

JOPRAD

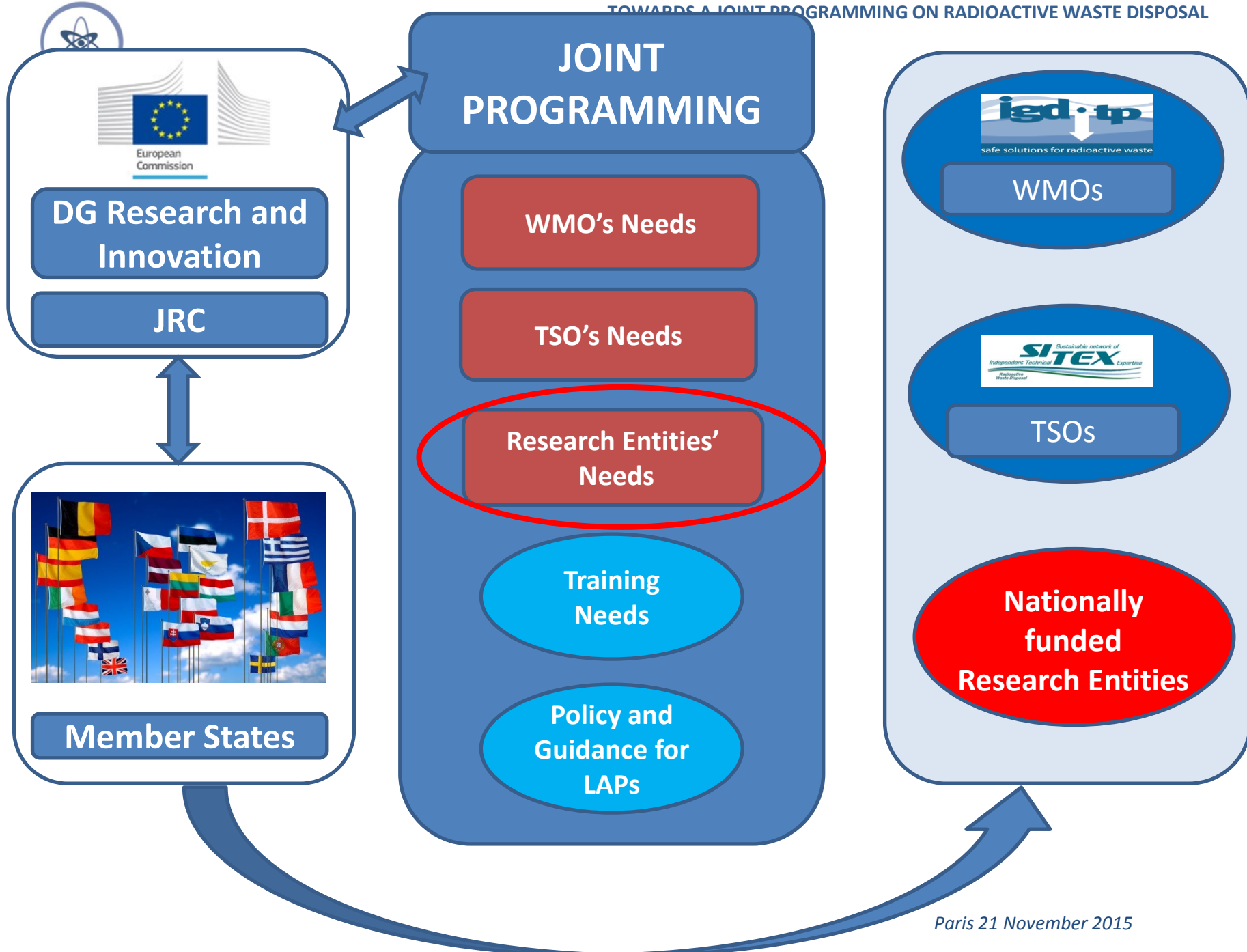
Establishing the programme : Views of the research entities

JOPRAD regional meeting, Bucharest 2016
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What are Research Entities?

