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Joint ICTP-IAEA School of Nuclear Energy Management

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OVERVIEW OF THE NUCLEAR NON-PROLIFERATION REGIME

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OVERVIEW OF THE NUCLEAR NON-PROLIFERATION REGIME

IONUT SUSEANU

OFFICE OF LEGAL AFFAIRS

IAEA-ICTP
School of Nuclear Energy Management

Trieste, 14 November 2012

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International Atomic Energy Agency

International Control

1945

Hiroshima and Nagasaki

Use of first atomic bombs showed the urgency to bring nuclear energy under effective international control and to ensure that is would be used for peaceful purposes only

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Early Initiatives

Jan 1946

United Nations Atomic Energy Commission

Mandate to develop proposals for the elimination of nuclear weapons and for the control of atomic energy

June 1946

The Baruch Plan

Nuclear disarmament with international control over nuclear activities

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Atoms for Peace

Dec 1953

Atoms for Peace

To create an international organization responsible for promoting safe and peaceful uses of nuclear energy and verifying that nuclear technology is not misused

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THE IAEA

1957
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- **Intergovernmental organization**
- **Independent from United Nations**
- **Direct access to the Security Council**
- **Headquarters in Vienna**
- **Established by the Statute**
- **151 Member States**

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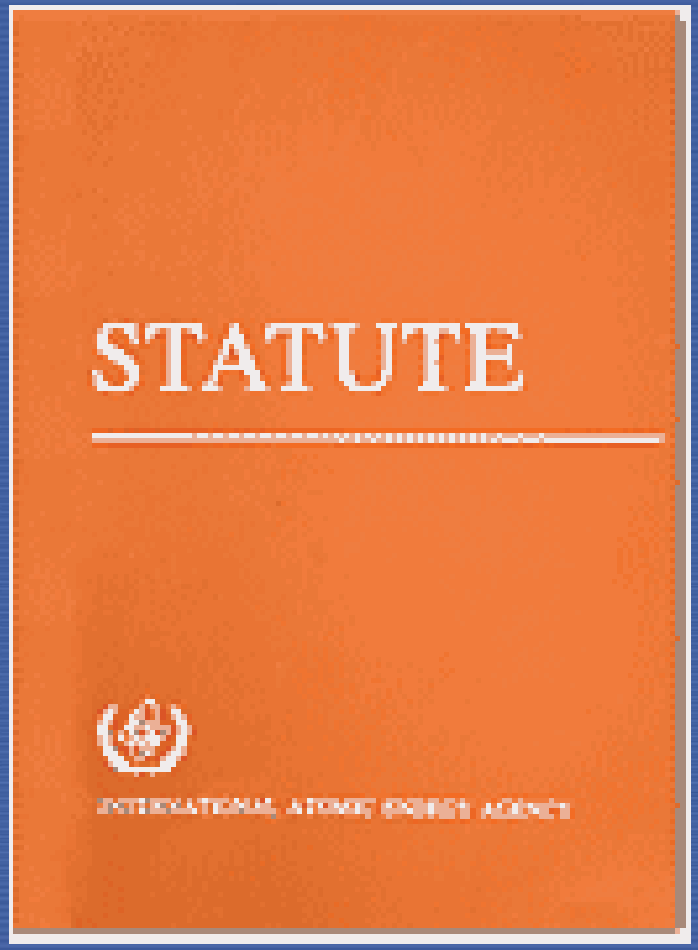
IAEA Statute



IAEA authorized to establish and administer safeguards:

- **Article III.A.5**
  - Agency assistance
  - Any bilateral or multilateral arrangements at the request of the parties
  - Any nuclear activities of a State at its request
- **Article XII**
  - Fundamental features of IAEA safeguards

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What are IAEA Safeguards?




