Legislative Framework for the Regulation of Decommissioning at Egypt,2010

Prof. Dr. Farouk M. A. Rahman

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)

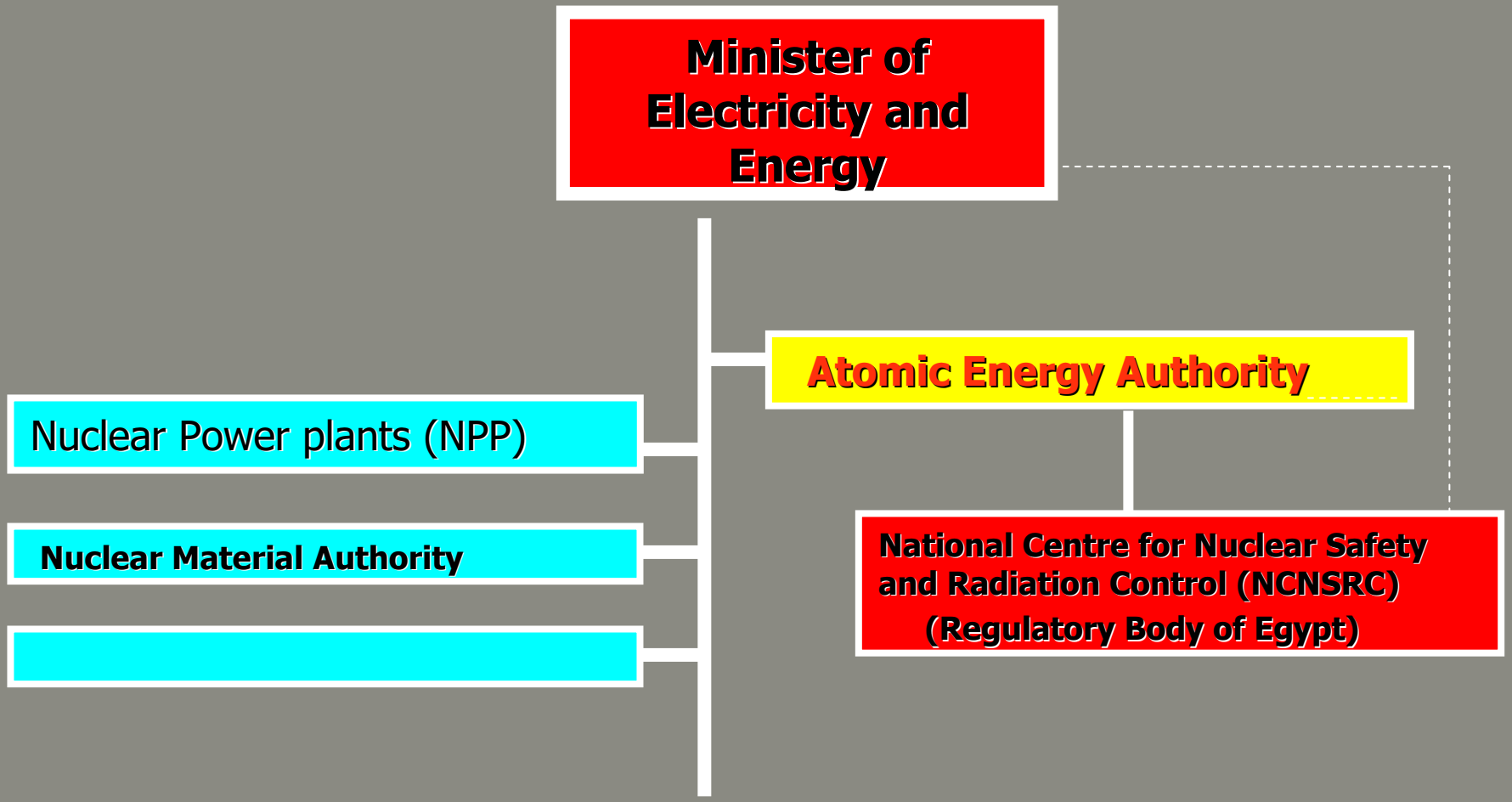
- **Law No. 7 for year 2010 (**Law of regulating nuclear and radiation activities**)**
- **The law moves the Egyptian nuclear regulatory framework closer to be in agreement with international safety standards.**
- **Under the law, the regulatory powers transferred to a separate and independent regulatory body (Nuclear and Radiation Control Authority).**
- **All nuclear and Radiation activities and nuclear and Radiation facilities in Egypt will be regulated by the new body.**
- **The law regulate the decommissioning of nuclear facilities**
- **The law has legal arrangement for a financing mechanism covering decommissioning**

