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Work Package 03

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Executive Summary

This final deliverable of EURAD-2 ASTRA Strategic Study Work Package on alternative waste management strategies summarises the key findings and recommendations for Members States and End Users.

Long-term storage

Over the last few decades, in some European countries, storage facilities are now being used for much longer periods than originally anticipated, mainly because of the long timescales for implementation of disposal facilities. In the near term, RD&D efforts should prioritise creating a reliable technical basis for decision-making and closing information gaps, and development of practical solutions for ageing management and adaptation to reduce environmental impacts. The long-term RD&D programme should remain compatible with evolving nuclear strategies and societal expectations.

DBD

Deep borehole disposal (DBD) is increasingly recognised as a promising alternative or complement to mined geological repositories (DGRs) for the disposal of high-level waste and spent nuclear fuel (HLW/SNF). Implementation of the technology has been limited by a perceived lack of technology readiness and demonstration work, compared to the large investments that have been made in RD&D and demonstration projects for DGRs. RD&D efforts should prioritise resolving the most important technical uncertainties, including precise emplacement of HLW/SF and sealing of DBD boreholes to the required extent at the depths and diameters envisioned for DBD, exploring the long-term performance of borehole seals and plugs, and understanding disposal container corrosion processes and their control under *in situ* conditions. A further priority is the development and demonstration of techniques to confirm that stagnant groundwater conditions persist at proposed disposal depths.

SIMS – Small inventories and Shared solutions

Small-Inventory Member States (SIMS) must fulfil similar technical and regulatory requirements to Large-Inventory Member States (LIMS), while operating with fewer resources, making it difficult to justify or afford dedicated national infrastructure. Shared or multinational approaches can mitigate some of the constraints, but they introduce further challenges around regulation, governance, allocation of long-term responsibilities and liabilities. A dual-focus approach is proposed to progress waste management approaches and strengthen the resilience in waste management of SIMS: shared RD&D on waste management solutions and shared knowledge management (KM) activities.

NORM and DU

Work within ASTRA has revealed that most countries lack disposal safety cases for DU (depleted uranium) and NORM (naturally occurring radioactive material) wastes. A priority is the harmonisation of waste classification systems and decision-support tools, alongside targeted R&D on conditioning options for Ra-bearing and U-bearing materials and consideration of potential reuse or circular-economy pathways.

All of these topics are included in the EURAD Roadmap domains Theme 1 Programme Management, Theme 2 Pre-disposal and Theme 5 Disposal facility design and optimisation and are especially challenging for Member States with small inventories.

Keywords

Alternative RWM strategies, Extended lifetime, Deep borehole disposal, SIMS, LIMS, NORM, Transparency & public participation, Environmental impacts, Intergenerational stewardship culture

Table of content

Executive Summary	4
Keywords	5
Table of content	6
List of figures	7
Glossary.....	8
1. Introduction	9
2. Key findings	10
2.1 Long-term storage	10
2.2 Deep borehole disposal	11
2.3 Alternative waste management solutions for SIMS	12
2.3.1 Analysis of management strategies for small amounts of waste (including shared solutions)	12
2.3.2 Evaluation of RWM strategies for the disposal of NORM wastes	13
3. Evaluation of impact	14
4. Education and training	15
5. Conclusions	16
Appendix A. ASTRA Biannual meeting: summary of benefits	17
Appendix B. Assessment of ASTRA addressing the SRA themes and drivers	18
Appendix C. A brief summary of each Live Discussion Forum	19
References	20

List of figures

Figure A-1. Topics partners found useful in ASTRA.

Glossary

ASTRA	A lternative Radioactive Waste Management STR ategies
CS	Civil Society
DBD	Deep Borehole Disposal
DGR	Deep Geological Repository
DU	Depleted Uranium
EURAD	European Partnership on Radioactive Waste Management
HLW	High-Level Waste
KM	Knowledge Management
LDF	Live Discussion Forum
NORM	Naturally Occurring Radioactive Material
RD&D	Research, Development and Demonstration
RE	Research Entity
RWM	Radioactive Waste Management
SIMS	Small-Inventory Member State
SNF	Spent Nuclear Fuel
SRA	Strategic Research Agenda
TSO	Technical Support Organisation
WAC	Waste Acceptance Criteria
WMO	Waste Management Organisation
WP	Work Package

