Vision and Strategy Statement

May 2025

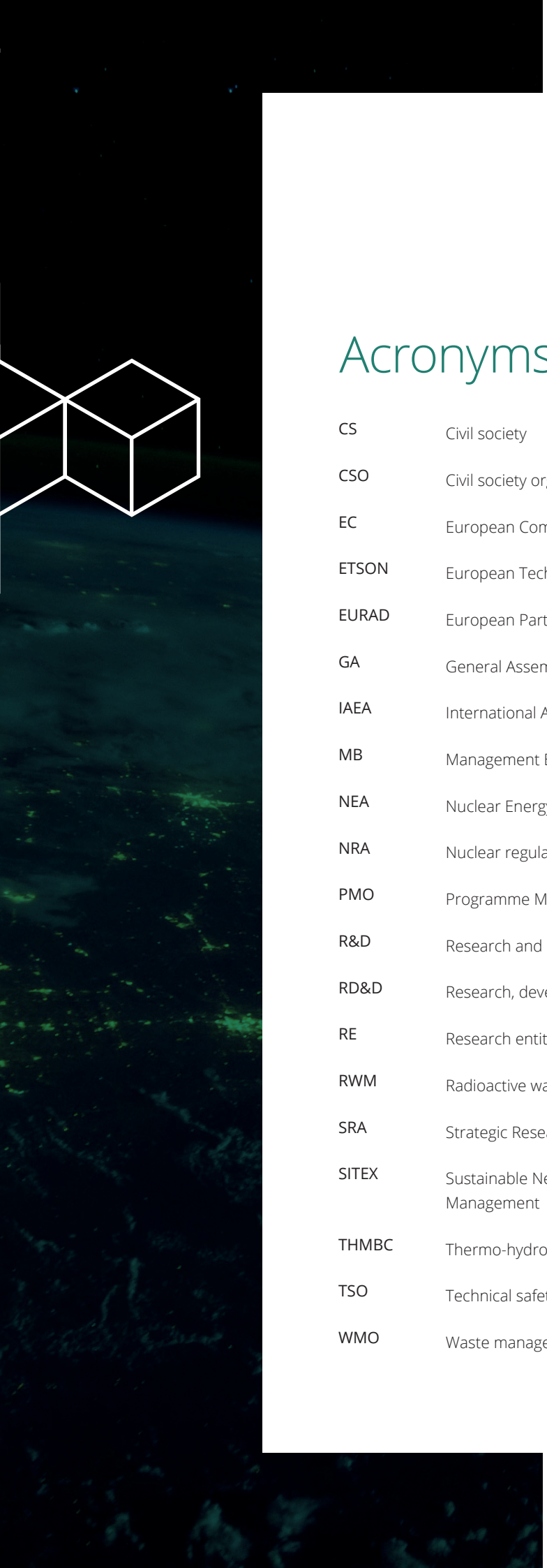
https://www.sitex.network/

The purpose of **SITEX.Network** is to foster a high-quality, sustainable expertise function in the safety of radioactive waste management – independent from organisations responsible for implementing radioactive waste management programmes – through strong collaboration with nuclear regulatory authorities and civil society organisations, and to coordinate and advocate for these goals at the international level within a dynamic network.

SITEX.Network members

AGES
Österreichisches Ökologie Institut
ASNR Autorité de sûreté nucléaire et de radioprotection
Autoriteit Nucleaire Veiligheid en Stralingsbescherming
Federal Office for the Safety of Nuclear Waste Management
BEL V
FANC
EIMV Elektroinštitut Milan Vidmar
Geological Institute BAS
Demokritos
NOAH Friends of the Earth Denmark
CLIS Comité Local d'Information et de Suivi du Laboratoire de Bure
PSI
NTW Nuclear Transparency Watch
Strålsäkerhetsmyndigheten Swedish Radiation Safety Authority
TS Enercon Engineering and Consulting
Cumbria Trust
SSTC NRS State Enterprise State Scientific and Technical Center for Nuclear and Radiation Safety
SÚRO Státní ústav radiační ochrany, v. v. i. National Radiation Protection Institute
VTT

