The Non-Proliferation Regime and International Safeguards

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Introduction

• Early History of Safeguards
• The NPT
• Post Iraq
• Additional Protocol, the “Broader Conclusion” and Integrated Safeguards
• Safeguards in NWSs
• The Future of Nuclear
Early History

• Trinity
• Hiroshima and Nagasaki
• Acheson - Lilienthal Report
  • Baruch Plan
• Atomic Energy Act
• Eisenhower - UN General Assembly
• INFCIRC/26
Trinity - the Atomic Age dawns
The morning after!
Japan August 1945
Early History

• Trinity
• Hiroshima and Nagasaki
• Acheson - Lilienthal Report
  • Baruch Plan
• US Atomic Energy Act
• Eisenhower - UN General Assembly
Eisenhower’s ‘Atoms for Peace’ speech - 8 December 1953

“But the dread secret and the fearful engines of atomic might are not ours alone. In the first place, the secret is possessed by our friends and allies, the United Kingdom and Canada, whose scientific genius made a tremendous contribution to our original discoveries and the designs of atomic bombs.”
Growth of Safeguards to 1966
Non-Proliferation

• Objectives
• Partial Test Ban Treaty
• INFCIRC/66 - Revs 1 and 2
• The NPT
• Regional treaties
• INFCIRC/153 and the Comprehensive Safeguards System
  • Scope and Limitations
• Iraq and the DPRK
Non-proliferation Initiatives
Tuwaitha
Rotor Tube from Iraq
Pole Pieces
Remove, Destroy or Render Harmless
Post Iraq

• Strengthening the Safeguards System
• INFCIRC/540
  • Scope and Limitations
• The ‘Broader Conclusion’ & Integrated Safeguards
• Np & Am
Safeguards Strengthening Measures

- Voluntary reporting scheme
- Early provision of design information
- Environmental sampling
- Unattended and remote monitoring
- Greater use of unannounced inspections
- Enhanced training
- Cooperation with SSACs
- Enhanced analysis of information
Measures under INFCIRC/540

• Provision of information on and inspector access to all aspects of nuclear fuel cycle
• Information on production & export of sensitive nuclear related technologies
• Information on and short-notice access to all buildings on a nuclear site
• Designations and multiple entry visas
• Use of internationally established communication systems, including satellites.
Integrated Safeguards in Canada

• INFCIRC/164 – Feb 1972
• Additional Protocol – Sept 2000
• Roadmap
• Broader Conclusion
• Development of State-level IS Approach
• Progress to Date
Safeguards in NW States

- Voluntary Offer Agreements
- No economic advantage
- Obligations
- Training of inspectors
- Request of Other States
The Agency in 2008

Staff: 2250
HQ – Vienna
Regional Offices:
Tokyo, Toronto
Marine Environ Lab:
Monaco
Budget

Regular Budget 2008 - €288.8 million

- Nuclear power - €28.4 million
- Nuclear techniques - €32.5 million
- Safety & security - €23.5 million
- Verification - €113.7 million
- Policy mgt - €74.5 million
- Technical cooperation - €16.2 million
Material under Safeguards

- At the end of 1980
  - Pu = 82 tonnes
  - HEU = 13 tonnes

- At the end of 2006
  - Pu = 980 tonnes
  - HEU = 31 tonnes
The Future of Nuclear

- Agency doing “2020 Vision”

![Estimated Growth in Global Nuclear Capacity](image)
The Future of Nuclear

• Agency doing “2020 Vision”
  • Nuclear broker role for Agency to assure supplies of fuel
  • Need for geological disposal of high level radwaste
  • Agency to play an increasing role in promoting safe and secure transport of radioactive materials
  • Priority to preventing and mitigating effects of nuclear accidents
  • New universally accepted safety standards by 2020
The Future of Nuclear - verification

[Bar chart showing person-days and number of facilities for verification in the field, evaluation at HQ, and number of facilities from 2007 to 2030]

IAEA
Atoms for Peace: The First Half Century
1957–2007
Challenges to Safeguards

- DPRK and the issue of “Completeness”
- South Africa – nuclear transparency exemplified
- Nuclear networks
- Libya
- Iran
- Resource constraints
Other Issues?

- Enrichment
- Reprocessing
- Geological disposal
- Fresh water
- Verifying nuclear disarmament
Questions?