1. Introduction

The topics explored in EURAD-2 Strategic Study (StSt) Work Package (WP) “Alternative RWM **STR**ategies” (ASTRA) — long-term storage, deep borehole disposal, shared waste management solutions, and the management of NORM and DU wastes — address complementary pathways towards the common goal of safe, credible and affordable waste management. While differing in timescale, maturity and implementation requirements, they collectively support progress towards final disposal solution(s), a challenge that is particularly acute for SIMS, which often have limited resources. Together, these topics cover immediate operational needs, potential end-point solutions, cross-cutting waste management challenges, and the knowledge-sharing mechanisms needed to support informed decision-making:

- The extension of long-term storage is a near-term challenge that many programmes are already facing, often due to lack of available disposal option.
- Deep borehole disposal and shared multinational disposal represent end-point solutions: one technical and the other organisational, relying on technical and political collaboration. Both approaches are scalable and particularly relevant for countries with small inventories.
- The management of NORM and DU wastes is challenging for both SIMS and LIMS, highlighting the need for appropriate and sustainable waste management approaches.
- Knowledge transfer, for example through the Live Discussion Forums introduced and tested in ASTRA, provides a mechanism to connect these approaches, facilitate mutual learning, and support the development of informed strategic options across programmes.

In each ASTRA task, the collection of information relied on surveys - questionnaires, interviews and live discussion forums (LDFs) - and literature reviews to identify the needs and available technologies of participants, Stakeholders, and End Users. Civil Society (CS) representatives contributed to all ASTRA surveys to ensure that relevant questions from a CS perspective were included. The results of the surveys were discussed in task meetings, bilateral task-CS meetings, and workshops with participants - Research Entities (REs), Technical Support Organisations (TSOs), Waste Management Organisations (WMOs), CS, Stakeholders and End Users - to obtain mutual understanding of country-specific situations and needs, and agree prioritisation of common needs, strategies, and further activities.

To support Member State and End Users in making informed decisions, ASTRA has produced a series of complementary outputs. The ASTRA Green Paper [2] provides a summary of the needs of the Member States, while the ASTRA White Paper [3] presents a summary of recommendations for further work. More detailed information on specific topics is available in the associated milestone reports and deliverables listed in the references.

Building on these outputs, the present report provides a concise synthesis of the key findings and recommendations emerging from ASTRA, offering decision-makers an integrated overview of the topics addressed. Section 2 summarizes the key outcomes of the WP and assesses their significance for Member States. Section 3 describes the impact of these key findings and explains how they contribute to the fulfilment of the EURAD-2 selected Strategic Research Agenda (SRA) drivers [1]. Training actions are summarised in Section 4, and the main conclusions are presented in Section 5.

2. Key findings

ASTRA brought together organisations from 14 Member States, with different waste inventories and waste management challenges, to examine alternative and complementary approaches to radioactive waste management. Across the activities, several common benefits were detected:

- 1) The Work Package strengthened understanding of the relationship between technical and societal aspects of RWM decision-making. The involvement of WMOs, TSOs, REs and Civil Society provided different perspectives on the challenges associated with implementing and communicating RWM strategies.
- 2) ASTRA demonstrated the value of international cooperation, structured knowledge exchange and coordinated RD&D in supporting Member States, particularly SIMS with limited resources and expertise. Through mechanisms such as the Live Discussion Forums (LDFs), participants gained access to experience, lessons learned and technical knowledge from other national programmes, enabling them to explore potential approaches to their own waste management challenges and supporting more informed decision-making.
- 3) The Green Paper and White Paper provided a common basis for discussing alternative RWM strategies and identifying RD&D needs. They helped consolidate information from different national contexts and establish a shared understanding of areas requiring further attention.

Overall, the outcomes indicate that continued international cooperation, knowledge sharing and coordinated RD&D can effectively complement national programmes, particularly in countries with small inventories and/or limited resources. These transversal findings provide the context for the more detailed results presented in the following section, which examine the specific outcomes and recommendations arising from the ASTRA work on long-term storage, deep borehole disposal, and alternative waste management solutions for SIMS.

The needs identified through ASTRA will provide input to future EURAD RD&D activities and can support prioritisation of topics for subsequent programme activities. A summary of the feedback received from ASTRA partners is provided in Appendix A, with more detailed observations available in the minutes of the final ASTRA Biannual meeting [4]. These are available to ASTRA partners and may be shared with interested parties upon request.

