

[SE8-CV-1] Nuclear Safeguards System

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Full Summary

Kim Byung Koo opened the panel by discussing the need for a new approach in nuclear governance, in view of the special safety, proliferation and security challenges that Asia faces as a nuclear “renaissance” region, with issues ranging from the widespread construction of plants in China and India to the the nuclear safety situation in Fukushima and the North Korean proliferation situation.

Ahn June Ho spoke of the IAEA safeguards system, its evolution since its creation in 1957 and the issues it currently faces. He began by talking about the legal background of the IAEA safeguards system, in particular the IAEA statute, which authorizes the agency to examine and approve the design of member State’s nuclear plants and send inspectors to the nuclear technology “recipient” States, and the NPT, which establishes that Non-nuclear-weapons States to the Treaty shall conclude Safeguards Agreements with the IAEA. According to the Safeguards Agreement, the IAEA can inspect all nuclear material and nuclear facilities within these States.

The IAEA safeguards system was thus based on nuclear material accountancy, with containments and surveillance as complementary measures. Nuclear facilities maintain the account book keeping system for their possessed nuclear material and should report to the IAEA periodically. Until the 1980’s, this traditional quantitative material accountancy system worked without major difficulties.

However, faced with important changes that took place in the international political framework in the 1990s (the discovery of Iraq’s clandestine nuclear program, North Korea’s challenge to IAEA inspections, the dissolution of the former Soviet Union and nuclear weapon development in South Africa, among other things), an international consensus emerged around the need to strengthen the IAEA safeguards system. This led to the introduction of Additional Protocol to the IAEA Safeguards Agreements in 1997, shifting the traditional accountancy control on declared nuclear material towards information driven safeguards. Under the Additional Protocol, more information is required from the States regarding nuclear development programs and their research activities, such as broad nuclear

research and development program information, the production and commerce of nuclear sensitive equipments, complementary access to any suspicious locations, and wide area environmental sampling.

In this sense, while traditional safeguards were implemented based on the amount of nuclear material (quantitative approach) the information driven safeguards are based on the provided information from the State along with various open source information such as published scientific journals, website information and media articles (qualitative approach).

Although the introduction of the Additional Protocol in 1998 implemented new kinds of safeguards, only 89 of the 163 countries that have concluded a Safeguards Agreement with the IAEA have agreed to make the Additional Protocol enter into force. This means that there are still two safeguards systems which currently exist within the IAEA: Traditional safeguards and Information driven safeguards.

There are a number of issues and challenges in order to achieve more effective and efficient information driven IAEA safeguards: widespread acceptance of the Additional Protocol by all NPT parties; a clear definition of the information driven safeguards terms by the Agency, so as to avoid conflicting interpretations; and the introduction of new safeguards technology as verification tools.

John Carlson stated that the current priority regarding IAEA safeguards is to strengthen detection capability for undeclared nuclear activities, through the improvement of safeguards technology and methodology, further development of information treatment and universalization of the Additional Protocol. Another priority is foreseeing the expansion of nuclear programs and the introduction of new fuel cycle technologies.

States could help the IAEA achieve greater effectiveness and efficiency in safeguards implementation, through stronger partnerships with national authorities, and in availability of information to support safeguards conclusions, by establishing additional transparency and confidence-building mechanisms.

Regional safeguard systems like Euratom and ABACC are a good way to achieve both goals. There is potential for new regional arrangements in areas such as the Middle East, South Asia and the Korean Peninsula, where the implementation of further confidence-building measures additional to IAEA safeguards might be useful.

In safeguards implementation, a practical step in this sense has been taken through the establishment in 2009 of the Asia-Pacific Safeguards Network (APSN). In his lecture on

safeguarding dual use nuclear technologies, **Chaim Braun** began by considering safeguarding in its broadest definition, as an integrated system of controls, including IAEA traditional Safeguards, the Additional Protocol, NSG Supply Guidelines and export controls, National conditions of supply (U.S. 123 Agreements), the implementation of UNSC Resolution requirements, regional arrangements such as ABACC and other NWFZs, corporate export restraints and complementary supply assurance measures, such as «cradle to grave» fuel supply, which ameliorate supply restraints inherent in safeguarding. In all, the effectiveness of safeguarding systems depends on applying the right mix of specific incentives and restraints applicable to each national situation.

Regarding possible IAEA improvements, Chaim mentioned the implementation of technical enhancements to the Additional Protocol (such as faster access to suspect sites and environmental sampling), the need to bypass politization of decision-making process, the use of criteria-based scheduling and risk-informed safeguards prioritization, the development of additional funding sources for IAEA Safeguards Department, a criteria-based approach for referrals to UNSG, to support BOG ultimate decision in cases of significant breaches of state safeguards obligations and the development of enhancements to IAEA technical support for member states in good standing, compliant with safeguards requirements and the improvement of nuclear export control regime.

For example, the use of both criteria-based scheduling and risk-informed safeguards prioritization methodology could help in overcoming political objections and politically-motivated budget limitations. Even if neither approach will completely substitute the political decision-making process, they might provide a more objective way to overcoming political deadlocks.

Another key issue is the additional tightening of the export control regime, which could be achieved by upgrading and increasing dual use items trigger list, as well as increasing information exchange regarding suspect exporters, third-party intermediaries and identification of bogus end-use certificates. The establishment of formal supply criteria should include signing and ratifying the NPT or assuming similar obligations, not being in material breach of safeguards implementation as reported by the IAEA, complying with the requirements of UNSC Resolution 1540, MTCR and CPPNM.

Braun mentioned the prospective roles of regional safeguards organizations, which could safeguard nuclear power plants (NPPs) and fuel cycle facilities in member states, in cooperation with the IAEA; monitor state and regional borders to prevent nuclear trafficking; and act as an executive organization for regional NWFZ, if they exist. It could also act as a nucleus for future fuel cycle collaboration.

A final issue is the funding of international safeguards activities, with additional funding needed at IAEA, state and regional counter-proliferation organizations. Special funding campaigns for IAEA Safeguards Department might not succeed without commensurate increase in budget for Nuclear Energy and Technical Support Departments. Another additional funding source might be obtained by adding surcharge tax to the price of uranium mined for nuclear energy projects, or applying an assembly tax that covers all fuel cycle activities leading to fabricated fuel assemblies for NPPs.

Min Gyungsik addressed the evolving Safeguards System and its impact on the State's system of accounting for and control of nuclear material (SSAC), whose primary role is reporting regularly on the State's nuclear material and providing support for the IAEA's verification activities.

The search for greater effectiveness and efficiency has led the IAEA to apply the Integrated Safeguards (IS) to the State who accepted its strengthened safeguards system (Additional Protocol). The three key elements in the successful implementation of the IS are : a broader application of obtainable information (aside from conventional accounting information of the nuclear material, this would include open source information, satellite imagery analysis, among other techniques), the introduction of new technology for material accountancy and enhanced cooperation with the SSAC.

Although the new safeguards system of the IAEA may be interpreted as a new burden to the SSAC, it also gives a chance for the SSAC to increase the transparency of the nuclear activities and to strengthen the control of nuclear material in a state in terms of national security. At the same time it may also expand the role of SSAC in the international community.

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