



The SITEX initiative

Sustainable network for **I**ndependent **T**echnical **EX**pertise on radioactive waste management

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1. Settings of the SITEX initiative

- Context
- From SITEX projects to SITEX.Network
- The SITEX.Network

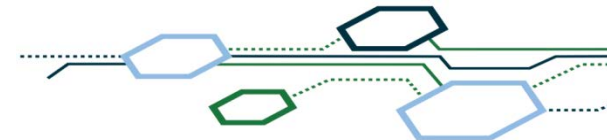


2. Main achievements

- In relation to the Joint Programme development

3. Way forward

- Work plan
- Challenges



1. SETTINGS

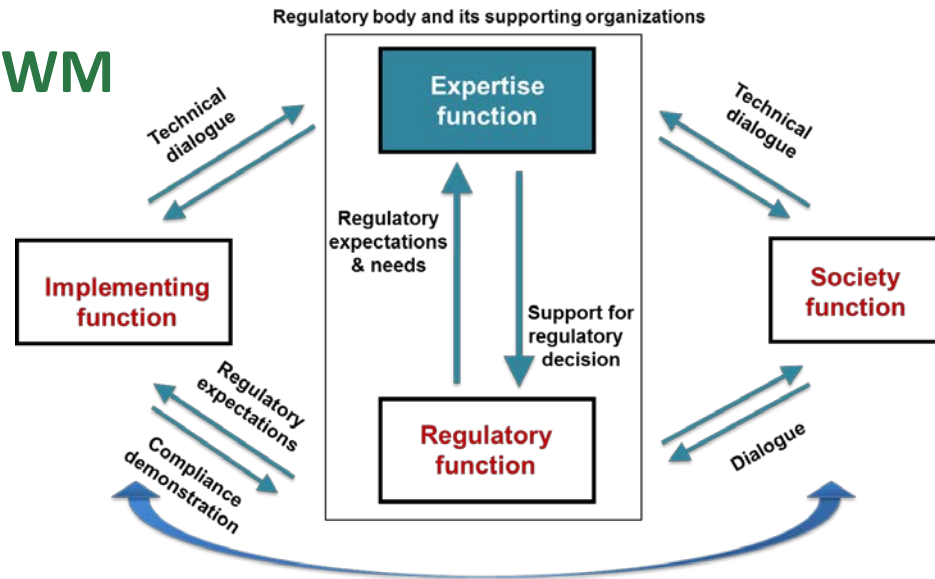
Context - Functions interacting in RWM

- The **Expertise Function** key mission is to provide the **technical and scientific basis** for notably supporting the decisions made within the *Regulatory Function*.

The EC Directive 2011/70/Euratom (addressing safety of RWM) states notably:

- member states shall establish and maintain a competent regulatory authority;
- regulatory authority is functionally separate from Waste Management Organizations (WMOs);
- all parties to carry out education, training and R&D activities.

- **Independence and competence** of the *Regulatory Function* calls for the support of a competent **Expertise Function**, independent from the *Implementing Function*.



- **Typical activities** of the **Expertise Function**:
 - Contributing to the establishment of regulatory requirements;
 - Developing guidance for meeting these requirements;
 - Evaluating Safety Cases related to RWM facilities;
 - Develop and maintain its knowledge and skills.

The origin of the SITEX initiative

- **Implementing Function (WMOs)** in Europe decided to coordinate their efforts to be able, at horizon 2025, to implement the first geological disposal:
 - **IGD-TP** launched in 2009, funded by the EC
- **Need at the international level for developing and coordinating activities of the Expertise Function**, associated to the scientific review process of deep geological disposal safety (as a start):
 - **SITEX** launched in 2012, funded by the EC
 - gathering organizations fulfilling an Expertise Function (TSOs, Research Entities (REs), NRAs) and Civil Society Groups (CS)
 - **plurality of actors and views** as a way forward to build a strengthened and comprehensive **technical expertise network**

From SITEX projects to SITEX.Network



SITEX project
2012-2013

SITEX-II project
2015-2017

SITEX.Network
Since January 2018

- Preparatory phase**
- Define needs and missions of the expertise function.
 - Define objectives of the future SITEX network.
 - Define possible activities and interactions of the network.

- Test phase**
- Test the practical implementation of activities and interactions.
 - Prepare the Terms of Reference of the future SITEX network.

1. SETTINGS

SITEX.Network founded as a non-profit organization, in January 2018

■ What is the overall objective?

- Enhance and foster cooperation at international level to achieve a high quality *Expertise Function*,
- Independent from organizations responsible for the implementation of waste management programmes (*Implementing Function*),
- Aiming at supporting the Nuclear Regulatory Authorities (*Regulatory Function*) as well as the Civil Society (*Society Function*),
- In the field of radioactive waste management, including disposal.

