



# ROMANIA

## National Commission for Nuclear Activities Control

### Development and enactment of adequate security regulations National Nuclear Security Regulatory Framework

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- **The National Commission for Nuclear Activities Control (CNCAN) is the national authority, having responsibilities of regulation authorization and control in nuclear field in Romania.**
- **CNCAN has a great experience of over 50 years in the field of competence, and has an important role in ensuring the compliance with the requirements of nuclear safety, nuclear security and radiation protection in Romania.**
- **Is under the subordination of the Prime-Minister**
- **Lead by a President, State Secretary appointed by the Prime Minister**

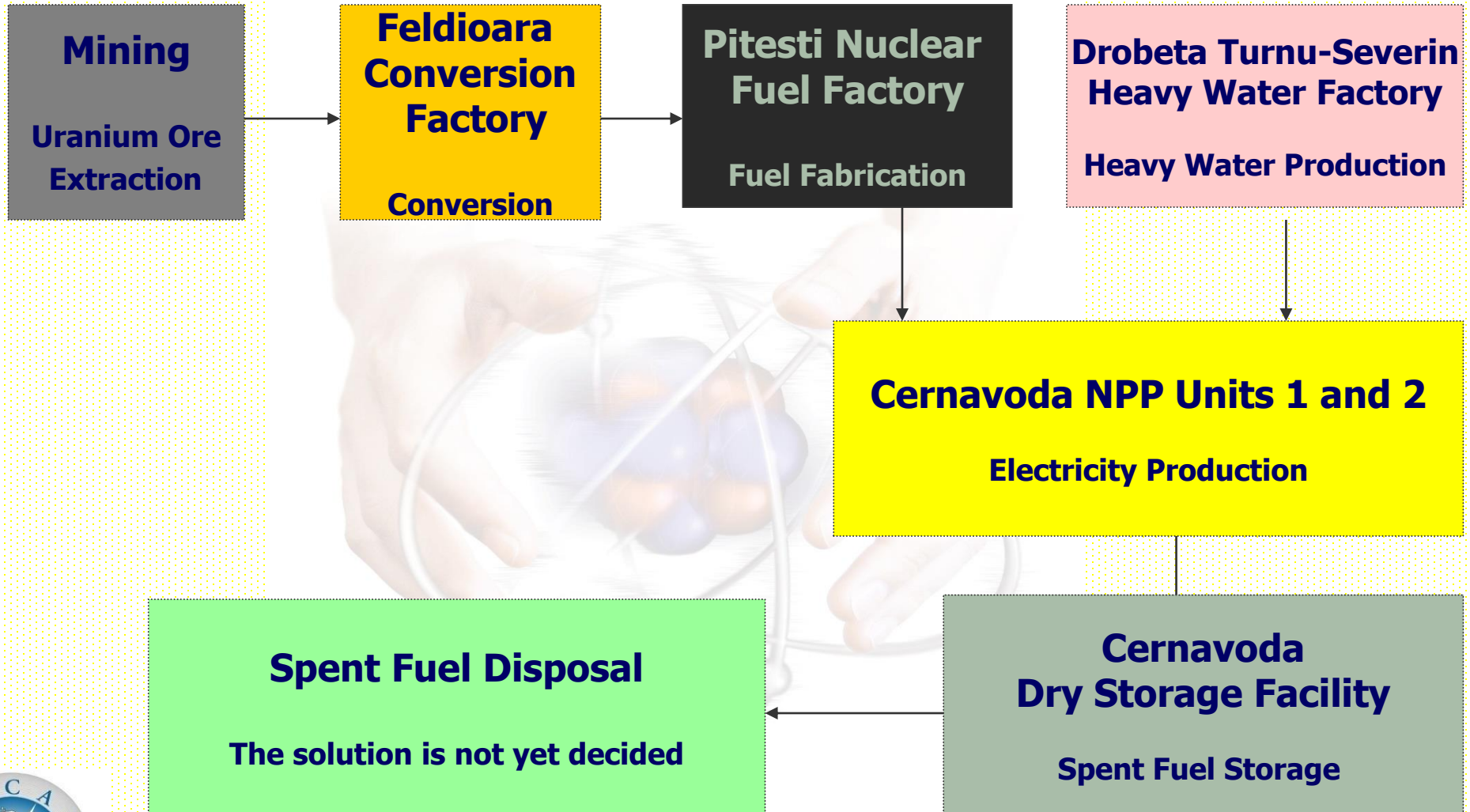


Romania thru CNCAN maintains regulatory control over:

- Power reactors
- Research reactors
- Nuclear research and test facilities
- Uranium mines and mills
- Uranium refining and conversion facilities
- Fuel fabrication facilities
- Heavy water production facilities
- Radioactive waste management facilities
- Prescribed substances and items, and
- Radioisotopes & ionizing radiation applications



# The Fuel Cycle For Romanian CANDU 6 NPP



## Major Nuclear Installations in Romania

### Cernavoda NPP

Units 1 & 2 in operation ; Units 3 & 4 are deferred projects waiting for restart of construction  
All units are pressurized heavy water reactors (PHWR) of CANDU-6 type.