2.1 Long-term storage

Storage has always been a necessary part of radioactive waste management. However, storage facilities are being used for much longer periods than originally anticipated, and in many programmes storage is being treated in practice as a long-term management option because of the unavailability of disposal facilities. For many older facilities, documentation is incomplete, inconsistent or has been lost. These data gaps can affect the credibility of safety assessments, hinder optimisation of monitoring programmes, and delay decisions on disposal.

The main near-term priorities to support timely decisions on extended storage are [5,6]:

- Recovery and digitalisation of legacy data,
- Clearer definition and assessment of facility and waste-package lifetimes,
- Integration of aging management to periodic safety reviews,
- Development of practical predictive tools for assessing ageing and degradation
- Improve monitoring and assessment of barrier performance, and
- Consideration of climate adaptation of existing storage facilities.

Over the longer term, preparedness for emerging waste streams and socially robust stewardship models should be integrated into long-term storage strategies. [5,6]

To translate these needs into action, future EURAD activities can take forward ASTRA outcomes and continue with the development of a next-generation decision-support framework for end-of-life storage management and disposal options by pooling experience, data and expertise across Member States. This could include a database on storage facilities and waste packages, coupled with advanced predictive modelling tools, to support timely and defensible decisions on continued storage, reconditioning or transfer to disposal under changing environmental and global conditions.

Partners stated that the knowledge (best practices) identified in ASTRA would be transferred to national programme actors, who need it for their work. Three useful aspects were highlighted [4]:

- Exposure to practical cases from Member States
- A multi-actor perspective (WMOs, TSOs, REs and Civil Society)
- Gained understanding of Civil Society concerns

Exposure to practical cases from Member States at different stages of RWM programme development provided knowledge about common challenges and successful solutions in real national contexts. Bringing a multi-actor perspective (WMOs, TSOs, REs and Civil Society), enabled the view to the long-term storage issues from different perspectives which illuminated blind spots across all thematic areas and clarified the direction for further development. Gained understanding of Civil Society concerns regarding current RWM strategies highlighted for example what is lacking in terms of transparency and public participation in decision-making.

2.2 Deep borehole disposal

Where storage life extension provides a short-term means of safely managed waste, deep borehole disposal (DBD) addresses the long-term, final, solution: a disposal option, that could possibly be economically scaled down to the small volumes typical of SIMS.

DBD is increasingly recognised as a promising alternative or complement to mined deep geological repositories (DGRs) for the disposal of high-level waste and spent nuclear fuel (HLW/SNF). Due to its reduced operating scale and potential cost effectiveness compared to traditional mined repositories, it appears an attractive option, especially for SIMS. However, implementation of the technology has been limited by a perceived lack of technology readiness and demonstration work specific to DBD, compared to the large investments that have been made in RD&D and demonstration projects for DGRs.

For LIMS, DBD was identified as an alternative disposal option (to the baseline of a mined DGR) to be monitored, but no further RD&D on DBD is planned. For SIMS, DBD would possibly be an economically attractive primary solution for disposal of small volumes of higher activity wastes, once the disposal concept is developed further.

In the near term, RD&D efforts on DBD should prioritise resolving the most important technical uncertainties.[7] These include:

- Demonstrating deep drilling operations at the required depths and diameters envisioned for DBD,
- Exploring the long-term performance of borehole seals and plugs,
- Understanding corrosion processes and their control under *in situ* conditions, and
- Demonstrating reliable operational-phase monitoring at great depth.

Emplacement and potential retrieval operations also represent a high-priority RD&D area, as these operations are technically complex and have not yet been demonstrated for radioactive waste packages containing HLW/SNF.

