



# Implementing Geological Disposal of Radioactive Waste Technology Platform

## Welcome to Exchange Forum no 5



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# Plenary session 1 - Key notes

- Views of the Municipality of Oskarshamn, Rolf Persson, Municipality of Oskarshamn
- Towards Joint Programming of EU Member States RD&D programmes for the management of radioactive waste in Euratom Horizon 2020, Christophe Davies, European Commission, DG/RTD
- Conclusions and recommendations out of the EURADWASTE'13 conference  
Gunnar Buckau, JRC-ITU
- What does the public really want when engaging with the nuclear industry? Laurel Boucher, The Laurel Co, USA
- The ENEN Association and its missions: an update looking beyond its 10th Birthday Walter Ambrosini and Pedro Porras Dieguez, ENEN Association



# Exchange Forum

- The Exchange Forum is the yearly meeting of the IGD-TP gathering participants and stakeholders that are willing to contribute to our work
- The forum is intended to give an overview of ongoing activities and to promote discussions on how to prioritize different activities to reach the Vision 2025
- It may act as an incubator to new projects and collaborations in the field of geological disposal
- This year, participation in the EF5 will include the visit of the Äspö HRL Laboratory



# Situation of Geological Disposal in Europe (1)

- France: End of the Public Debate – submission of the License in two phases 2015 and 2017
- UK: Publication of White Paper ‘Implementing Geological Disposal’
- Sweden: Review of the licence application for the KBS-3-system is ongoing
- Finland: Review of the licence application for the KBS-3-system is ongoing. 10 years of construction of ONKALO
- Hungary: PURAM published it’s “13th INTERMEDIATE AND LONG-TERM PLAN”
- Belgium: Transposition of the 2011/70/Euratom directive in the Belgian Law (June 3 2014)



# Situation of Geological Disposal in Europe (2)

The Netherlands:

Disposal in 2130, siting is therefore excluded for the following decades. Third Dutch research programme of radioactive waste commenced in 2011

Czech Republic:

In September 2014 a WG for Dialogue on the Deep repository was established. In October 2014 licenses for surface investigations at seven sites were issued

Germany:

Site Selection Act enforced

Switzerland:

End of 2014 / Stage 2 of Sectoral Plan:  
Two sites will be proposed for each type of deep repository (L/ILW – HLW)

Spain:

ATC Centralized SF and HLW Storage Facility – licence application submitted in 2014



# IGD-TP's priorities (1)

## □ Strategic Research Agenda

- RD&D priorities shared by “end-users”
- With an important cooperative added value
- Of benefit to all disposal programmes
- Balance between fundamental science, implementation-driven R&D, safety case support and technology demonstration
- Contribute to a sound, shared and transparent scientific and technological basis for geological disposal
- Serves as a basis for the Euratom programme



## IGD-TP's priorities (2)

- Pooling of resources
  - Joint activities (not limited to EC Euratom projects)
  - Competence maintenance, education and training
- Networking
  - WMO's, TSO's, NMS', SNETP, ...
- Synergies with other international forums
- Build trust amongst participants in the platform

117 participants in 2014





# Main IGD-TP's activities in 2014

## ➤ Publications

Proceedings of EF 4 (Prague)  
Master deployment plan 2014

## ➤ WG activities

Follow up outcomes of 8 technical project  
11 Active WG this year – 4 leading to EC project proposals

## ➤ EC H2020 2014-2015 Work Programme

4 technical project proposals are supported by the Executive Group after preparation during EF4 (Prague) :  
Cebama, Modern2020, MIND, SafeRock





