romania2019.eu

EURADWASTE '19

9th European Commission Conference on EURATOM Research and Training in Radioactive Waste Management

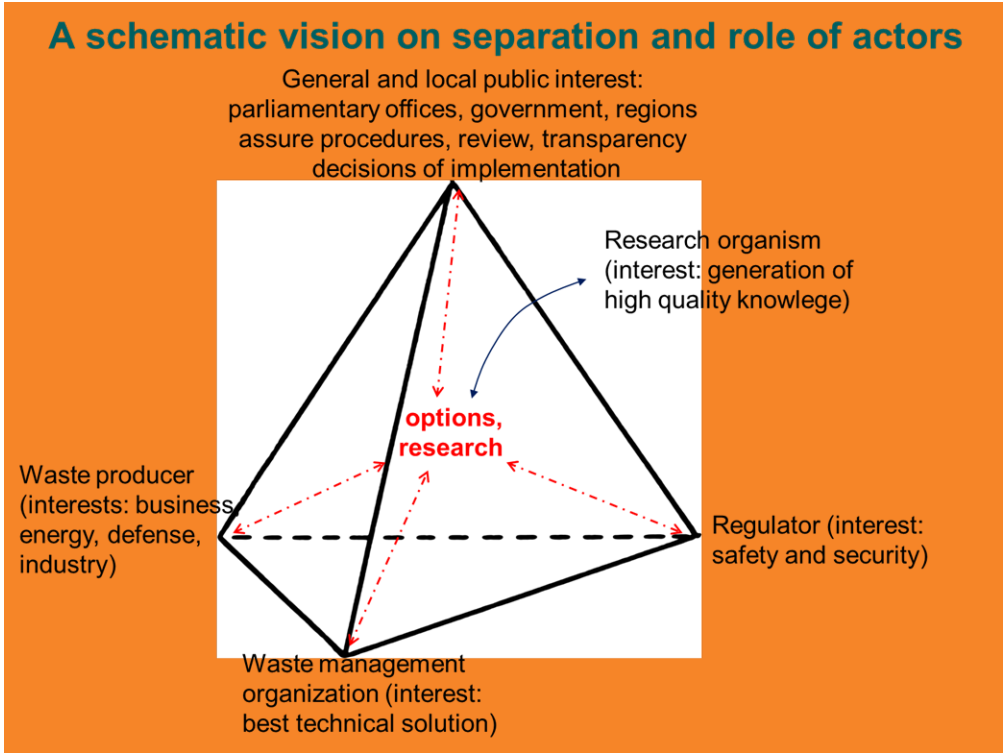
4-7 June 2019
Pitesti, Romania

"EURADSCIENCE", A NETWORK OF RESEARCH ORGANISATIONS FOR RADIOACTIVE WASTE MANAGEMENT SCIENCE WITHIN EUROPE

C.BRUGGEMAN

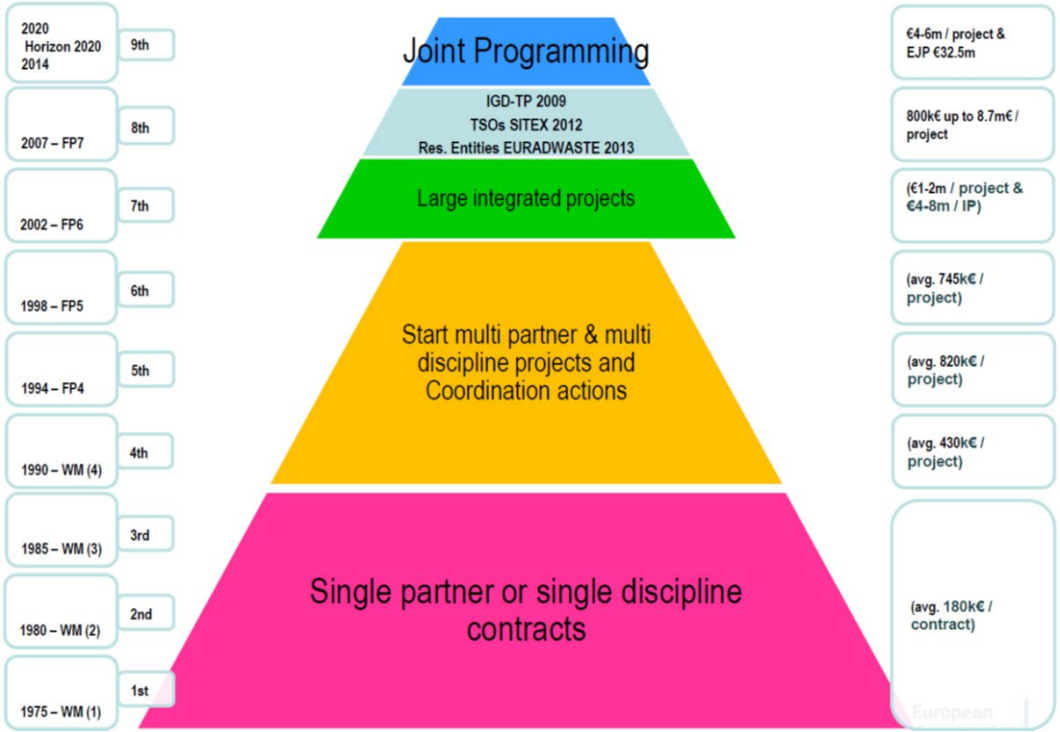
M.ALTMAIER, D.BOSBACH, S.CHURAKOV, D.GALSON, B.GRAMBOW, F.McEVOY, Th.STUMPF

The role of research organisations



Research organisations grouping – a brief history of time

- Embedded within the EURATOM Framework Programmes
- From single partner to multi partner contracts
- Continued efforts for collaboration in large integrated projects
- Implementation-driven projects become the new standard
- From JOPRAD to EURAD – the new era of Joint Programming
- Research organisations recognised as independent mandated actor group

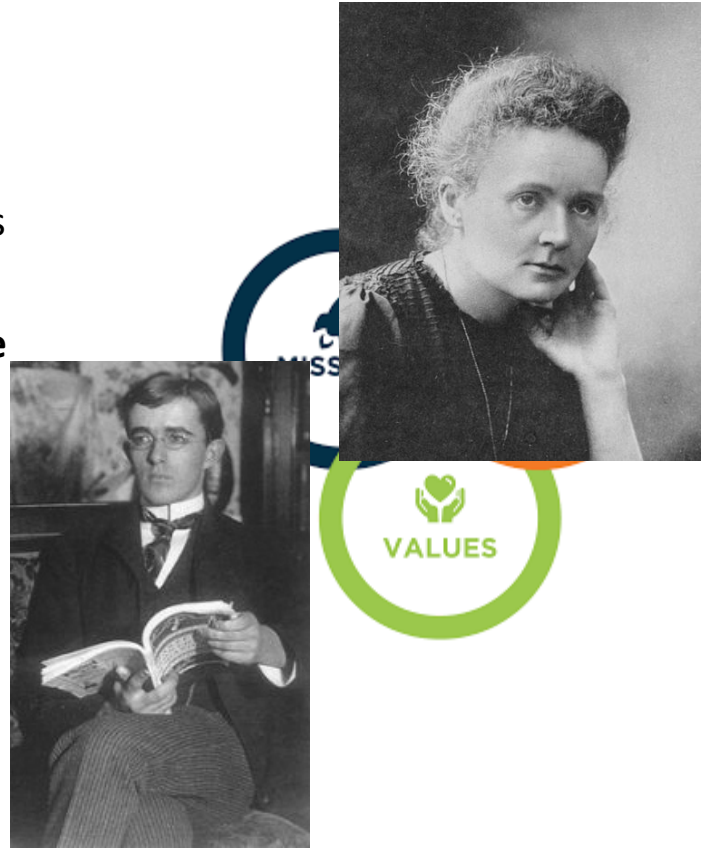


Courtesy of C.Davies, EC, DG RTD

Why RE grouping? - Vision

- Key challenge: continuously developing the scientific frontier in view of the extremely long timescales associated with the generation and storage of radioactive wastes, and the development, operating and closing of geological repositories

- **Vision**: To act as an **independent, cross-disciplinary, inclusive network ensuring scientific excellence and credibility** to radioactive waste management



Why RE grouping? - Mission

Mission:

- Research organisations are at the centre of developing a long-term vision for the scientific and technical challenges that are inherently linked to safe waste management and disposal, beyond national borders and specific implementation programmes
- Research organisations have a primary focus on long-term knowledge management and development, and are key to maintaining competence and know-how
- Nationally funded research organisations identified as Mandated Actors within EURAD form the membership of the Research Entities College
  - EURADScience will support the functioning of this college