Addressing these topics would support confidence in operational safety, which is a key barrier to implementing DBD at present. A further near-term priority is the development and demonstration of

techniques to confirm that stagnant groundwater conditions persist at disposal depths, following borehole construction and waste package emplacement. Studies to improve understanding of host rock conditions at typical DBD depths (~2-5 km depth) using data from existing deep boreholes are also important. [7]

The benefits of the discussions within ASTRA around DBD were insight into international approaches and implementation challenges and visibility on the progress made on the technology. ASTRA provided opportunity to knowledge sharing both with partners and with external groups such as IAEA CRP (International Atomic Energy Agency Coordinated research project) on DBD. Assessment of the key barriers (technical, regulatory and societal) to DBD implementation and preconditions to be met to move forward were also among the useful discussion topics mentioned.[4]

2.3 Alternative waste management solutions for SIMS

2.3.1 Analysis of management strategies for small amounts of waste (including shared solutions)

SIMS must fulfil technical and regulatory requirements comparable to LIMS, while operating with fewer resources. The small scale of inventories makes it difficult to justify or afford dedicated national infrastructure. Shared or multinational approaches can mitigate some of the constraints through economies of scale and pooled expertise, but they introduce further challenges around transport regulation, governance and allocation of long-term responsibilities and liabilities. Knowledge exchange from LIMS to SIMS is also one collaboration method to help to improve SIMS abilities to manage their own wastes.

Just as DBD offers a technical solution scalable to small inventories, shared and multinational approaches offer an organisational one, allowing SIMS to fulfil regulatory requirements without dedicated national infrastructure, through political decisions on collaboration.

One of the objectives of ASTRA, was to create a community of practice, including SIMS and LIMS, to share predisposal and disposal strategies, aiming at cost effective RWM solutions targeting SIMS. This was implemented in form of Live Discussion Forums (LDF). Live Discussion Forums (LDF) provided insight into waste management approaches – topics were identified by surveys at the beginning of the work – and provided opportunities for direct discussions with subject matter experts [8]. More of the content of LDFs is available in Section 4.

The near-term recommendations to help SIMS to move towards credible and publicly accepted waste management solutions are [8]:

- To actively support LDFs as permanent platforms for solving problems and sharing practical experience. Expertise of LIMS is needed to move these forums beyond information sharing towards developing practical and proportionate disposal solutions for SIMS.
- To ensure that these forums move beyond information exchange, towards structured co-development of proportionate solutions appropriate for SIMS
 - the forums should be explicitly mandated to address specific challenges faced by SIMS,
 - facilitate transparent dialogue on regulatory expectations and liabilities, and
 - build shared understanding among stakeholders.
- The SIMS–LIMS demonstrator should be used to test and validate solutions under real-world conditions. (A case study where SIMS develops a solution with a help of LIMS, who already has solved the challenge.)
- For shared solutions, safety case harmonisation, costing methodologies and predisposal collaboration, as well as knowledge exchange, were identified as priority collaboration areas.

Together, these actions can reduce uncertainty, speed up learning and build trust by showing how existing LIMS solutions can be responsibly adapted to smaller waste inventories. Without coordinated action, some SIMS may remain reliant in prolonged temporary arrangements for a long time. With it,

they can move towards credible, cooperative and publicly accepted long-term solutions for radioactive waste management [8].

2.3.2 Evaluation of RWM strategies for the disposal of NORM wastes

One common challenge for SIMS and LIMS is management of NORM wastes, which are widespread among the Member States. NORM waste management remains fragmented and unevenly developed among Member States, creating regulatory, technical and strategic challenges. Technical maturity is also uneven: although most countries apply measures spanning minimisation, conditioning, storage and disposal, their ability to implement these steps depends heavily on national capacity, infrastructure and regulatory drivers. Disposal readiness represents a further cross-cutting concern. Near-surface engineered facilities and geological disposal are both being considered across Europe, but most countries currently lack a defined disposal route for NORM wastes or concrete plans for one. This situation is exacerbated by the limited maturity of disposal safety cases.

Key priorities in the short-term to aid the development of common guidance are [9]:

- Harmonising waste classification approaches and developing decision-support tools for NORM and DU waste management.
- Establishing shared criteria for selecting between near-surface and geological disposal options.
- Developing technical solutions, including studies on conditioning options for Radium-bearing and Uranium-bearing materials, as well as exploring reuse, recycling and circular-economy approaches that could reduce disposal volumes and optimise resource efficiency
- Strengthening safety case development for NORM wastes, in line with EURAD2 Roadmap Theme 7.

Structured support mechanisms for SIMS should be expanded through matchmaking with expert partners from LIMS, sharing access to specialised facilities and datasets, and development and delivery of common training programmes. These measures represent an essential step toward enabling smaller programmes to move beyond prolonged storage and engage realistically with disposal planning.