Key technical means for verifying compliance by States with legally binding undertaking not to use nuclear material or facilities to develop nuclear weapons or other nuclear explosive devices

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IAEA Safeguards

- Membership in IAEA does not require acceptance of safeguards
- IAEA safeguards possible in non-Member States
- Implementation of safeguards requires consent of the State (not self-executing)

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Treaties Requiring Safeguards

- Bilateral nuclear cooperation agreements
- Multilateral treaties:
  - 1970: NPT – near universal
  - Regional treaties establishing NWFZs:
    - 1967:Tlatelolco
    - 1986: Rarotonga
    - 1997: Bangkok
    - 1996: Pelindaba
    - 2008: Central Asia
    - All NWFZ Treaties entered into force

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The NPT

1 July 1968

Opened for signature

5 March 1970

Entered into force

Cornerstone of the international nuclear non-proliferation regime

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Types of Safeguards Agreements

- **Item Specific (INFCIRC/66/Rev.2)**
  - Safeguards system prior to the NPT
- **Comprehensive Safeguards Agreements (CSAs) INFCIRC/153 (Corr.)**
  - Comprehensive safeguards in connection with the NPT and NWFZ Treaties
- **Voluntary Offer Agreements (VOAs)**
  - China, France, Russia, UK and US (NPT NWSs)

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Item-Specific Safeguards Agreements

1961: Covered research reactors only (INFCIRC/26)

1964: Expanded to cover all reactors

1965: Revised (INFCIRC/66)

1966: Revised and expanded to cover reprocessing plants

1968: Expanded to include procedures for conversion and fuel fabrication plants (INFCIRC/66/Rev.2)

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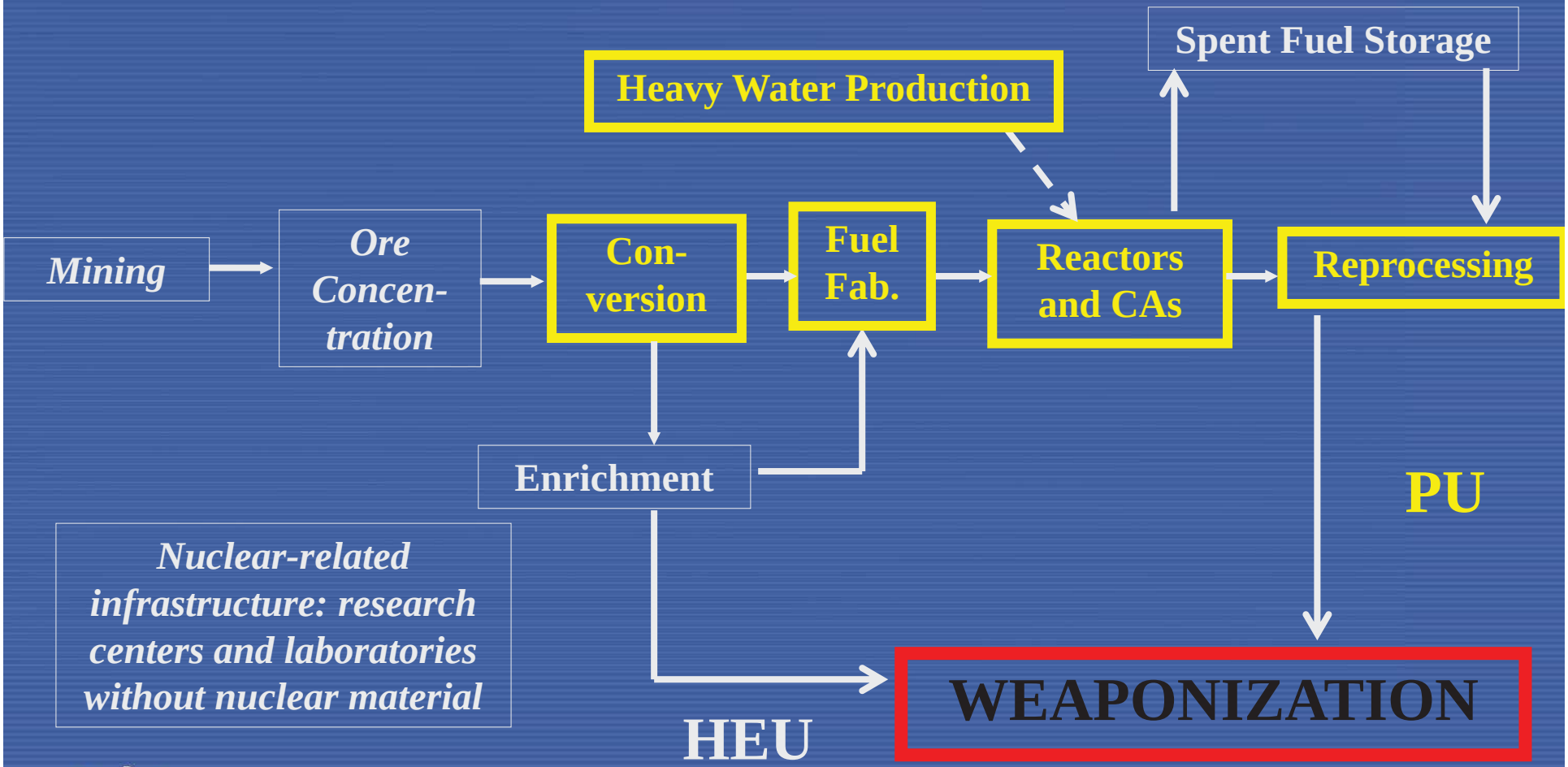
Safeguards Coverage under 66 Agreements



