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JOPRAD – Establishing the Programme: Views of the TSOs

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Bucharest

F. Lemy (Bel V)

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HORIZON 2020

ANDRA

Radioactive Waste Management

SÚRAO | SPRÁVA ÚLOŽIŠŤ RADIOAKTIVNÍCH ODPADŮ

BEL V

European Commission

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Centrum výzkumu Řež s.r.o. Research Centre Rez Člen Skupiny ÚJV

IRSN INSTITUT DE RADIOPROTECTION ET DE SÛRETÉ NUCLÉAIRE

MUTADIS

mcm

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What is a TSO ?

- The term « Technical Support Organisation » (TSO) refers in the JOPRAD Project to **organisations carrying out activities** aimed at providing the technical and scientific basis for notably **supporting the decisions made by the national regulatory body**
- These activities may include:
  - Conducting safety reviews
  - Developing the capacities to understand and assess the Safety Case
  - Contributing to inspections
  - Interacting with Civil Society along the review process and developing appropriate governance patterns to conduct this interaction
  - Implementing R&D in safety

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Focus & Merits of « Regulatory R&D »

- Regulatory R&D is oriented towards safety issues and informing regulatory decisions
- Regulatory R&D is essential because:
  - it maintains or improves **competence**
  - it contributes to **independence**
  - it helps to achieve **public confidence** in the regulatory system

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JOPRAD TSO Working Group

- The WG represent the views of **mandated or potential mandated TSO actors** responsible for R&D on geological disposal at the national level
- Members of the TSO WG:
  - ✓ Bel V (BE), CPST (LT), CV-REZ (CZ), Decom (SK), GRS (DE), IRSN (FR), JSI (SI), NRG (NL), TS Enercon (HU)
- The WG includes:
  - ✓ a representation of both advanced and less advanced programmes
  - ✓ 3 members of the JOPRAD Consortium
  - ✓ 6 technical "3^{d} parties"

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Objectives of the TSO Working Group

The objectives of the TSO WG are as follows:

1. identify what would be the **added value of a JP** from a TSO perspective
2. identify the **boundary conditions** for JP from a TSO perspective
3. define, from a TSO perspective, the **level of independency** between the different actors which is required for the different types of research needs and activities
4. identify **key aspects of SITEX's SRA that could be shared** in the framework of a JP and those that should remain independent from the other parties
5. identify the **timeframes** associated with potentially shared R&D priorities
6. determine whether **sufficient areas of interest and interested parties exist** to initiate a JP

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Added Values of JP from a TSO Perspective

- **Optimisation** of available resources & kwowledge
- Ensure that **competence-building** is achieved **in due time**
- Development and maintenance of a high level of competency by **being part of the scientific community**
- Focus joint R&D activities at the European level on **safety priorities** as regards the decision-making process
- Foster **mutual understanding** and dialogue on safety-related issues (goes beyond the scope of R&D)

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Regulatory R&D Needs

- Identification, understanding, characterization and completeness check of events & processes (including their consequences)
- Verification of values of safety-relevant characteristics and parameters (including uncertainties)
- Identification of safety-relevant characteristics, parameters and uncertainties (uncertainty/sensitivity analyses)
- Independent model verification / validation
- Verification of potentially suitable options (sites, design choices,…)
- Verification of the feasibility
- Exchanging on issues related to the safety strategy (i.e. approaches, methods and processes) or management

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Identification of Potentially Shared Activities (1/2)

- A **Strategic Research Agenda (SRA)** is being developed in the framework of the **SITEX initiative (EC Project SITEX-II)** bringing together TSOs, REs & NRAs providing a technical and scientific basis for supporting regulatory decisions
- The **SRA** developed in the framework of SITEX II is **used as a basis** for the identification of the activities and topics that could be shared with WMOs and/or REs in a JP
- The SRA identifies needs and priorities associated with the following **types of activities:**
  - Knowledge transfer activities
  - State-of-the art activities
  - Working group activities
  - Experimental & modelling Studies

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Identification of Potentially Shared Activities (2/2)

- As regards the needs for **experimental & modelling studies,** the following "main topics" are currently identified in the draft SRA:
  - Gas in the disposal facility
  - Transient THMBC conditions in the near field
  - Radionuclide behaviour in disturbed EBS and HR
  - Evolution of EBS material properties
  - Safety-relevant operational aspects
- The needs and activities of the SRA that could be shared in a JP are identified considering **conditions for preserving independency** identified by the WG