Table of content



Acronyms

CS	Civil society
CSO	Civil society organisation
EC	European Commission
ETSON	European Technical Safety Organisations Network
EURAD	European Partnership on Radioactive Waste Management
GA	General Assembly
IAEA	International Atomic Energy Agency
MB	Management Board
NEA	Nuclear Energy Agency
NRA	Nuclear regulatory authority
PMO	Programme Management Office
R&D	Research and development
RD&D	Research, development and demonstration
RE	Research entity
RWM	Radioactive waste management
SRA	Strategic Research and Knowledge Management Agenda
SITEX	Sustainable Network for Independent Technical Expertise on Radioactive Waste Management
THMBC	Thermo-hydro-mechanical-biochemical
TSO	Technical safety organisation
WMO	Waste management organisation

1 Context

Key functions in an RWM programme

In the context of radioactive waste management (RWM), several distinct and independent functions interact, each with specific roles, as illustrated in Figure 1 on the next page [1].

These functions are described below:

Implementing function:
Responsible for implementing the RWM programme, including the safe construction and operation of the necessary facilities, developing licence applications for new facilities or for modifying existing facilities, and demonstrating their safety (and security). This function is performed by waste management organisations (WMOs) and operators of RWM facilities.

Regulatory function:
Responsible for developing the regulatory framework for safety and radiation protection, overseeing its implementation, and making regulatory decisions during the licensing process for construction, operation and dismantling (or closure for disposal facilities) of RWM facilities, as well as for any modifications to licensed facilities during their lifecycle. The regulatory function possesses the skills and competencies to make informed regulatory decisions, with the support of the expertise function. This function is performed by nuclear regulatory authorities (NRAs).

Expertise function (either embedded within the NRA or organised through one or more external organisations, see Section 1.3):
Provides technical and scientific expertise to:

- review safety cases prepared by the implementing function and support the decisions of the regulatory function;
- support the regulatory function in the development and communication of its requirements and expectations;
- enhance the science- and technical-based interactions with the society function, aiming to build trust and strengthen decision-making involving civil society (CS).

Society function:
While CS has no formal regulatory or expert role, its views and concerns shall be considered in RWM decision-making, in line with the Aarhus Convention, which states that “improved access to information and public participation in decision-making enhance the quality and the implementation of decisions” [2].
CS groups and the broader public therefore contribute to the decision-making process and exert vigilance and provide input as a valuable complement to safety case reviews.

