

Principles and Recommendations for Implementation of the IAEA Safeguards System

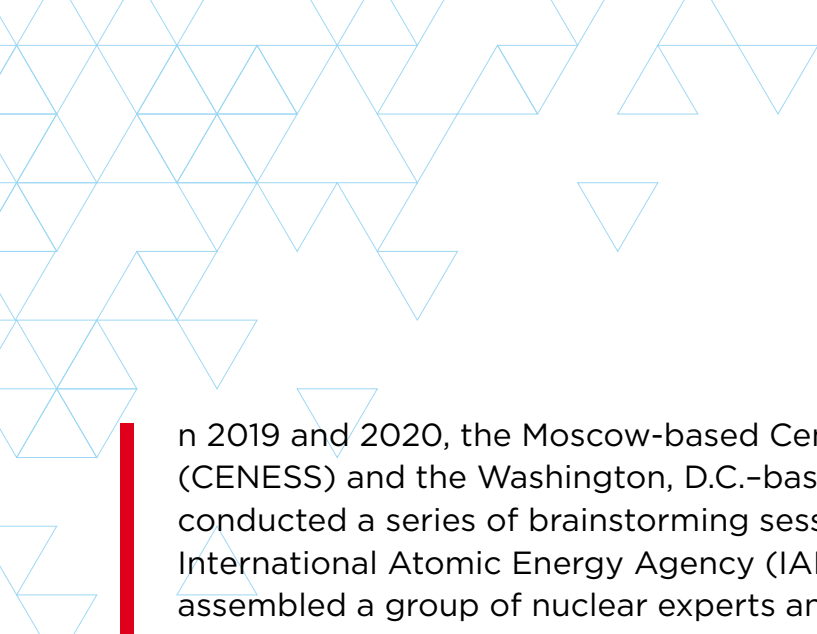
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A PRODUCT OF

The Future of IAEA Safeguards: Rebuilding the Vienna Spirit through Russian-U.S. Expert Dialogue



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In 2019 and 2020, the Moscow-based Center for Energy and Security Studies (CENESS) and the Washington, D.C.-based Nuclear Threat Initiative (NTI) conducted a series of brainstorming sessions on the issue of the future of the International Atomic Energy Agency (IAEA) safeguards system.¹ These meetings assembled a group of nuclear experts and representatives of the academic community, as well as former diplomats and IAEA officials from Russia, the United States, and other nations in an effort to see whether it is possible to reinvigorate the non-proliferation regime through building bridges and enhancing cooperation on the issue of safeguards. The system of safeguards traditionally was the topic where the United States and the former Soviet Union were able to find common ground even during the most intense periods of the Cold War. This was due, on the one hand, to the mutual interest in preventing the spread of nuclear weapons and, on the other hand, to the mainly technical nature of the issues involved that were relatively free of political or ideological considerations.

However, relations between the two sides have recently deteriorated to the point where no constructive dialogue on the official level has been possible even on previously uncontroversial issues. It is quite obvious that such a state of affairs not only goes against each state's national security interests, but also puts in jeopardy the international peace and security architecture as a whole. Therefore, establishing a channel for an expert Russian-U.S. dialogue on safeguards aimed at finding points of convergence in this field in times of controversy and even adversity can contribute to overcoming the current deteriorating non-proliferation environment. This article is a collaborative attempt to look for suggestions on what can be a common set of principles for implementation of the IAEA safeguards system.

Historical Background of Safeguards

Although the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) provided a strong impetus for the further development of the IAEA safeguards system, in fact, the idea of safeguards predates the NPT. The 1956 Statute of the IAEA contains provisions for a system of measures to safeguard against the misuse of special fissionable and other materials, services, equipment, and technical information provided by the agency or under its supervision or control in such a way as to further any military purpose. The NPT drafters decided not to create a completely new system to verify compliance with the treaty but to use and develop what was already provided for in the statute.

¹ The expert meetings on “The Future of the IAEA Safeguards: Bridging the Gap,” as part of a joint CENESS-NTI project, were held in Moscow and Valday, Russia, and in Vienna and Baden, Austria, on January 28–30 and September 18–20, 2019, respectively, and in a virtual setting on July 21, July 23, July 28, August 4, and August 11, 2020.

Both the United States and Russia favor the universalization of the Additional Protocol, which should become the standard for verifying the peaceful character of nuclear applications.

