

## HARPERS Newsletter #1

5 december 2022

Project ID: 101060028

Call: HORIZON-EURATOM-2021-NRT-01

Programme: EURATOM2027

DG/Agency: RTD

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The Euratom 3-year project “HARPERS: HARmonised PracticEs, Regulations and Standards in waste management and decommissioning” aims to establish and clarify the benefits and added value of more aligned and harmonised regulations, practices and standards in decommissioning and radioactive waste management, including possibilities for shared processing, storage and disposal facilities between Member States. The project was launched in June 2022, is run by a consortium of 26 organisations from 13 countries. HARPERS is coordinated by IFE (technical coordinator) and SCK CEN (project coordinator). The total budget is 3.3 M€ of which 2.4 M€ is provided by EURATOM.

The HARPERS project is of relevance to all EC member states and to a wide community of stakeholders such as nuclear utilities, regulators, WMOs, service providers and technology developers. The project may prove to be especially important to countries having smaller inventories of radioactive waste and who may not have the capacity or financing to establish their own decommissioning or waste management programs. One of the lessons learned in decommissioning and waste management is that the efficiency of a technological development depends not only on the techniques used or an operator's ability but also on regulatory aspects, and other societal dimensions.

The project is relevant now and has potential for great impacts within the next 5-10 years, especially as decommissioning markets are growing and the need for more efficient predisposal waste management services is growing. Removing international cross-border issues on regulation will increase business markets and shared understanding of for potential services and procurements. Adjustments resulting from the project can accelerate business offerings and confidence, while reducing conflict and litigations.

The timescale within the project includes continuous focus on stakeholder engagement from all MS, as well as international best practice and communication. The project will evaluate the Strengths, Weaknesses, Opportunities and Threats with respect to harmonisation of the identified regulatory differences and produce reports on harmonising regulatory systems in Europe. The TECOP (Technical, Economic, Commercial, Operational, or Political) process will identify a multitude of potential changes, which will be reviewed further in terms of strategic impacts for stakeholders across all MS.

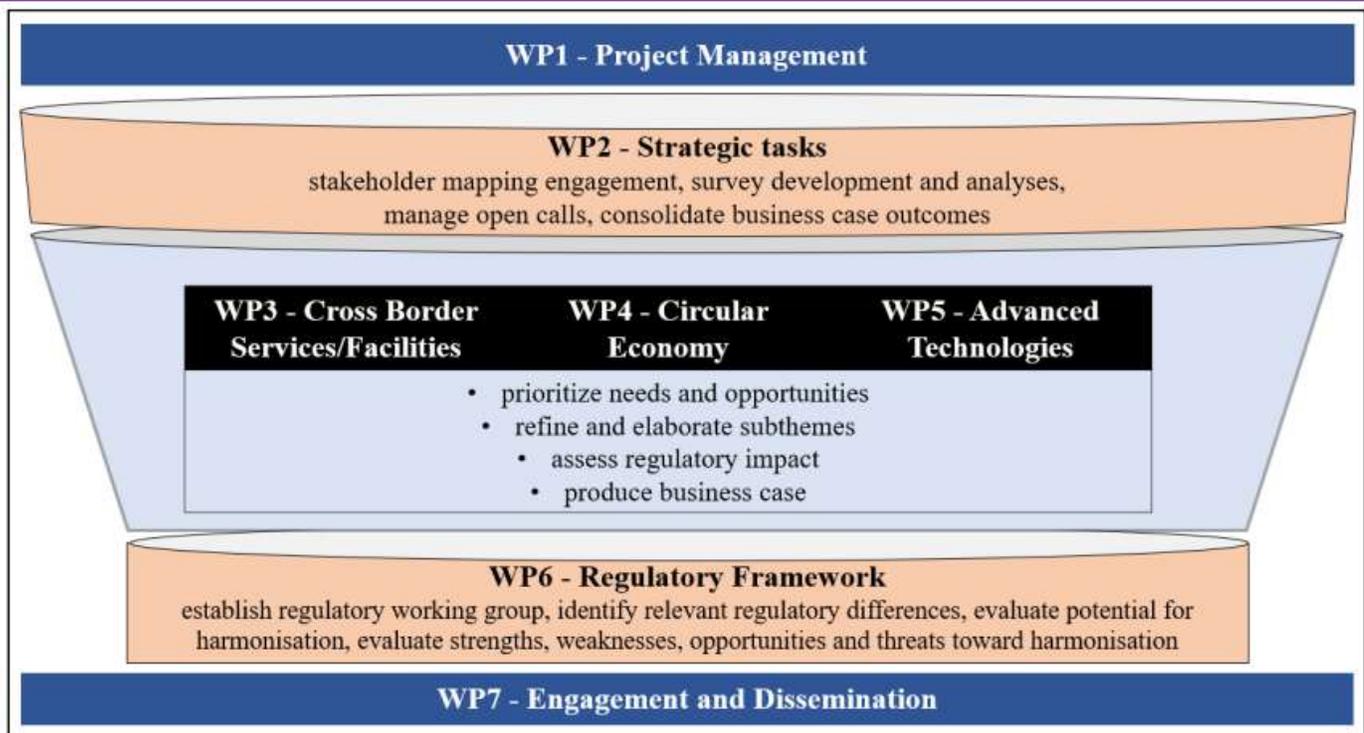
The needs and priorities for the HARPERS project have been discussed within the EURAD, EURATOM PREDIS and SHARE projects, as well as within SNETP TA5, ERDO, WMOs, IGDTP, SITEX and other networks. The EC Euratom officer noted during the EURATOM info day (July 16, 2022) the expectations and needs for this project, which were directly addressed in the proposal.

