

Legislative Framework for the Regulation of Decommissioning at Egypt

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Egypt Framework for Decommissioning

■ Legal

- Decree of the president of the United Arab Republic , law 59 of 1960 on the regulation of work with ionized radiation and protection against its dangers
- Atomic Energy Act and its enforcement decree and regulations, 288 year 1957

Egypt Framework for Decommissioning

■ Legal (2)

- **Law No. 4 for year 1994 (Law of the Environment) ,**
- **Prim Minister's Decree No. 338 for year 1995 for (the Executive Regulations for Law of Environment No. 4 for year 1994) ,**
 - **According to that Law, a license is required** for handling the radioactive materials including
 - collecting,
 - transporting,
 - storing,
 - treating,
 - and using the radioactive materials.
 - **Law No.4 strictly stipulates to get the license from NCNSRC-AEA**
- **Decree of The President of Egypt No 125, year 2006 for the Egyptian System for implementing safeguards over Egyptian Nuclear activities**

Egypt Framework for Decommissioning

■ Legal (3)

The Legal system in Egypt cover all aspects for non radioactive materials parts of decommissioning

Egypt Framework for Decommissioning

■ Legal (4)

- Egyptian government is working to create a **new nuclear law (year 2008 or 2009)** that will move the Egyptian nuclear regulatory framework closer to be in agreement with international safety standards.
- Under the law draft, the regulatory powers will be transferred to a **separate and independent** regulatory body that will be newly created.
- **All nuclear and Radiation activities and nuclear and Radiation facilities in Egypt will be regulated by the new body.**
- The new law regulate the decommissioning of nuclear facilities
- **The new law has legal arrangement for a financing mechanism covering decommissioning**

Egyptian Legal Framework

**Minister of
Electricity and
Energy**

Atomic Energy Authority

Nuclear Power plants (NPP)

Nuclear Material Authority

**National Centre for Nuclear Safety
and Radiation Control (NCNSRC)**

[Redacted]



Atomic Energy Authority

- The Egyptian Atomic Energy Authority (AEA) was Established in 1955.
- *The AEA is the Operator of both*
 - *the Egyptian Nuclear Facilities*
 - *and the National Nuclear Regulation*

The Minister of Electricity and Energy has created an **internal regulatory system** that provides separation and independence between:

- the operating (AEA)
- and regulating body (NCNSRC),
- and requires the Egyptian nuclear facilities and activities to be licensed by NCNSRC



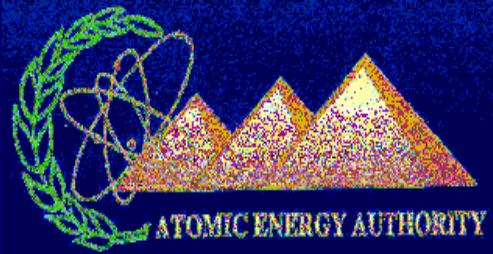
Atomic Energy Authority

- The AEA is organized into three research and one regulatory centers
 - 1. The Nuclear Research Centre (NRC)
 - 2. The Hot Laboratories and Waste Management centre (HLWMC)Both Centers are located in Inshas