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CSAs Required by NPT

Non-Nuclear-Weapon States (NNWSs)

Art. II - Not to acquire nuclear weapons or other nuclear explosive devices

Art. III.1 - Accept safeguards on all nuclear material in the State, as set forth in an agreement with the IAEA in accordance with the Statute and its safeguards system

Art. III.4 - Conclude agreements within 18 months

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NPT Export Control Requirements

All States Parties

Art.III.2 - Not to provide source or special fissionable material, or equipment or material "especially designed or prepared" (EDP) for the processing, use or production of special fissionable material to any NNWS, unless subject to IAEA safeguards

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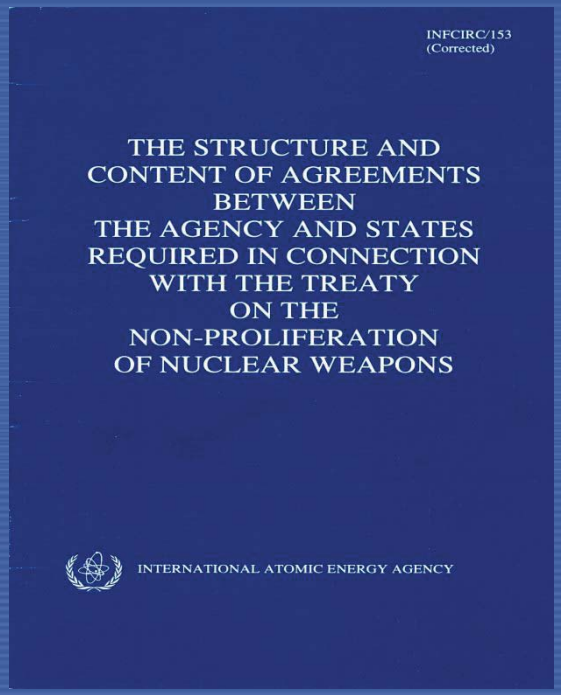
Comprehensive Safeguards Agreements

The Structure and Content of Agreements between the Agency and States required in connection with the Treaty on the Non-Proliferation of Nuclear Weapons

INFCIRC/153 (Corr.)



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CSA: INFCIRC/153

- Developed by an open ended committee of IAEA Board of Governors (1970-1971)
- Approved by the Board in April 1971
- The Board requested the Director General to use it as a **basis** for negotiating safeguards agreements between the IAEA and NNWSs party to the NPT
- Content: Part I, Part II and Definitions

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Safeguard Agreements based on INFCIRC/153

- CSAs with NNWSs pursuant to the NPT
- CSAs with NNWSs pursuant to NWFZ Treaties
  - 1967:Tlatelolco
  - 1986: Rarotonga
  - 1997: Bangkok
  - 1996: Pelindaba
  - 2008: Central Asia
- Sui generis CSAs with NNWSs
- VOAs with the 5 NPT NWSs

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Why a Comprehensive Safeguards Agreement ?

The State

- **Voluntarily became party to the NPT**
- **Is a non-nuclear-weapon State (NNWS)**
- **Has committed to conclude a CSA with the IAEA**
- **May have a similar commitment under a Nuclear Weapon Free Zone Treaty**

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Comprehensive Safeguards Agreement

- International treaty concluded between a State or States and the IAEA
- Based on INFCIRC/153 (Corr.)
- Standardized model (GOV/INF/276, Annex A)
- Board approval is required
- Signed by the State and the Director General
- Entry into force: upon signature or written notification by the State

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CSA: State's Undertaking

… to accept safeguards, in accordance with the terms of the Agreement, on all source or special fissionable material in all peaceful nuclear activities within the territory of the State, under its jurisdiction or carried out under its control anywhere …