- Research Entities (mandated actors)
 - ✓ *Nationally funded*
 - ✓ *Under the responsibility of Member States*

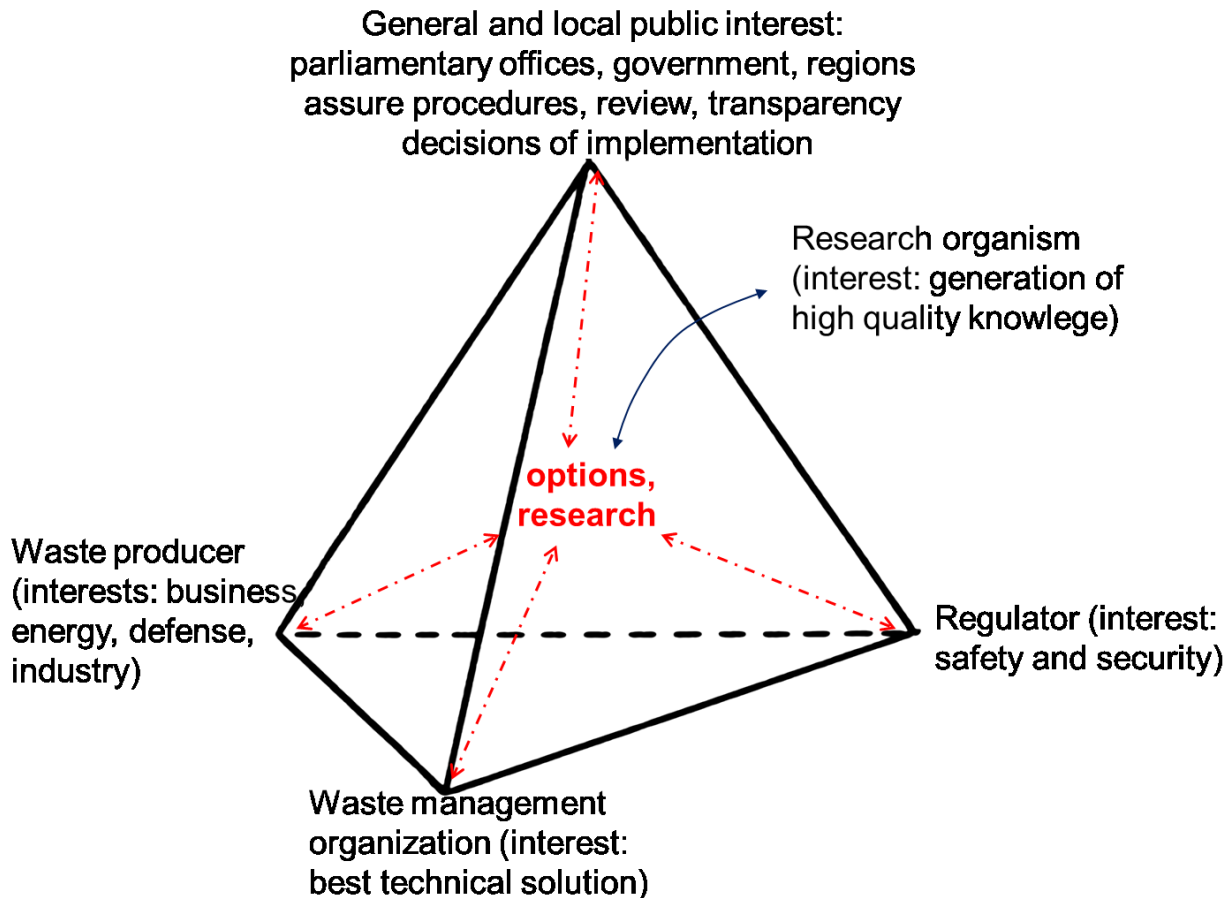
- National Research Labs, Research Institutes
 - ✓ JRC-ITU (EC), SCK•CEN (BE), TNO (NL), PSI (CH), CEA (FR), UJV REZ (CZ), HGF (KIT, HZDR, FZ Jülich), ENEA (IT), INFN (IT), ...