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Conditions for Independency

- Independency **= Key boundary condition !**
- As long as research is focused on **scientific gaps, data acquisition and basic science that allows better understanding processes** involved in the evolution of the disposal, there is benefit to share as far as possible research programmes
- The WMOs, like the TSOs, may use results from external research conducted by academic or other research institutes
- It is of crucial importance that **WMOs and TSOs use and interpret separately the results obtained**

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Needs for Independent R&D

- There are also situations in which **independent R&D** is required:
  - ✓ so that suitable critical considerations in the review and assessment can be applied
  - ✓ where it is considered that there is a need for additional studies beyond those undertaken by the implementer
- Special attention will be usually given to the detection of possible inadequate choices, assumptions, knowledge gaps, incompleteness, inconsistencies, mistakes,…
- Independent R&D is therefore more a **"complement to" and "a verification of" than a "duplication of"** the R&D activities performed by the implementer

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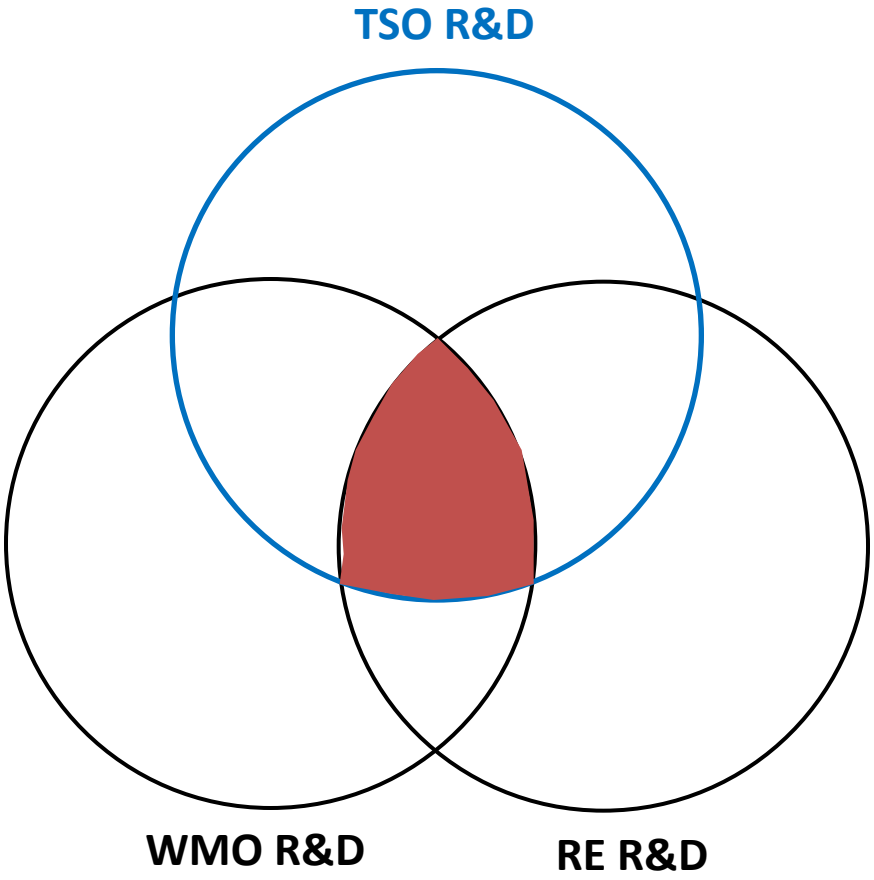
What could be shared among all Actors ?



R&D focusing on **scientific issues possibly relevant for safety & implementation** and compatible with the conditions associated with independency. This includes:

- **Identification, understanding & characterization of events and processes** (phenomenological understanding)
- Data acquisition for the **characterization of safety-relevant parameters** and uncertainties (e.g. measurement methods & results, engineered barriers)
- **Benchmarking** of methods, models & tools
- Working groups on **methodologies & approaches**

