



ROMANIA

National Commission for Nuclear Activities Control

Romanian Regulatory Framework for Nuclear Facilities and Activities

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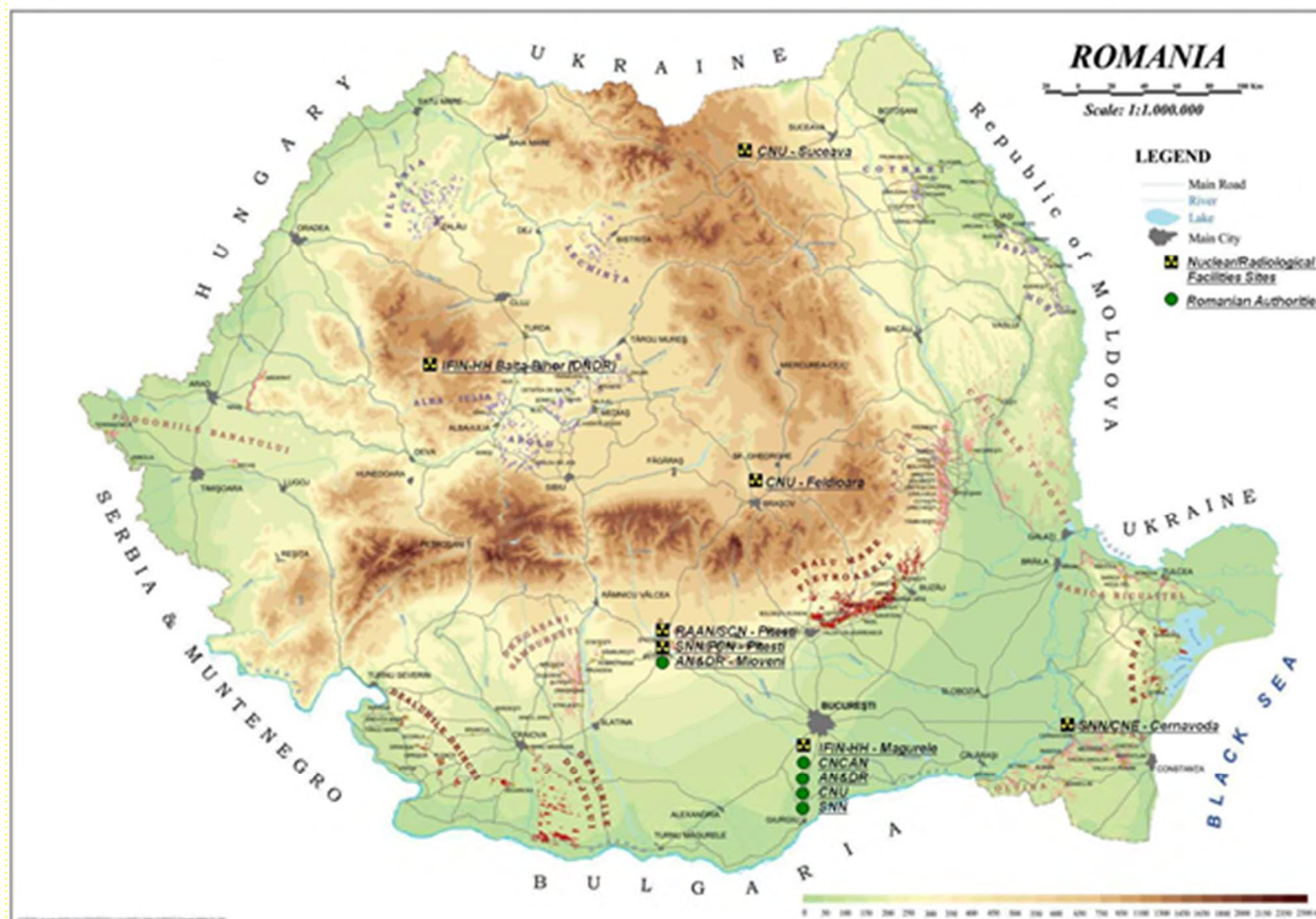
Nuclear Fuel Cycle Division