- Universities, Programmes
 - ✓ CNRS (Fr), TU-Sofia, TU-Delft, ...

- Research Entities develop and provide the basic science that underpin the safety file

The role of research organisations

A schematic vision on separation and role of actors



Guiding vision of Research Entities

- Scientific understanding of safety relevant issues must remain credible, verifiable, up-to-date, shared by large scientific communities, open to civil society stakeholders at any given time in the hundred year lasting process
 - ✓ From the first generic studies to site investigation,
 - ✓ From planning to licensing, construction, operation and monitoring
 - ✓ In Environmental Impact Assessment (EIA),
 - ✓ In Safety and Risk Assessments (SRAs),
 - ✓ Until closure of a geological repository for radioactive waste.

Guiding vision of Research Entities

- This goal can only be achieved if research on geological disposal continues to keep up with the evolution of worldwide leading edge scientific knowledge
 - ✓ Long-term vision
- Knowledge Management (KM), Education & Training (E&T) activities, competence maintenance, ... are an integral part of the process

- The goal of Research Entities in the European joint programming is to develop an **integrated fundamental scientific understanding for all concepts related to safe and environmentally sound disposal** of long lived intermediate and high radioactive waste and spent nuclear fuel in repositories within Europe.
- European Joint Programming must therefore aim to join advanced and less advanced European R&D programs for coordinated implementation within leading edge research
 - ✓ on basic components and generic processes,
 - ✓ oriented towards site specific complex systems understanding of long term repository evolution and safety.

A Strategic Research Agenda?

- Until now, Research Entities have been lagging behind in drafting a Strategic Research Agenda
- Until now, our R&D is mainly driven by other actors
 - ✓ Implementation-driven by Waste Management Organisations (WMOs → IGD-TP SRA)
 - ✓ Regulation-driven by Technical Support Organisations (TSOs → SITEX SRA)
- Drafting a Strategic Research Agenda for Research Entities is not a straightforward task

A Strategic Research Agenda?

- RD&D vision and funding mainly forged by WMOs and TSOs
- Among Research Entities, there is no common vision on the scale of the overall scientific problem related to the safety case, not even on research priorities.
- Research is rarely guided by a common vision of the needs of developing a scientific safety case but by open questions in specific knowledge fields.
- Each Research Entity understands a certain aspect of this problem to a certain degree of scientific depth without having the resources and the understanding to address the multiscale coupled overall system.