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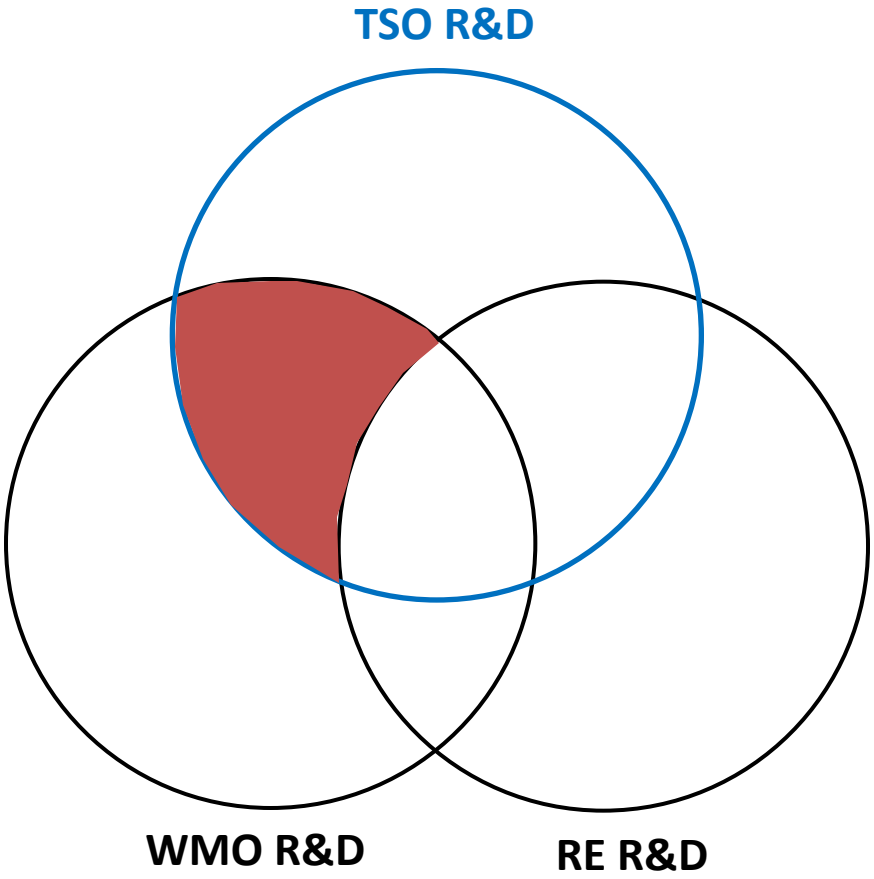
What could be shared between TSOs & WMOs ?



- R&D focusing on **other safety & implementation issues** compatible with the conditions associated with independency
- i.e. same activities as those identified on the previous slide but in which REs would express a low level of interest

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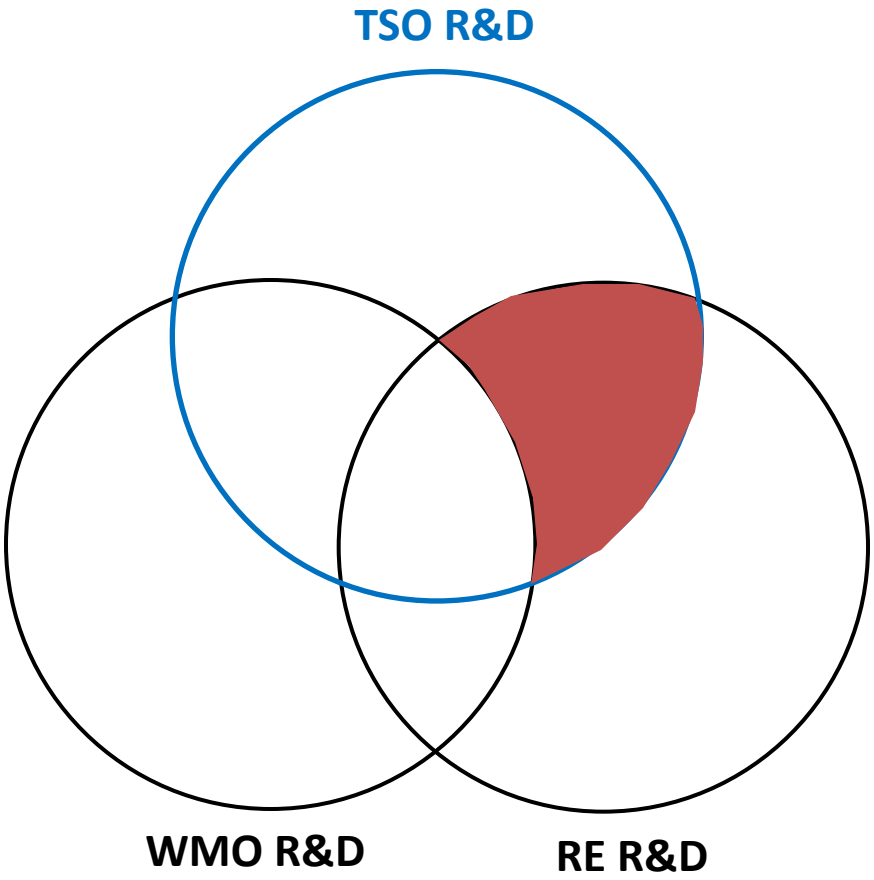
What could be shared between TSOs & REs ?



