Canada’s views on nuclear disarmament verification – Executive Summary

Canada considers that effective verification is essential for creating and maintaining the necessary confidence for cooperation in arms control and disarmament regimes. Verification enhances credibility, builds transparency, and facilitates compliance. The security interests of all States can only be addressed if there is assurance that no one State is able to take undue advantage of the disarmament commitments of others.

Nuclear disarmament verification, as a subset of broader verification efforts, is characterized by particular challenges, notably limited global capacity. Among non-nuclear weapon States, there is generally only a cursory understanding of the challenges involved, due largely to the lack of direct experience with nuclear weapons and obligations restricting access to proliferation-sensitive information.

Canada has taken an active role in advancing progress on verification in the context of international security. This has included promoting expert analysis and debate at the United Nations General Assembly. Current Canadian efforts on verification include engagement with, and support to, the International Partnership for Nuclear Disarmament Verification.

Canada strongly supports the upcoming work of the Group of Governmental Experts on Nuclear Disarmament Verification to identify measures to strengthen efforts in this field. We propose the following recommendations for consideration:

1. Review previous United Nations work on verification. This should draw upon recommendations that have specific applicability to nuclear disarmament verification;
2. Build upon lessons learned from recent multilateral exercises exploring nuclear disarmament verification, including: the United Kingdom-Norway Initiative; the Trilateral Initiative between the United States, the Russian Federation, and the International Atomic Energy Agency; and the work of the International Partnership for Nuclear Disarmament Verification;
3. Examine possibilities for exchanging relevant verification-related information with the current High-Level Fissile Material Cut-off Treaty Expert Preparatory Group; and
4. Assess options for the modalities to support the verification of an eventual nuclear disarmament regime.
Canada

This submission provides Canada’s views on the development and strengthening of practical and effective nuclear disarmament verification measures and their importance in achieving and maintaining a world without nuclear weapons, as requested by the United Nations Secretary-General regarding General Assembly resolution A/71/67, by which the Assembly decided to establish a group of governmental experts to consider the role of verification in advancing nuclear disarmament.

Verification and international security

Verified compliance with arms control and disarmament regimes contributes to building trust among participating States Parties which, in turn, provides considerable security benefits to the international community. While not an end in itself, effective verification is essential for creating and maintaining the necessary confidence for cooperation in these regimes. It can enhance credibility, help to build transparency and facilitate compliance. For States in regions of high tension and low trust, establishing and implementing a credible verification may be more difficult, but is even more critical for facilitating cooperation on disarmament issues. Verification is a key part of a nuclear disarmament process that promotes international stability, peace and security. Furthermore, as stated in Action 2 of the final document from the 2010 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), verifiability, along with irreversibility and transparency, is central for NPT States Parties to meet their disarmament obligations as specified in Article VI.

Verification seeks to detect non-compliance, deter violators, and build confidence among parties in a disarmament agreement. Compliance assessments are integral to the verification process and critical to achieving its objectives. These assessments depend on factors such as the nature of the obligations, the monitoring regime established in the agreement (including the degree of access), the compliance history of the parties, and technical and analytical capacity. While international bodies with expertise relevant to disarmament verification may be engaged to undertake technical monitoring and verification activities, and potentially to enhance confidence in the process, the ultimate responsibility for making a compliance assessment normally rests with States parties.

States have the opportunity to demonstrate their compliance by undertaking transparency measures and providing additional information beyond their minimum legal obligations. Conversely, States need to consider that their non-participation or reluctance to be subjected to verification activities may undermine trust among States Parties. In the case of inadvertent non-compliance (for example, because of a misinterpretation of obligations), encouragement and cooperation, including capacity-building, can help to bring States back into compliance. In the case of deliberate non-compliance, which directly challenges the security of other parties, strong enforcement measures will likely be required.

Canadian perspectives on verification

Since the mid-1980s, Canada has taken an active role in advancing the global recognition of the importance of verification in the context of international security. Over the years, this has included sponsoring regular resolutions at the UN General Assembly on “Verification in all its aspects, including the role of the United Nations in the field of verification”, funding research and outreach efforts, contributing to the development of the 16 principles of verification released by the UN Disarmament Commission in 1988, chairing the 1995 Group of Governmental Experts mandated to examine verification in all its aspects, and chairing the 2006 Panel of Government Experts mandated to review further developments with respect to verification in all its aspects. In addition, as Chair of the 2014-2015 Group of Governmental Experts mandated to make recommendations on possible aspects that could
contribute to but not negotiate a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices, Canada also led an in-depth discussion on the important verification aspects of such a future treaty, as contained in the Group’s report (document A/70/81). Current Canadian efforts on verification include participation in all three working groups of the International Partnership for Nuclear Disarmament Verification (IPNDV) and funding support to the Nuclear Threat Initiative in its role as the secretariat for the IPNDV.