The IAEA safeguards system therefore serves as the NPT verification mechanism. It acts through the implementation of comprehensive safeguards agreements (CSAs) concluded between the States Parties to the NPT and the IAEA. The obligations of states and the responsibility of the IAEA are formulated in paragraphs 1 and 2 of the CSA, based on Articles II and III of the NPT.²

As a reaction to the discovery in the 1990s of a clandestine nuclear program in Iraq, the IAEA in collaboration with member states embarked on a major program to strengthen the safeguards system, initially known as Programme 93+2. Perhaps the most important measure introduced to all states through Programme 93+2 was the concept of state evaluation, which led to the development of the state-level concept (SLC), under which safeguards conclusions are drawn for the state as a whole. Another major outcome of Programme 93+2 was the development of the Model Additional Protocol, adopted by the IAEA in 1997 to be freely concluded by states.³ This document substantially strengthened the agency's capabilities to gain access to nuclear and special fissionable material and to related facilities and activities in states within the framework of the concluded safeguards agreements.

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An important feature of the system is that it evolves with time. There were two main implementation concepts used over the entire period of system's existence: the facility-level concept (FLC), applied from 1961 until 2003, and the SLC, applied from 2003 to the present.

The SLC is being developed in order to respond to emerging challenges and technical capabilities. In 2000 the IAEA Secretariat came up with an idea to develop a modified safeguards approach, initially in internal discussions termed "risk-informed safeguards" and subsequently announced as "information-driven safeguards." Underlying this development was the argument, inter alia, that because the number of facilities under safeguards was growing rapidly, the IAEA, faced with lack of sufficient resources, could not spread its safeguards activities evenly on all of them without diminishing their effectiveness. Therefore, consistent with the provisions in the CSA authorizing the IAEA to address "the characteristics of the state's nuclear fuel cycle," the agency should be provided with a possibility to distinguish those activities that give more grounds for bona fide non-proliferation concerns in order to be able to focus its safeguards efforts on them.⁴

² IAEA, *The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons*, (INFCIRC/153 (Corrected)), June 1972, www.iaea.org/sites/default/files/publications/documents/infcircs/1972/infcirc153.pdf.

³ IAEA, *Model Protocol Additional to the Agreement(s) between State(s) and the IAEA for the Application of Safeguards*, (INFCIRC/540), September 1997, www.iaea.org/sites/default/files/infcirc540c.pdf.

⁴ IAEA, *The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons*, (INFCIRC/153 (Corrected)), June 1972, www.iaea.org/sites/default/files/publications/documents/infcircs/1972/infcirc153.pdf.

The transition from the implementation of processes under the FLC to processes under the SLC is still ongoing. This transition is a complicated process requiring the careful consideration of many factors. These changes are justified only if the safeguards system remains objective, depoliticized, technically sound, understandable to states, and based on the rights and obligations of the parties involved in accordance with their safeguards agreements. The introduction of subjective conclusions in the verification process could lead to distorting the real picture and therefore to detrimental consequences to the nuclear non-proliferation regime.

General Principles Applicable to Both the FLC and SLC

Principles for both the FLC and SLC processes include:

- Adherence to the legal framework (safeguards agreement and protocols to the agreement, as well as any subsidiary arrangements)
- High effectiveness (ability to detect non-compliance)
- High efficiency (highest output within the resources available)
- Non-discrimination (using a common set of principles/criteria to govern the intensity of verification activities in a state) and
- Transparency of verification and conclusion-drawing procedures (providing information to states through the Safeguards Implementation Reports (SIRs) and through other means).

The last principle is not least: states will be able to judge whether the first four principles have been satisfied by the secretariat only if the fifth has been satisfied.

The statement of conclusions published in the SIR for 2003 was the first to be formulated at state level—which means that safeguards conclusions were drawn for each state as

a whole in accordance with that state's obligations under each type of safeguards agreement. The actual transition from the facility-level to the state-level concept has taken considerable time and remains incomplete.

These principles all apply to the agency itself, but reciprocity should also be considered; some responsibilities should also apply to states. This suggests a further principle: *safeguards should be implemented in collaboration, as a shared responsibility.*

In this context, “collaboration” is understood as both collaboration between the agency and states (individually or collectively, depending on the context) and collaboration between states so as to advance the common interest in a well-functioning safeguards system.

It is essential for states not to regard safeguards as adversarial or an imposition. Safeguards provide a vital service to states, building confidence and enabling suspicions to be investigated and resolved in an impartial manner. For this reason, it is in the interest of all states to demonstrate that they are honoring their non-proliferation commitments through full cooperation with the agency's safeguards system—not only cooperation in safeguards implementation, but acceptance of the most advanced form of safeguards, the AP.

The agency and member states should work toward developing and promoting a collaborative safeguards culture, recognizing the common interest of both sides in seeing the achievement of the other key principles discussed here.

The IAEA Secretariat should be prepared for open discussion of the application of safeguards in the organs of the agency and to defend its use of information in drawing conclusions about a state's nuclear activities. Conclusions should be drawn on the basis of the secretariat's technical findings, including the independent evaluation of information obtained by or provided to the agency.

