosted with the Vienna Center for Disarmament and Non-Proliferation (VCDNP), and the second for African countries in Pretoria, South Africa, on 19 and 20 April 2017.

## Background to the GSE-CTBT

The establishment of groups of qualified experts in the form of a GGE or a GSE is a relatively common approach within the United Nations system as well as in other intergovernmental organisations such as the European Union. These groups are often mandated to undertake in-depth studies on a particular topic and to make recommendations to the body that created them. Importantly, they are not mandated to negotiate, for example, a treaty or convention.

There are many examples of such bodies in the arms control, non-proliferation and disarmament fields as well as in other areas of international concern. Examples include the GGE tasked with making recommendations

on possible aspects that could contribute to a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices. Another example is the GGE on lethal autonomous weapons systems.

The Intergovernmental Panel on Climate Change (IPCC), established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) is perhaps most well-known. The IPCC's mission is to provide a clear scientific view on the current state of knowledge on climate change and its potential environmental and socio-economic impacts. A regional example is the European Commission's GSE focussing on the fight against biological and chemical terrorism. It undertook an assessment of knowledge and capacity regarding bio-defence and looked into future research requirements.

Importantly for this project, a prime example is the Ad Hoc Group of Scientific Experts to Consider International Co-Operative Measures to Detect and Identify Seismic Events, commonly referred to as the 'Group of Scientific Experts' (GSE-CTBT). While a comprehensive ban on nuclear testing had been a foreign policy objective for many governments since the mid-1950s, US-Soviet relations were coloured by the Cold War. There were scientific and political disagreements over the verifiability of a proposed treaty prohibiting nuclear testing. To achieve at least partial progress on the issue, Sweden proposed the establishment of a group to study the technical aspects of verification. This GSE was established under the auspices of the

Conference on Disarmament (CD). The CTBT GSE, comprised mostly of seismologists, was active for 20 years, from 1976 until 1996. The group was tasked to 'specify the characteristics of an international monitoring system' using seismological monitoring. It reported directly to the CD and produced several substantive reports throughout its lifetime. Four senior political officers from the United Nations (UN) supported the Group as secretaries over the years that it met.

The GSE helped to keep the notion of a comprehensive test ban alive despite being established at a time when there was little or no political appetite for such a treaty. During the Cold War, it was the only ongoing multilateral dialogue on disarmament issues and while progress was slow, the work to design a global verification system allowed for the sharing of knowledge on how a seismic verification system could, in principle, be achieved.

It is a key example of how expert groups can be used to provide capabilities that facilitate agreement on difficult technical issues for the monitoring or verification of compliance with a treaty.<sup>1</sup> Although it had a political mandate, its research agenda and the scientific progress that came out of it were unconnected to political negotiations. Its agenda was broad enough to enable continuous work through two decades, ultimately leading to the creation of a shared understanding of verification options. The GSE-CTBT also shows that scientists from across the political divide, working side-by-side over many years, can significantly assist diplomatic processes and ensure

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1. W.H. Dunlop, *'The role of Group of Scientific Experts in facilitating better international relations, particularly in arms control,'* Report: Lawrence Livermore National Laboratory, 2012.

2. Arian L. Prenger, *'Enhancing Regional Security Agreements Through Cooperative Monitoring,'* Report: Sandia National Laboratories, May 1995.

“... it is possible, to conduct preparatory scientific and technical analysis before political negotiations or indeed without a commitment to commence such negotiations.”

that later agreements can be implemented.<sup>2</sup>

Mr Ola Dahlman, one of the chairmen of the GSE, has drawn several conclusions based on his experience from the group, namely that it is possible, to conduct preparatory scientific and technical analysis before political negotiations or indeed without a commitment to commence such negotiations. Being linked to the Conference on Disarmament provided a formal framework allowing states, to not only commit experts to participate in meetings, but also to make considerable investments in tests, monitoring stations, and other facilities. Its long-term mandate resulted in a sustained, consistent, and focused effort among the global participants. Many of the experts have since contributed to the implementation of the verification regime through the CTBTO.<sup>3</sup>

### **Key considerations when applying the concept to NDV**

Clearly, the research scope for multilateral disarmament verification would have to be much broader than was the case for the GSE-CTBT as the ‘objects of verification’ includes many different types of materials, processes, equipment and facilities, some of which are highly sensitive. It would also need to take into account the potential scenarios in which disarmament verification may occur (unilateral, bilateral, multilateral) as well as activities that overlap or which occur at different times. Defining a scope and set of research tasks would be more complex and require that they do not make political assumptions on what disarmament activities states should or will take.