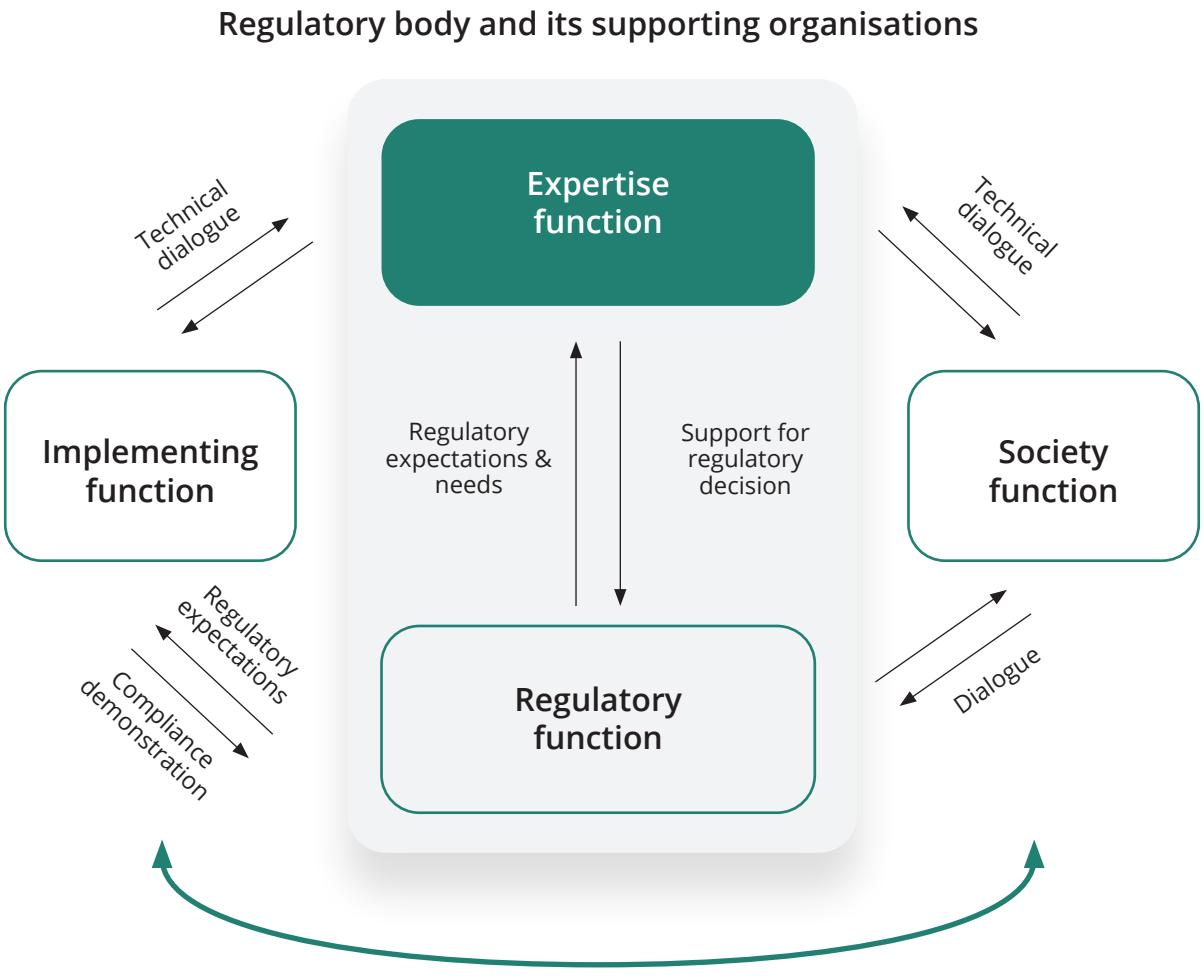


Figure 1: Interactions between the main functions in RWM.

The regulatory function must be independent from the implementing function. To support this independence, the regulatory function relies on an equally independent expertise function, which develops and maintains the necessary know-how and skills in the field of RWM safety.

The role of the expertise function

The expertise function performs several activities throughout all phases of a RWM programme, including contributing to the development of regulatory requirements and developing guidance to help WMOs and operators of RWM facilities to meet those requirements. According to Article 6-2 of the EC Directive 2011/70/Euratom of 19 July 2011 [3], the regulatory function must be independent from the implementing function. To support this independence, the regulatory function relies on an equally independent expertise function, which develops and maintains the necessary know-how and skills in the field of RWM safety. This can be achieved by conducting and/or overseeing R&D activities to support safety assessments, exchanging best practices, compiling state-of-the-art knowledge and facilitating knowledge transfer. These activities are vital for building and maintaining the independent technical expertise, trustworthiness and integrity of the organisations performing the expertise function. Requirements related to such activities are set out in international regulations and recommendations. For example, Article 8 of the 2011/70/EURATOM Directive requires all parties – i.e. including the expertise function – to make arrangements for education and training, as well as R&D activities. IAEA safety guides also emphasise that regulatory bodies, and their supporting organisations (see Figure 1), may need to conduct or commission R&D to inform regulatory decisions (see IAEA GS-G-1.1 [4] (§3.33) and IAEA GS-G-1.2 [5] (§3.68)).

The form of the expertise function

The expertise function can take various forms. The main forms, as identified in [1], are described below:

- The expertise function and the regulatory function can coexist within a single regulatory body. Examples include the French ASNR, the Canadian CNSC, the Swedish SSM and the Swiss ENSI.

- The expertise function and the regulatory function can be shared among several organisations that collectively form the regulatory body. A typical example is Belgium, where the FANC as NRA has established a technical subsidiary (Bel V), to which it delegates several responsibilities, including those related to the expertise function.

- The expertise function can be performed by organisations outside the regulatory body and independent from the NRA, for example technical safety organisations (TSOs) or research entities (REs) (including universities).

While TSOs are often seen as the only representatives of the expertise function, this function can take various forms, as discussed above (and more thoroughly in [6]), depending on the national programmes. It is also worth noting that the acronym TSO may have different meanings (yet with a similar definition), such as 'Technical and Scientific Support Organisations' or 'Technical Safety Organisations', in IAEA and ETSON [7] documents. Both ETSON and SITEX.Network adopt the latter meaning, 'Technical Safety Organisations', as the word 'Safety' emphasises their commitment to upholding nuclear safety and the services they provide to NRAs in this respect.

