



“The Euratom Research & Training programme on the management of radioactive waste – Benefits for advanced and less advanced programmes”

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1957 European Atomic Energy Community Euratom treaty

TASK • Research and Dissemination: at EC JRC and in MS via R&T programmes

Euratom R&T programmes

- Objectives
 - Support MS' needs
 - Encourage cooperation and continuous integration of effort
 - Promote common development & sharing of knowledge
- Tools & method
 - Multi-annual FP (5 to 7 years), eight programmes in management & disposal of radioactive waste since 1975
 - Yearly or biennial work programmes
 - Multi-partner projects selected following competitive calls
 - Cost sharing in R&D and up to 100% funding in coordination actions



Evolution over time

- Early programmes:
 - Broad scope (all types of wastes incl. treatment, conditioning, packages, site characterisation etc...)
 - Generic research (processes, materials, tools & methods)
 - Objective: knowledge development
- In FP7 (2007-2013):
 - Focus on Geological Disposal of HLW & SF
 - Focus on implementation-oriented R&D on all remaining key scientific aspects
 - But also develop common European view = room for Basic Research
 - Requirement: coordination, joint implementation and sharing of knowledge
 - IGD-TP set-up to coordinate RD&D effort in Europe
 - Topics in calls largely based on input of IGD-TP, since launch in 2009



Implementing Geological Disposal Technology Platform (IGD-TP)

In 2009, founding Vision: 2025
2011, Strategic Research Agenda (SRA)
2012, Deployment Plan (DP), 2016

Criteria for SRA & DP topics

- priority in WM national programmes
- need for 2025 objectives
- importance for Safety Case of license application



DP Joint Activities (JA): own studies and R&D projects via Euratom programme

Industry-led: Members x11(WMOs + one Ministry)

Exchange Forum: participants x110, bottom up to prepare activities

Decisions by Executive Group

IGD-TP
Executive Group members



Euratom FP 7 budget



Total EU funding in area Management of Radioactive Waste: € 56.7 million

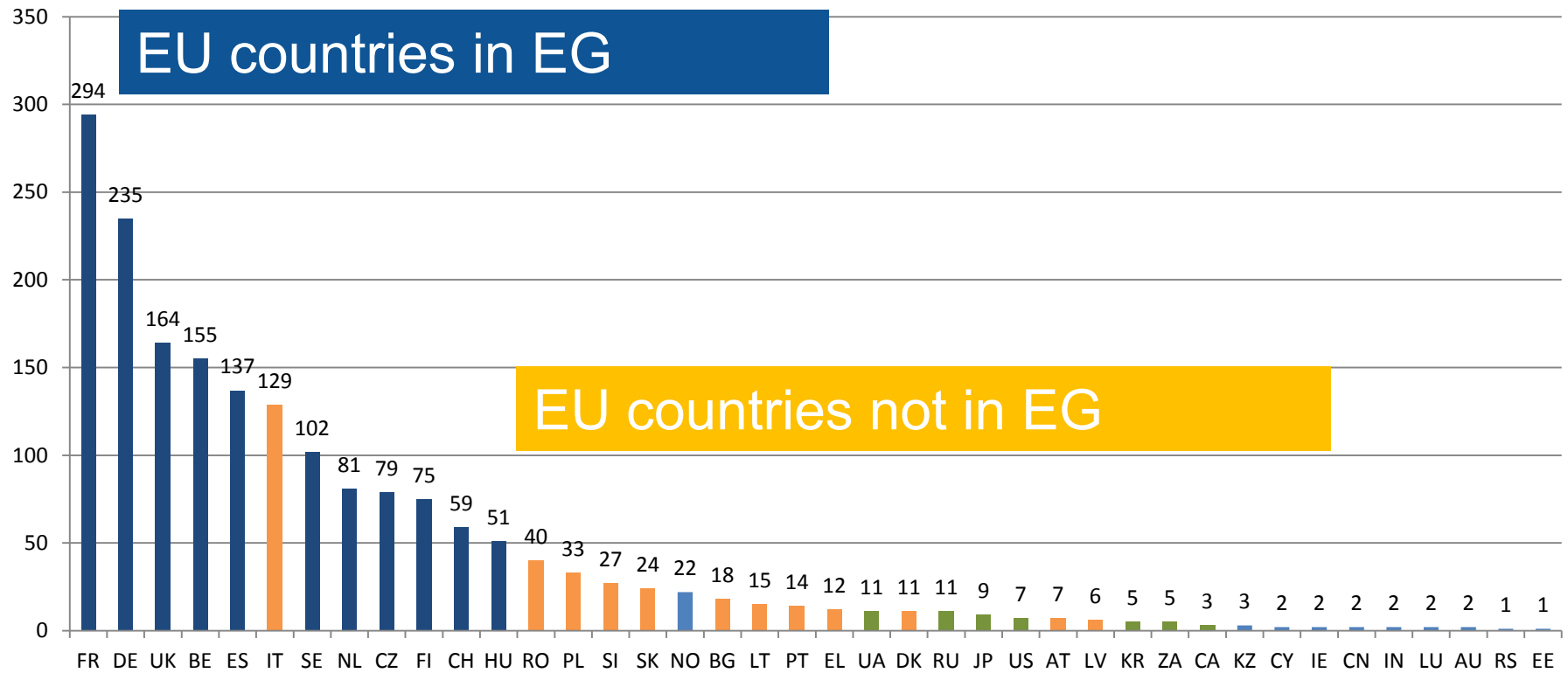
Budget to projects of TP JA priorities: 75%
Budget to other projects i.e. Common European view : 25%
(Basic Research, Education & Training and social science)

