Research Entities Grouping

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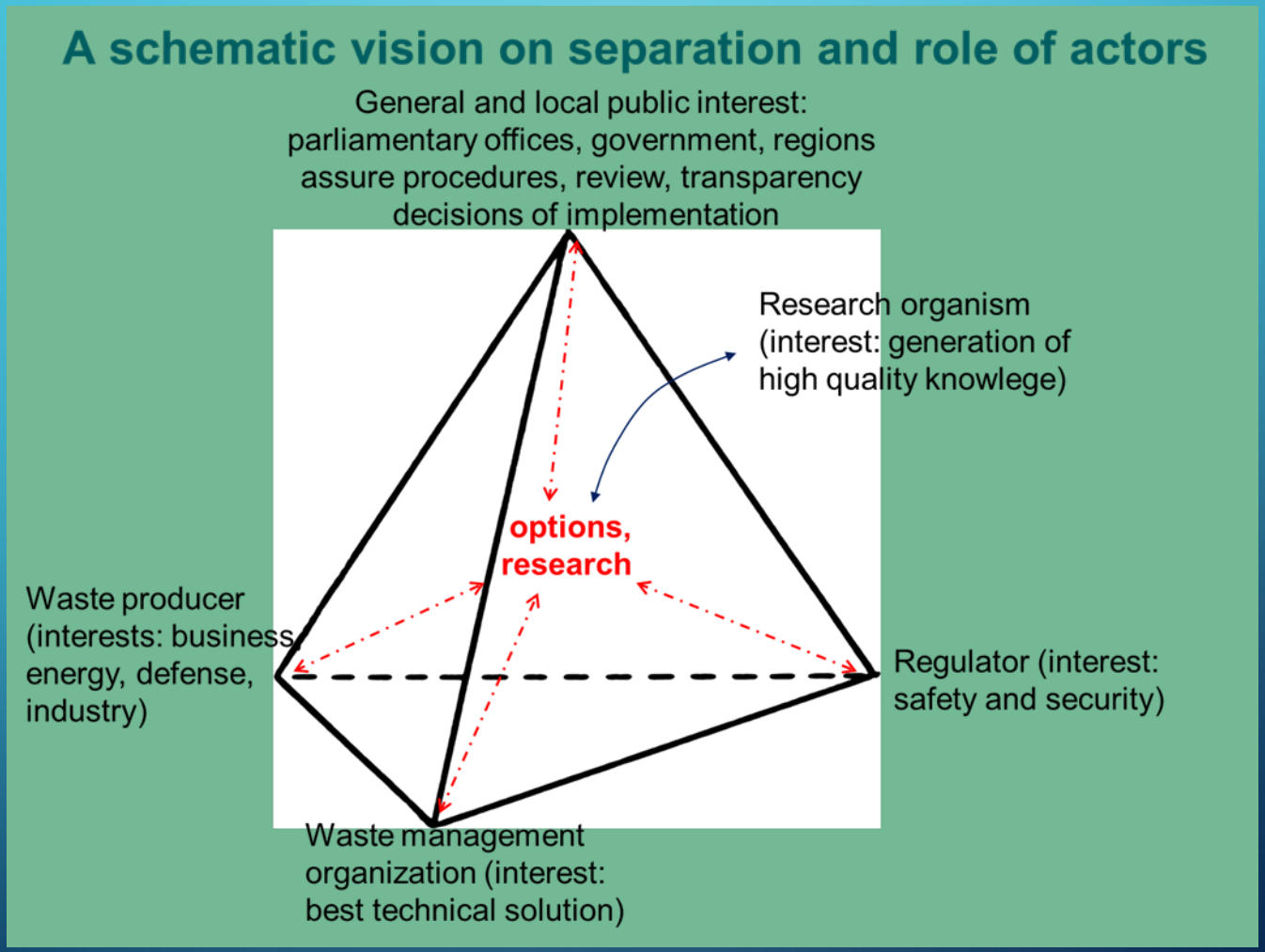
THE ROLE OF RESEARCH ENTITIES



WHY RE GROUPING?

- What is our "raison d'être"?
  - REs are at the center of long term knowledge management and further development of applied and fundamental research on radioactive waste management beyond national borders
    - Link to Council Directive 2011/70/Euratom
  - Inherent role of R&D (scientific and technical challenges) in waste management and disposal
    - Providing credibility through the coupling with scientifically prudent and intellectually independent RE members
  - Education and training of young scientists (keeping competence; providing for the next generation experts)
    - Through promotion of attractive and frontier research
    - By networking for maintaining and developing infrastructure and expertise
  - Preparing for EURAD role (RE college)
    - Complement IGD-TP and SITEX with own accents and needs
    - Intellectually independent

RESEARCH ENTITIES

- Whom do we address?
- Aim
  - To work inclusive towards mandated actors
    - Urgency with respect to EURAD governance
  - To selectively involve other research organisations
    - Setting up a structure and reflection on role of the grouping
  - Transparency
- Invited REs
  - Formally mandated actors under EURAD
    - 20 individual organisations
  - LTPs, identified as (important) research organisations
    - Only limited number selected so far
  - Some TSOs, identified as research organisations, if interested
    - VTT, CIEMAT

RESEARCH ENTITIES

- First discussion June 2018 (Brussels)
  - Interest of ~20 research entities
- Further preparatory work through smaller group to prepare all necessary documents/meetings/…
  - Total RE group could encompass 100 organisations
    - → not productive anymore
  - Working group to obtain mandate to work on behalf of bigger organisation
  - Meeting October 2018

LEGAL STRUCTURE

- No priority
  - → Getting things moving first.