- A priori all types of R&D activities focusing on **scientific issues possibly relevant for safety requiring "independent R&D"** (i.e. that can not be shared with WMOs)
- Requirements for independency may apply for REs supporting WMOs

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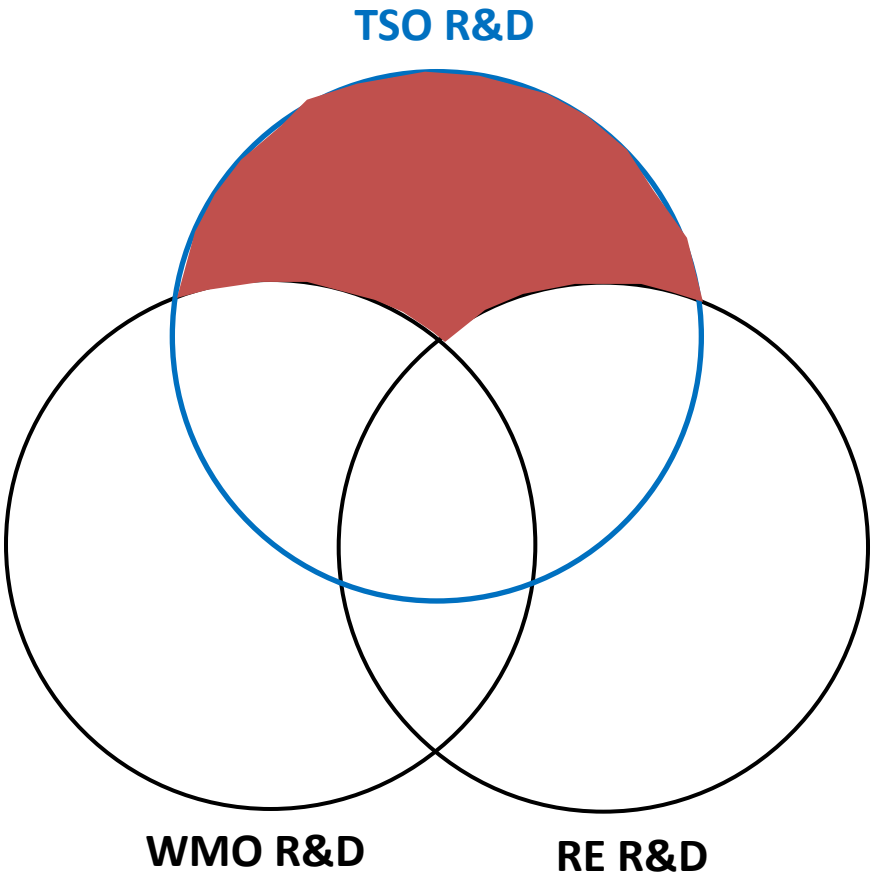
What could not be shared with other Actors ?



R&D activities focusing on **safety issues**:

- **requiring "independent R&D"** (i.e. that can not be shared with WMOs), and
- in which REs would express a low level of interest

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Conclusions

- TSOs need to develop and maintain their skills and expertise to fulfill their missions effectively
- This can be done through various types of activities:
  - Knowledge transfer activities
  - State-of-the art activities
  - Working group activities
  - Experimental & modelling Studies
- Several added values of JP have been identified by the TSO WG
- Activities and topics that could be shared (or not) in a JP with WMOs and/or REs are being identified considering:
  - The SRA developed in the EC SITEX-II Project
  - Conditions for independency identified by the WG

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