2 Vision, mission and key objectives

Vision

The SITEX.Network members share the following vision:

> To foster a high-quality, sustainable expertise function in the safety of RWM – independent from organisations responsible for implementing RWM programmes – through strong collaboration with NRAs and CSOs, and to coordinate and advocate for these goals at the international level within a dynamic network.

Mission

To advance this vision, SITEX.Network carries out the following mission:

SITEX.Network is a partnership of organisations that fulfil the expertise function, supporting the regulatory function in ensuring the safety of RWM by providing the technical and scientific foundations for:

- decisions by the regulatory function;
- interactions with the society function during decision-making processes, enhancing the value of safety case reviews.

SITEX.Network operates as an independent international network, separate from organisations responsible for implementing radioactive waste management programmes. Its primary aim is to support both the regulatory function and the society function.

This mission is achieved through the close collaboration of its members, who bring a wide range of views and competencies. These members – either already involved in or willing to be involved in RWM programmes at various stages of development – include NRAs, TSOs, REs involved in the expertise function and CSOs. While the society function does not hold formal regulatory or expertise roles, its views and concerns shall be considered in RWM decision-making processes, in line with the Aarhus convention.

Key objectives

In line with this vision and mission, SITEX.Network pursues the following five key objectives:

1. **Share expertise and build mutual understanding of the expertise function's activities, needs and challenges**
   This is SITEX.Network's primary objective, i.e. to provide the SITEX.Network members with a platform to strengthen their expertise and to develop shared views that help to prioritise and coordinate joint actions involving the expertise function.

2. **Contribute to developing, preserving and consolidating the scientific and technical foundations underpinning RWM safety**
   SITEX.Network contributes to advancing knowledge to address the evolving needs and challenges of the expertise function and the regulatory function. In addition, it plays a key role in preserving and sharing the existing knowledge and skills of the expertise function, particularly through training initiatives and literature reviews.

3. **Address complex, significant issues through sociotechnical understanding**
   Several RWM activities (such as disposal) involve complex systems in which technical and social components are interrelated. SITEX.Network aims to explore the interactions between those technical and social factors. The diversity of its members is a key asset in achieving this objective.

4. **Develop and test methodologies for fostering interaction among stakeholders with diverse roles and perspectives (including organisations performing the expertise function, CS and NRAs)**
   Interactions between stakeholders with different roles and backgrounds (e.g. interactions on sociotechnical issues between technical and societal experts) can be challenging to facilitate. SITEX.Network is therefore committed to developing and testing methodologies to promote these interactions.

5. **Engage with other stakeholders (e.g. international associations, institutions)**
   Building connections with other international bodies active in the RWM field is essential for SITEX.Network. Such engagement helps SITEX.Network to achieve other objectives and enhances the visibility of its activities.

3 Organisation

To effectively pursue its vision, mission and key objectives, SITEX.Network has a structure according to its articles of association comprising the following management bodies (see also Figure 2 on the next page):

- **General Assembly (GA)**, which is organised into the following three colleges:
  1. Expertise Function College, composed of TSOs and other organisations fulfilling the expertise function;
  2. Regulatory Function College, composed of NRAs;
  3. Civil Society Function College, composed of individuals or groups representing CS, e.g. non-institutional experts and non-governmental organisations.
- **Management Board (MB) and its Bureau**, both elected by the GA.

SITEX.Network's activities are guided by the strategy presented in Section 4 and are implemented through Working Groups made up of SITEX.Network members.

In addition, SITEX.Network may include an Associated Group, consisting of non-member institutions or individuals interested in contributing to specific activities. Participation in this Associated Group is subject to approval by the MB and is limited to clearly identified activities and their respective timelines.

Finally, SITEX.Network engages and collaborates with various external organisations and programmes, as further discussed in Section 5.