INFCIRC/153 (Corr.), para. 1

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CSA: IAEA Right and Obligation

…to ensure that safeguards will be applied, in accordance with the terms of the Agreement, on all source or special fissionable material in all peaceful nuclear activities within the territory of the State, under its jurisdiction or carried out under its control anywhere…

INFCIRC/153 (Corr.), para. 2

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CSA: IAEA Right and Obligation

To verify correctness and completeness of a State's declarations

Confirmed by Board in March 1995

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CSA: Basic Obligations of the State

- Provide information to the IAEA concerning nuclear material, facilities and activities
- Provide access to the IAEA for purposes of inspections and design information verification
- Cooperate with the IAEA in the implementation of the safeguards agreement
- Establish a State system of accounting for and control of nuclear material (SSAC)

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CSA: Elements

Information:

- Initial report on nuclear material
- Initial list of all nuclear facilities, and design information
- Record keeping of nuclear activities
- Reporting of inventory changes (flow), including imports and exports

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CSA: Elements

Access:

- DIV: facility design information verification
- Inspections:
  - Ad hoc – used for verifying initial report/exports of nuclear material
  - Routine – once Subsidiary Arrangements agreed; limited to strategic points
  - Special – when information available to IAEA "not adequate for IAEA to fulfil its responsibilities under the Agreement"

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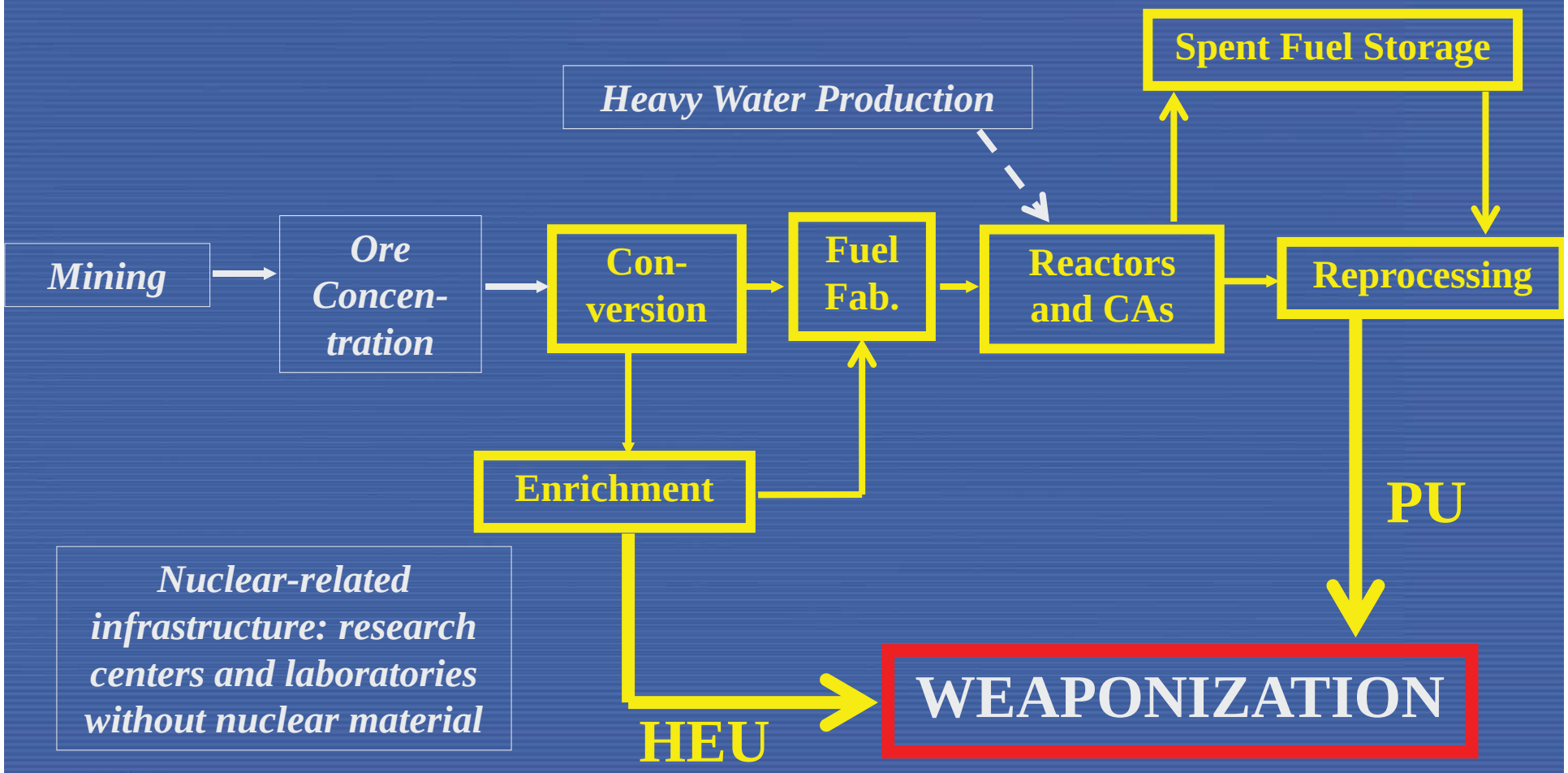
Safeguards Coverage under CSAs