3. Evaluation of impact

The topics covered in ASTRA were consistent with the EURAD SRA themes of Programme Management (Theme 1), Pre-disposal (Theme 2), and Disposal facility design and optimisation (Theme 5) – and, in particular, 1.1.1 National RWM policy, 2.2.4 Storage and 5.1.1 Design Requirements. The relevant SRA drivers covered by ASTRA were Tailored Solutions, Innovation for Optimisation, and Societal Engagement. Appendix AB provides a summary of which tasks in ASTRA addressed these topics and to the milestone or deliverable where more information can be found.

The outcomes of ASTRA have served all of the drivers identified:

- Innovation for Optimisation:
 - Ensured Member States advance in optimisation and implementation of their programmes, by identifying methods and processes that can enable early-stage programmes to progress based on lessons learned by advanced programmes, both in long-term storage and disposal options (implementation of shared RWM solutions, DBD, and NORM management) [5-9].
- Tailored solutions:
 - Enabled platform/forum for LIMS and SIMS to exchange knowledge on disposal strategy and to discuss the associated difficulties, especially for SIMS, to implement cost-effective RWM solutions. [8]
 - Consolidated learning of international practice on lifecycle management of wastes containing high concentrations of long-lived naturally occurring radionuclides (and in particular DU), leading to optimised reuse, packaging and disposal concepts for countries having varying amounts of such wastes. [9]
 - Identified the elements of a disposal safety case methodology applicable to these wastes. [9]
 - Identification of DBD as an option for specific waste types. [7]
- Social Engagement:
 - Implemented structured interactions between actors, including CS, and helped to foster mutual understanding and trust about how RWM routes are selected and implemented.

While Knowledge Management was not included among the formal ASTRA drivers, the results of the WP highlight its cross-cutting role in enabling the implementation of the identified RD&D needs and supporting both short-term and longer-term activities.

4. Education and training

ASTRA facilitated the capture, consolidation and exchange of knowledge through a range of outputs including the Green Paper and a White Paper, and the present report. A particularly valuable contribution was the development and testing of the Live Discussion Forum (LDF) format, which provided a structured platform for experience sharing between SIMS and LIMS.

The LDF information exchanges comprised ten forums (summaries of them can be found in Appendix C), held approximately monthly, with topics selected through participant surveys and prioritised according to Member States' needs [8]. Each forum combined an expert presentation with interactive discussions, enabling participants to exchange practical experience, compare national approaches and identify potential solutions to common radioactive waste management challenges.

The discussions covered both operational and strategic topics, including waste characterisation, inventory management, treatment and conditioning, disposal concepts, legacy waste management, waste acceptance criteria, and the specific challenges faced by SIMS. They highlighted the importance of systematic, proportionate and risk-informed approaches supported by reliable inventories, robust characterisation data and effective governance arrangements. Broader themes included stakeholder and civil society engagement, transparency, the management of complex waste streams, and scalable disposal options.

Overall, participant feedback confirmed that the LDF methodology is an effective Knowledge Management tool for fostering peer learning, knowledge transfer and cooperation among Member States. The outcomes of the first six forums are documented in [8].

5. Conclusions

The EURAD-2 Strategic Study Work Package “Alternative RWM Strategies” (ASTRA) examined alternative and complementary approaches to radioactive waste management (RWM), focusing on long-term storage, deep borehole disposal (DBD), waste-management solutions for small inventories, and the management of NORM and depleted uranium (DU) wastes. These topics address a common challenge: achieving safe, credible, affordable and publicly acceptable waste-management solutions, particularly for Small Inventory Member States (SIMS), which often have limited resources.

Long-term storage is an immediate challenge because many programmes must store waste for longer than originally planned due to the absence of disposal facilities. Key priorities include recovering and digitising legacy data, improving understanding of facility and waste-package lifetimes, integrating ageing management into safety reviews, improving monitoring and predictive tools, and adapting facilities to climate change. Future work should support decision-making on continued storage, reconditioning or transfer to disposal through shared databases, modelling tools and international experience.

Deep borehole disposal offers a potential disposal solution, particularly for SIMS with small quantities of higher-activity waste. While technically promising and potentially more economical than mined geological repositories, further research is needed. In the near term, RD&D efforts in DBD should prioritise resolving the most critical technical uncertainties. These include demonstrating deep drilling operations at the required depths and diameters envisioned for DBD, exploring the long-term performance of borehole seals and plugs, understanding corrosion processes and their control under in-situ conditions, and demonstrating reliable monitoring at great depth. Addressing these topics would support confidence in DBD.