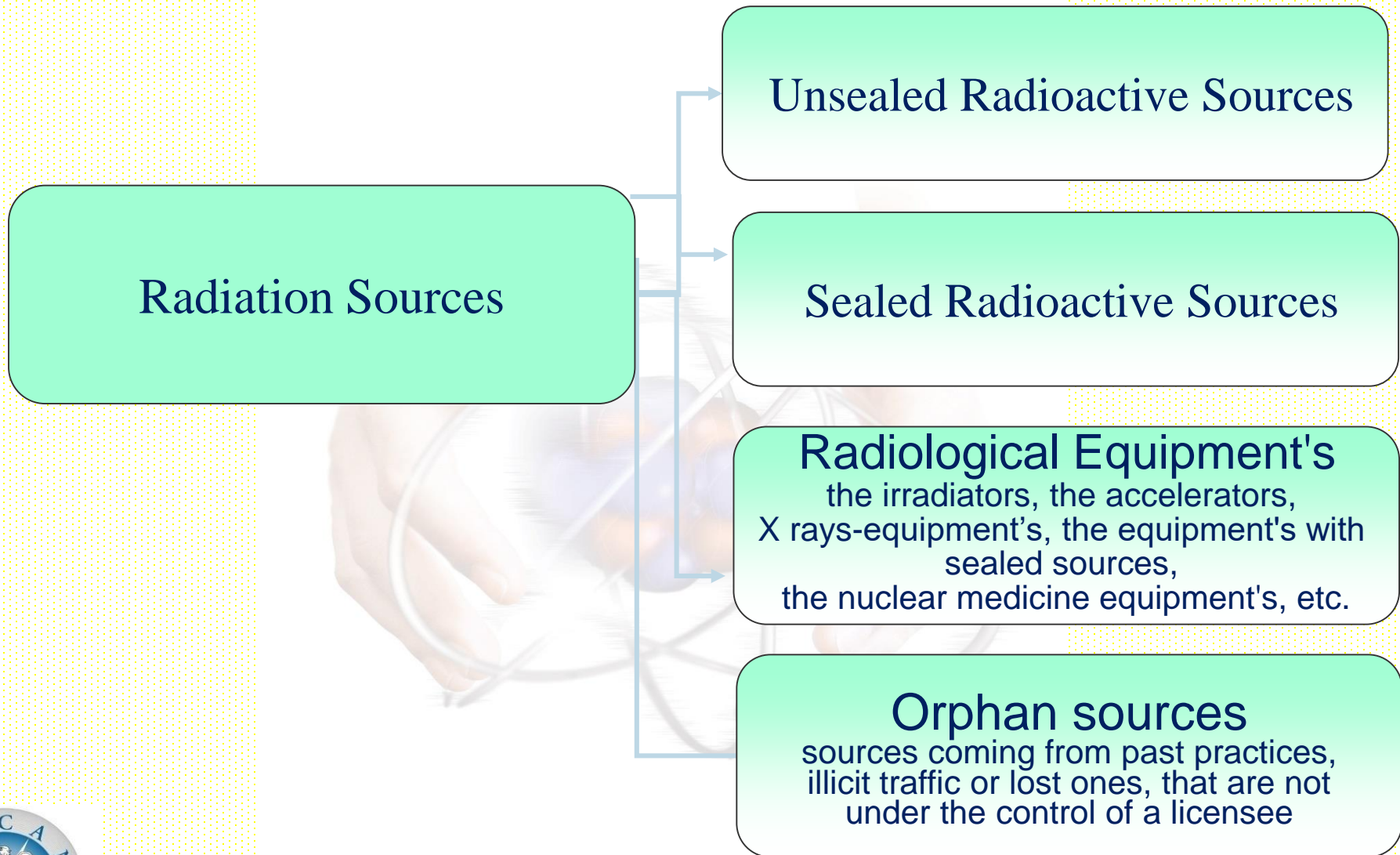


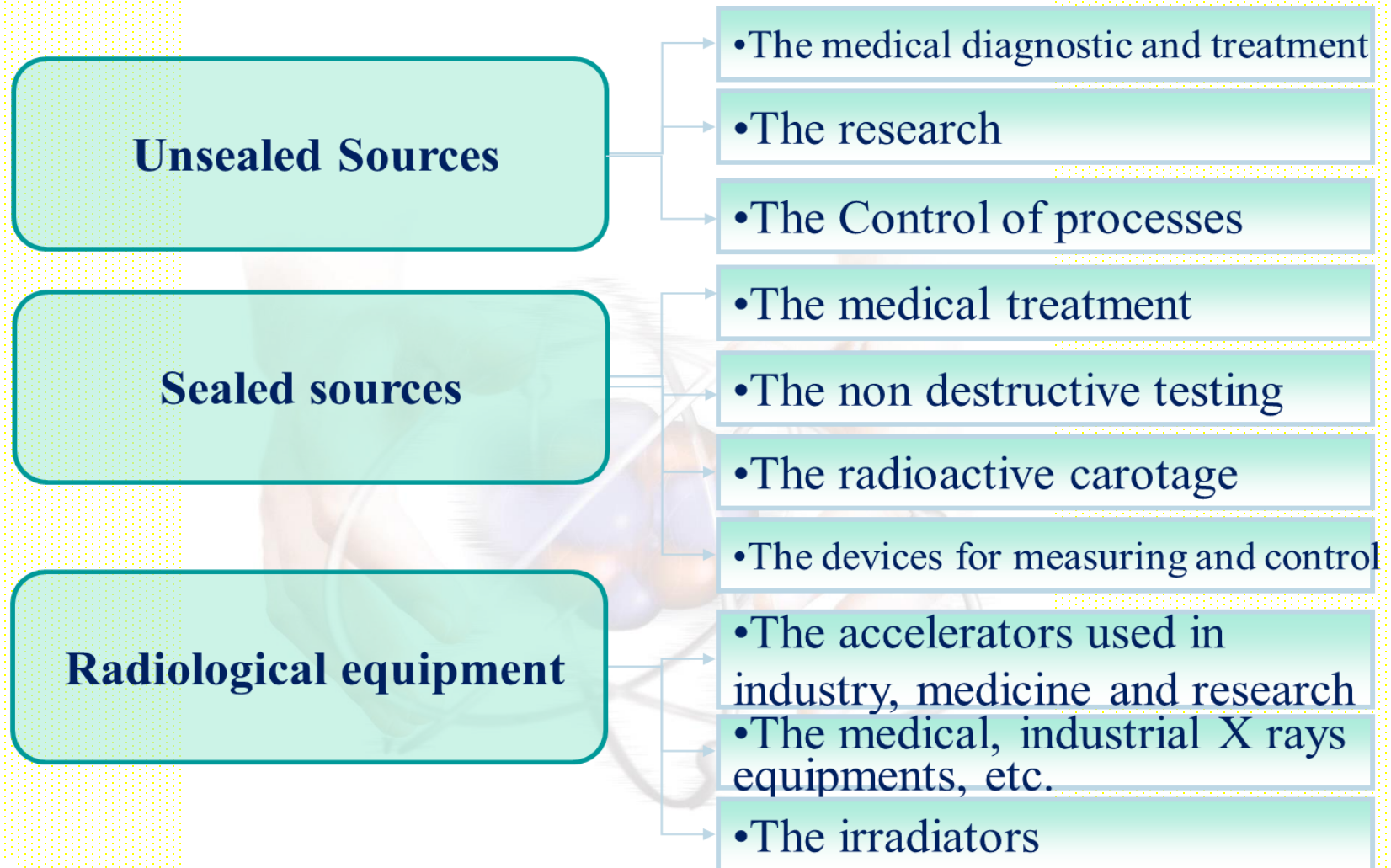
Other major nuclear facilities in Romania include a nuclear fuel production plant and facilities for uranium ore mining, milling and processing



Nuclear fuels bundles

TRIGA-type Material Testing Reactor





## 1. National Legislative and Regulatory Framework Related to Nuclear Security

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Romania as IAEA Member State adhere to legally binding international instruments and become party to and have enacted in national laws the obligations of:

- States Parties in the Convention on the Physical Protection of Nuclear Material (CPPNM)
- the Amendment to the Convention on the Physical Protection of Nuclear Material (ACPPNM)
- States Parties in the Convention on Early Notification of a Nuclear Accident (NOT)
- States Parties in the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (ASSIST)
- States Parties in the International Convention for the Suppression of Terrorist Bombings (Terrorist Bombings Convention).
- States Parties under UNSCR 1540 - Non-proliferation of Weapons of Mass Destruction - adopted under Chapter VII of the UN Charter.





Romania is a State Party to the following multilateral instruments which promote nuclear security:

- the Treaty on Non-proliferation of Nuclear Weapons (NPT);
- the International Convention on the Suppression of Acts of Nuclear Terrorism (ICSTANT);
- the Comprehensive Test-Ban Treaty (CTBT).

Romania is actively involved in the Global Initiative to Combat Nuclear Terrorism (GICNT), subscribing to the commitment to detect, prevent and respond effectively to acts of nuclear terrorism by carrying multilateral activities aimed at improving interoperability among participating States.



## Criminalization of offences and establishment of penalties

- Law 111/1996;
- Law No. 535/2004 on Countering Terrorism;
- Criminal Code (defines as criminal offences a series of actions against the nuclear and other radioactive material and provides sanctions);
- Customs Code (contains sanctions against illicit trafficking of, inter alia, nuclear and other radioactive material).