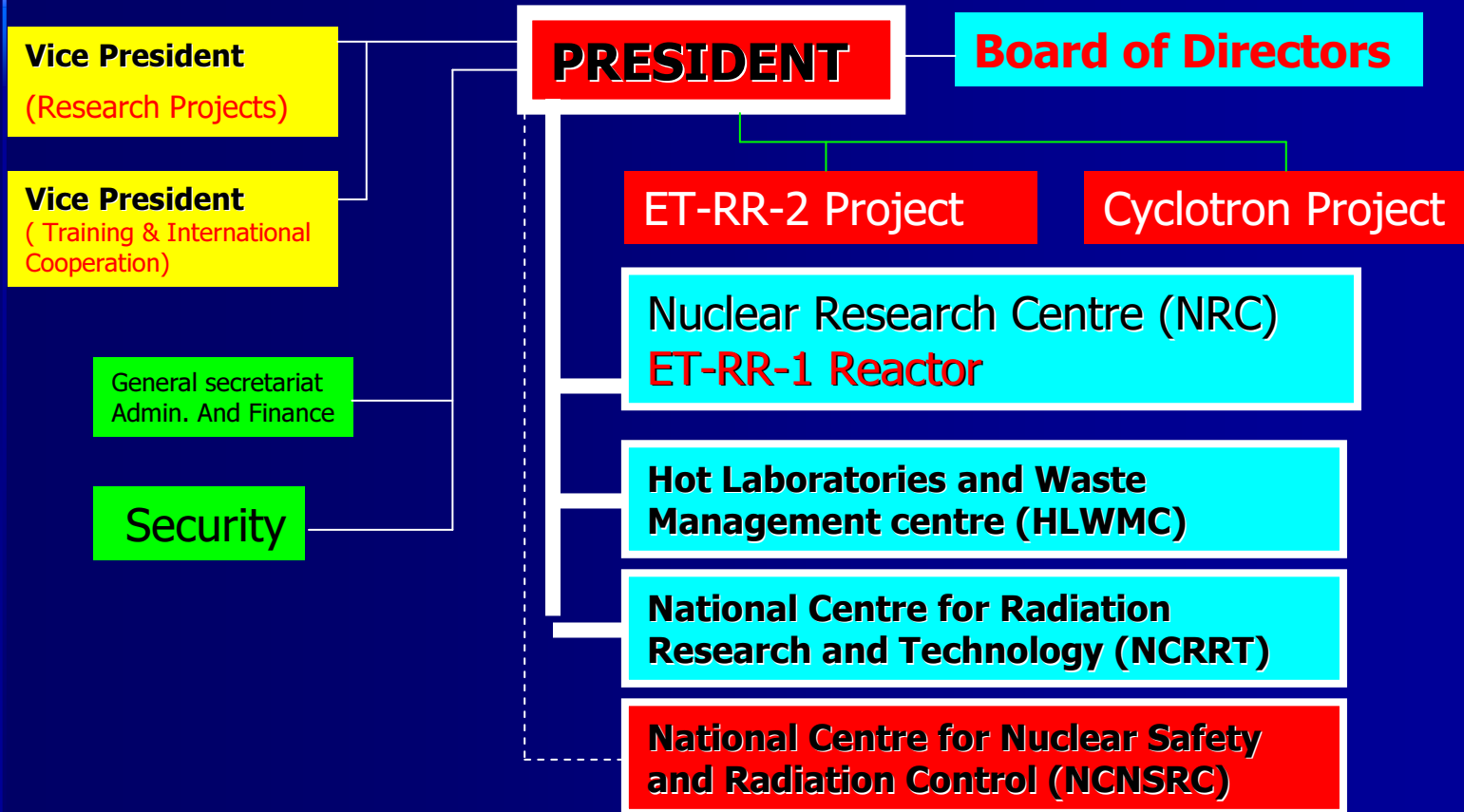


Atomic Energy Authority

- The AEA is organized into three research and one regulatory centers
 - 3. The National Centre for Radiation Research and Technology (NCRRT)
 - 4. The National Centre for Nuclear Safety and Radiation Control (NCNSRC)
- Both Centers are located in Nasr City eastern of Cairo.



AEA Organization Chart



----- Technically Independent

The **N**ational **C**entre for **N**uclear **S**afety and **R**adiation **C**ontrol (**NCNSRC**)



Divisions & Laboratories



**General secretariat
Admin. And Finance**



NCNSRC Organization Chart

National Centre for Nuclear Safety and Radiation Control (NCNSRC)

Regulatory groups

Nuclear Regulations & Emergencies Division

Radiation Control Division

Safety of Nuclear Installations Division

National Network for Radiation monitoring

Lab. For Environmental Radiation Measurement

Central Laboratory for Environmental Isotope hydrology

Alexandria center

Taba center



NCNSRC Organization Chart

National Centre for Nuclear Safety and Radiation Control (NCNSRC)