## **The project**

### *Objectives and aims*

The project centres on running the consultative workshops outlined above to explore the issues surrounding the potential for establishing a Group of Scientific Experts on Nuclear Disarmament Verification (GSE-NDV). The first two workshops sought to capture the perspective of participants from Europe and Africa. They also examined how UN member states can expand on the emerging knowledge base of verification techniques and how they can sustain and guide it in the future. The objective was therefore to propose a way to build on the embryonic network of international expertise on nuclear disarmament verification based on co-operation, support and outreach. It was also to debate if, and how, such a group could, in the long-term, assist in the development of a genuinely shared and trusted understanding of the technical, procedural and policy challenges of nuclear disarmament verification (in particular between nuclear and non-nuclear weapon armed states.

The workshops were structured in such a way that participants could discuss whether a multilateral GSE-NDV would be able to:

1. consolidate efforts in the field to date;
2. identify and co-ordinate research needs and initiate ways and means to undertake such research within limited budgets and organisational capacity; and

3. Ola Dahlman, ‘How Can Science Support a Process Towards a World Free of Nuclear Weapons?’, *Science & Global Security*, 21:95–105, 2013.

3. generate sustained dialogue between scientific and technical experts, diplomats and policy-makers within and between the nuclear-armed and non-nuclear-armed states.

### *The workshop series and its participants*

As mentioned above VERTIC has so far completed two of the four workshops—the first, in Europe and the second in Africa.

The two-day consultations involved 33 researchers, diplomats and policy makers, drawn from eleven countries and 16 organisations on the two continents. Half of the participants were drawn from governments. All individuals took part in their personal capacity although they were also able to articulate what they thought their government's or organisation's view might be. Each participant contributed subject to the Chatham House rule.

Each workshop was guided by a set of discussion papers designed to stimulate debate and produce practical suggestions. Discussion papers focussed on:

1. *'The Importance of Verification and Transparency for Nuclear Disarmament'*—which examined why nuclear disarmament verification is an issue of concern for both non-armed weapon states and nuclear armed states and the important role of the scientific community in arms control, disarmament and non-proliferation activities;
2. *'The Role of the Group of Scientific Experts in the Negotiation of the Comprehensive Test Ban Treaty'*—

this paper examined what, if any, lessons can be learned from this experience and what role this group played in preparing the foundation for political progress until CTBT negotiations started;

3. *'An Overview of Past and Present Networks and Groupings Devoted to Nuclear Disarmament Verification'*—this paper focused on current and past initiatives of direct relevance to nuclear disarmament verification. They included the United Kingdom-Norway Initiative (UKNi), the International Partnership for Nuclear Disarmament Verification (IPNDV), the US-UK Technical Cooperation Programme, and the so-called 'Trilateral Initiative';
4. *'What Role Could European/African States and Scientists Play in Nuclear Disarmament Verification?'*—these food-for-thought papers, one produced for each meeting, served as a basis for discussion on how such a GGE-NDV could contribute to regional security and how involvement by the relevant bodies, such as the European Union and the African Union (AU), could move the debate forward; and
5. a final paper provided a select list and description of GGEs and GSEs from other arms control, disarmament and non-proliferation initiatives and other fields.

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### Interim conclusions

Presently, political conditions are challenging. Moreover, views on approaches to nuclear disarmament vary. However, all states remain committed to the long-term goal of irreversible disarmament. The unanimous support for Resolution 71/67 on nuclear disarmament verification demonstrates this commitment.