**Considerations regarding nuclear disarmament verification**

Robust verification regimes can contribute to resolving complex regional challenges, such as facilitating efforts to establish new nuclear weapon free zones. In conjunction with transparency measures, such as those found in the Hague Code of Conduct or the Andean Charter for Peace and Security, and cooperative threat reduction activities, such as the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, effective verification can strengthen international confidence and security. When all States are engaged and confident in the compliance of their neighbour, the implementation of disarmament obligations is likely to be more effective.

Effective verification is a key part of the disarmament process, in that without verification, States may lack confidence that disarmament commitments are being met. Nuclear disarmament verification, as a subset of broader verification efforts, is characterized by particular challenges. Most significantly, only a select few countries – notably the NPT nuclear-weapon States of the United States and the Russian Federation – have direct experience with nuclear disarmament verification involving another nuclear-weapon State. In addition, there is no experience with the implementation of a disarmament verification regime targeted specifically at the dismantlement of nuclear explosive devices and the disposition of the weapons-grade fissile materials, rather than at their delivery systems.

Among non-nuclear-weapon States, there is generally only a cursory understanding of the characteristics of nuclear explosive devices and of potential disarmament verification processes, due largely to the NPT obligations of non-nuclear-weapon States which preclude them from gaining access to proliferation-sensitive information through any such process. Equally important are the NPT obligations of nuclear-weapon States which prevent them from sharing any similar information to non-nuclear-weapon States. As a result, the current global expert base for nuclear disarmament verification is limited. Indeed, any nuclear disarmament effort must be highly sensitive to proliferation risks, and managed to be minimally intrusive (to prevent the release, inadvertent or otherwise, of information relating to the design and composition of a nuclear explosive device), yet provide sufficient assurance about compliance with the objectives of the disarmament regime in place.

The training of a professionally qualified cadre of specialists in nuclear disarmament verification, with geographically diverse representation from both non-nuclear-weapon States and nuclear-weapon States, could greatly contribute to global confidence in disarmament regimes. Otherwise, without broadening the availability of specialized skills for nuclear disarmament verification, these activities would largely be undertaken by nationals from nuclear-weapon States. Such training could build on the capabilities available in existing multilateral organizations and institutions, or draw from the experience of specific countries which have undertaken activities relevant to nuclear disarmament verification. For example, South Africa has experience terminating its nuclear weapons program and dismantling its nuclear weapons; Kazakhstan learned from destroying its nuclear testing infrastructure; and the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials has expertise in nuclear material safeguards activities.
Also, an increasing number of countries are currently investing in the development of national capabilities for nuclear forensic analysis. Primarily applied to combatting international trafficking in nuclear material and to securing domestic sources of nuclear material, these skills could potentially contribute to expanding the global capacity for nuclear disarmament verification. In addition, Canada – like other countries with a highly developed nuclear industry – could draw upon its expertise in the areas of nuclear physics and nuclear safeguards to contribute to disarmament verification. Through the Canadian Nuclear Laboratories (CNL), Canada has developed expertise in designing instruments for the detection of nuclear materials, including design, prototype testing, production and simulation of their response. CNL also maintains a number of facilities with special nuclear materials which could be used to provide field training in security and verification activities. The verification of baseline declarations may require establishing a balance between access to secure locations and the protection of sensitive information of national security value to the host Party. The use of National Technical Means to verify declarations and continued compliance could also be considered. If so, it would be important to address how States parties or the body assigned to oversee the implementation of the disarmament regime could best incorporate this information into their assessments.

Confirming compliance with nuclear disarmament verification regimes may also require monitoring the various stages in the production of nuclear weapons. This could involve continuous oversight of the various stages of the nuclear fuel cycle (e.g., monitoring the number of centrifuges and the level of enrichment), and facilities involved in re-processing nuclear fuel or those engaging in research and development.