# EC Projects followed up by IGD-TP EG

EC Project	Start Date /Duration	Description	Total cost	EC contribution
Lucoex	Start date 2011- 01-01 Duration 48 months	Large Underground Concept Experiments	6,52	2,8
First-Nuclides	Start date 2012- 01-01 Duration 36 months	Fast / Instant Release of Safety Relevant Radionuclides from Spent Nuclear Fuel	4,7	2,5
REDUPP	Start date 2011-04-01 Duration 36 months	Reducing Uncertainties in Performance Prediction	1,6	0,9
DOPAS	Start date 2012- 09-01 Duration 48 months	Full Scale Demonstration of Plug And Seals	15,7	8,7
PEBS	Start date 2010- 03-01 Duration 48 months	Long-term Performance of Engineered Barrier Systems	6,5	2,8
MoDeRn	Start date 2009- 05-01 Duration 54 months	Monitoring Developments for safe Repository operation and staged Closure	5	2,8
BELBaR	Start date 2012-03-01 Duration 48 months	Bentonite Erosion: effects on the Long term performance of the engineered Barrier and Radionuclide transport	5,1	2,6
SecIGD2	Start date 2013-01-01 Duration 36 months	Secretariat IGD-TP	1,4	0,8
CAST	Start Date 2013-10-01 Duration 54 months	CARbon-14 Source Term	14,7	4,5
		Total	61,22	28,4



# Main IGD-TP's activities in 2014 (2)

- Conference
  - GEODISPOSAL (Manchester)
  - 280 participants, 57 Oral presentations, 129 posters
- Working group with SNETP
  - Factsheet on Geological disposal
- Interaction with SITEX
  - Preparation of a project on Joint Programming on R&D



# Objectives of the EF5 (1)

- Prepare future joint activities, exchange platforms and projects
- Follow the main achievements
- Discuss if the priorities presented in the SRA have been adequately covered by the joint activities and associated projects.
- Present ideas that could complement SRA priorities over the next five year period



## Objectives of the EF5 (2)

Initiate or strengthen contacts between research organisations, waste producers, technical support organisations and waste management organizations:

- With SITEX-present our views on a potential Joint Programming
- With SNETP-present the work on the “factsheet” and explore new subjects for collaboration and/or identify subjects of common interest
- With ENEN address the Education and Training issue in an efficient and coordinated way



# Objectives of the EF5 (3)

## Competence Maintenance, Education and Training (CMET) Working Group:

- identifying what specific needs to reach the vision
- quality assurance of training
- pooling joint training effort

Special session to address the prerequisites for a voluntary accreditation scheme



# TWG1 - Safety Case “handling of uncertainties”

*Rapporteurs: Ulrich Noseck, GRS; Dan Galson, Galson Sciences Inc.*

➤ The WG addresses three topics:

- Management of uncertainties; general strategies for management of uncertainties, specific aspects of handling uncertainties in different time frames, regulatory decision-making under uncertainty, and communication aspects.
- Uncertainty identification and quantification; use of expert judgement to quantify uncertainties, derivation of probability density functions for parameter value uncertainties, and consideration of the importance of correlated uncertainties.
- Sensitivity analysis methods in view of the requirements of post-closure performance assessment



# TWG2 - Microbiological Studies

*Rapporteurs: Klas Källström, SKB ; Karsten Pedersen, Microbial Analytics Sweden AB*

- The participants in EF4's WG5 agreed to continue co-operation
- After EF4, many of the participants expressed an interest in a continued, pan-European co-operation.
- A project proposal has been submitted in the framework of the H2020 Work programme 2014-2015
- This WG aims at having engineers, chemists, modellers and microbiologists working in an integrated manner



# TWG3 - IEP IGD-TP/ SNETP

*Rapporteurs: Richard Stainsby SNETP/NNL ; Lena Zetterström Evins IGD-TP/SKB*

- This WG aims at continuing the discussions started in EF4 on changes in waste forms that may have implications for geological disposal and the required RD&D
- IGD-TP activities deal primarily with changes during next two decades (e.g. higher burnups, change of cladding materials, use of fuel form other than UO<sub>2</sub>, increased separation and recycling, change in the reprocessing end-product, GenIII reactors...).
- This WG is drafting a “factsheet” on “Nuclear developments and radioactive waste management”





## TWG4 - *Priorities and lessons learned after 4 years of implementation of SRA*

*Rapporteurs: Frédéric Plas Andra ; Peter Wikberg, SKB*

Main priorities and the major achievements of the platform after 4 years of implementation of the SRA

- Present/discuss how (far/ good/complete) the Topics have been covered by the Joint Activities and how the activities can be developed within the platform.
- The main objective here is not only to add issues (“what”) in the SRA but rather to propose practical ways to tackle a specific priority from a scientific/technical point of view (“how”).
- New ideas will be considered and the discussion may emphasise on how these can complement our SRA and what could be the added value for all the members.



# The floor is yours!

## I wish you fruitful discussions!