See table at the end

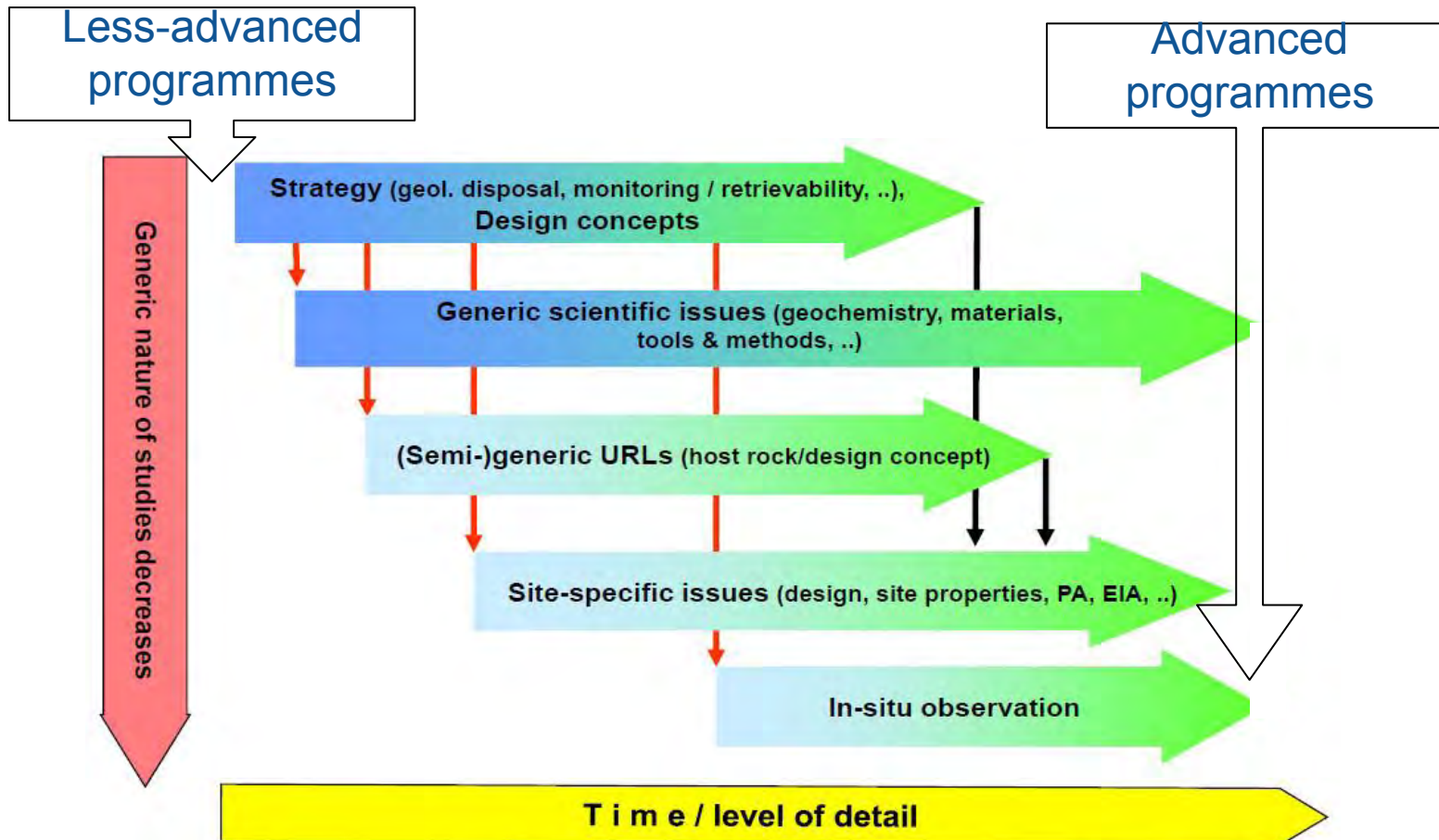
Who participated in FP 7



Number of participation by country FP7-Fission 2007-2013



BUT status of R&D needs are quite different



Euratom R&T programmes

...



can help bridge any gap

In FP7

Euratom project "Secretariat of the Implementing Geological Disposal - Technology Platform – Phase 2" (SecIGD2), until December 2015

Specific work package to help network, structure and develop RD&D competences in countries with less advanced geological disposal programmes

Working Group set-up to:

- i. Identify the specific needs of the less advanced programmes;
- ii. Analyse and prepare proposals to implement these needs in IGD-TP;
- iii. Identify reference documentation or state of the art on specific topics and used by more advanced programmes;
- iv. Identify areas of possible technology transfer through specific agreements between more and less advanced programmes.

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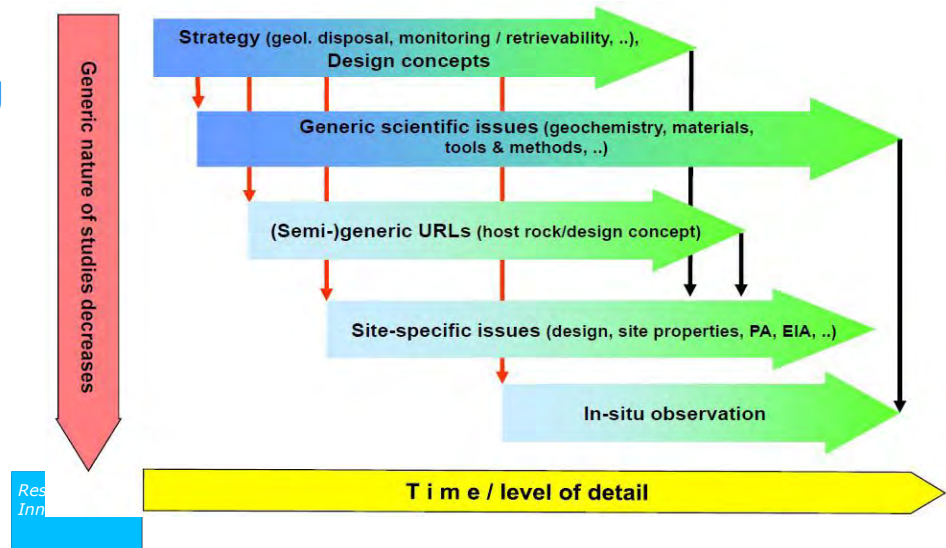
Euratom to build on conclusions of EURADWASTE '13 conference

- Keynote pointed to : *"Challenges in establishing a national programme for research, development and demonstration"* for disposal

➔ As each repository is unique:

Implementation of a geological repository is not possible without specific RD+D

- So each programme needs experience in all areas to ensure proper integration
- Resources needed: Team in charge of RD+D is essential & necessary infrastructure
- Planning and implementation of RD+D to be carried out in a stepwise approach
- With dif. types, focus & level of detail at each stage of programme considering also expectations of society
- Be aware that in each programme there is a need for own projects
- Open international collaboration supports effectiveness and efficiency



Introduction of **programme co-funding**

Why

- ✓ Further increase of research coordination and integration

How

- ✓ via support to programmes rather than projects

Objective in area management of ultimate waste (GD)

- ✓ Support IGD-TP priorities, and wider needs:
 - Support to less advanced geological disposal programmes
 - Continued innovative basic research
 - Needs of regulators / TSOs
 - Engagement of citizens and civil society
 - Competence maintenance and Education & Training
 - Knowledge management and dissemination of results
 - Include support to socio-economic impact studies
 - Promotion of int. cooperation



Three topics in Radioactive Waste Management

1. EU concerted development of Joint Programming of Member States research programmes,
2. EU coordination action for harmonised regulatory reviews for licensing geological repositories,
3. R&D on IGD-TP priority topics & other public R&D programmes,