Regulatory groups

Nuclear Regulations & Emergencies Division

Radiation Control Division

Safety of Nuclear Installations Division

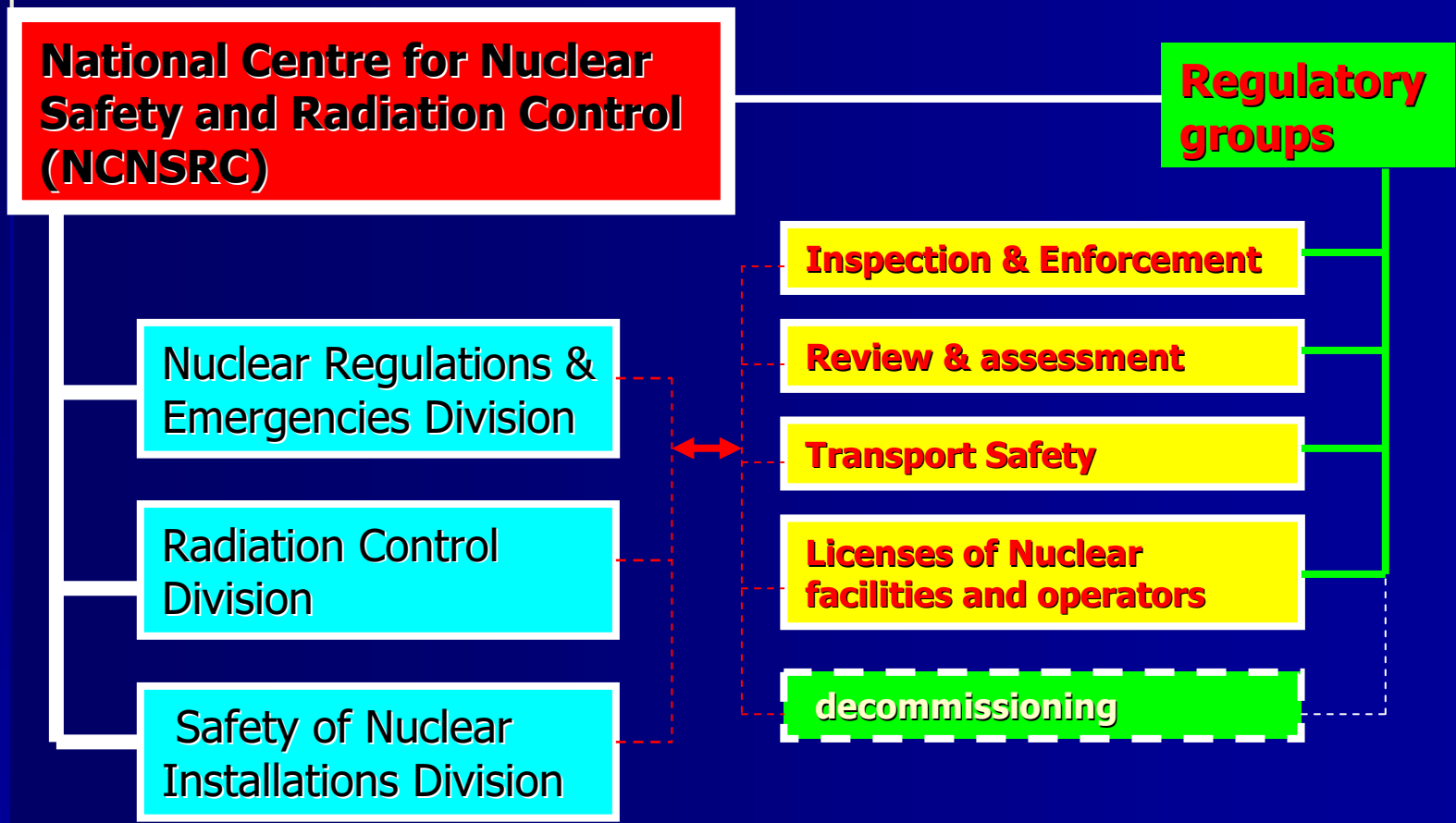
Inspection & Enforcement

Review & assessment

Transport Safety

Licenses of Nuclear facilities and operators

decommissioning





NCNSRC Organization Chart

National Centre for Nuclear Safety and Radiation Control (NCNSRC)

Nuclear Regulations & Emergencies Division

Emergency Preparedness and Licensing Department

Nuclear Material Safeguards Department

Quality Assurance Department

Radiation Control Division

Radiological Safety Department

Site and Environment Department

Health Physics Department

Safety of Nuclear Installations Division

Engineering Safety Department

Operation and Human Factor Department

Nuclear Materials and Fuel Cycle Department



NCNSRC Licenses

- 1- Research Reactors (ET-RR-1 & ET-RR-2)**
 - Reactor Operators
 - Fuel Fabrication Factory for ET-RR-2
- 2- Accelerators (Cyclotron & Linear Accelerator)**
 - Industrial Irradiator (Egypt's' Mega Gamma I & II).
- 3 - Applications of radioisotopes in Industry, Medicine, Agriculture and Research all over Egypt**
 - Laboratories, Factories (30) and Hospitals (300) using Radioisotopes all over Egypt
 - Radioisotopes Production
- 4 - Radioactive Waste Disposal Facility**
 - Radioactive Waste Treatment Plant
- 5- Transportation of Radioactive Materials all over Egypt**

