



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

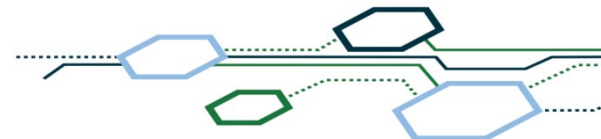
- Context
- From SITEX projects to SITEX.Network
- The SITEX.Network

2. Main achievements

- In relation to the Joint Programme development

3. Way forward

- Work plan
- Challenges



1. SETTINGS

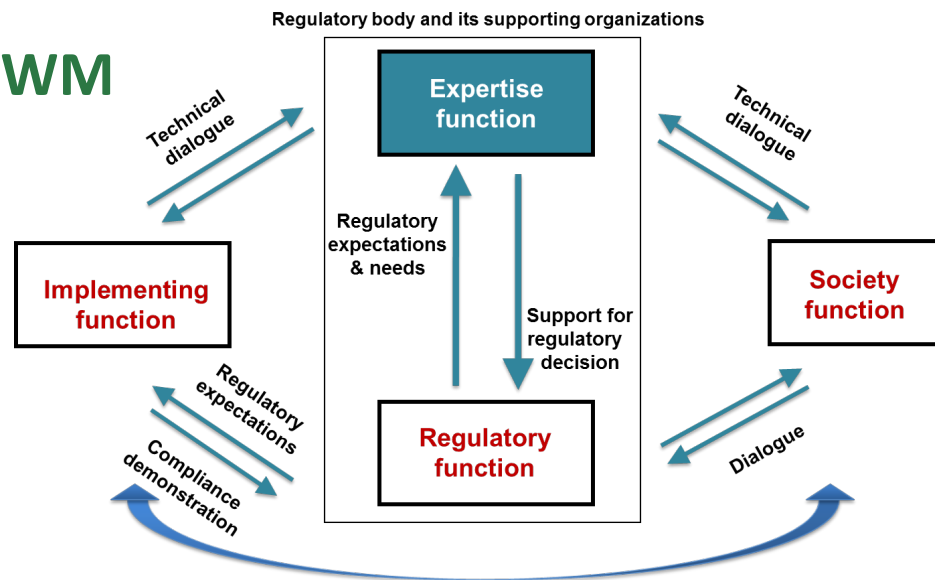
Context - Functions interacting in RWM

- 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.

2. MAIN ACHIEVEMENTS



R&D related activities

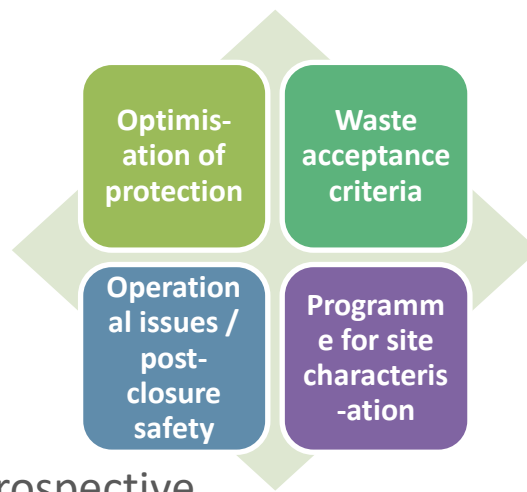
- SITEX was involved in the development of the **EJP EURAD** proposal:
 - **SITEX SRA was an input to the JOPRAD project**
 - the TSO group of JOPRAD worked in close collaboration with SITEX
 - based on the SRA's, assessments of commonalities among WMOs, REs and TSOs needs in R&D were done → Programme 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”



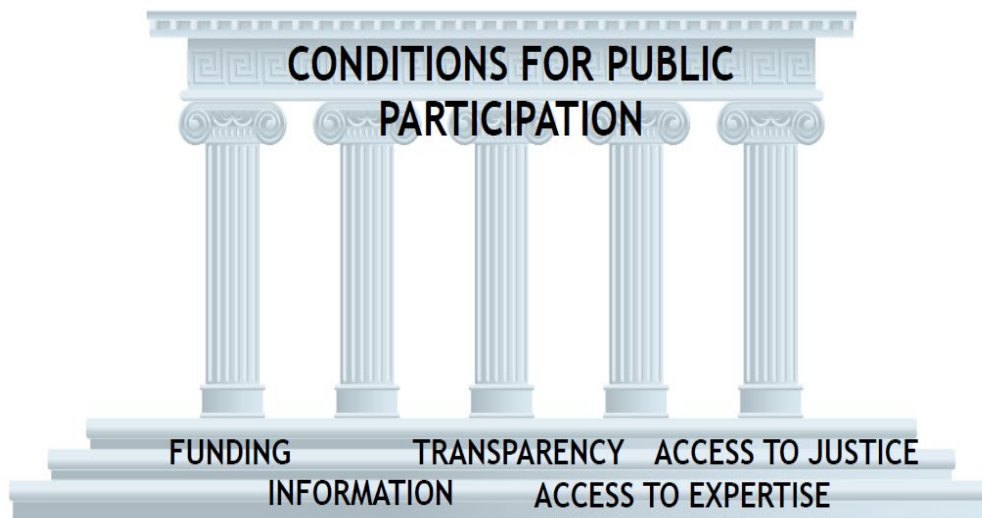
2. MAIN ACHIEVEMENTS



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

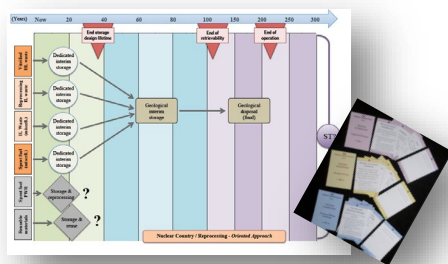


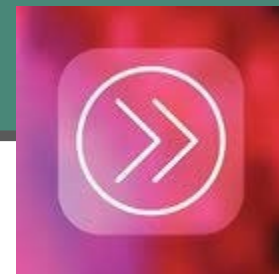


Interaction between Expertise and Civil Society functions

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

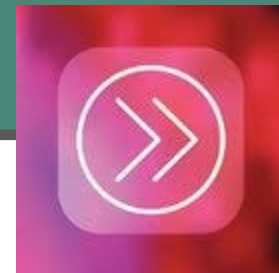
- on regulatory review and assessment of the safety case for geological disposal : SITEX/ENSTTI course, **module 1 on September 23-27, 2019**, modules 2&3 in 2020

➤ 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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