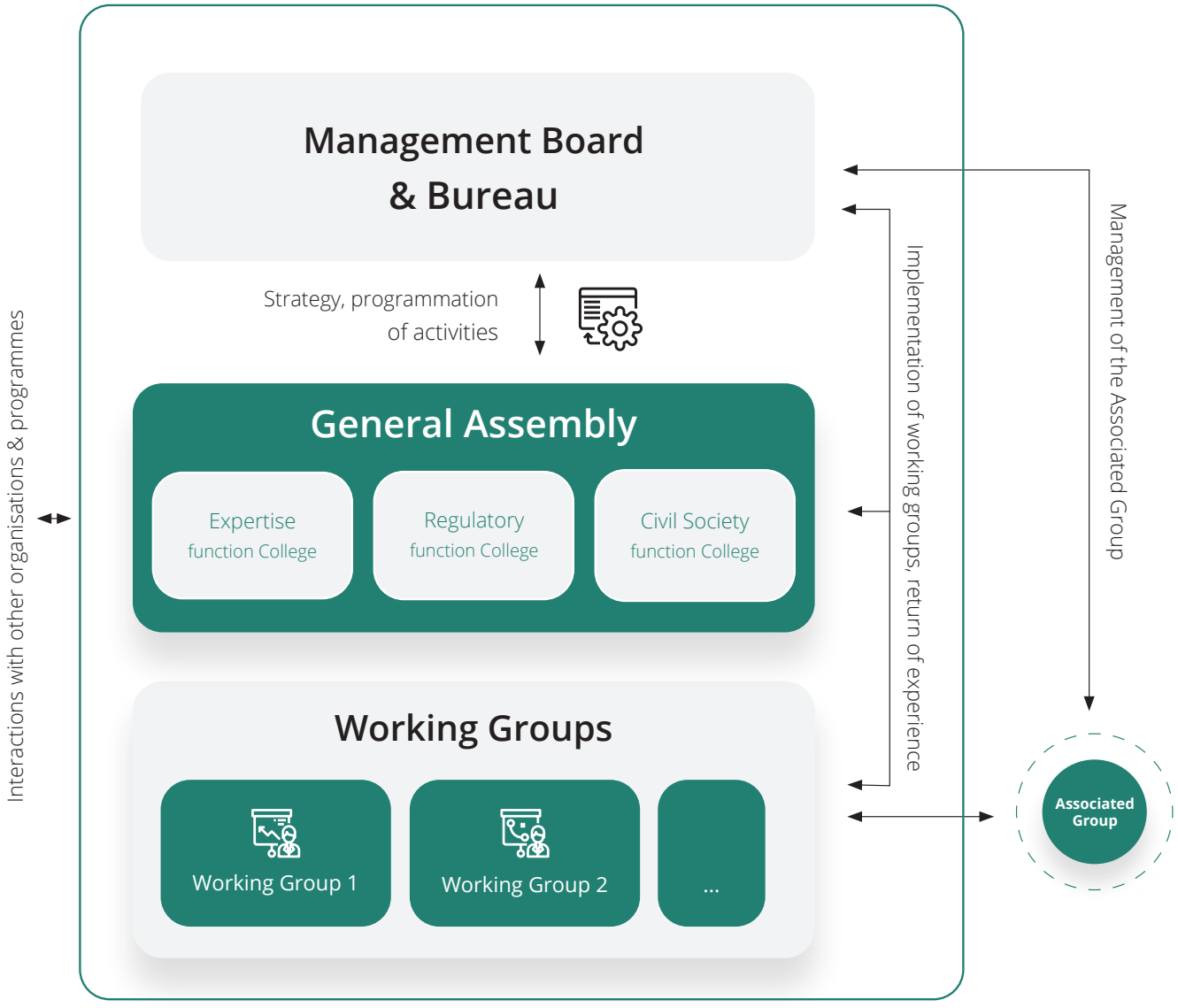


Figure 2: SITEX.Network bodies, Associated Group and interactions.

4 Strategy

SITEX.Network has established – and regularly updates – a Strategic Research & Knowledge Management Agenda (SRA) [8], which outlines topics of common interest among its members. Each topic in the SRA is characterised by one or more types of activities and drivers, providing insight into the nature of the activities to be implemented and the rationale behind them. The types of activities and drivers and the main topics of the SRA are described in Sections 4.1 and 4.2 respectively.

Based on the SRA – and taking into account available resources – SITEX.Network defines an annual programme of activities, which is reviewed and adopted by the GA.

Types of activities and drivers for implementation

To advance its key objectives, SITEX.Network engages in the following types of activities:

A. **Technical and scientific activities**
These include literature reviews, research and benchmarking studies. Such activities are crucial for preparing the technical review of future safety cases.