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Small Quantities Protocol (SQP)

State eligibility for SQP (GOV/INF/276, Annex B):

- **Little or no nuclear material and**
- **No nuclear material in a nuclear facility**

Holds in abeyance most of State's reporting and access requirements

Does not hold in abeyance:

- **Obligation not to divert nuclear material to proscribed uses**
- **Requirement to establish SSAC**
- **Report annually imports and exports of nuclear material**

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Modified SQP

Board decision September 2005:

- SQP is a weakness
- Remains part of SG system but modified
- States with SQPs asked to modify the text
- No longer eligible if State has existing or planned facility

Requires:

- Initial report on nuclear material
- Early notification of decision to authorize construction or to construct a facility
- IAEA access for ad hoc and routine inspections to verify the State's declarations

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Strengthening IAEA Safeguards

- Implementation issues encountered in Iraq and DPRK
- New experience gained in South Africa
- Confirmation of Agency access to **undeclared locations**
- Confirmation of State's obligation to provide **early design information** on nuclear facilities, and Agency's **continuing right to verify** it

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Strengthening IAEA Safeguards

- **Programme 93+2**
  - **Part I measures – other measures possible within existing legal authority (e.g. environmental sampling)**
  - **Part II measures – those requiring additional legal authority**
  - **Decision to develop new legal instrument**

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Model Additional Protocol

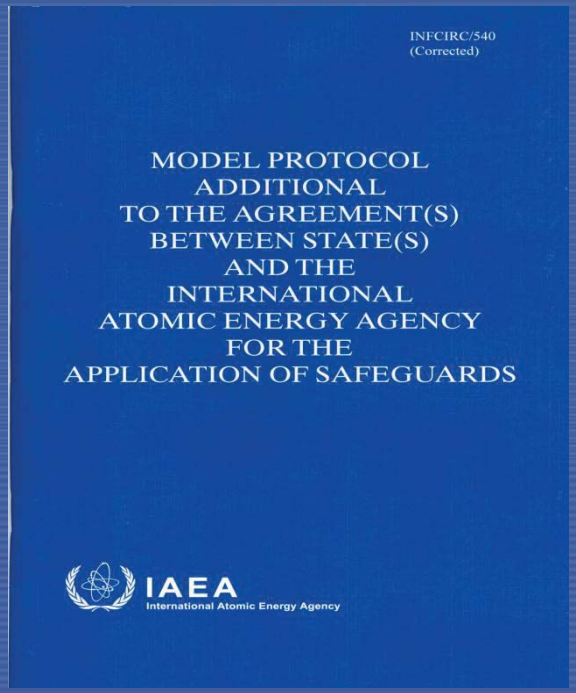
Model Protocol Additional

to the Agreement(s) between State(s) and

the International Atomic Energy Agency

for the Application of Safeguards

INFCIRC/540 (Corr.)



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Model Additional Protocol

- Approved by the Board in May 1997
- Model for CSA States: must accept all measures
- Other States encouraged to conclude APs: need not accept all measures
- 102 States with CSAs brought into force APs and all NWSs have an AP in force

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What is an Additional Protocol?