Egyptian Nuclear Facilities

The (ET – RR – 1) Facility :- commissioned in 1961

- The (ET-RR-1), is a tank-type which was purchased from the former USSR, on the basis of a bilateral agreement . The fuel is 10% enriched uranium and the coolant, moderator and reflector are ordinary distilled water.
- The normal power of 2 MW corresponds to an average thermal neutron flux of $10^{13} \text{ n / cm}^2 \text{ S}$.
- It contains 8 vertical channels for material irradiation, 9 horizontal beam tubes for neutron experiments ,one thermal column ,four hot cells and one spent fuel storage .
- • *Decommissioning*
No decommissioning plan is available for ETRR-1

Egyptian Nuclear Facilities

The (ET – RR – 2) Facility :-

- *The (ET-RR-2) is of the open pool type, 22 MW Power type, 22 MW Power, cooled and moderated by light water , with Beryllium reflectors*
- *The nominal power of 22 Mw and a maximum thermal neutron flux of 2.7×10^{14} n/ cm² s*
- *It is used for research in neutron physics, materials science, Nuclear fuel R&D ;*
- *radioisotope production, neutron radiography, activation analysis, boron neutron capture therapy and training in nuclear engineering and reactor operation.*
- *• Decommissioning*

A preliminary decommissioning plan is available for ETRR-2 (initial planning & ongoing planning)

Legal Issues

L.1 Egypt does not have independent Regulatory Body.

L.2 Egypt has not developed a complete set of regulatory documents to govern decommissioning activities covering all regulatory functions.

Legal Issues

L.3 Egypt does not have legal arrangement for a financing mechanism covering decommissioning.

L.4 Egypt has clear Legal Framework for implementing safeguards over Nuclear activities including decommissioning .

Legal Issues

L.5 Legal responsibility for implementing physical protection and security arrangements for decommissioning activities are not clear.

L.6 Legal responsibility of the operator of Et-RR-1 and ET-RR-2 for decommissioning is not clear.

Legal Issues

L.7 There is no current Egyptian legal requirements for the operator to prepare and implement a decommissioning plan, including environmental assessment.

L.8 The Legal system in Egypt cover all aspects for non radioactive materials parts of decommissioning of nuclear facilities.

Action to be taken

RB Requirement for Licensing

Fuel Removal Authorization (from site)	Waste Storage	Decommissioning License
<ul style="list-style-type: none"> ■ Plan for Constructing a fuel storage building ■ Transportation procedures ■ Criticality calculation ■ Safety & Security 	<ul style="list-style-type: none"> ■ Site ■ QA & Procedures ■ Monitoring plan ■ Type and Capacity ■ Facility layout and access ■ Potential hazards ■ Waste characterization ■ Safety, Security & Safeguards ■ Engineering structure 	<ul style="list-style-type: none"> ■ Decommissioning Plan ■ Decommissioning Management ■ Decommission Method / Strategy ■ Quality Assurance ■ Financial Assurance ■ Waste Management ■ Responsibilities of Various Parties: Operator, Contractor, Other relevant parties. ■ Estimation of : <ul style="list-style-type: none"> – Time – Dose – Cost ■ Future plan of the Site

Solution for Licensing issues

Fuel Removal Authorization (from site)	Waste Storage	Decommissioning License
<p>The RB shall provide :</p> <ul style="list-style-type: none"> -Set of licensing guidance and procedures -Competent personnel for reviewing the application; ■ Acceptance criteria for fuel transportation and storage authorization ■ licensing conditions. 	<p>The RB shall provide :</p> <ul style="list-style-type: none"> ■ Set of licensing guidance and procedures ; ■ Competent personnel for reviewing the application; ■ Acceptance criteria for waste storage license ■ licensing conditions. 	<p>The RB shall provide :</p> <ul style="list-style-type: none"> ■ Set of licensing guidance and procedures ; ■ Competent personnel for reviewing the application; ■ Acceptance criteria for decommissioning license. ■ licensing conditions,

Licensing/Authorization

**The RB issues licenses for
Decommissioning**

The RB shall provide:

- **Set of licensing guidance and procedures ;**
- **Competent personnel for reviewing the application;**
- **Training for the personnel**

Inspection/ Enforcement

**The RB conducts
inspection and
enforcement**

**The RB shall
provide :**

- Set of inspection/enforcement guidelines and procedures
- Inspection plan and records
- Competent inspectors
- Training for the inspectors
- Financial resources

Release from control

The RB declare that the site is released from regulatory control

The RB shall provide

- Set of guidelines and procedures for review the decommissioning and final survey report
- Independent verification
- Competent personnel
- Acceptance criteria for site release