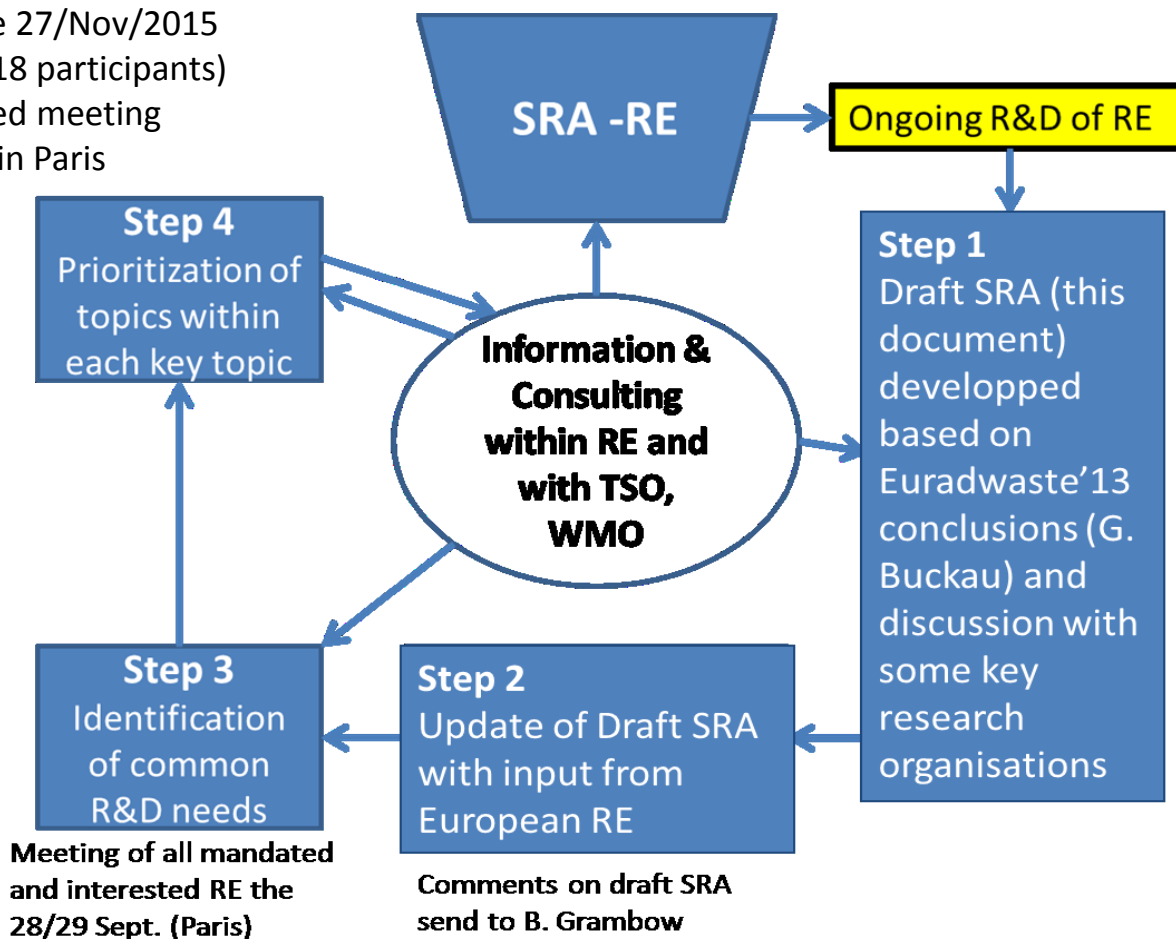
Why do we need a Strategic Research Agenda?

- Building and guaranteeing confidence in safety assessments and underlying scientific assumptions for many decades to come
- Narrowing the safety gap and decrease of conservatism in safety assessment calculations in view of progressive scientific insight into complex systems behaviour
- Embedding techno-scientific research in an ever more demanding society
- Joint Programming as a tool for **Building a European knowledge platform on waste disposal**
- Joint programming as a tool for structured, long-term R&D commitment
- Structured communication and interaction with other Platforms

Towards a Strategic Research Agenda

- The research objectives of RE go beyond the implementation or safety oriented needs of WMOs and TSOs
- **Research Entities will express key research objectives in a separate strategic research agenda (SRA-RE).**
 - ✓ A guiding long term vision
 - ✓ The associated research road map
- **Problems to be managed:**
 - ✓ Large variability in academic research on waste disposal in various european countries
 - ✓ The less advanced programmes often only have limited access to advanced characterization techniques and overall systems understanding

Meeting the 27/Nov/2015
in Nantes (18 participants)
New planned meeting
14/3/2016 in Paris



Status in the development of an SRA

- Identification by the EURATOM national contact points of mandated research actors
- Preparation of a pre-draft document for vision and SRA as base for the discussion by few key European research entities (June 2015)
 - ✓ CNRS, JRC-ITU, HGF, PSI, SCK.CEN, JRC-ITU, ENEA, UJV REZ
- Preparation of draft document for SRA – RE in meeting in 9/2015 in Paris with contributions and comments of key European REs (actually, Jan 2016, version 0.3)
 - ✓ Raten, UJV REZ, LEI, TU-Sofia, INERIS, CEA, SCK, TU-Delft, ITU, GeoZs, PSI, HGF (KIT, FZ DRESDEN, JUELICH), CNRS, IMT, SCK.CEN, ENEA, INFN