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2011/70/EURATOM**



Romanian map – Location of the main organizations involved in radioactive waste/spent fuel management

Cernavoda Nuclear Power Plant

Reactor	Type	Gross Capacity MW(e)	Construction Start	First Criticality	Operating Status
Cernavoda-1	CANDU-6	706.5	1980	16th of April 1996	In operation
Cemavoda-2	CANDU-6	706.5	1980	6th of May 2007	In operation
Cemavoda-3	CANDU-6	720	1980	-	Under preservation, construction to be restarted
Cemavoda-4	CANDU-6	720	1980	-	Under preservation, construction to be restarted
Cemavoda-5	CANDU-6	-	1980	-	Under preservation, no plans to be restarted





**TRIGA-type Material Testing Reactor of
the Pitesti Branch for Nuclear Research
(operational)**

TRIGA Research Reactor

- **Commissioned in 1979;**
- **Gulf General Atomics design;**
- **Pool type;**
- **Steady State active zone - 14 MW(th).**
- **Pulse active zone - up to 20.000 MW(th)/pulse;**
- **In operation;**
- **Converted from HEU to LEU;**
- **Modernization process completed in 2010.**

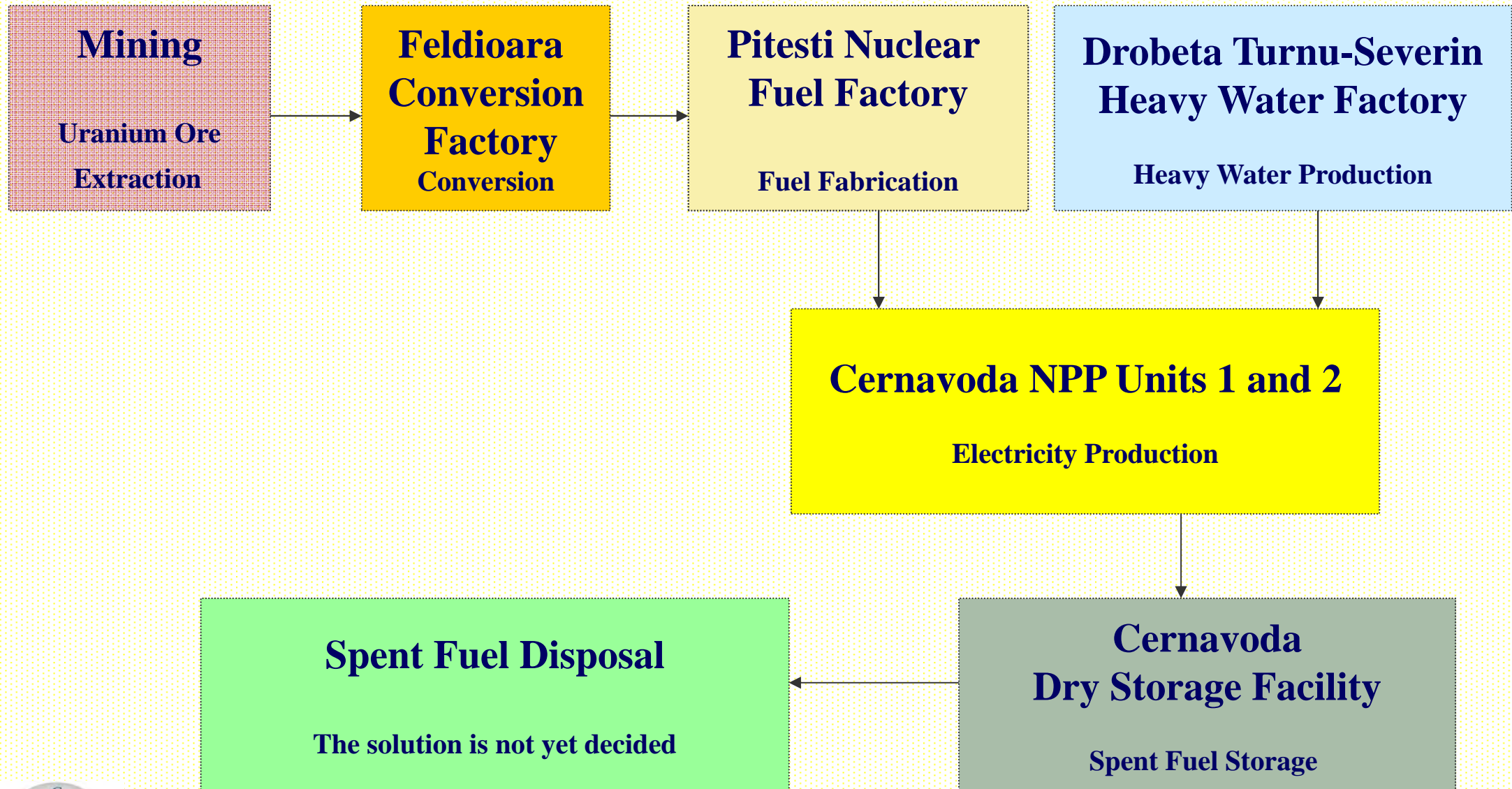
VVR-S Research Reactor

- **Commissioned in 1957;**
- **Old Russian design;**
- **Loop type;**
- **Power - 2 MW(th);**
- **Defueled;**
- **Spent nuclear fuel shipped back into origin country**
- **Under decommissioning- step 2.**



**VVR-S type research reactor of the
Bucharest-Magurele National Institute for
Physics and Nuclear Engineering
(under decommissioning)**

The Fuel Cycle for the Romanian CANDU-6 NPP



Uranium National Company (CNU) is developing activities in the fields of uranium ores mining and conversion and has four branches:

Three uranium mining branches:

- **BANAT:** this branch has had in exploitation the uranium mines situated in the west part of Banat Mountains, which are currently depleted or their exploitation is too expensive. In the present this branch only conducts activities for the closure of the existing mines and for environment cleaning.
- **BIHOR:** this branch has in exploitation one mine, Baita, which is almost depleted; also conducting activities for environment cleaning in the areas where it had other mines.
- **SUCEAVA:** this branch has in exploitation the uranium mines situated in the Oriental Carpathian Mountains.