NORM and DU waste management remains uneven across Member States. Priorities include harmonising waste classification and decision-support approaches, developing common criteria for near-surface versus geological disposal, improving conditioning technologies, exploring reuse and recycling, and strengthening safety cases. SIMS would particularly benefit from expert matchmaking, access to specialised facilities and datasets, and common training programmes.

To address the challenges of identifying credible alternatives for SIMS, RD&D should concentrate on enabling disposal routes feasible at small scale, whilst reducing uncertainty and reliance on prolonged interim arrangements.

Finally, the Live Discussion Forums demonstrated the value of structured knowledge exchange and training. International cooperation should be advanced as a structured complement to national measures. For this purpose two knowledge-transfer mechanisms are proposed: a continuation of LDFs (problem-focused exchange forums), and a direct SIMS-LIMS demonstrator to support SIMS by analysing existing solutions and identifying best practices across the waste management lifecycle.

The principal conclusion is that continued collaboration, knowledge management and targeted RD&D are essential to enable Member States—particularly SIMS—to move from prolonged interim arrangements towards safe, credible and publicly accepted long-term radioactive waste-management solutions.

Appendix A. ASTRA Biannual meeting: summary of benefits

In the final ASTRA Biannual meeting, on 25 March 2026 [4], participants (ASTRA members, end-users and stakeholders) were invited to give:

- at least one example of an ASTRA outcome, benefit/impact, or lesson learned for their national programme, and
- at least one example of a short-term need (what would they hope for in EURAD-2 2nd wave activity).

Identified benefits included:

Topics in the SIMS-focused task (SIMS, shared solutions, NORM waste and LDF) were highlighted as useful by partners. DBD was the second-ranked task and first-ranked topic (see Figure 1). Long-term storage, knowledge management and civil society interactions were also mentioned. The benefits in each of these areas are further elaborated in the following three sections.

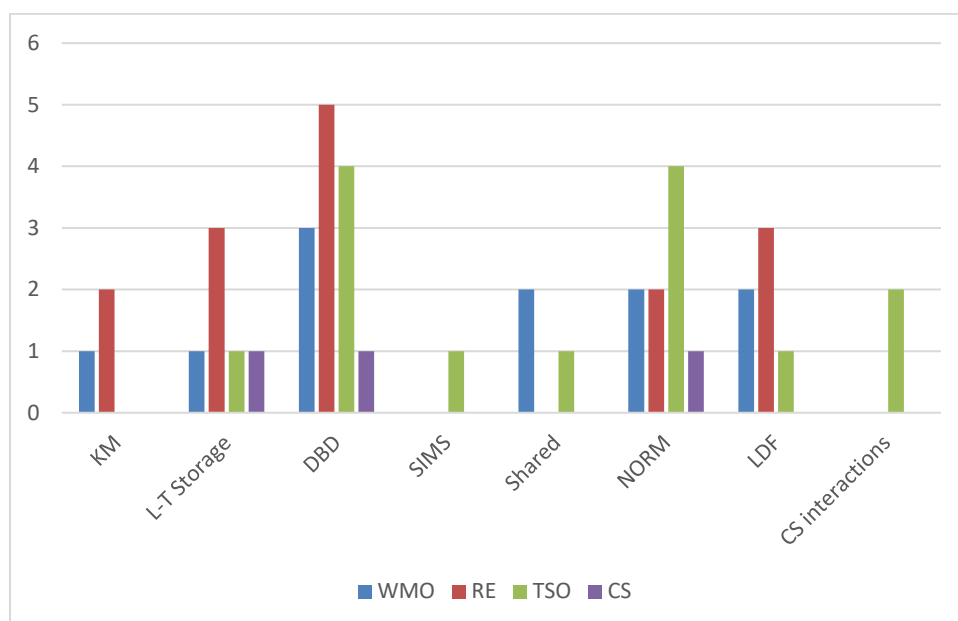


Figure Appendix-1. Topics partners found useful in ASTRA. Key: KM - knowledge management, L-T Storage - long-term storage, DBD - Deep Borehole Disposal, SIMS - Small inventory member states, Shared - Shared solutions, NORM - Naturally occurring radioactive materials, LDF - Live discussion forum, CS - civil society interactions, colour codes for colleges: WMO - waste management organisation, RE - research entity, TSO - technical support organisation, CS - civil society, y-axis is the number of organisations.

