

# **Key Nuclear Verification Priorities: Safeguards and Beyond**

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# 1. Current verification objectives and priorities

- Effective safeguards underpin non-proliferation regime - essential for disarmament.
- Principal **strategic objective** for safeguards:  
*Support non-proliferation regime through:*
  - **credible assurance** that states honouring commitments
  - **early detection** of misuse of nuclear material, technology.
- Policy-level objectives:
  - **confidence-building**
  - **detection capability**
  - **deterrence.**
- These apply to both safeguards and future missions.

## Do current safeguards priorities reflect these policy objectives?

- Traditional focus is **detection capability**
  - greatest priority is detection of **undeclared**.
- Another key priority is **efficiency**.
- Both closely linked to **information-driven** safeguards.
- In addition to these 'technical' objectives, also essential to address broader issues of **confidence** and **deterrence**
  - failures will impact on future missions
  - confidence and deterrence as specific priorities?

## 2. Verification commonalities

- **Progress with disarmament will be stepwise:**
  - fissile material cut-off
  - fissile material disposition
  - nuclear weapon limitations
  - nuclear weapon dismantlement
  - nuclear inventory baselines.
- **Features in common with safeguards:**
  - treaty commitments
  - inspection mechanism
  - declarations
  - inspections – including against **undeclared**
  - **compliance** and **enforcement** mechanisms.

## **Novel situations will require innovative solutions**

- **Safeguards experience will make significant contribution to the new verification missions.**
- **New approaches may include:**
  - mutual/regional inspections
  - data monitoring/sharing
  - wide area environmental sampling
  - transparency measures
  - societal verification.
- **Priorities identified for safeguards likely to be priorities for the new missions.**

### 3. Confidence

- Key safeguards objective is to provide **credible assurance** - supporting **confidence** in the regime
  - credible assurance, **detection capability**, confidence, all closely linked.
- Safeguards not the only source of confidence
  - state's **behaviour** is the principal factor
  - establishing confidence is up to the state itself.
- Safeguards an important tool
  - acceptance of CSA **and AP**
  - full **cooperation**.

## 4. Detection capability

- The core of the safeguards mission
  - without effective detection capability, confidence not possible
  - but technical capability not enough – must ensure technical findings result in appropriate outcomes
  - legal, institutional, process issues.
- Under NPT, safeguards purpose is to **prevent** diversion
  - this requires **timely warning** - **early detection**
  - 153 para 28.



## **Diversion from declared material and activities**

- **The traditional safeguards focus**
  - many safeguards innovations over the years
  - challenges of complexity, workload.
- **Emphasis on **integrated safeguards, information-driven** safeguards, **state-level approach****
  - important to safeguards effectiveness for both declared and undeclared material/activities.

## Detection of undeclared material and activities

- **Greatest single safeguards priority**
  - confidence in safeguards depends on this
  - IAEA needs substantial assistance from states.
- **IAEA's methods based on detection techniques and information analysis**
  - central place of AP
  - on technical side, more development needed.
- **IAEA cannot detect undeclared activities unaided**
  - states must contribute – **active partnership.**

## Determining non-compliance

- Depends on technical capability **and appropriate handling** by BOG.
- **Standard of proof**
  - confusion about *evidence* and *proof* damaging to IAEA credibility - bar must not be set too high
  - 153 recognises realities - allows non-compliance finding if IAEA ***unable to verify*** no diversion
  - international practice - **balance of probabilities**
  - divergence between IAEA practice and international expectations will destroy confidence.

## 5. Deterrence

- Deterrence depends on assessment of **risks**:
  - whether violation will be **detected**
  - whether **non-compliance** finding will be reached
  - whether **enforcement** action will be taken.
- **Timeliness** a critical part of the equation.
- Effective deterrence requires sufficient risk at all stages – high risk of detection no deterrent if risk of timely intervention low.
- International community must be prepared to take compliance action.

## 6. Verification priorities

- **Key safeguards priorities generally considered as:**
  - detection capability
  - cost-efficiency
  - adequate resourcing.
- **These also important for future missions.**
- **To these should be added:**
  - ensuring **clarity** of mission
  - building **political support** for the mission
  - preparedness to **enforce compliance**.

## **Clarity of mission**

- **Shared understanding of objectives, processes and standards, and how decisions are made.**
- **Understanding of detection capabilities, vulnerabilities and how to address these**
  - **avoiding over-expectation**
  - **reinforcing need to share information.**

## **Building political support**

- **Essential at number of levels:**
  - **states see cooperation with safeguards serves their national interest**
  - **states will provide necessary resources**
  - **states will share information**
  - **states will back IAEA against non-compliance.**
- **Essential to de-politicise attitudes to safeguards.**
- **Clear articulation of safeguards benefits**
  - **demonstrated performance and outcomes**
  - **effective use of authority.**

## **Preparedness to enforce compliance**

- **Vital part of confidence-building and deterrence.**
- **Enforcement largely in the hands of states**
  - **but states rely on IAEA to carry out responsibilities effectively**
  - **and to identify and report on non-compliance.**



## 7. Conclusions

- **For any verification mission, ability to detect treaty violations essential**
  - **attention to how other ‘traditional’ priorities, eg cost-efficiency and resourcing, impact on detection capability.**
- **Other priorities also essential:**
  - **clarity of mission, political support, compliance enforcement.**
- **Need for holistic approach, addressing policy as well as technical concerns.**
- **Multi-disciplinary approach – verification philosophy.**