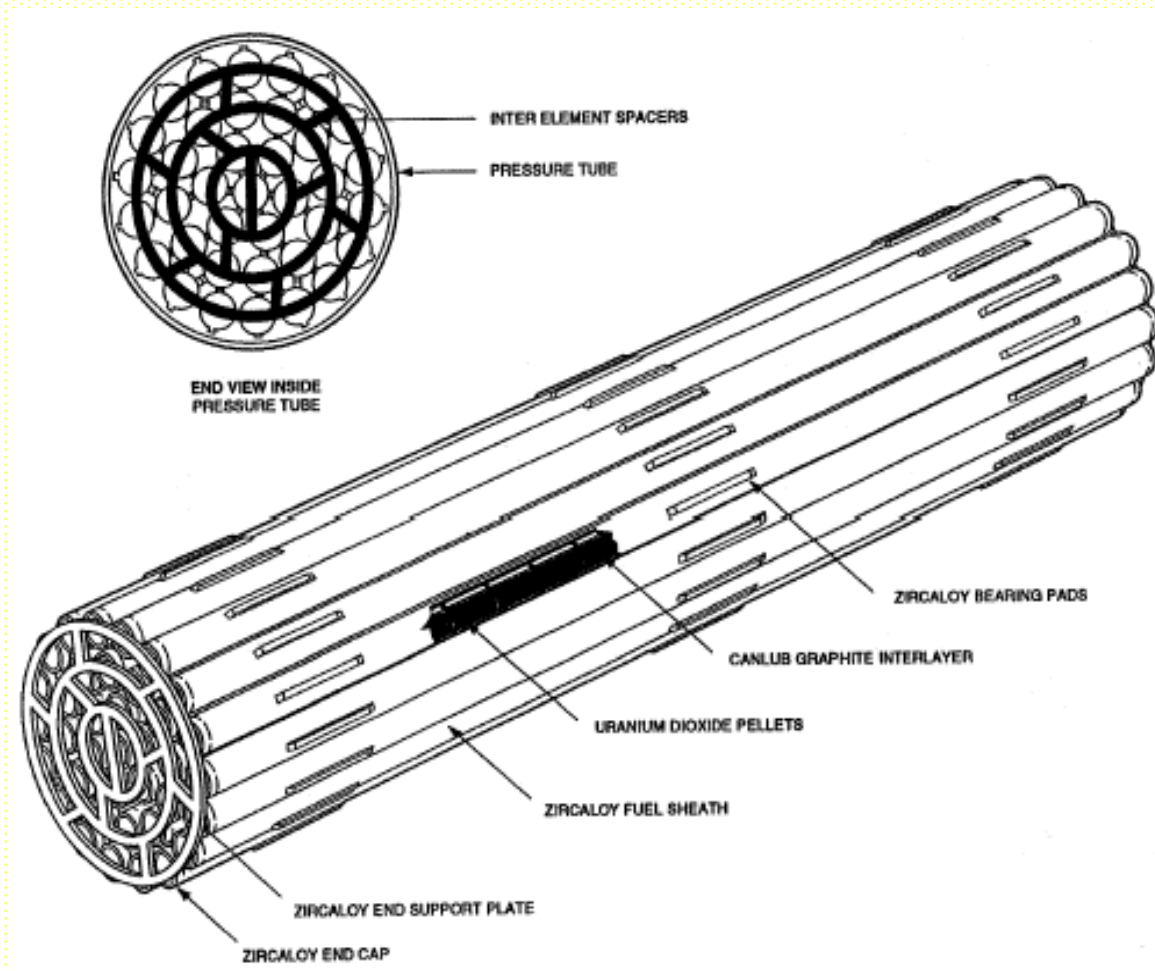
The fourth branch is Feldioara Conversion Factory situated in Brasov county.

Feldioara Conversion Factory

- In operation since 1978;
- Produces sinterisable UO₂ powder by hydrometallurgical process;
- In 1994 the quality of the powder was evaluated by AECL and the factory received the qualification to deliver raw material for CANDU-6 type fuel;
- The design capacity of the Conversion Factory is of 30 tU/year.

Pitesti Nuclear Fuel Factory

- In operation since 1983;
- In 1994 the factory was authorised by AECL and Zircotec Precision Inc. Canada as a CANDU 6 type fuel manufacturer;
- In 2004, the factory has increased its manufacturing capacity in order to ensure the needed fuel for the Cernavoda NPP Unit 2, which was put in operation in 2007.
- The factory design capacity is now of 200 tHM/year and it will probably be further increased to cover the needs of two more units (U3 & U4) which are to be built at Cernavoda site.



CANDU 6 fuel assembly produced by Pitesti factory

Drobeta Turnu-Severin Heavy Water Factory

- ❖ In operation since 1988;
- ❖ It is the largest heavy water factory in the world;
- ❖ Is working at 92% of it's capacity with only 3 modules, with a fourth one not yet finalized;
- ❖ A reserve for charging one nuclear reactor is produced in only 4 years;
- ❖ Besides the high quality heavy water, the factory also produces super- heavy water with a purity of over 99,96% and four types of super-light water with concentrations between 80 – 0 ppm D₂O.



