Working Group 3

Broader Perspectives on Nonproliferation and Nuclear Verification

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Introduction and Goals

- International security and stability require confidence in global nonproliferation and arms control regimes

- How can nonproliferation tools and culture facilitate verification of future nuclear treaties?

- Goals of working group
  - Identify existing tools – are they applicable to the new challenge of verifying nuclear arms reductions?
  - What modifications would be needed for this new context?
  - Where are the opportunities?
  - What are the gaps?
  - Areas for next steps?
Strengthening Nonproliferation and Triple ‘S’ Culture

- 3 S’s or maybe 4 or 5 (safety, security safeguards, sabotage, supply)
  - Definitions of culture were considered (international, regional, state, facility)
  - How do you organize and then measure commitment? (metrics)
  - How to harmonize across different cultures?

- Export Control
  - Complicated and multi-faceted – need consistency and efficiency; need to overcome barriers
  - Improve Export Control Trigger List linkages to the Additional Protocol

- Methods to evaluate nonproliferation of materials, technology and expertise
  - Country reports
  - State Level Approaches (SLA)
  - Risk-based

Must have confidence that proliferation is not occurring to move the arms reduction process
CTBT: Has established an effective global regime; there are benefits for membership - data has broader than treaty uses (Fukishima accident response used data from all IMS networks)

UNSCR 1540: Noble objectives; grand challenges for effective implementation; radiological threats not included; possible greater G-8 Global Partnership support

UK/Norway/Vertic Exercise: Groundbreaking technical engagement between NWS & NNWS with respect to disarmament; a multi-year exercise; next steps being planned

FMCT: “theology of verification has been defined” – can we effectively use existing mechanisms?; graded verification to achieve final goals; detection of clandestine production is key
Selected Challenges

- Monitoring and verification
  - Warhead lifecycle monitoring; dismantlement monitoring; protecting classified information; simple field-able verification equipment; adaptation will be needed for monitoring of future/fuel cycle technologies
  - Verifying baseline inventories (material, infrastructure, weapons)

- Safeguards in Weapons States
  - EURATOM applies safeguards equally across NWS and NNWS for civil fuel cycle; EUARTOM- IAEA independent but cooperative; can EURATOM role be better utilized?
  - NWS have complex IAEA, bi-lateral & multilateral commitments; Additional Protocol provides more transparency
  - Can we modernize the Voluntary Offer (Amend? Add? Evolve to SLA model?); create risk-oriented and innovative approaches
Deep Reductions

- What is Disarmament?
  - Lack of consensus between states with nuclear weapons on goals
  - Must consider that nuclear weapons do not exist in isolation
  - How can we impact the demand for nuclear weapons?
  - Is nuclear modernization consistent with nuclear reductions?

- Feasibility depends on perception of verifiability
  - Uncertainty-Confidence; Enforcement-Compliance
  - Interplay between negotiations and verification research
  - Verification capability can facilitate movement towards disarmament
  - Capacity building in NWS and NNWS could increase confidence
  - Lack of international experience with nuclear arms control/verification
  - Utilize multilateral cooperation
Nonproliferation Tools / Concepts

**Tools**
- Classification of information
- International Safeguards
- Facility and Material Security
- Export Control
- Monitoring/Detection of Undeclared Activities
- International Cooperation
  - MPC&A, Technical cooperation
  - Development of human capital

**Concepts**
- 3 ‘S’ Culture (Safety, Security, Safeguards)
- State Level Approach
- Safeguards-by-Design
- Risk-based approaches
### Applicability of Nonproliferation Tools and Concepts to Future Arms Control: Some Preliminary Observations and Questions

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<th>Selected Arms Control (AC) Challenges</th>
<th>Applicability of Nonproliferation (NP) Tools and Concepts</th>
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| Lack of consensus on goals by NWS     | • How to develop an AC culture amongst NWS? (3S culture “mature” for NP, but non-existent for AC.) Role of technical cooperation?  
• International standards for NW and material safety and security? |
| Lack of experience with nuclear arms control | • Human capital development: Can we strategically use technical cooperation on nuclear AC verification to develop common approaches? (NWS and NNWS) |
| Confidence in baseline declarations and verification regime with deep reductions | • What is the analogue of the “state-based” approach?  
• How to utilize all available sources of information?  
• Do we need “verification” standards as we move to multilateral nuclear arms control? |
| Weapons fissile material monitoring   | • Civilian “sensitive” facilities in NWS could be placed under IAEA safeguards as first steps (use State-Level Approach).  
• IAEA safeguards monitoring could be used as a general template (with appropriate modifications) for FMCT.  
• What modification could be made to the Additional Protocol to assist in detection of clandestine production in NWS? |
| Modernizing nuclear infrastructure while reducing nuclear weapons | • Can we generalize “safeguards by design” to “verification/transparency-by-design” for new facilities/assets? |
Additional Observations / Questions

- Protection of sensitive information and technology is critical to both Nonproliferation and Arms Control
  - What can we learn from international safeguards experience?

- What other Arms Control verification approaches could be relevant to nonproliferation?
  - Radionuclide monitoring for CTBT
  - Short-notice inspections
  - Satellite imagery
  - Open Skies

- Using open source Information
  - Societal monitoring
Next steps

Possible areas where ESARDA and INMM could make a valuable contribution:

- Systematic analysis of opportunities to utilize NP tools and concepts to facilitate future arms control
- Further development of concepts for Safeguards in NWS
  - Explore remote monitoring
  - Unpredictability
- Societal Monitoring