

# IAEA Efforts in the Field of Disarmament

## Panel 1-2

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**IAEA**

International Atomic Energy Agency

# Taking on New Verification Missions

## Department of Safeguards, Strategic Objective #2

*Contribute to nuclear arms control and disarmament, **by responding to requests for verification and other technical assistance associated with related agreements and arrangements.***



## Role provided for in the IAEA Statute

- Article III.A.5: the IAEA is authorized “to apply safeguards, at the request of the parties, to any bilateral or multilateral arrangement, or at the request of a State party, to any of that State’s activities in the field of atomic energy”.
- Article III.B.1: directs the Agency to conduct its activities “in conformity with policies of the United Nations furthering the establishment of safeguarded worldwide disarmament.”

# IAEA Disarmament-Related Work

- Verified dismantlement of weapons programmes in South Africa, Iraq, and Libya
- Verifying unclassified forms of excess fissile material in the United States since 1994
- Developed structure for verification of classified forms of fissile material through Trilateral Initiative
- Preparing for independent verification role foreseen in U.S.-Russia Plutonium Management Disposition Agreement
- FM(C)T preparatory work with respect to briefings and studies

# Trilateral Initiative

- Six-year effort (1996-2002) between Russia, the United States and the IAEA to develop technical and legal framework for IAEA verification of classified forms of weapon-origin fissile material
- Methods and framework had to be designed to protect classified information and ensure that Russia and the United States met NPT obligations under Article I

# Trilateral Initiative – Early Decisions

- Focused on classified forms of fissile material without attempting to establish that forms actually represented nuclear warheads or components
- One percent of monitored inventory used as metric for effective verification
- Verification measures to be based on attributes verification with information barriers
- Measurement method: high-resolution gamma ray spectroscopy (to establish presence of weapons-grade Pu) and neutron multiplicity counting and high-resolution gamma ray spectroscopy (to measure Pu mass)

# Trilateral Initiative – Verification Scheme

- Sealed containers to be transported to facilities where material converted and shorn of classified isotopics and chemical properties
- IAEA monitoring to begin with arrival of classified material at entry point to conversion facility
- Perimeter monitoring system to assure only monitored containers allowed in
- Normal IAEA safeguards measurement methods and seals applied to fissile material containers exiting the facility
- Managed access into conversion facility

# Trilateral Initiative – Status

- From legal perspective, when work on the Initiative was concluded, the Trilateral Initiative was ready to be carried out, although some implementation details still would require further negotiation
- Project was considered a success

# IAEA Work on FM(C)T

- 1995 study on different verification options and associated costs
- 2006 briefing on verification to Geneva-based Conference on Disarmament
- Technical objective of verifying FM(C)T compliance  
To provide assurance against any new production of weapon-usable fissile material and the diversion of fissile material from the civilian nuclear fuel cycle for nuclear weapon purposes



# FM(C)T Verification Issues

- How is undertaking to be verified?  
*Focused or comprehensive*
- How should stockpiles be covered?
- How issues are addressed will determine:
  - Verification architecture and scope of activities
  - Ability of verification organization to provide high degree of assurance
  - Overall costs

# FM(C)T: Impact on IAEA

- If IAEA tasked to verify compliance, could have major impact
- Activities would likely increase in Nuclear Weapon States and non-NPT States
- Magnitude of workload increase would depend on scope
- Preliminary estimates make in 2008
  - Under comprehensive scheme, in-field activities is affected States would approximately quadruple compared to current effort in those States
  - Under focused approach, effort would more than double

# Concluding Remarks

- Science and technology have evolved since Trilateral Initiative and FM(C)T work conducted
- New possibilities may exist in terms of verification methods and approaches
- With regard to Trilateral Initiative – there may be new technology that help achieve higher confidence levels while also better protecting sensitive information
- With regard to FM(C)T – could benefit from safeguards developments, e.g. State-level concept, more advanced techniques for detection of undeclared nuclear material and activities