Egypt Framework for Decommissioning

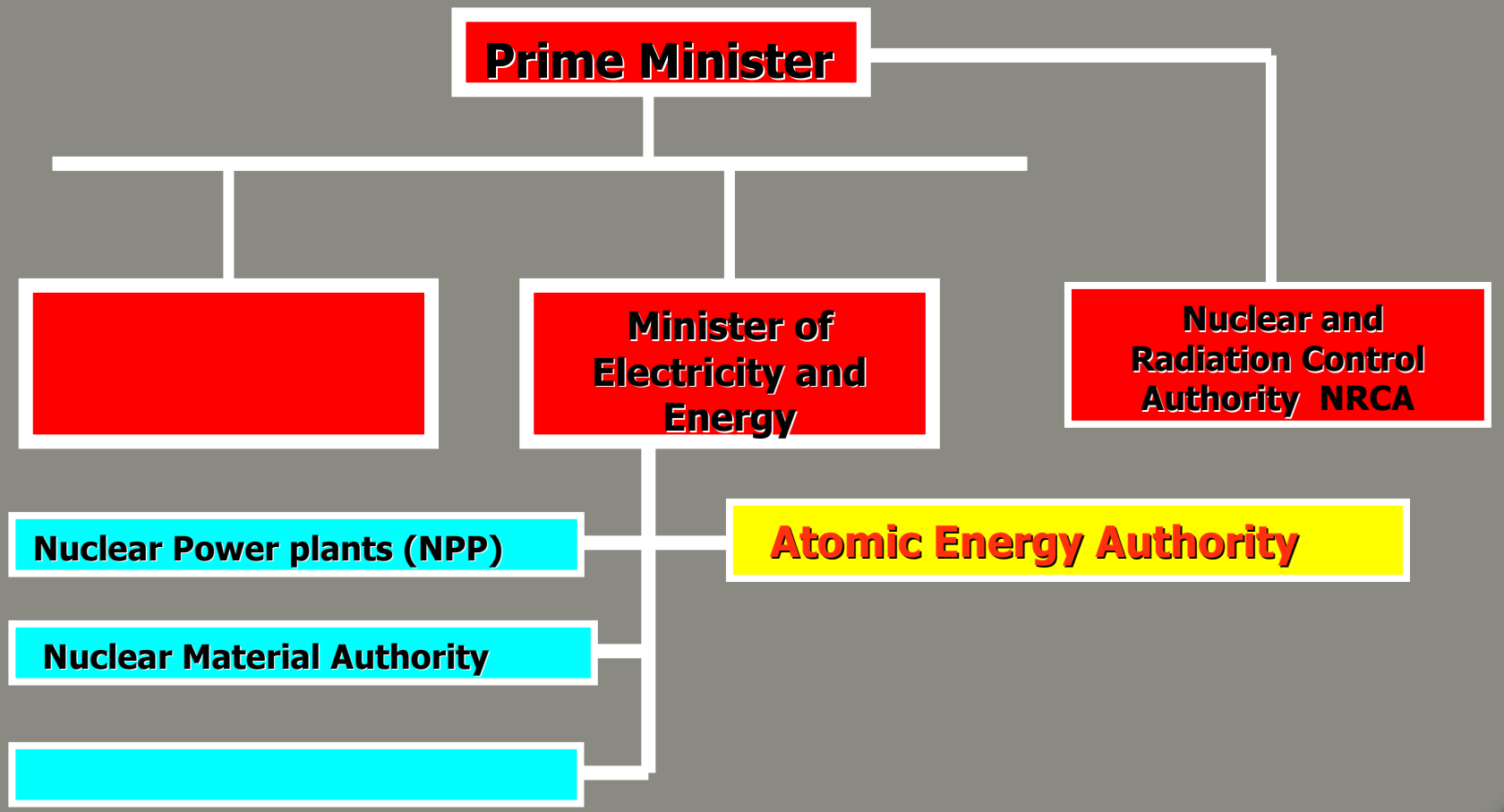
- **Legal (4)**

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

Egyptian Legal Framework Before the law 7,2010



Egyptian Legal Framework after the law No.7,2010



Atomic Energy Authority

- The Egyptian Atomic Energy Authority (AEA) was Established in 1955.

  - ***The AEA before 2010 is the Operator of both***
    - ***the Egyptian Nuclear Facilities***
    - ***and the National Nuclear Regulation***

At that time, 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)