Cernavoda Dry Storage Facility (DICA):

- ❖ In operation since 2003;
- ❖ Designed to store CANDU 6 fuel for a period of 50 years;
- ❖ The project contains 27 monolithic concrete modules out of which 3 are already in operation;
- ❖ One module has the capacity to store the spent fuel produced by one unit in 2 years of operation, respectively 12000 bundles/module;
- ❖ It is situated on the Cernavoda site and it is accessible by interior roads so that the security (physical protection) is assured by an integrated system.



Dry storage facility for spent fuel

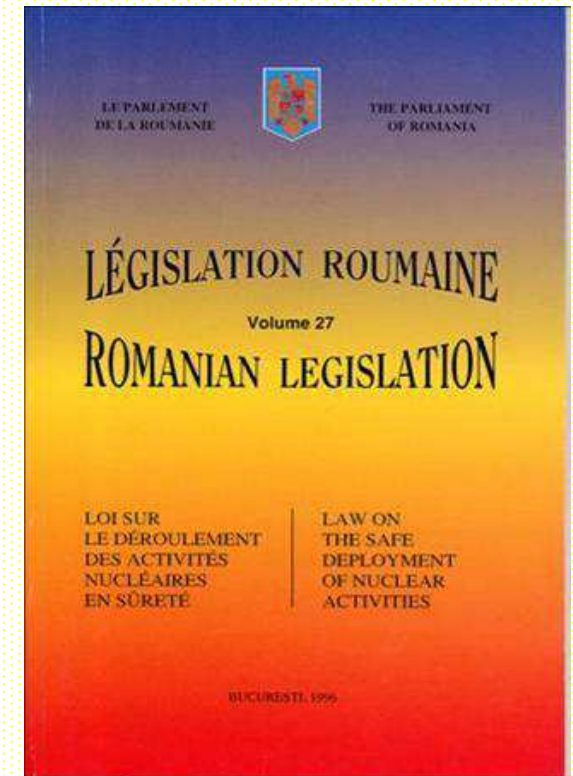
Other major regulated facilities in Romania include:

- ❖ **Radioactive Waste Management Facility, Magurele, institutional waste**
- ❖ **Radioactive Waste Management Facility, Pitesti, recovery of uranium**
- ❖ **National Repository LILW, Baita Bihor, institutional waste**
- ❖ **Repository for LILW, Saligny, in plan, NPP waste**
- ❖ **Storage of NPP waste, on site, under the NPP licence .**



Legal and Regulatory Framework

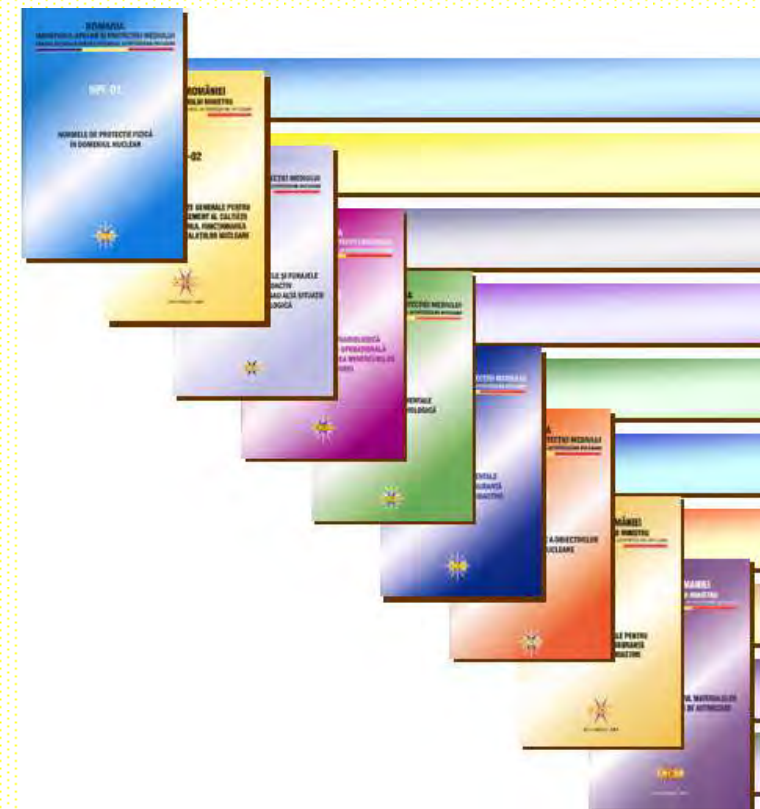
- **Law no. 111/1996 on the safe deployment, regulation, license and control of nuclear activities**
 - **National Commission for Nuclear Activities Control CNCAN** is regulatory authority in nuclear field having attributions on :
 - **Regulation, Licensing and Control of nuclear Activities and Facilities**