Call publication **11/12/2013**

http://cordis.europa.eu/fp7/euratom/home_en.html

Call deadline **17/09/2014**

Conclusions



1. Euratom FPs have contributed to excellence in Europe on Disposal
2. Most advanced programmes world-wide in GD of HLW & SF are in Europe
3. IGD-TP set-up to coordinate RD&D effort in Europe between WMOs
4. Less-advanced programmes can take benefit of IGD-TP by joining the EG
5. Each repository is unique so implementation of geological repository is not possible without specific RD+D
6. For this, establishment and implementation of well structured, organised and planned RD&D national programmes for disposal is needed
7. Euratom FP and IGD-TP can help network, structure and develop RD&D competences in countries with less-advanced GD programmes
8. European Joint Programmes in Horizon 2020, hopefully appropriate vehicle to organise transparent & agreed R&D for all purposes & needs

Thank you
for your
attention



FP7 projects and relationship with IGD-TP priorities					
Inst type	Project name	Link to		FP7 budget allocation €	
		FP7 objectives	TP Joint Activities or priority	JA + TP priority projects	other
	Activity area Cross-cutting				
Coordination actions (CA)	Newlancer	CMEV	no		900.033
	Management of ultimate radioactive waste				
	EBSSYN	CMEV	no		25.000
	SEC IGD & SEC IGD2	CMEV	✓	1.290.000	
	SITEX	CMEV	no		950.080
Collaborative research projects (CP)	MODERN	Tech.Impl	JA	2.800.000	
	DOPAS	Tech.Impl	JA	8.700.000	
	PEBS	AS	JA	2.806.333	
	BELBAR	AS	JA	2.581.476	
	FIRST-NUCLIDES	AS	JA	2.494.513	
	CAST	BR	JA	4.511.183	
	REDUPP	BR	JA	929.303	
	FORGE	AS	✓	5.988.647	
	LUCOEX	Tech.Impl	✓	4.390.000	
	CARBOWASTE	BR	✓	6.000.000	
	RECOSY	BR	no		3.500.000
	CATCLAY	BR	no		819.498
	CROCK	BR	no		1.057.927
	SKIN	BR	no		1.171.470
CA	IPPA	CMEV	no		1.599.988
	INSOTEC	CMEV	no		1.998.856
	Human Resources, Mobility and Training				
CA	PETRUS I & II	CMEV	no		2.250.000
			# projects	12	11
			EC funding	42.491.455	14.272.852
			Total Cross-cutting, Waste & Training	€ 56.764.307	€ 56.764.307
			% EC FP7	74,86%	25,14%

Classification of the FP7 projects according to the Framework Programme objectives:

Implementation-oriented R&D activities on all remaining key aspects to establish a sound basis for the disposal of spent fuel and long-lived radioactive wastes in geological formations:

- 1) The technical basis for technology demonstrations
= Technology Implementation (Tech.Impl.)
- 2) The scientific basis for demonstrating the safety
= Applied Science (AS)
- 3) to underpin the development of a common European view on the main issues related to the management and disposal of waste:
= (CMEV)
- 4) *including support to basic research* (BR)

EURADWASTE '13

8th EC Conference on the Management of Radioactive Waste

14-16 October 2013, Vilnius, Lithuania

Co-organised by



Three themes

- Community policy: - EU radioactive waste Directive 2011, int.l perspectives
- Challenges in Geological Disposal programmes:
 - Establishment of a national RD&D programme
 - Regulatory expectations
 - Stakeholder involvement in developing repository programmes
 - Competence Maintenance and Education & Training develpt & impl.tion
- Challenges in science for disposal and repository technologies and construction :
 - Euratom FP7 research projects in Applied science, Basic research and Technology Demonstrations & Full-scale in situ Testing

Programme

Seven plenary and a poster session:

- 8 keynotes, 40 oral presentations, 4 panels and general discussions

Presentations

http://cordis.europa.eu/fp7/euratom-fission/fisa-euradwaste-2013_en.html
http://cordis.europa.eu/fp7/euratom-fission/euradwaste-2013_en.html

Other messages

➔ Needs for "small countries" is beyond 2025

- SRA topics are for advanced programmes but not necessarily need to change it
- Suggestions to organise training on basic knowledge, help to plan national programmes, training and knowledge transfer

➔ Discussions on Research

- Continued EU support to advanced programmes still needed for 2025 but longer term vision and timescales and not only to implementers projects'
- Basic R&D needed to keep up with evolution of knowledge, methods and tools
- Recommend R&D on innovative, prospective technologies; data, tools and models still needed for Performance Assessment predictions