The Nuclear Act of Romania is the Law no. 111/1996 on the Safe Deployment, Regulation, Licensing and Control of Nuclear Activities, republished, with subsequent modifications and amendments

- **CNCAN (the National Commission for Nuclear Activities Control) is the national competent authority responsible for the regulation, licensing and control of nuclear and radiological installations, nuclear and other radioactive materials and all associated activities.**
  
- **The regulations issued by CNCAN cover the following areas:**
  - **nuclear safety,**
  - **radiological protection,**
  - **management systems for nuclear installations and associated activities;**
  - **physical protection of nuclear installations and materials,**
  - **non-proliferation of nuclear weapons,**
  - **safe management of radioactive waste and spent fuel,**
  - **transport of nuclear and other radioactive materials,**
  - **on-site emergency preparedness and response.**
  - **protection of nuclear installations against cyber threats.**



- ✓ Fully supports the IAEA's nuclear security program and commends the Agency for its tireless efforts to strengthen international cooperation and improve nuclear security worldwide.
- ✓ Romania reiterates its readiness to engage in international cooperation projects, to share its experience in the field of nuclear security and safety and to offer relevant expertise in this field.
- ✓ The national regulatory authority in Romania (the National Commission for Nuclear Activities Control - CNCAN) strictly follows the standards and guidelines issued by the IAEA.
- ✓ It participated in most of the relevant activities organized by the IAEA, including the International Conference on Advances in Nuclear Forensics:
- ✓ Countering the Evolving Threat of Nuclear and Other Radioactive Material out of Regulatory Control (July 2014), or the
- ✓ International Conference on Cyber Security: Discussions and exchange of information.



- Receiving, in 2014, an **IAEA INSServ** (International Nuclear Security Advisory Service) mission: The mission took place on 12-16 May 2014, and **ensured an independent assessment of the national capabilities for detection and response in case of illicit trafficking, identifying means for enhancing nuclear security related activities;**
- Receiving, in august 2018, an IAEA INSSP (Integrated Nuclear Security Support Plan) Mission.
- Inviting, in 2019, an IAEA IPPAS (International Physical Protection Advisory Service) follow-up mission to assess the stage of implementation of the recommendations presented on the occasion of the previous IPPAS mission, in 2012: Romania is in the process of officially inviting the IPPAS follow-up mission for the last quarter of 2019.



## Prevention thru efficient Safeguards and Strong Physical Protection

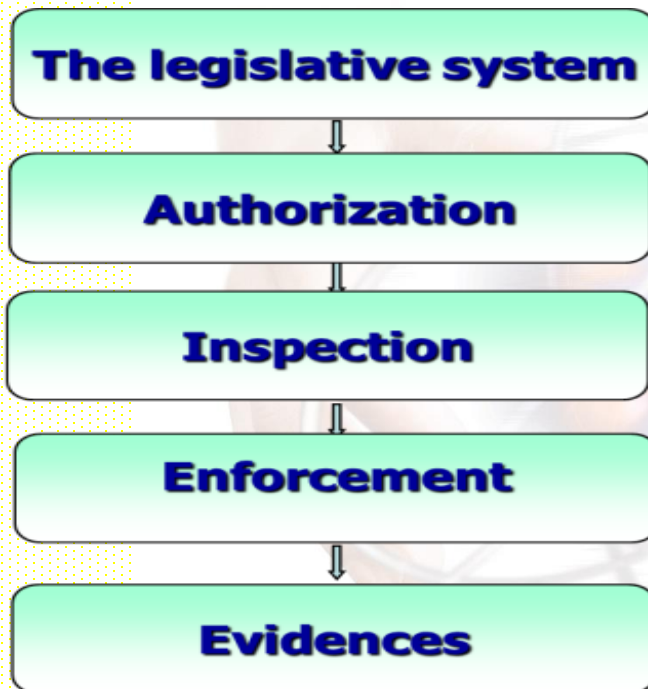
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- **National contact point for physical protection for nuclear material and nuclear facilities**
- **National contact point for preventing and combating illicit trafficking**
- **Implements State System for Accounting and Control of Nuclear Material**
- **Controls import/export for nuclear material, non nuclear material and equipment pertinent for nuclear weapons or nuclear explosive devices**
- **Safeguards activities fulfill the obligations proceeding from international treaties and agreements**



# Prevention thru efficient Safeguards and Strong Physical Protection

The radiation sources shall be kept under control in order to ensure the radiation protection, to prevent the theft and destruction, to prevent the unauthorized use by unauthorized personnel



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## **National Priority - Securing all Nuclear Materials and Controlling the Radioactive Sources**

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### **DETECT**

- **In the framework of the NSDD PROGRAM (former "Second Line of Defense" initiative) Romania continued to commission equipment, to completing securing the Romanian / EU eastern border by installing radiological detection portals at the access points for road, rail and pedestrian traffic.**
- **In 2015, detection portals for luggage and passengers were installed at Romania's national airport, in Bucharest.**
- **Since 2009, NNSA and CNCAN have collaborated to complete security enhancements at twelve buildings containing radioactive sources throughout Romania, including various medical facilities and the Pitesti research reactor site/RATEN Institute. The physical protection systems at the National Radioactive Waste Depository BAITA BIHOR have been improved through cooperation with US DOE**