Status in the development of an SRA

- Since November 2015: identification of priorities and first projects
 - ✓ Discerning between Generic/ Specific/ Networking/ Review/ Think-tank projects
 - ✓ With large emphasis on “horizontal activities” (large infrastructures, dedicated equipment, E&T, ...)
 - ✓ Considering individual processes, their couplings and up-scalings
 - ✓ In experiment, model and field work

Content of the Strategic Research Agenda

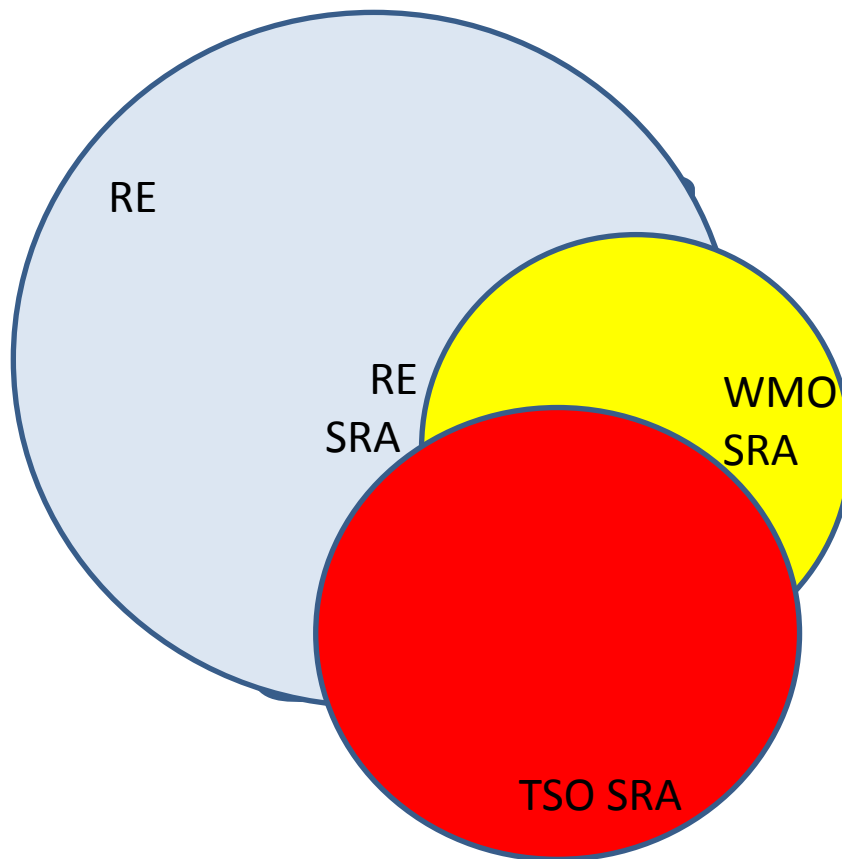
□ Elements of the draft SRA-RE:

- Horizontal review activities, research orientations and networking
- Safety case related issues (i.e. coupled chemistry/transport...)
- Cross cutting scientific issues: well and ill defined
- Upscaling, systems couplings, validation strategies
- Disposal relevant waste management
- Waste forms: behavior and characterization, source terms
- EBS, near field / farfield / biosphere
- Monitoring
- Social sciences

Where do we go from here?

- Continue defining Strategic Research Agenda and research priorities
- Project Proposals
 - ✓ Concrete projects
 - ✓ Next five years
- Meeting Paris 14th March
- Discussion within JOPRAD on Programme Document

Towards creating a joint program in WP4



➤ Any questions?