- Participation fee?
  - ✓ Allows to increase visibility: webpage, marketing, etc.
  - ✓ Ensures commitment
  - ✗ Need in terms of longer-term mission?
  - ✗ Not needed in frame of EURAD

DEVELOPMENT OF A STRATEGIC RESEARCH AGENDA

- Associated to the JOPRAD project, REs grouped to define their own Strategic Research Agenda (SRA) in a record time
  - Meetings in Brussels (June 2015), Paris (September 2015), Nantes (November 2015), Paris (March 2016)
  - Final draft in May 2016
- RE working group (22 partners)
  - Advanced and less advanced programmes

Organisation	*Country*
CNRS, CEA, IMT, INIRIS, UPMC, U-Lorraine	France
CTU, UJV-REZ	Czech Republic
SCK.CEN	Belgium
HGF (Jülich, Karlsruhe, Dresden)	Germany
ENEA, INFN	Italie
LEI	Lithuania
U Delft/TNO	Netherlands
RATEN/INR	Romania
TU Sofia	Bulgaria
ITU	JRC
PSI	Switzerland
IST	Portugal
Geo ZS	Slovenia

RE-SRA JOPRAD

- Within the RE-SRA (JOPRAD), it is acknowledged that needs for demonstration of required level of safety and environmental protection of radioactive waste disposal facilities are associated with prominent scientific-technical challenges
  - Time-scales of consideration (passive safety features)
  - Stringent demands to prevent radiotoxic material effecting the environment and quality of life for future generations
  - Complexity of disposal system and its components
    - Spatial scale features from nm to km
    - Time scale features from s to Myears
    - Multi-disciplinarity
    - Process coupling
  - Time-scales for implementing geological disposal

FROM JOPRAD TO EURAD…

- RE interest in EURAD
  - Building confidence in safety assessments and underlying scientific assumptions for many decades to come
  - Decrease of abstraction/simplification (and conservatism) in safety assessment calculations in view of progressive scientific insight into complex systems behaviour
  - Embedding techno-scientific research in a progressively demanding societal context
    - Serving society with indepenent science/building confidence and credibility in radioactive waste management
  - EURAD as a tool for Building a European knowledge platform on waste disposal
  - EURAD as a tool for structured, long-term R&D commitment
    - Develop and maintain high-level research infastructures across Europe
  - Structured communication and interaction with other Platforms

FROM JOPRAD TO EURAD…

- RE interest in EURAD
  - Define state of the art in understanding of system components behaviour, beyond national programme boundaries
  - Continuously further develop scientific knowledge promoting confidence building and keeping up to speed with scientific progress in a pro-active manner
    - Striving for scientif excellence within radwaste R&D
  - Safeguarding existing knowledge and attracting next generation of experts
  - Monitor and further elaborate upon the scientific basis for developments beyond the presently favoured options subject to implementation programmes
  - Exchange forum to discuss and identify research priorities
  - Dialogue with WMOs and TSOs (triangle rather than bilateral)

UPDATING THE RE-SRA

- Focus shift from “geological disposal” (JOPRAD) to “from cradle to grave” (nuclear back-end, EURAD), including
  - Pre-disposal activities
  - Legacy waste, including small (problematic) inventories
  - (Near-)surface disposal
  - (New) nuclear developments
- Providing and developing cutting-edge nuclear research facilities and instrumentation (for applied and fundamental scientific studies)
- Attracting young scientists’ interest (educating and training of next generation experts)
- Re-thinking priorities in view of EURAD research programme

UPDATING THE RE-SRA

- Some examples (non-exhaustive, non-binding)
  - Innovative waste forms (ceramic, geopolymers, plasma, spray coatings, organo-mineral composites, etc.)
  - Natural analogues/site-specific analogues
  - Biosphere models: how to increase credibility?
  - Further development of complete, transparent and quality assured thermodynamic databases
  - Linking bottom up to top down approaches using very complex systems, including mineral assemblages, competition effects, micro-organisms, redox, colloids
  - Develop and evaluate concepts and methods for handling, characterization, treating, conditioning, storing and re-disposal of historical (very old) wastes
    - Also in view of retrieval

UPDATING THE RE-SRA

- Some examples (non-exhaustive, non-binding)
  - Integral experiments with high-level waste
  - Deep Borehole disposal
  - Atomistic simulations

  - Networking and sustaining the European research infrastructures

FUTHER STEPS

- **Meeting on December 5th, BMWi, Berlin, Germany**
  - 17 organisations from 10 countries
    - Additional 4 organisations (4 countries) declared interest
- Centered on “who, why, how”
- Aiming to be fully ready before start of EURAD

WELCOME TO…

The EuradScience Network

ANY QUESTIONS?