A regime for nuclear disarmament may also need to consider indirect mechanisms to monitor for non-compliant behaviour. This could include a robust international system for alerting, monitoring, sharing information on dual-use technologies and materials, and export controls to reduce the risk of clandestine weapons research or production.

Civil society, including industry, the financial sector, the media, academia and non-governmental organizations, could also play an important role in nuclear disarmament verification, including by raising awareness of non-proliferation, arms control, and disarmament obligations and commitments. Using open source methods and technologies, it can potentially contribute to an overarching alerting and monitoring system to sound alarms about non-compliant behaviour. It can also provide resources and expertise to States that may need assistance in national implementation.

Finally, the dismantling of nuclear weapons – which contain extremely hazardous material – requires careful consideration of safety issues that may impact human health and the environment.

**Considerations regarding the work of the Group of Governmental Experts (GGE)**

1. **Review of the conclusions of the Panel of Governmental Experts on “Verification in all its aspects, including the role of the United Nations in the field of verification” and the report of the “Group of Governmental Experts to make recommendations on possible aspects that could contribute to but not negotiate a treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices”**. Consistent with the approach of earlier assessments of developments in the field of verification, Canada suggests that the GGE review previous United Nations work in the area of verification. This effort should seek to draw upon recommendations that would have specific applicability to nuclear disarmament verification, including measures and mechanisms to ensure and enforce compliance.
2. **Lessons from recent verification experiences.** Although few multilateral exercises have explored the range of policy and technical issues requiring consideration for nuclear disarmament verification, those that have provide a deep pool of practical lessons learned. These include: the United Kingdom-Norway initiative which demonstrated how a nuclear-weapon State and a non-nuclear-weapon State can work together on disarmament verification matters; the Tri lateral Initiative between the United States, the Russian Federation and the International Atomic Energy Agency (IAEA) which determined that the IAEA is able to verify weapons grade fissile material from defense programs, without the release of any proliferation sensitive information; and the current International Partnership for Nuclear Disarmament Verification, which brings together more than two dozen nuclear-weapon and non-nuclear weapon States to explore in-depth the technical and policy requirements for the dismantlement of a nuclear explosive device. A very recent initiative called the “Quad”, consisting of the United Kingdom, the United States, Norway and Sweden, has also commenced a multi-year effort to build capacity in nuclear disarmament verification, test new technologies and establish a verification protocol. In addition, the Verification Research, Training, and Information Centre (VERTIC) delivers workshops and supports research on nuclear disarmament verification, which provides an additional resource for broadening the understanding of current verification challenges. Canada suggests that the GGE include a review of the findings from these initiatives.

3. **Synergies with verification of a Fissile Material Cut-off Treaty.** The High-level Fissile Material Cut-off Treaty (FMCT) Expert Preparatory Group (Preparatory Group), which Canada is chairing, will be undertaking work that may develop ideas on the verification requirements for an eventual FMCT. Canada recommends that both the GGE and the Preparatory Group examine whether it is opportune to share information with each other on respective work pertaining to nuclear disarmament verification more broadly, and within the context of the requirements of an FMCT.

4. **Modalities for implementing multilateral nuclear disarmament verification.** As expertise to undertake nuclear disarmament verification is lacking amongst most States, there may be value in drawing upon the verification resources and skills of an independent multilateral organization, such as the IAEA. Statements to the IAEA General Conference suggest support for the IAEA to assume a role in verifying nuclear disarmament. Canada recognizes that the IAEA possesses considerable expertise with respect to safeguards tools and techniques, and that these skills may be relevant for an eventual nuclear disarmament verification inspectorate. Canada recommends that the GGE consider carefully the appropriate role for the IAEA to assume, given its Statute and its existing commitments. The GGE may also consider assessing alternative options for the development of an independent disarmament verification inspectorate that could support the implementation of a nuclear disarmament regime.

**Conclusion**

Canada considers progress on nuclear disarmament verification as an essential enabler for broader disarmament efforts. This is true not only from a technical perspective, to ensure compliance, but it is also important as a measure of transparency and for confidence-building among States. The security interests of all States can only be addressed if there is assurance that no one State is able to take undue advantage of the disarmament commitments of others. Canada therefore strongly supports the upcoming work of the Group of Governmental Experts on Nuclear Disarmament Verification, and looks forward to its recommendations.