Welcome to…

The EuradScience Network

Born December 2018, Berlin, Germany

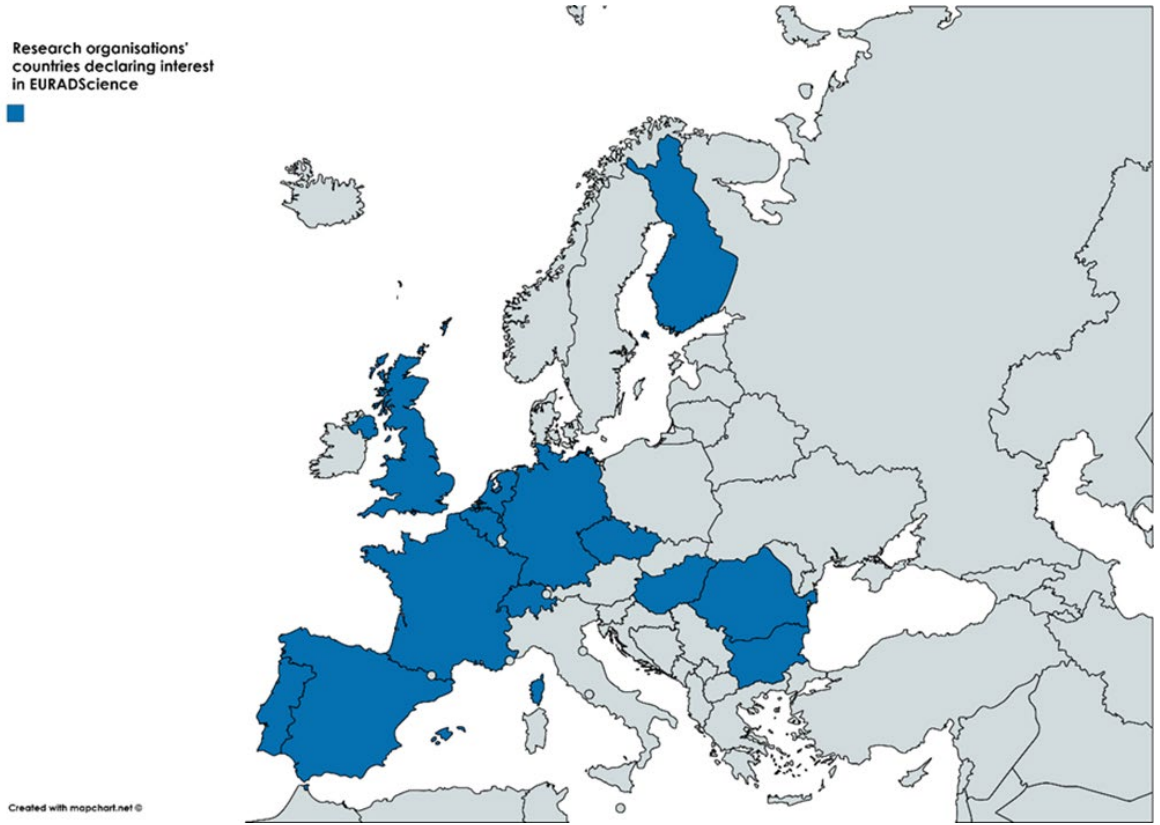
EURADScience

- Whom do we address?
- Aim
  - To work inclusive towards mandated actors within EURAD
    - Importance with respect to EURAD governance
  - To selectively involve other research organisations
    - Setting up a structure and reflection on role of the grouping
  - Transparency
- Invited research organisations
  - Formally mandated actors under EURAD
    - 20 individual organisations
  - Linked Third Parties, identified as (important) research organisations
    - Link also to academia
  - Some TSOs, identified as research organisations, if interested
    - VTT, CIEMAT

EURADScience

- Currently, 28 members from 14 countries

- National research centers, universities/academia, radwaste R&D programme managers, small and medium enterprises



EURADScience structure

- Executive group
  - Application on voluntary basis
  - 8 seats at the table
- Membership fee and (if so) how to use it
  - Website, dissemination, representation, joint meetings
- Support of RE college within EURAD
  - Selection of RE college Bureau Members
- Working groups: Preparing for future activities

Meeting : Thursday afternoon, Meeting Room SMARALD, RAMADA hotel, 14h00

Research organisations' interest in EURAD

- Embedding techno-scientific research in a progressively demanding societal context
  - Serving society with independent science/building confidence and credibility in radioactive waste management
  - Define state of the art in understanding of system components behaviour, beyond national programme boundaries
  - Building confidence in safety assessments and underlying scientific assumptions for many decades to come
- EURAD as a tool for Building a European knowledge platform on waste disposal
  - Safeguarding existing knowledge and attracting next generation of experts
- EURAD as a tool for structured, long-term R&D commitment
  - Develop and maintain high-level research infastructures across Europe
  - Continuously further develop scientific knowledge promoting confidence building and keeping up to speed with scientific progress in a pro-active manner
- Structured communication and interaction with other Platforms (IGD-TP, SITEX, waste producers)
  - Multilateral rather than bilateral

Development of a Strategic Research Agenda

- Associated to the JOPRAD project, research organisations 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
- Research organisations working group (22 partners)
  - Representatives from 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

Updating the Strategic Research Agenda

- 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

  → Holistic view on nuclear activities

- 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 Strategic Research Agenda

- Some examples (non-exhaustive, non-binding)
  - Innovative fuels (ATF fuels and claddings)
  - Innovative waste forms (ceramic, geopolymers, plasma, spray coatings, organo-mineral composites, etc.)
  - Innovative waste disposal concepts (including effect of next generation fuel cycles)
  - Natural analogues/site-specific analogues
  - Biosphere models and impact of climate change/extremely long time scales
  - 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 (including retrieving), characterization, treating, conditioning, storing and re-disposal of historical (very old) wastes
  - Integral experiments (including mock-ups)
  - Deep Borehole disposal
  - Atomistic simulations and how they can contribute to the safety case

- Networking and sustaining the European research infrastructures

The EuradScience Network