## National Priority - Securing all Nuclear Materials and Controlling the Radioactive Sources

- **REMOVE**

- Romania repatriated to the country of origin (the Russian Federation) the entire quantities of highly enriched uranium (HEU) and low enriched uranium (LEU).
- Under its Remove program, US DOE ORS supported the removal of five cobalt-60 tele-therapy sources to ICN Piteti
- ORS has also supported the removal of disused sources including 4 Theraton units in 2017 from medical facilities in Brasov, Bai Mare, Oradea and Fundeni (Bucharest) and 1 Theraton unit in 2018 from the hospital in Constanta

- **CONVERT**

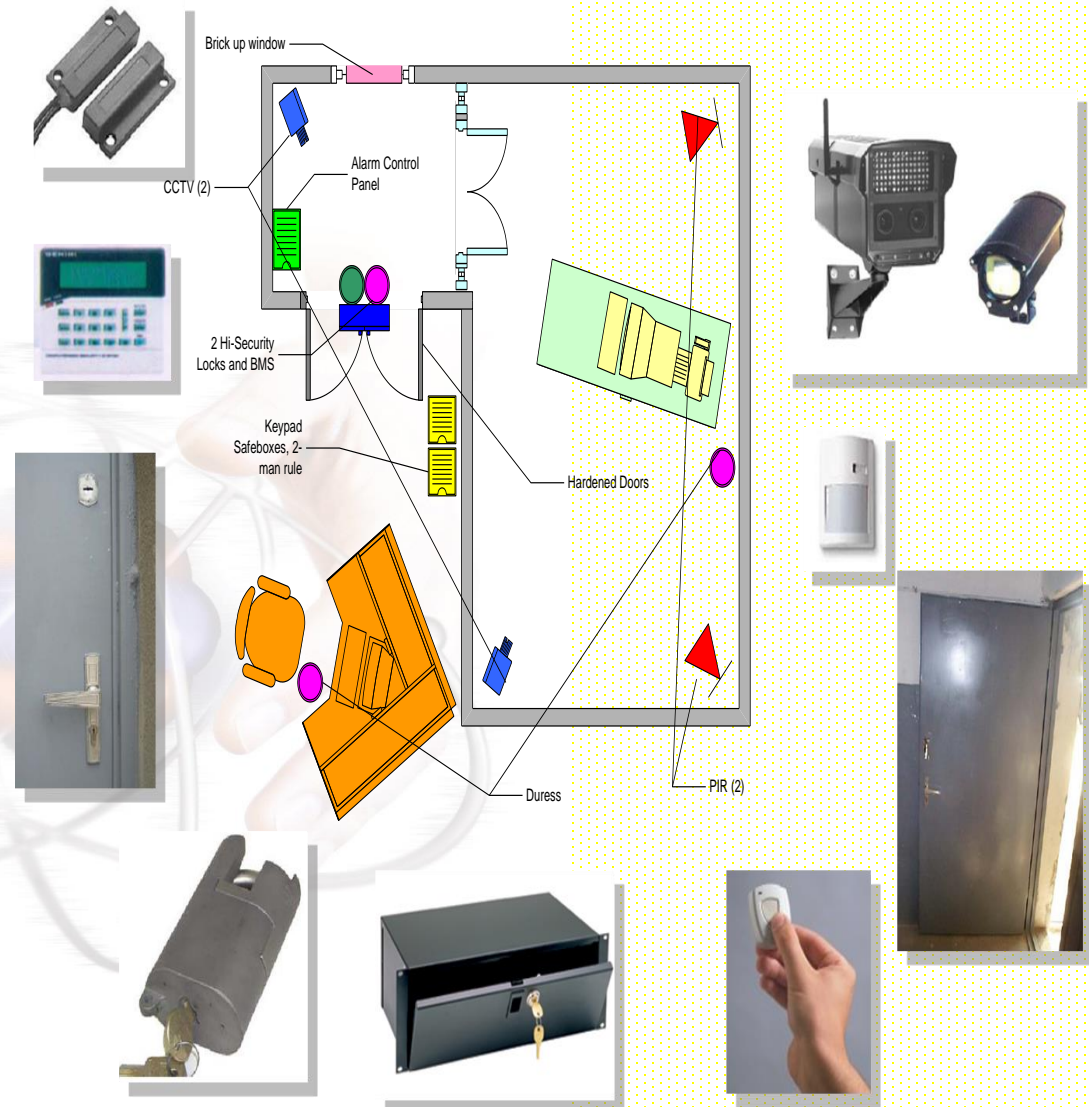
- TRIGA Research Reactors from the use of highly enriched uranium (HEU) to low enriched uranium (LEU)
- Romania thru the Ministry of Health's efforts replace its cobalt-60 tele-therapy machines with linear accelerators.



# National Priority - Securing all Nuclear Materials and Controlling the Radioactive Sources

## ▪ PROTECT

- Since 2009, Romania has in place an agreement with the U.S. Department of Energy (DOE) on cooperation for enhancing the physical security of special nuclear materials and radioactive sources in Romania.
- Based on this Agreement, during 2010-2018, USDOE granted assistance to Romania developing projects, with an approximately budget of 4 millions Euro, aimed to enhance the physical security of high activity radioactive sources and special nuclear materials that were used in industry, medicine and research.