CNCAN is the national authority competent in exercising regulation, licensing and control in the nuclear field, for all the activities and installations under the scope of the Law.

CNCAN has all the necessary legal powers to issue mandatory regulations, to issue licenses for nuclear facilities and activities and to perform evaluations, inspections and enforcement.

CNCAN is a public institution of national interest, with legal personality, having its headquarters in Bucharest, chaired by a President with the rank of State Secretary, coordinated by the Prime Minister through the General Secretariat of the Government.



Law no. 111/1996 empowers CNCAN to issue regulations on:

- **Nuclear safety;**
- **Radiological protection;**
- **Quality assurance;**
- **Non-proliferation of nuclear weapons;**
- **Physical protection of nuclear facilities and materials;**
- **Transport of radioactive and nuclear materials;**
- **Management of radioactive waste and spent fuel;**
- **Emergency preparedness and intervention in case of nuclear accident;**
- **Manufacturing of products and supply of services for nuclear installations,**
- **Any other regulations necessary for the licensing and control of nuclear facilities and activities.**



CNCAN is responsible to ensure, through the regulations issued and the dispositions arising from the licensing and control (evaluation, inspection and enforcement) procedures, that an adequate framework is in place for the deployment of activities under the scope of the Law.

Nuclear Agency & Radioactive Waste(ANDR)

- **2003: National Agency for Radioactive Waste (ANDRAD) the former Romanian radioactive waste management agency was established;**
- **2009: Nuclear Agency for Radioactive Waste (ANDR) was established, by merging the Nuclear Agency with the ANDRAD.**
- **ANDR:**
 - **National authority under the supervision of the Ministry of Economy, Trade and Business Environment;**
 - **Responsible for promotion, development and monitoring the nuclear activities exclusively for peaceful purposes**
 - **Responsible for disposal of radioactive waste in Romania;**
 - **Manages the financial resources designated to the management of the SNF and RW and the decommissioning of the nuclear and/or radiological facilities;**
 - **Maintain the national inventory of radioactive waste**
 - **Elaborates the national strategy for management of radioactive waste.**

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- **Transposing of Council directive 2011/70/EURATOM**

Means for transposition

- Modification of nuclear act Law 111/1996
- Modification of Ordinance 11/2003
- Modification of Order 56/2005

Modification of nuclear act Law 111/1996

- Explicitly responsibilities of licensees for safety of facility
- Introduce concept of **import, export and Intercommunity transfer**
- Introduced some definitions: licensee, licence
- Added duties of regulatory body in terms of reporting, peer reviews, financial and human resources

Modification of Ordinance 11/2003

- Duties of ANDR
- Principles of radioactive waste management
- Reporting on radioactive waste
- Program for radioactive waste management
- Financial, human resources, peer reviews

Modification of Order 56/2005

- It is subsequent legislation issued by regulatory body
- Re-written some principles of radioactive waste management
- Export criteria

Status of transposition

- Common law on transposition of the CD 70 including Law 111/1996 as well as Ordinance 11/2003
- Law under Parliament
- Order 56/2005 will be issued immediately after the publishing of the Law

- Thank you!