- A protocol to any safeguards agreement – not free standing
- Standardized model (INFCIRC/540 (Corr.))
- Board approval required for each AP
- Signed by the State and the Director General
- Entry into force:
  - Upon signature
  - Upon receipt of notification by the Agency
  - Can be implemented provisionally pending entry into force

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Purpose

… to strengthen the effectiveness and improve the efficiency of the safeguards system as a contribution to global nuclear non-proliferation objectives …

INFCIRC/540, Foreword

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AP: New Tools

- More complete information about a State's nuclear fuel cycle
- Broader (but not unlimited) access to locations within a State
- New administrative measures

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AP: Elements

Information

All aspects of a State's nuclear fuel cycle activities – from mines to nuclear waste:

- **State-controlled nuclear fuel-cycle related R&D not involving nuclear material *- Art. 2.a.(i)***
- **Operational activities at facilities and LOFs *- Art. 2.a.(ii)***
- **Buildings on *"sites" - Art. 2.a.(iii)***
- **Activities functionally related to the nuclear fuel cycle (Annex I activities) *- Art. 2.a.(iv)***
- **U mines; U and Th concentration plants *- Art. 2.a.(v)***

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AP: Elements

Information

- Inventories, imports and exports of nuclear material not currently required (pre-34(c) material) ***- Art.2.a.(vi)***
- Exempted material ***- Art. 2.a.(vii)***
- Location and further processing of terminated intermediate and high-level waste ***- Art. 2.a.(viii)***
- Exports of specified equipment and non-nuclear materials (Annex II); imports on request ***- Art. 2.a.(ix)***
- Future plans ***- Art. 2.a.(x)***

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Complementary Access: Where and Why

- Any place on a site ***Art. 5.a.(i)***
- Other places where nm declared to be ***Art. 5.a.(ii)***

To assure the absence of undeclared nuclear material and activities *(Art. 4.a.(i))***

Decommissioned facilities/LOFs ***Art.5.a.(iii)***

To confirm decommissioned status *(Art. 4.a.(iii))*

- Other locations declared by State (R&D, functionally related) ***Art. 5.b.***
- Other locations for ES ***Art. 5.c.***

To resolve questions or inconsistencies *(Art. 4.a.(ii))*

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** includes resolution of questions and inconsistencies

AP: Elements

Administrative measures

- Inspector designation
- Visas
- Access to and use of state of the art communications systems

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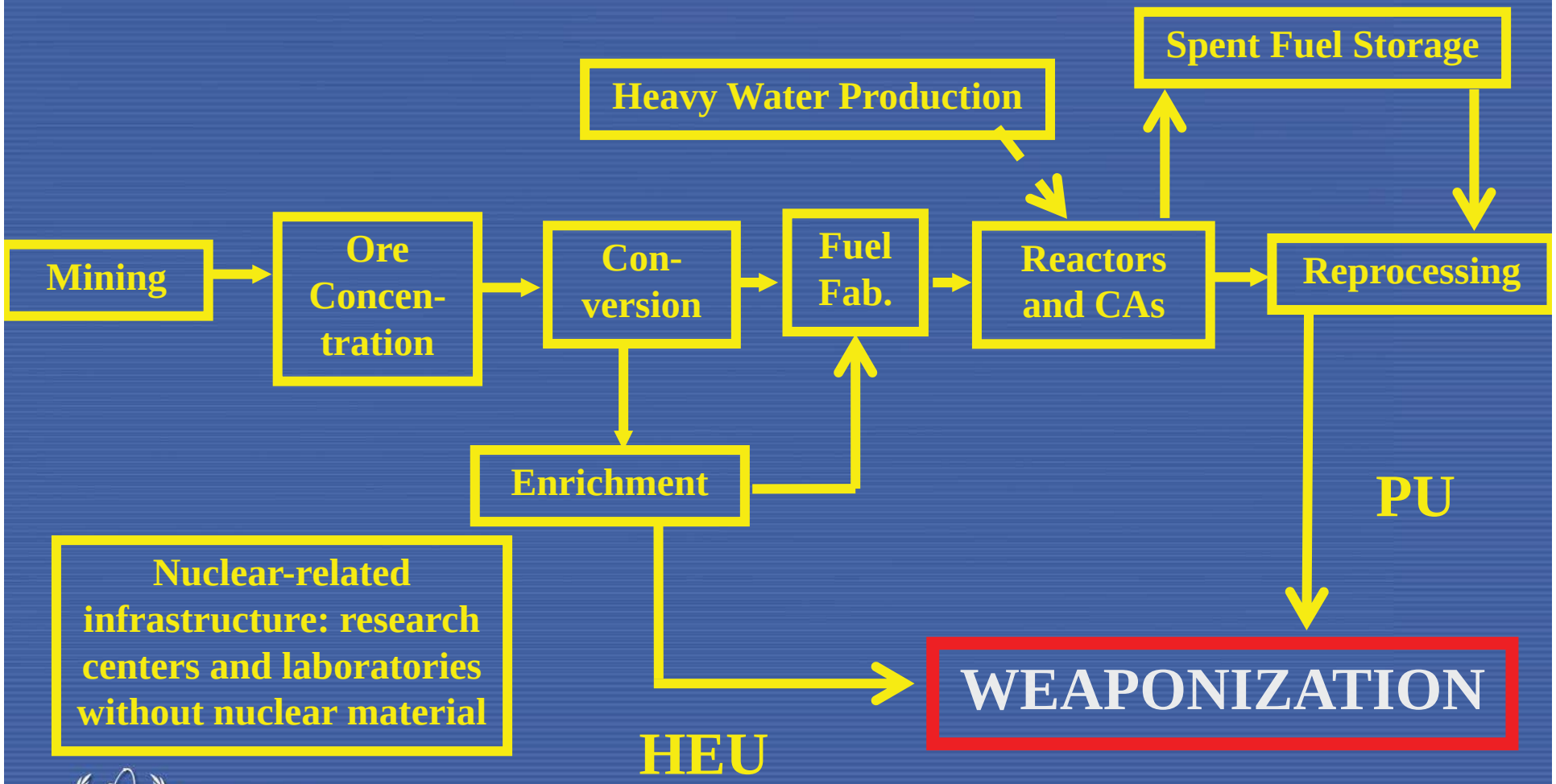
Safeguards Coverage: CSAs with APs