# National Priority - Securing all Nuclear Materials and Controlling the Radioactive Sources

*Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.*

## Security-by-Design and In-Device Delay

ORS is also actively collaborating with CNCAN and the Romanian Gendarmerie under the Global Cesium Security Initiative (GCSI) to enhance Cs-137 security and promote containment through the development of in-device delay kits and response collaboration. In addition, in-device Delay systems have been installed at five sites in Bucharest, Timisoara, Tg. Mures and Iasi

As a lead response agency, the Romanian Gendarmerie plays a critical role in monitoring the security of facilities with radioactive materials and in providing rapid response.



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## Security-by-Design and In-Device Delay

- Incorporating physical security elements into new device or facility designs (the security-by-design approach) offers an opportunity to increase source security with relatively low-cost options.
- Romania partnered with the US Department of Energy (DOE) National Nuclear Security Administration (NNSA) Office of Radiological Security (ORS) In-Device Delay (IDD) program to install engineered hardening on all eligible blood irradiator devices.



- IDD makes illicit source removal difficult, providing time for off-site responders to arrive at the site and contain the adversary.

IDD hardware does not impact the safety or operation of the device.

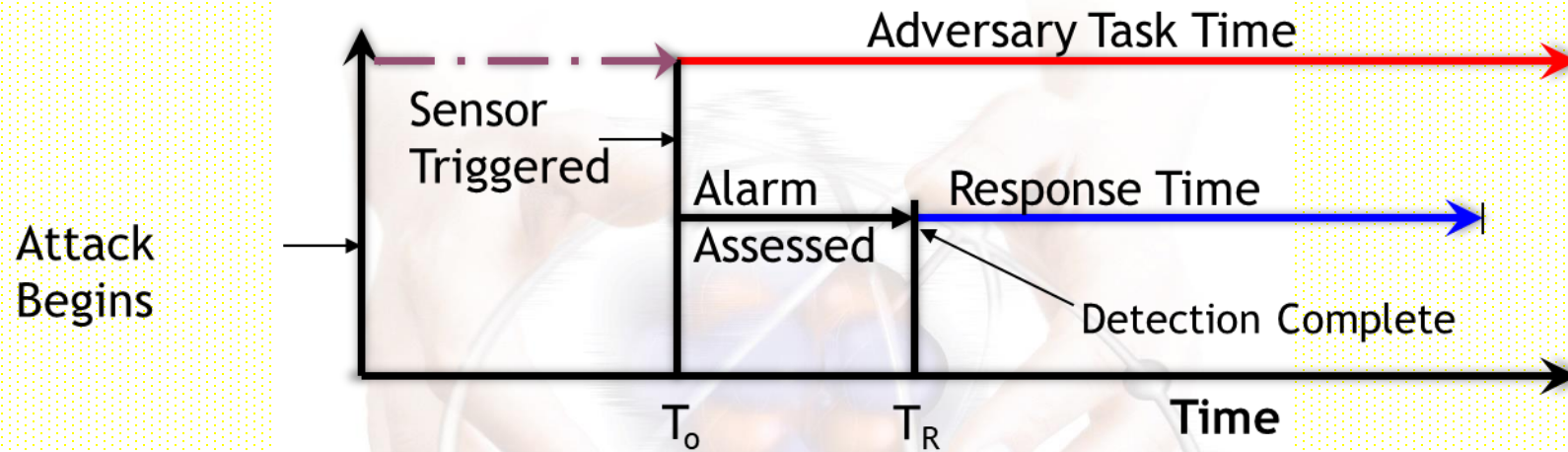
- IDD hardware is hidden from view and is, therefore, a valuable way to mitigate the insider threat.



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## Attack timeline:



To ensure total **Response Time** is less than **Adversary Task Time**:

- **Sense attack earlier**
- **Increase delay**



**A National Strategy on Nuclear Safety and Security** was approved by government decision No 600/2014 and became effective on 30 July 2014.

- It integrates safety, security, and safeguards, and is based on IAEA guidance.
- The Strategy is supported by an Action Plan, with clear activities, tasks, milestones and implementation responsibilities distributed across competent authorities, according to their mandate.

The current legal and regulatory framework ensures the following:

- No possession, transfer, import or export of nuclear or other radioactive material is permitted without the required licenses;
- Strict safeguards control over nuclear material;
- License holders have in their authorizations written conditions
- Customs Authority, Border Police and National Police are obliged to report to CNCAN the detection of any nuclear or other radioactive material that is suspected to be out of regulatory control (based on their procedures).



