

# The Nuclear Weapons Convention

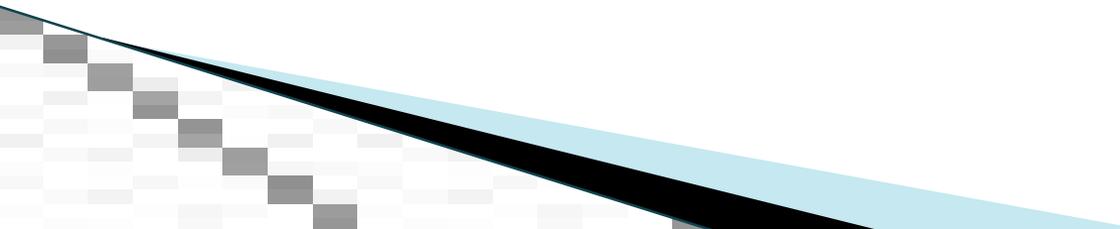
## Verification and Compliance Aspects

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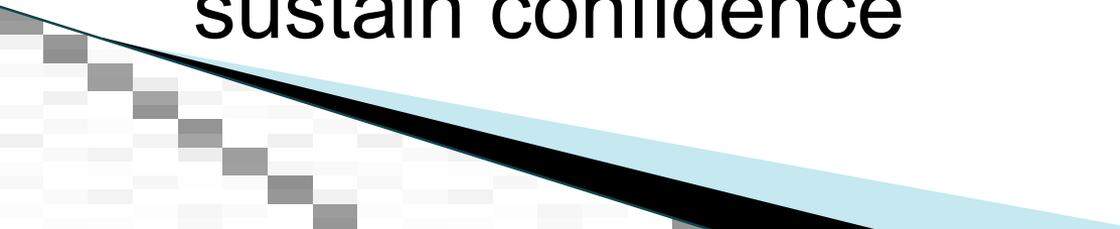


Canadian Centre for  
Treaty Compliance

# Outline

1. Goals of verification and compliance
  2. How much is enough?
  3. Verification tasks and methods
  4. Verification tools
  5. Institutional possibilities
  6. The 'break-out' problem
  7. Next steps
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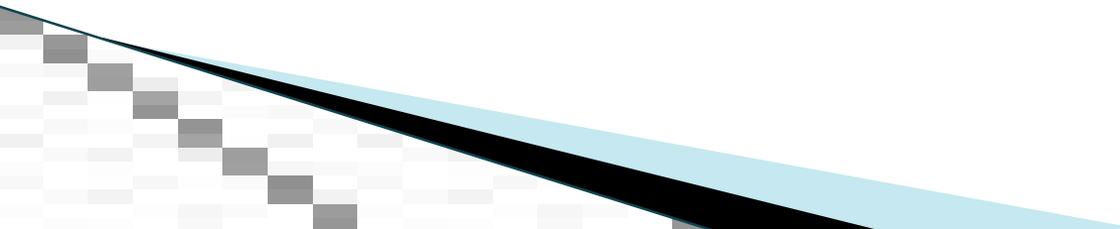
# Goals of verification and compliance arrangements

- ▶ timely detection of non-compliance
  - ▶ early and effective response to non-compliance
  - ▶ in order to deter non-compliance and sustain confidence
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# How much verification is enough?

- ▶ 100% verification is impossible technically, politically and financially
- ▶ instead verification needs to reduce the risk of non-compliance to a minimum by:
  - providing a high probability of timely detection
  - raising the cost of attempting to cheat
  - creating uncertainty in the minds of the potential violator

# How much verification for a nuclear weapon-free world?

- ▶ unprecedented transparency: in order to build confidence
  - ▶ unprecedented intrusiveness of monitoring and inspection: due to the international security implications of 'breakout'
  - ▶ a more dependable compliance system than currently exists via the UN Security Council
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# Verification tasks and methods - the (relatively) easy part

- ▶ Dismantlement and destruction of declared nuclear weapons, facilities and delivery systems

*Build on START/INF measures*

*Additional research needed on warhead dismantlement*

- ▶ Verification of non-diversion of declared fissionable materials/facilities to new weapons production

*Improved IAEA safeguards, especially for timely detection at dual-use facilities (enrichment/reprocessing)*

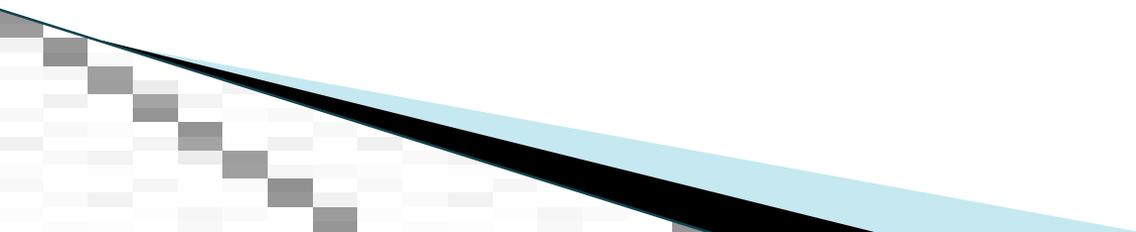
# Verification tasks and methods- the hard part