The needs of the Member States were in line with the findings of the WP[3], and will be used in the future when developing EURAD RD&D.

Appendix B. Assessment of ASTRA addressing the SRA themes and drivers

Roadmap Domain/ Theme	Description in SRA	Drivers in SRA	ASTRA/Reference
1.1.1 National RWM Policy	NEW: Support national programmes to maintain a national plan for radioactive waste management, including a nuclear fuel cycle strategy (e.g., open or closed cycle) for those countries with, or intending to use, nuclear power.	KM, Innovation for Optimisation, Societal Engagement	A community of practice for SIMS and LIMS, to learn from experience [8] Evaluation of RWM strategies for the disposal of waste bearing naturally occurring long-live radionuclides [9] Shared solutions [8]
2.2.4 Storage	Ensuring safety and potential extension of operational lifespan of waste packages and structures associated with interim storage.	Implementation Safety, Innovation for Optimisation, Societal Engagement, KM	Extension of long-term storage beyond lifetime [5, 6]
5.1.1 Design requirements	NEW: Development of guidance for the implementation of deep borehole disposal, including safety case development	KM, Tailored Solutions, Implementation Safety, Societal Engagement	Deep Borehole Disposal [7]

Appendix C. A brief summary of each Live Discussion Forum

Below a summary of all LDFs is presented, six first LDFs are also summarised in [8] with more details.

LDF No. 1: Initial Inventory – Conditioned Waste. Good practice from several Member States demonstrate the value of transparent data management, early stakeholder involvement, and long-term inventory maintenance.

LDF No. 2: Characterisation – Conditioned Waste. Case studies illustrate approaches to characterising historical and conditioned waste using a combination of archival data, non-destructive techniques, and standardised radioactive waste.

LDF No. 3: Treatment – Conditioned Waste. This case study shows that volume reduction, stabilisation, and concrete conditioning can produce waste forms suitable for long-term storage for diverse waste streams.

LDF No. 4: Conditioning Methods – Conditioned Waste. Case study of graded approach to managing large volumes of emergency waste and legacy waste demonstrates how risk-based prioritisation and phased remediation can deliver safety improvements when full remediation is not immediately feasible.

LDF No. 5: Impact of Definition of SIMS. SIMS typically generate small volumes of low-level and intermediate-level waste from medicine, research, and industry. Scaled-down versions of disposal concepts for large inventories may not be cost-effective for SIMS. Definition of which countries are identified as SIMS varies depending on the source, creating ambiguity.

LDF No. 6: Waste Acceptance Criteria – Conditioned Waste. Waste storage and conditioning approaches depend on waste type. Stored wastes are periodically monitored, before being placed in a disposal facility.

LDF No. 7: Challenges of Management of U/Th/Ra-Bearing Waste. This LDF examined Ukraine's large-scale and poorly characterised U/Th/Ra-bearing waste challenges, driven by legislative gaps, legacy uranium mining sites, and insufficient management infrastructure, and outlined potential pathways for improvement.

LDF No. 8: Uranium Mine and Mill Tailings Management from a Civil Society Perspective. This LDF explored uranium mine and mill tailings management from a civil society perspective, highlighting governance gaps, insufficient transparency and public participation, and the need for strengthened long-term stewardship and regulatory harmonisation.

LDF No. 9: Scalable Disposal Solutions. This LDF addressed scalable disposal solutions for radioactive waste, identifying options suitable for low-level and intermediate-level wastes, including implementation of a modular near-surface repository in Slovenia and the development of deep borehole disposal DBD as a flexible and potentially decentralised option, both emphasising adaptability, long-term safety, and capacity expansion strategies.

LDF No. 10. Graphite Waste Management. This LDF addressed the challenges of irradiated graphite management, including irradiation-induced crack formation and graphite degradation in reactor cores, dismantling and conditioning approaches, and the large waste volumes generated during decommissioning. The Swiss DIORIT case study demonstrated a cost-effective conditioning solution based on graphite milling and incorporation into mortar matrices, reducing waste volumes while meeting repository acceptance criteria. The LDF also explored emerging concepts such as carbon storage applications.

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