➤ Types of activities



➤ 15 members, from 9 countries:

- Expertise Function: Bel V, EIMV, FANC, GI-BAS, IRSN, PSI, SURO, TS Enercon, VTT.
- Civil Society Function: Clis de Bure, Energiaklub, MKG, Mutadis, NTW, SYMLOG.



2. MAIN ACHIEVEMENTS



R&D related activities

- Expertise Function **Strategic Research Agenda (SRA)** in the field of RWM
 - 36 Topics distributed in 7 Main Topics, with:
 - Importance of the main topic to safety
 - Rationale for developing joint activities
- For each topic: **Research activities** (experiment and/or modelling works) and/or **Horizontal activities** (SoTA, exchanges on practices/common position, transfer of knowledge/training)
- **Conditions for implementation in an EJP** whilst preserving the independence of the Functions, eg. :
 - impartiality in establishing SoTA
 - transparency of codes/date/results
 - independent analysis of the results
 - say on the design of shared experiments



Main topic 1: Waste inventory and source term.

Main topic 2: Transient THMBC conditions in the near-field.

Main topic 3: Evolution of EBS material properties.

Main topic 4: Radionuclide behaviour in disturbed EBS and HR.

Main topic 5: Safety-relevant operational aspects.

Main topic 6: Managing uncertainties and the safety assessment.

Main topic 7: Lifecycle of a disposal programme and its safety case.



R&D related activities

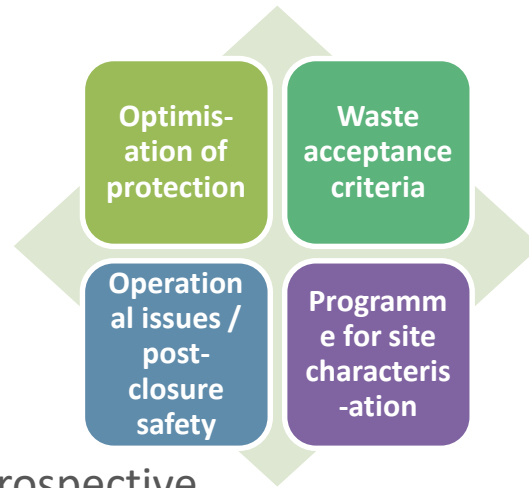
- SITEX was involved in the development of the **EJP EURAD** proposal:
 - **SITEX SRA was an input to the JOPRAD project**
 - the TSO group of JOPRAD worked in close collaboration with SITEX
 - based on the SRA's, assessments of commonalities among WMOs, REs and TSOs needs in R&D were done → Programme Document issued by JOPRAD → EURAD SRA
 - **SITEX coordinated the TSOs reviews of EURAD WPs**
 - 2 reviews organized (jan-feb 2018 and May 2018)
 - Internal review by the mandated TSOs
 - External review by other SITEX.Network members (*Expertise and Society Functions* separately)
 - **SITEX coordinated the election of the 3 TSO representatives in the EURAD Bureau**





Safety review related activities

- A **guidance** for the technical review of Safety Cases for geological disposal facilities was issued;
- **Position papers** were developed on the 4 aspects of geological disposal
(Not developed here as out of the session topics)



Training activities

- SoTA on practices, experiences and prospective views on training and tutoring
- a **training module** for generalist experts in geological disposal, with the **safety review perspectives**, was developed
- 1-week **pilot** training session implemented in Kaunas (Lithuania) in 2017
- ❑ Proposal by SITEX as an association for the EJP unsuccessful → SITEX/ENSTTI course



2. MAIN ACHIEVEMENTS



Interaction between Expertise and Civil Society functions

- A small group of CSOs was directly involved in SITEX-II and interacted with a larger group of 35 NGOs from 18 European countries (“**double wings**” concept), to explore the possible modes of interaction via 3 specific issues

- 1. **How could CSOs concerns be integrated in R&D activities of the Expertise Function?**
 - CSOs formulated R&D key issues they expected to be covered
 - these issues were discussed with the other SITEX partners and considered to produce the final version of SITEX SRA
 - e.g, based on the input from CSOs, a first list of socio-technical topics for which both technical and societal aspects need to be investigated in an integrated manner, were identified and included in the SRA (eg. conditions for closure)
 - Following notably the successful interactions between *Society, Expertise* and *Implementing Functions*, CSOs are now engaged in :
 - the BEACON R&D project
 - the EJP1 EURAD
 - though initial proposals evolved to account for EC requests
 - **Interactions between institutional and non-institutional organizations needed rather than external (one shot) reviews or “communication”**