SET OF PRINCIPLES AND RECOMMENDATIONS FOR THE IMPLEMENTATION OF THE SAFEGUARDS SYSTEM

Based on those considerations, the following set of principles can be applied for the development of the IAEA safeguards systems. Both Russia and the United States could use these principles in their work in the IAEA, both individually and jointly:




- Within the existing legal framework for IAEA safeguards, it is essential to increase confidence that states are abiding by their IAEA safeguards obligations. The IAEA Secretariat currently implements the SLC in order to realize this goal.
- The IAEA safeguards system should be technically credible, impartial, and implemented through processes that are transparent to states.
- In that regard, as requested by the General Conference, the IAEA Secretariat should report to the Board of Governors on the conceptualization and development of the approach to safeguards implementation developed by the secretariat to clarify the role of objective state factors in the planning, implementation, and evaluation of safeguards. The report should include a description of reasons that made it necessary for the secretariat to develop modified approaches to safeguards implementation, as well as a complete list of the objective state factors it takes into account. The secretariat should report to the board on any changes to these objective state factors in the future.
- The SLC should be implemented pursuant to the authorities and obligations contained in safeguards agreements. It is not designed as a functional substitute for the absence of the AP in states that lack them. Secretariat and member states' efforts to promote universal AP adherence should be continued and strengthened, with the goal of achieving universal recognition that a CSA and an AP together constitute the internationally recognized verification standard.
- Safeguards effectiveness must remain paramount. Efforts to reduce costs should not compromise effectiveness.
- Only objective state factors should be used to determine safeguards implementation. Political considerations are not appropriate.
- The Standing Advisory Group on Safeguards Implementation should continue its review of objective state factors and make recommendations for inclusion in the Secretariat's report to the Board of Governors.
- Safeguards conclusions should be based on the IAEA Secretariat's safeguards activities, including its collection, analysis, and evaluation of safeguards-relevant information, and not on a political judgment about a state's presumed intentions regarding the acquisition of nuclear weapons. Conclusions should be based on objective data, including IAEA inspections.
- The state-level approaches developed by the IAEA Secretariat should remain non-discriminatory by applying common state-level objectives to all states with similar types of safeguards agreements in force and by utilizing uniform implementation processes in objectively determining the state-level approach for each state.
- The specific safeguards measures and the manner and intensity with which they are applied in an individual state will differ based on objective state factors and technical considerations.

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- The state-level approaches developed by the IAEA Secretariat should ensure a high probability of detection of any violation by states of their IAEA safeguards agreements. Timely detection of diversion of declared material—and deterrence of such diversion by the risk of early detection—should remain a fundamental safeguards objective.
- Nuclear material accountancy remains the primary basis for deriving a conclusion of non-diversion of declared material.
- For a state with a CSA in force, the IAEA Secretariat must ensure that safeguards are applied on all source or special fissionable material in all peaceful nuclear activities in the state, and address credible indications of undeclared nuclear activities.
- In a state that does not have an AP in force, the secretariat is not expected to reach the broader conclusion regarding the absence of undeclared nuclear material and activities. However, the absence of an AP does not prevent the secretariat from assessing indications of undeclared activities, seeking clarifications from the state, and reporting to the IAEA Board of Governors if the secretariat finds the state has not provided the necessary cooperation for inspectors to verify that all nuclear material in the state remains in use for exclusively peaceful purposes. The secretariat should report on its findings, along with background information, to the board for its decision.
- State evaluations using all safeguards-relevant information available to the IAEA Secretariat should be strengthened and continuously updated. While taking into account the effectiveness of the state and/or regional system of accounting and control, the secretariat must not delegate its responsibility for verification of nuclear material accountancy to the national and/or regional systems of accounting and control, but maintain the capability for the agency's independent conclusions.
- Having in mind the goal of ensuring effective and efficient safeguards application, all technically feasible diversion and acquisition pathways for a state should be addressed by the IAEA Secretariat on the basis of all available safeguards-relevant information.
- The secretariat should give high priority to collecting objective data, first and foremost through inspections, in order to address questions and inconsistencies and resolve discrepancies and anomalies. In so doing, the secretariat should operate within the parameters of existing safeguards authorities and technically credible and impartial measures.
- In its operational work, the IAEA Secretariat should analyze any information relevant to safeguards, and determine pursuant to such analysis whether to take further steps to investigate credible indications of undeclared activities. The secretariat should thoroughly describe to the IAEA Board of Governors the information that served as the basis for corresponding conclusions and be prepared to defend it in an open discussion of the board.
- The IAEA Secretariat should draw independent, objective conclusions using impartial and technically credible evaluation methods. These conclusions should be based on the secretariat's own safeguards activities.
- The IAEA has the responsibility to ensure that nothing it does could contribute to nuclear proliferation. Consistent with the obligations of parties to the NPT, the IAEA Secretariat should seek assistance from experts supported by the P5 states (China, France, Russian Federation, the United Kingdom, and the United States) on specific matters that might go beyond peaceful nuclear activities in NPT non-nuclear-weapon States Parties.



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