B. **Addressing sociotechnical dimensions**
These activities focus on the technical and social aspects of RWM challenges. Rather than being purely technical (as in A) or purely social, these 'hybrid' activities focus on the interactions between the social and technical components.

C. **Networking (clarification of concepts, topics, issues etc.)**
Through networking events like Topical Days and coordination groups with members involved in external programmes (e.g. EURAD), SITEX.Network promotes mutual understanding (and, where possible and appropriate, the development of shared views) on specific aspects of RWM. These activities also help to prioritise and align joint actions related to the expertise function (e.g. EURAD).

D. **Dynamic knowledge management**
Given the long-term nature of RWM, knowledge must be preserved and passed on across generations. SITEX.Network supports the development of dynamic processes to ensure that existing and new knowledge remains accessible and meaningful over time.

E. **Experimental approaches to engage stakeholders with diverse roles and perspectives**
SITEX.Network develops and tests new methodologies to facilitate exchanges among stakeholders with diverse roles and backgrounds. These activities include the development of serious games, the co-development of studies (e.g. collaborative literature reviews) and the development and implementation of engagement models involving multiple interaction levels (e.g. the double- and triple-wings models developed in EURAD).

The implementation of each of these activities is guided by one or more of the following drivers:

1. **Supporting safety case review**
   Addressing assumptions, methodologies and knowledge gaps in the safety assessments, thereby supporting the expertise function and the regulatory function in their missions related to safety case review.

2. **Anticipating evolutions in safety cases**
   WMOs and operators of RWM facilities continuously seek to optimise their practices (e.g. by using new technologies) and to adapt them to evolutions in the RWM programmes (e.g. new types of waste to be managed), taking into account existing constraints (e.g. regulatory framework, available resources). The expertise function and the regulatory function can anticipate the review of safety aspects related to such potential optimisations and critically assess new developments by WMOs and facility operators.

3. **Managing complexity**
   Addressing complex issues related to safety case review (technical, regulatory or societal in nature), including multigenerational considerations and the management of uncertainties.

4. **Fostering transparency, trust and the sustainability of SITEX.Network actions**
   Promoting transparency, knowledge sharing, dissemination of SITEX.Network results, trust-building processes and interactions between multiple stakeholders (including CS) throughout the various stages of RWM.

SITEX.Network defines an annual programme of activities, which is reviewed and adopted by the GA.

Strategic Research and Knowledge Management Agenda (SRA)

The first version of the SITEX.Network SRA was developed in 2016 [9] under the EC Horizon 2020 SITEX-II project and served as a founding document for SITEX.Network. It also provided a foundation for defending the views of the expertise function on the topics to be addressed in the first EURAD Joint Programme [10] and the EURAD SRA [11].

Ahead of EURAD's second implementation phase, the SITEX.Network SRA was revised to incorporate findings from the first phase.

The SRA is structured around the following main topics:

1. **Waste inventory and source term**
2. **Transient THMBC conditions in the near-field of disposal facilities**
3. **Evolution of engineered barrier system material properties**
4. **Radionuclide behaviour in disturbed engineered barrier systems and host rocks**
5. **Safety-relevant operational aspects**
6. **Managing uncertainties and the safety assessment**
7. **Lifecycle of a disposal programme and its safety case**
8. **Pre-disposal radioactive waste and spent fuel management**

For each main topic, the SRA identifies specific subtopics of interest for joint activities. It also describes their relevance to safety and characterises each in terms of applicable types of activities and drivers.

The SRA serves as a key instrument for shaping SITEX.Network's annual work programmes and guiding the expertise function's contributions to the EURAD Joint Programme.

5 Interactions with external organisations and programmes

As illustrated in Figure 2 and aligned with key objective 5, SITEX.Network actively collaborates with several international organisations and programmes, including EURAD, ETSON, IAEA, NEA, WENRA and others. Among these, the interactions with EURAD and ETSON are structured in a specific way, as detailed in the sections below.

EURAD

The EC EURAD programme aims to assist EU Member States in implementing the Waste Directive [3], taking into account the varying stages of advancement of the national programmes [10].

EURAD pursues three main goals:

- To support Member States in the development and implementation of their national RD&D programmes for the safe long-term management of all types of radioactive waste through participation in the RWM Joint Programme;
- To build upon and consolidate existing knowledge to enable the safe start-up of the first geological disposal facilities for spent fuel, high-level waste, and other long-lived radioactive waste, and to support ongoing optimisation in line with the stepwise implementation of geological disposal;
- To strengthen knowledge management and transfer between organisations, between Member States and across generations.