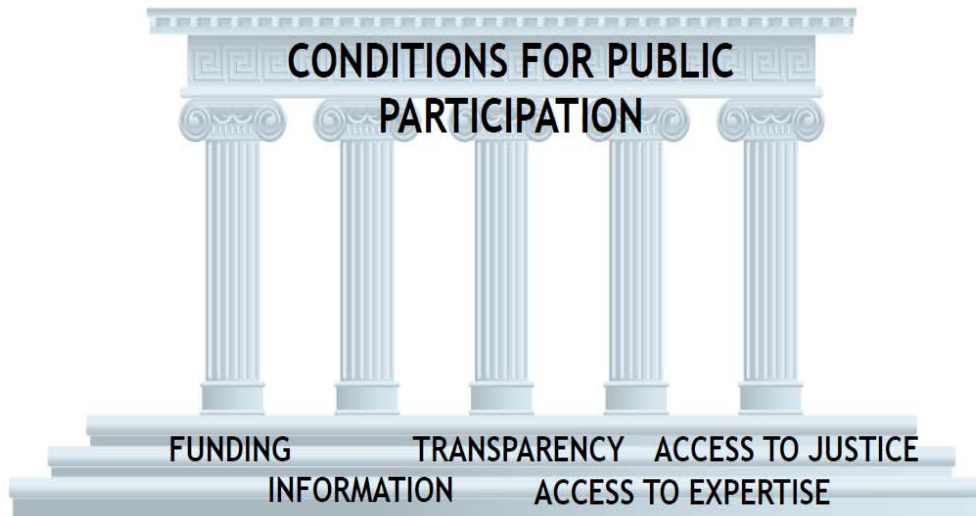


2. MAIN ACHIEVEMENTS



Interaction between Expertise and Civil Society functions

- 2. How safety culture for RWM can be shared through different stakeholders, including CS?
 - commonalities and differences in the vision of safety culture in RWM identified through a questionnaire
 - conditions and means for developing interactions with CS

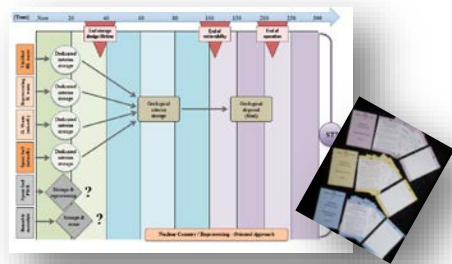


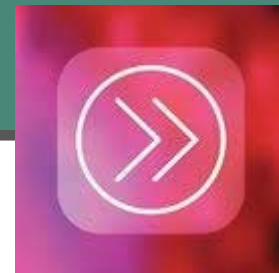


Interaction between Expertise and Civil Society functions

3. Issues on intergenerational governance

- Review and analysis of the literature on past and on-going research projects devoted to intergenerational aspect of RWM were performed
- A new approach was developed to stimulate exchanges on the different possible routes (aboveground or underground storages, deep geological repository...) for the long term management of HLW & SF - **a serious game called PEP « Pathway Evaluation Process »** - and implemented:
 - with SITEX-II partners + enlarged group of NGOs
 - for educational purpose by a NGO with students in Czech republic
 - recently by the French Public Debate Commission for 40 students, with the support of SITEX as facilitator





SITEX.Network Work Programme

➤ R&D related activities

- update of **SITEX SRA** produced in 2015, notably in the perspective of the definition of further projects in the framework of the EJP,
- coordination of the TSO community for the **EJP EURAD** when needed
- **PhD Day** related to recent social sciences on governance

➤ Safety review related activities

- **Benchmark** on reviewing approaches (exchange on review practices)
- State-of-knowledge related to **deep borehole disposal**

➤ Training

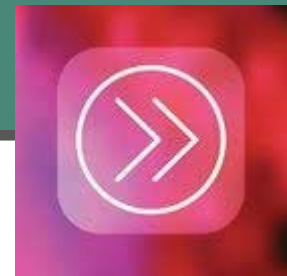
- on regulatory review and assessment of the safety case for geological disposal : SITEX/ENSTTI course, **module 1 on September 23-27, 2019**, modules 2&3 in 2020

➤ Civil Society

- **PEP sessions** (of two days each) in 2019 proposed to participants, internal or external to SITEX.

<https://www.sitex.network/>

3. WAY FORWARD



➤ **SITEX.Network, a sustainable technical expertise network**

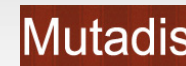
- statutes, terms of reference (activities, interaction modes, management...)
- structured community, producing outputs and able to coordinate actions when required
- plurality of actors (TSO/Res, NRA, CSO) and views, including so-called less and more advanced programs : an added value
 - thanks to the European Commission funds for its preparation phases
 - **Challenge: from EC funds to membership fees**

➤ **Successful interactions toward the EURAD EJP between the Expertise, the Implementing and the Society Functions.** Improvements/feedback :

- the complexity of RWM issues entails involving both “**Social science**” and “Citizen science” in future research projects
- **proper integration of CSO** in international technical R&D projects is still an issue
- **associations** (representatives of enlarged groups) as direct beneficiaries?
- **inclusiveness** with a well-balanced participation of the different communities (operators (WMOs, waste producers) – TSOs – RE – Civil Society) is a key aspect
- gathering all parties **as early as possible** whatever the project is an advantage !



THANK YOU FOR YOUR ATTENTION !



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