# Romania's nuclear security detection architecture

- **Legislative framework, Threat Assessment, Applicable regulations**
- **Roles and responsibilities of competent authorities**
  - ❖ **National Commission for Nuclear Activities Control**
  - ❖ **Romanian Border Police**
  - ❖ **Romanian Intelligence Service**
  - ❖ **The General Inspectorate of Romanian Police**
  - ❖ **National Customs Authority**
  - ❖ **General Inspectorate for Emergency Situations**
  - ❖ **General Inspectorate of Romanian Gendarmerie**
  - ❖ **Special Aviation Unit**
- **International and regional coordination**
- **Planning and organization**
- **Detection capabilities**
- **Detection plan for orphan sources recovery**
- **National policy to improve detection at border (EU Border)**
- **Custom Detection equipment at crossing points**
- **Cooperation with NSDD, and operated by Border Police**
- **National Emergency Response Plan**
- **National Coordination Plan Response to Illicit Trafficking Incidents**
- **Protocols between all institutions involved in detection architecture**
- **Training plans**
- **Exercises**



# National Framework For Managing Response To Nuclear Security Events

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By law, CNCAN is the national contact point for, inter alia, radiological emergencies (the radiological threat is also perceived in combination with or as a result of malicious acts). The CNCAN Emergency Response Centre activates, within the framework of the National Management System for Emergency Situations, as a focal point for nuclear incidents and nuclear or radiological emergencies.

General Inspectorate for Emergencies (IGSU) and CNCAN act as the national coordinating authorities in case of nuclear accident or radiological emergency.

Entities involved in response to a nuclear security event are:

- **Assessment and Activation: CNCAN and Nuclear Research Institutes (TSO)**
- **First responders: National Police, Romanian Border Police, Romanian Gendarmerie, Customs**
- **Specialist Response: National Police, Prosecutor's Office, Nuclear Research Institutes (TSO), SRI (counter-terrorism intervention)**





# National Framework for Managing Response To Nuclear Security Events

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The National Cooperation Plan for response at incidents/events or illicit trafficking involving nuclear and radioactive materials provides government wide guidance to ensure every task, from alarm to prosecution, is completed in a coordinated and efficient manner.

Its objectives include:

- Preparation, planning and implementation of the response;
- Set of rules and measures to ensure timely and unitary intervention for the management of incidents;
- responsibilities, authorities and signatory institutions, regarding monitoring, exchanging information, coordinating capability action and response management.



# National Framework for Managing Response To Nuclear Security Events

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This National Cooperation Plan ensures coordination between the Emergency Response Plan, the Transportation Plan, the National response plan in case of terrorist attacks, and the legal procedures for evidence collection and prosecution.

The National Cooperation Plan was developed by:

- National Commission for Nuclear Activities Control (CNCAN)
- Ministry of Interior (MAI)
- Ministry of Health (MS)
- Ministry of Public Finances – National Tax Administration Agency (ANAF) through the General Directorate of Customs (DGV)
- Romanian Intelligence Service (SRI)
- Special Telecommunications Service (STS)
- National Veterinary Health Authority and Food Safety (ANSVSA)
- Ministry of Environment-National Agency for Environmental Protection (ANPM) and Environmental Protection Agencies (APM)
- “Horia Hulubei” National Institute of Physics and Nuclear Engineering (IFIN-HH)
- Institute for Nuclear Research Pitesti



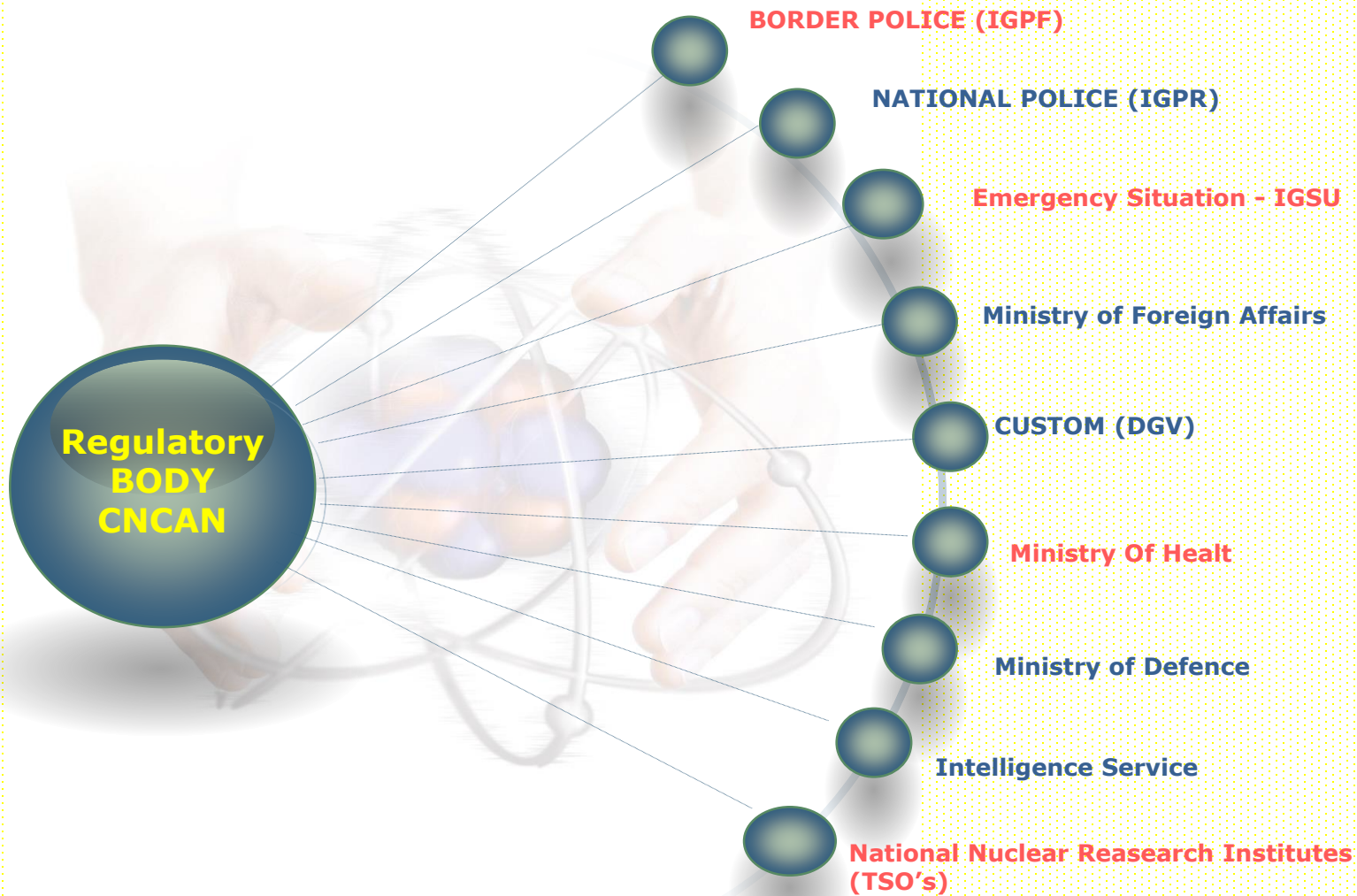
## International Cooperation, Assistance and Information Exchange In Relation To Nuclear Security Events