EURAD members are organised into three Colleges, each coordinated by a different body:

- WMO College, coordinated by the Implementing Geological Disposal Technological Platform (IGD-TP);
- RE College, coordinated by EURADScience;
- TSO College. SITEX.Network was entrusted with coordinating this college due to the pioneer role of SITEX.Network and the former EC SITEX projects in consolidating and defending the views of the expertise function on a joint RWM programme. In particular, the SITEX.Network SRA served as a basis for establishing EURAD's first Strategic Research and Knowledge Management Agenda together with the other EURAD stakeholders and colleges.

The EURAD partners from the three colleges form the EURAD GA. Other key EURAD bodies include the Bureau of the GA (which prepares strategic decisions) and the Programme Management Office (PMO) (which is responsible for the day-to-day management of EURAD). Each body includes representatives from all three colleges, including the TSO College. It is therefore essential for SITEX.Network members and for EURAD TSO College members (including those representing the TSO College in the EURAD Bureau and PMO) to network and build consensus on strategic decisions to be taken within EURAD. However, this is hampered by the fact that not all SITEX.Network members are EURAD TSO College members and vice-versa.
The following cases exist (as detailed in Figure 3 on the next page):

- Some SITEX.Network members are members of the EURAD TSO College.
- Some SITEX.Network members are members of the EURAD RE College.
- Some SITEX.Network members are affiliated entities of EURAD members of either the EURAD TSO or RE College.
- Some SITEX.Network members are not involved in EURAD at all.
- Conversely, some members of the EURAD TSO College are not members of SITEX.Network.

To facilitate effective networking and consensus building, SITEX.Network has established a dedicated Working Group tasked with liaising between SITEX.Network members and EURAD TSO College members. This Working Group includes TSOs involved in the EURAD PMO and Bureau, as well as organisations from the SITEX.Network MB. The Working Group is responsible for organising 'EURAD TSO College meetings', open to all SITEX.Network members involved in or interested in the TSO College's activities. Non-SITEX.Network members involved in the EURAD TSO College are invited to join the SITEX.Network Associated Group, which is also invited to these meetings. When appropriate, the Working Group facilitates consensus building for the development of joint position papers of SITEX.Network and the EURAD TSO College.

