IRSN’s missions in International Safeguards

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Definition of non-proliferation

A set of commitments taken within the framework of international treaties. They identify nuclear materials or chemical products with a dual use:

i.e.

- having civil applications (industry, research, pharmacy), but on which a CONTROL must be applied

because

- being able to enter the manufacturing of a weapon
The International Safeguards and the Chemical Weapon Convention implementation department is the technical support of the French authorities for the implementation in the civil field of international NON-PROLIFERATION treaties.
Non Proliferation team at IRSN

- Manage declarations
- Escort inspections
- Assess documentation
- Inform and advise operators and authorities

@ http://non-proliferation.irsn.fr
Internl treaties establish a set of guarantees

by which it is possible to verify that a State party respects its commitments not to divert peaceful programmes for military purposes

The system is based on the evaluation of the **accuracy** and the **exhaustiveness** of the declarations of a State concerning the nuclear and chemical materials

The control of these commitments is made through the operators that implement these materials
example of the control of the nuclear materials

European Commission
Euratom treaty

IAEA
NPT/additional protocol

Bilateral agreements

MIN « holders » (operators)

INTERNATIONAL

MINISTRY OF ENERGY

NATIONAL

Ministry of energy
History of the International Nuclear Safeguards

- Treaty of Rome establishing EAEC (1957)
- Creation of the IAEA (1957)
- First Safeguards System of the IAEA (1961)
- NPT Entry into Force (1970)
- 1st Gulf War - Discovery of the Irak Nuc Program (1990)
- Euratom Regulation # 3227 (1976)
- Extension indefinitely of the NPT (1995)
- Euratom Regulation # 302 (2005)
- Adoption of the Model Protocol Additional to the Agreements (1997)
- Beginning of the Program '93+2' for strengthening Safeguard system (1993)
- President Eisenhower speech ‘Atoms for peace’ (1953)
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Built together
The IAEA system of guarantees

- 188 State party
- 3 Non-state party: India, Israel, Pakistan + North Korea
The Non-Proliferation Treaty objectives

1. Favor the cooperation and the development of the nuclear energy for peaceful purposes

2. Require a commitment to SP

3. Allow a control on the State’s commitment

- Limit the number of Nuclear Weapon States

   - NWS
     - not to transfer to any recipient nuclear weapons or other nuclear explosive devices
     - not in any way to assist, encourage, or induce any non-nuclear-weapon State to manufacture or otherwise acquire nuclear weapons
     - not to receive from any transfer nuclear weapons or other nuclear explosive devices
     - not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices

   - NNWS

- State Parties must conclude a safeguard agreement and accept a control on Nuclear materials
IAEA Safeguards

**Objective**

Aims to timely detect the diversion of **significant quantities** of **nuclear material** from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices, or for unknown purposes, and prevent such diversion by the risk of **early detection**

**Mechanism:**

State (comprehensive Safeguard agreement + Additional protocol)

Concerned NM: U, Pu, Th

Verification of the information

**Finality control**
The strengthening of guarantees

The discovery of the clandestine program in Iraq and the problems met in North Korea (although signatories of the NPT and welcoming inspections) brings to light the weakness of the means at the disposal of the IAEA to detect undeclared activities.

Strengthening in 2 directions:

- On the controls operated by IAEA. : [The Additional Protocol](#)

- The Nuclear Suppliers Group makes a commitment not to supply nuclear equipment to the countries that would not place all their activities under the control of the IAEA : the control of the exports
IAEA Safeguards

Information to be provided by the State

**SAFEGUARDS AGREEMENT**

- List of nuclear facilities
- Inventories of the nuclear materials inside the facilities
- Movements of nuclear materials inside and between facilities
- Design information of the facilities
- System of accounting for and control of nuclear material implemented in the facilities
- Notification of the international transfers of nuclear material

**ADDITIONNAL PROTOCOL**

- General description of the nuclear fuel cycle related R&D
- Description of site (included closed-down and location outside facility)
- Export and Manufacturing of some special equipment and non nuclear material
- Location and production of mines
- Import and export of source material
- Location of high-level wastes
- 10 years nuclear fuel cycle related R&D plans

The verification of these information is mainly carried out through routine inspection of the nuclear material in the facilities and complementary access (AP)
European Commission Control
[ Euratom ]
The European Atomic Energy Community (Euratom)

Initially created to coordinate the Member States' research programmes for the peaceful use of nuclear energy.

The Treaty sets Euratom a lot of tasks:

- to promote research and ensure the dissemination of technical information.
- to establish uniform safety standards to protect the health of workers and of the general public and to ensure that they are applied.
- to facilitate investment and ensure the establishment of the basic installations necessary for the development of nuclear energy in the EU.
- to ensure that all users in the EU receive a regular and equitable supply of ores and nuclear fuels.
- **to make certain that civil nuclear materials are not diverted to other purposes** (chap.7)
- to exercise the right of ownership conferred upon it with respect to special fissile materials.
- to foster progress in the peaceful uses of nuclear energy by working with other countries and international organisations (such as the International Atomic Energy Agency (IAEA)).
EURATOM Safeguards

Objectives (chap.7, art.77)

The Commission shall satisfy itself that:

a) In the territories of Member States nuclear materials are not diverted from their intended uses as declared by the users,

b) The provisions relating to supply and any particular safeguarding obligations assumed by the Community under an agreement concluded with a third State or an international organization are complied with.

Mechanism:

EU Member State

(National Authority?)

information

information

information

Verification of the information

Conformity control
EURATOM Safeguards

The operators shall: (reg # 302/2005)

Chap 7, Art 84 (NWS) The control cannot extend in the materials intended for the needs of Defense

- organize a follow-up of the nuclear materials inside the facilities
- produce and transmit descriptive documents and accounting reports (inventory change report on nuclear materials inside and between facilities, Physical inventory listing and mass balance report, basic technical characteristics of the facilities
- Make an exhaustive annual inventory of all the materials
- Accept EURATOM inspections (318 in 2011 = 1358 days, 35% of Euratom effort of inspection)
- Send notifications before any international transfer of nuclear material (>3600 in 2011 FR)

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Evolutions: unannounced, short-noticed, random inspections, audits
Chemical Weapons Convention’s verification regime [ OPCW ]
International Treaty forbidding chemical weapons and guaranteeing their elimination at a world level

= disarmament Treaty and non-proliferation Treaty

- It allows verifying the chemical weapons and manufacturing facilities destruction through inspections

- It guarantees the non-proliferation of toxic chemicals entering the CW manufacturing by a verification regime applied to industry

Headquarters in The Hague (NL)
MEMBER STATES

- 188 State parties
- 2 signatory state party: Israel, Myanmar
- 6 non-signatory state party: Angola, North Korea, Egypt, Somaly, Syria, South Soudan
Chemical weapons owner states* having ratified the Convention:

* CW manufactured after 1925

- United States of America
- Russian Federation
- India
- Albania
- Lybia
- South Korea
- Irak

2305 inspections organized since 1997

> 70 declared CW manufacturing facilities out of use, 43 of which are destroyed and 21 reconverted (pharma)

> Stockpiles destruction: >65% achieved in 2012
NON-PROLIFERATION

DECLARATION by each SP:
activities led with chemicals sorted out in 4 categories

INSPECTION by the OPCW
at industrial sites (quantity thresholds, activities: manufacturing, processing, consumption)
Checking, frequency according to the risk (T1 > T2 > … PCOD)
Credibility because short noticed

Verification of authorized activities

2 declarations campaigns per year ≈ 120 declared sites by France

110 « inspectable » sites, Approx. 8 inspections per year, 2 to 5 days each