- ▶ Verification that no undeclared weapons or facilities remain

*Intrusive challenge inspections and new technical means of detection needed*

- ▶ Timely detection of resumed or new research, development or manufacture of nuclear weapons

*Intrusive routine and challenge inspections and constant monitoring*



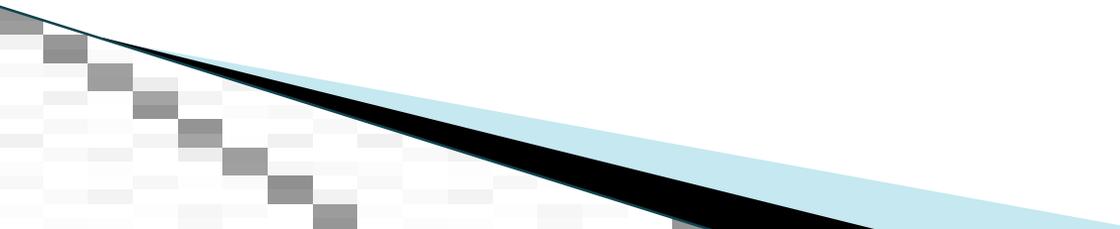
# Verification tools

- ▶ transparency and confidence-building measures: declarations; self-reporting; nuclear accountancy/ archaeology/forensics
- ▶ remote monitoring: satellites and aircraft (Open Skies); atmospheric; seismic; environmental
- ▶ unattended on-site, portal or area monitoring; cameras; detectors
- ▶ on-site inspections: permanent, routine, unannounced, challenge
- ▶ National Implementation Measures

# Institutions

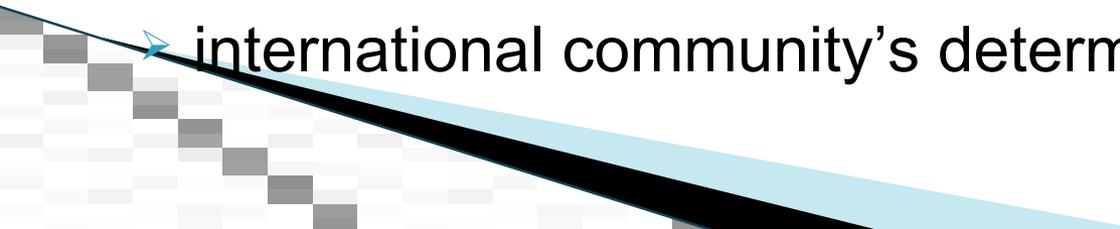
- ▶ Agency for the Prohibition of Nuclear Weapons (successor to the IAEA?)
  - universal membership
  - Executive Council to handle non-compliance cases
  - Secretariat and inspectorate, analytical specialists, weapons experts
  - global verification, monitoring and communication systems
- ▶ Reformed United Nations Security Council or separate NWC Compliance Commission?
  - more representative membership
  - no veto

# Arrangements outside the NWC

- ▶ ‘National Technical Means’ (HUMINT, SIGINT, ELINT)
  - ▶ verification/compliance arrangements between former weapon states (US/Russia/China; India/Pakistan; the 2 Koreas; Israel and its neighbours)
  - ▶ regional approaches: enhanced Nuclear Weapon-Free Zones
  - ▶ civil society monitoring (equivalent to Landmine Monitor)
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# The 'break-out' problem

Impact would depend on circumstances:

- warning in time to take action
  - whether the violator uses or threatens use and for what purpose
  - readiness and deliverability of the weapon(s)
  - existence of missile defences
  - virtual nuclear deterrence
  - conventional military strength of the violator vs. the rest of the international community
  - international community's determination to respond
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# Attenuating the 'breakout' problem

- ▶ ban reprocessing of plutonium
  - ▶ ban use of HEU for any purpose
  - ▶ multilateralize uranium enrichment (and even mining and processing?)
  - ▶ intrusive on-site inspections or perimeter inspections long before final destruction of weapons to deter hiding of existing weapons
  - ▶ an aggressive lessons-learned process as nuclear disarmament proceeds
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# What is there to do now?

- ▶ nuclear transparency
  - ▶ confidence-building measures between nuclear weapon states, including joint studies
  - ▶ drawing lessons from existing global verification regimes (nuclear nonproliferation, nuclear testing, chemical weapons)
  - ▶ fleshing out Model NWC, including adding Verification Annex
  - ▶ verification research and development
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