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- **CNCAN exchanges information and cooperates with other States and international organizations regarding the loss, abandonment, theft, or discovery of radioactive sealed sources, regarding investigations and follow up activities, without prejudice to confidentiality requirements and national legal framework (Article 26 of CNCAN Order 356/2005 regarding Orphan Sources and Radioactive Sealed Sources).**
- **The Romanian Border Police (RBP) concluded bilateral and multilateral agreements (MOUs, Conventions, Protocols, etc.) with states, such as: Bosnia and Herzegovina, Bulgaria, Russia, Macedonia, Moldova, Serbia, USA, Turkey, Ukraine, and with other EU States, regarding organized crimes, trans-border crimes, and terrorism.**
- **The Prosecutor's Office can request assistance through the framework of international conventions (ICSANT) or existing bilateral agreements.**



## Inter-agency cooperation



# HUMAN RESOURCES IMPROVEMENT

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- DBT National Workshop, Bucharest
- National Training Course Preventing and Combating Illicit Trafficking of nuclear and radiological materials, Constanta
- National Training Course on Nuclear Security Culture
- National Training Course on Cyber Security
- Regional Training Course on Physical Protection Inspection for radiological sources.
- Regulatory experts and law enforcement participated to the IAEA training courses
- Regulatory experts and law enforcement participated to the EU workshops and training courses



# National Training Programs



Southeast European Law Enforcement Center

International Atomic Energy Agency

National Commission for Nuclear Activities Control





## National Design Basis Threat Workshop

Organised by:

- National Commission for Nuclear activities Control,
- International Atomic Energy Agency
- Hosted by Southeast European Law Enforcement Center


Romania, Bucharest, 21-23 March 2012



International Atomic Energy Agency

National Commission for Nuclear Activities Control

## National Course for Preventing and Combating Illicit Trafficking with Nuclear and other Radioactive Material



28 May to 1 June 2012, Constanta, Romania



European Commission

EUSECTRA

International Atomic Energy Agency

ROMANIA

## Regional workshop on "DEVELOPMENT and IMPLEMENTATION of a NATIONAL RESPONSE PLAN" and on "NUCLEAR FORENSICS AWARENESS"

Organized by: European Commission in partnership with the I.A.E.A. and hosted by the National Commission for Nuclear Activities Control

01 - 02 October 2012, Bucharest, Romania



# National and Regional Exercises Programs



# NUCLEAR SMUGGLING DETECTION AND DETERRENCE EQUIPMENT





## N.S.D.D.: MOBILE DETECTION SYSTEM (MDS)

- ☢ Design to detect penetrating radiation - gamma and neutron
- ☢ Gamma detector uses scintillating plastic and the neutron detector uses He tubes
- ☢ Currently in Romania we have 8 MOBILE DETECTION SYSTEMS located in 8 locations, 6 of them with IN-MOTION capability.
- ☢ The vans were upgraded with IN-MOTION capabilities by P.N.N.L. experts in JULY 2015



# Equipment, technologies and human resources



# Equipment, technologies and human resources



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A pair of hands is shown holding a glowing atomic model. The model consists of a central nucleus with several blue and orange spheres, surrounded by three elliptical orbits with small spheres representing electrons. The hands are positioned as if carefully holding the model. The background is a light blue gradient with a subtle grid pattern.

**Thank you for your attention !**