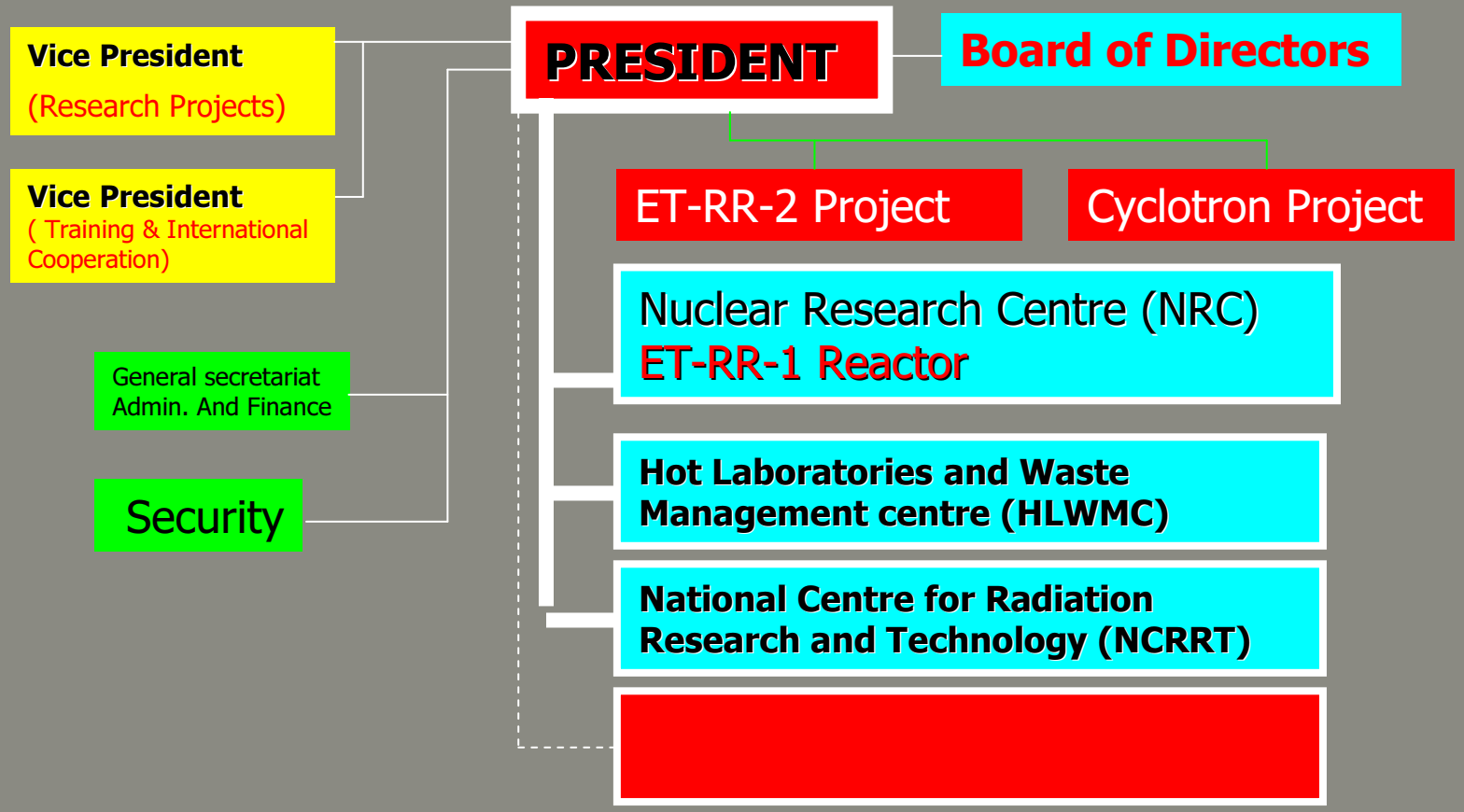
Both Centers are located in Inshas

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



NRCA Licenses

1- Research Reactors (ET-RR-1 & ET-RR-2)
- Reactor Operators
- Fuel Fabrication Factory for ET-RR-2

2- Nuclear Power plant
- Reactor Operators
- Fuel Fabrication Factory

3- Accelerators (Cyclotron & Linear Accelerator)
- Industrial Irradiator (Egypt's' Mega Gamma I & II).

4 - 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
- Any other radiation activities

5 - Radioactive Waste Disposal Facility
- Radioactive Waste Treatment Plant

6- 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}n /cm^2S.**
- **It contains 8 vertical channels for material irradiation, 9horizontal beam tubes for neutron experiments ,one thermal column ,four hot cells and one spent fuel storage .**
- ***• Decommissioning***

A preliminary decommissioning plan is available for ETRR-1
(initial planning & ongoing planning)

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 $2.7x10^{14}$ n/ cm^2 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 have independent Regulatory Body, by law No 7,2010

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 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 clear.

L.6 Legal responsibility of the operator of Et-RR-1 and ET-RR-2 for decommissioning is clear.

Legal Issues

L.7 The Legal system in Egypt cover all aspects for non radioactive materials parts of decommissioning of nuclear facilities.