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CSA and AP Implementation

- Contribute to greater nuclear transparency and confidence building in the context of regional and international security
- Makes the State and its neighbours more secure
- Permits the State to have increased access to nuclear technology
- Permits the IAEA to provide increased assurance of the absence of undeclared nuclear material and activities in the State

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What is Needed to Implement Safeguards?

- Ensuring that legislation and regulations are in place
- Ensuring that legal framework is consistent with State's international obligations
- Ensuring that the SSAC has adequate:
  - Authority
  - Independence
  - Human resources
  - Financial resources

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National Legislation

ELEMENTS

- SSAC
- Licensing
- Inspection
- Enforcement
- Criminalization
- Import and export controls

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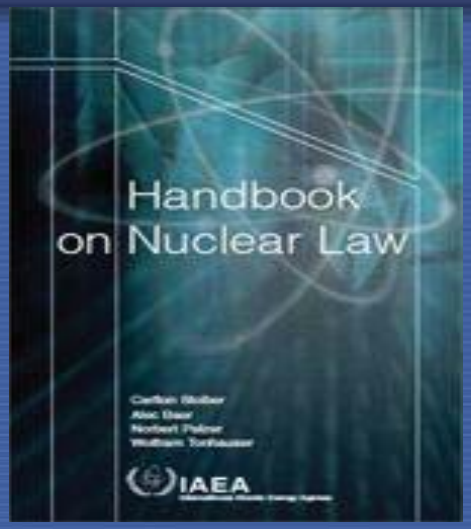
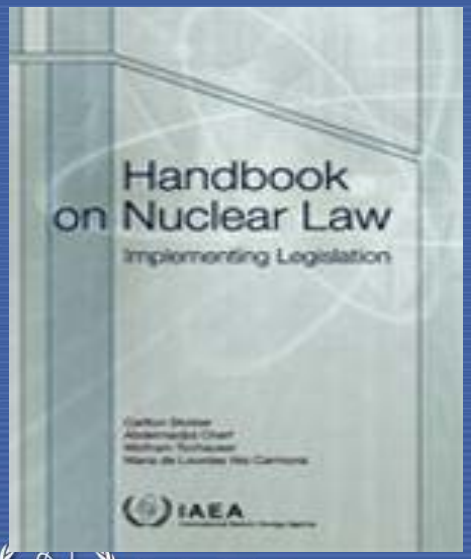
IAEA Legislative Assistance





IAEA legislative assistance programme available to all Member States

Office of Legal Affairs has provided legislative assistance to more than 100 Member States upon their request

The programme covers all areas: nuclear safety, civil liability, nuclear security, safeguards and export controls

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