In the workshops, participants debated if, and how, a GSE-NDV could, in the long-term, assist in the development of a genuinely shared and trusted understanding of the technical, procedural and policy challenges of nuclear disarmament verification. Participants also discussed whether a multilateral GSE-NDV would be able to:

- consolidate efforts in the field to date;
- identify and co-ordinate research needs and initiate ways and means to undertake such research within limited budgets and organisational capacity; and
- generate sustained dialogue between scientific and technical experts, diplomats and policy-makers within and between the nuclear- and non-nuclear-armed states. The utility as well as the challenges of establishing a multilateral group; its potential composition, scope, activities and mandate, as well as the political conditions that may be necessary for its formation were particular focuses.

The purpose of these workshops was neither to reach consensus nor to draw definitive conclusions regarding the feasibility or desirability of a GSE-

NDV. Nevertheless, participants in both Vienna and Pretoria concurred that:

1. Nuclear disarmament verification is probably one thing that all states can agree or commit themselves to—although they may disagree on exactly what it means and on the measures needed to achieve it;
2. Many lessons could be derived from the GSE-CTBT. Above all, It demonstrated that it is possible and useful to conduct preparatory scientific and technical analysis and develop capabilities that could facilitate agreement on difficult technical issues for the monitoring or verification of compliance with a treaty;
3. The establishment of a GSE-NDV as an apolitical body would constitute an important means to conduct joint research into verification technologies and data-analysis methodologies, while the political environment is not conducive and while political processes are maturing;
4. One would, however, need to define ‘nuclear disarmament verification.’ In particular what stage of the disarmament process it refers to - such as dismantlement, material disposition or accounting.
5. A GSE-NDV’s mandate should come from the United Nations General Assembly (UNGA), as this would give ownership to all stakeholders, irrespective of geographical location or legal status under the 1968 Nuclear Non-Proliferation Treaty. It would also give the group credibility and legitimacy. Finally, it could poten-

tially provide a source of long-term funding (possibly supplemented by a mechanism such as a Voluntary Trust Fund).

6. A GSE-NDV's scope of work, even if broad and open-ended, would have to have clear scientific and technical parameters;
7. Further to that, a GSE-NDV's scope of work could be derived from UNGA/RES/71/67. In particular, participants highlighted the third operative paragraph, which calls for all States to work together to 'identify and develop practical and effective disarmament verification measures' through developing 'tools, solutions and methods and capacity-building.' Participants also noted the fourth operative paragraph, that calls for the 'development and strengthening of practical and effective nuclear disarmament verification measures.'
8. It is imperative that the outcome of the GGE established by UNGA/RES/71/67 is not pre-judged or pre-empted by a GSE proposal;
9. Scientists and technical experts should form the core of a GSE-NDV. However, provision should be made for policy-makers and legal experts to interact with it periodically;
10. Scientific and technical experts forming a GSE-NDV should be drawn from both nuclear- and non-nuclear armed states;
11. An important aspect of the work of a GSE-NDV should involve medium to long-term capacity-building processes and programmes on verification techniques and mechanisms;
12. States would need room to interpret the mandate to suit their foreign policy goals - NPT member states should be able to justify their work under Article VI of the treaty. Non-NPT states should be able to justify their participation by their UN membership. The mandate should also be broad enough to accommodate the policy positions of both 'immediate abolitionists' and 'step-by-step advocates.'
13. The GSE-NDV would need to strike a balance between what is politically desirable to achieve and what is practically feasible given the national security constraints of the work;
14. The GSE should aim to overcome issues relating to duplication, overlap and 'reinventing the wheel,' but should at the same time not be the sole vessel of international cooperation on disarmament verification.
15. In that sense, a GSE-NDV would need to develop a mandate and working methodology that a) takes into account existing initiatives; b) makes use of their work in this area; and c) benefits from the technical expertise in these groupings.

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## About this paper

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This paper reports on two workshops discussing the concept of a Group of Scientific Experts on Nuclear Disarmament, with a view to formulating a recommendation to the GGE.

## Building trust through verification

**VERTIC** is an independent, not-for-profit, nongovernmental organisation. Our mission is to support the development, implementation and effectiveness of international agreements and related regional and national initiatives, with particular attention to issues of monitoring, review, legislation and verification. We conduct research, analysis and provide expert advice and information to governments and other stakeholders. We also provide support for capacity building, training, legislative assistance and cooperation.

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