Action to be taken after the implementation of the law no. 7, 2010 for decommissioning activities at Egypt.

NRCA Requirement for Licensing

Fuel Removal Authorization (from site)	Waste Storage	Decommissioning License
▪Plan for Constructing a fuel storage building ▪Transportation procedures ▪Criticality calculation ▪Safety & Security	▪Site ▪QA & Procedures ▪Monitoring plan ▪Type and Capacity ▪Facility layout and access ▪Potential hazards ▪Waste characterization ▪Safety, Security &Safeguards ▪Engineering structure	▪Decommissioning Plan ▪Decommissioning Management ▪Decommission Method / Strategy ▪Quality Assurance ▪**Financial Assurance** ▪Waste Management ▪Responsibilities of Various Parties: Operator, Contractor, Other relevant parties. ▪Estimation of : –Time –Dose –**Cost** ▪Future plan of the Site

Solution for Licensing issues

Fuel Removal Authorization (from site)	Waste Storage	Decommissioning License
The NRCA shall provide : -Set of licensing guidance and procedures -Competent personnel for reviewing the application; ■Acceptance criteria for fuel transportation and storage authorization	The NRCA shall provide : ■Set of licensing guidance and procedures ; ■Competent personnel for reviewing the application; ■Acceptance criteria for waste storage license ■ licensing conditions.	The NRCA shall provide : ■Set of licensing guidance and procedures ; ■Competent personnel for reviewing the application; ■Acceptance criteria for decommissioning license. ■ licensing conditions,