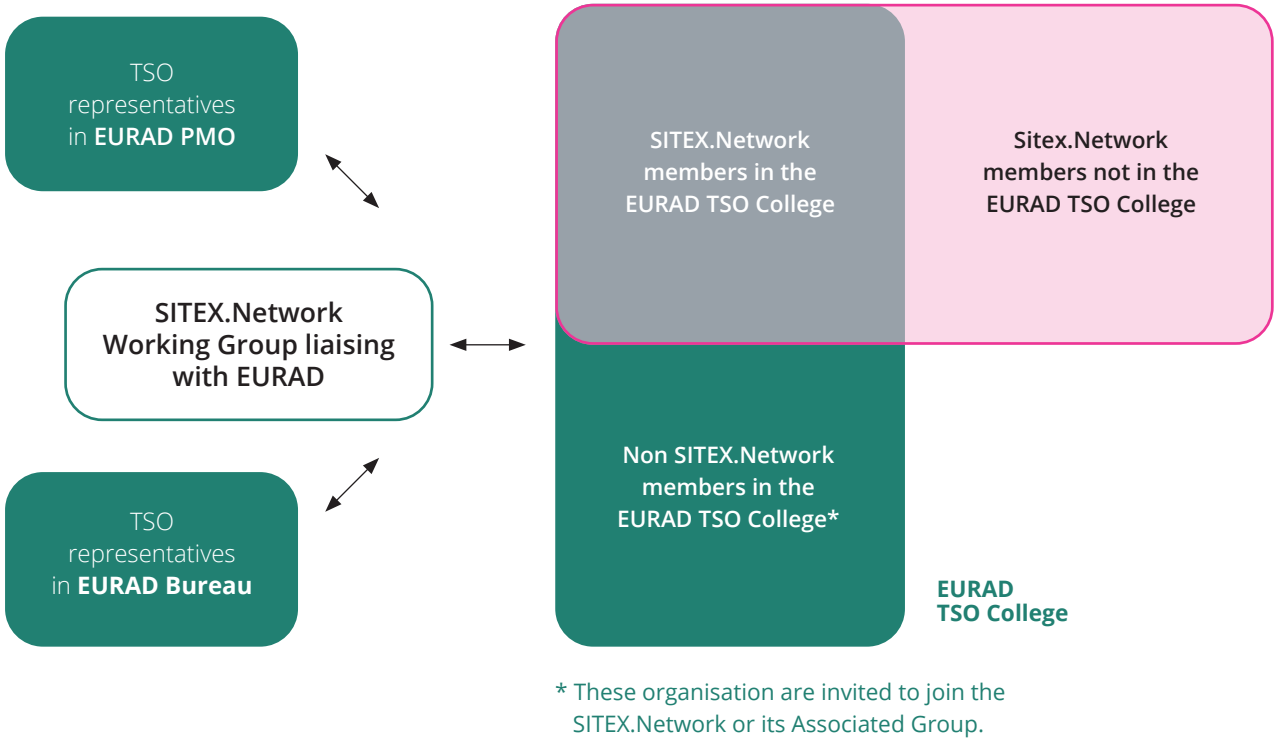


Figure 3: Overlaps between SITEX.Network and EURAD membership, and the SITEX.Network Working Group for liaising with EURAD bodies.

ETSON

The scope of ETSON [7] covers the complete spectrum of nuclear safety and is therefore wider than that of SITEX.Network, which focuses specifically on the safety of RWM. Nevertheless, the two associations share complementary interests and activities in the field of RWM, as illustrated in Table 1.

Table 1: Complementary interests and activities of SITEX.Network and ETSON in the field of RWM.

ETSON	SITEX.Network
The Expert Group on Waste Management focuses on safety issues related to specific pre-disposal waste management steps (e.g. storage, conditioning).	Focuses on the interdependence between pre-disposal and disposal waste management steps (e.g. impact of storage conditions on disposal safety, compatibility of waste matrices with disposal conditions).
Fosters exchange among a broad panel of TSOs.	Fosters exchange among different types of stakeholders: TSOs, NRAs and CSOs.
Represents and defends TSO interests within IAEA.	Represents and defends TSO views within the EURAD Joint Programme.

Despite their different scopes, ETSON and SITEX.Network can mutually benefit from collaboration.

For example, ETSON may engage with SITEX.Network:

- To explore interdependences between the safety of pre-disposal and disposal waste management steps;
- To integrate perspectives from other types of stakeholders (CSOs and NRAs that are not ETSON members);
- To provide input on emerging issues of joint interest within the EURAD Joint Programme.

Conversely, SITEX.Network can collaborate with ETSON:

- On specific pre-disposal waste management steps;
- To interact with a broader TSO community;
- To provide input to the IAEA on RWM-related challenges specific to TSOs.

6 References

1. EC FP7 SITEX project, “D6.1 Conditions for establishing a sustainable expertise network”, 2014.
2. “Convention on access to information, public participation in decision-making and access to justice in environmental matters”, done at Aarhus (Denmark) on 25/06/1998.
3. EC, “Council Directive 2011/70/Euratom establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste”, 2011.
4. IAEA, “Safety guide GS-G-1.1 - Organization and Staffing of the Regulatory Body for Nuclear Facilities”, 2002.
5. IAEA, “Safety guide GS-G-1.2 - Review and Assessment of Nuclear Facilities by the Regulatory Body”, 2002.
6. IAEA, “TECDOC 1835 - Technical and Scientific Support Organisations Providing Support to Regulatory Functions”, 2018.
7. ETSON, https://www.etson.eu.
8. SITEX.Network, “Strategic Research and Knowledge Management Agenda”, 2025.
9. SITEX-II, “Strategic Research Agenda of the Expertise Function in the Field of Geological Disposal of Radioactive Waste”, deliverable D1.1 of the EC Horizon 2020 SITEX-II project, EC Grant Agreement no.: 662152, 2016.
10. For a description of the EURAD vision and goals, see https://www.ejp-eurad.eu/publications/eurad-vision.
11. EURAD Bureau, “Update of the EURAD Strategic Research and Knowledge Management Agenda (SRA)”, deliverable D1.9 of the Horizon 2020 project EURAD, EC Grant agreement no.: 847593, 2023.

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