The HARPERS project employs a two-phase approach: first engaging with Stakeholders to assess needs and pros/cons for harmonisation and identify priority areas for deeper analysis (WP2). The second phase will pursue deeper engagement with Stakeholders to further assess the highest ranked priority areas in from the work packages focusing on (i) cross border services and cooperation (WP3), (ii) circular economy (WP4), and (iii) advanced technologies (WP5). These WPs will review (inter)national practices, capture lessons learned, and assess opportunities. WP6 on Regulatory Framework will identify regulatory differences between MS and evaluate strengths, weaknesses, opportunities, and threats associated with harmonisation, while quantifying the benefits of aligned regulations and proposing harmonisation methodologies.



This project has received funding from the Euratom research and training programme 2021-27 under grant agreement No 101060028.

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*Schematic overview of HARPERS project scope and work package arrangement*

The project will:

- support coordination between Stakeholders,
- enhance existing commitments to facilitate sharing and exchange of knowledge and experience,
- develop strategies for shared treatment and storage facilities, cross border services and cooperation, and explore additional mechanisms to build capacity in MS,
- assess and clarify the benefits and any disadvantages of harmonisation,
- deliver S&T-based solutions and share best practices by engaging and supporting coordination between different actors through the TSOs and regulators,
- define conditions and opportunities of a high safety circular economy.

HARPERS will reinforce the activities of the European Joint Programme EURAD, EURATOM PREDIS and SHARE projects, while encompassing MS national programs and the wider European Community, including, e.g., ERDO, ENSREG, WENRA, IAEA, OECD NEA, IG-DTP, SNETP, DigiDecom.

After the online kick-off meeting in June 2022, the project recently held its first in-person consortium meeting on October 17 in Halden, Norway. During the first four months of the project, WP2 started the stakeholder engagement and organized a gap analysis to provide input to the technical work packages (WP's 3 to 5). WP6 on Regulatory Framework started to establish the regulatory working group and develop its own analysis of the gap analysis results. WP7 set up the website and social media channels.

This first newsletter intends to provide a general overview of the aims and structure of the EURATOM HARPERS project and begins spotlighting project partners and achievements. Future newsletters will emphasis new results, stakeholder interaction and networking activities as well as continue to spotlight project partners. We hope that the HARPERS newsletters will encourage different stakeholders to follow the work performed within the project and contribute to productive interactions and exchange. Interested stakeholders can opt for active participation in the project, which entails joining webinars, discussion sessions, surveys, ... to help define in phase 1 the priority areas which will be further developed in phase 2. Active participation as third party in phase 2 is possible as well. The project can also be engaged with less actively by staying informed on its progress through newsletters and access to public deliverables. All of these options will be available to registered stakeholders.



## First consortium meeting

The first in-person consortium meeting was hosted by IFE in Halden (Norway) on October 17 and brought together 40 participants from all partner organisations. The project coordinators, IFE and SCK CEN opened the meeting with some introductory words. After the introduction of all participants, European Commission Project Officer Seif Ben Hadj Hassin presented the Multi-Financial framework for 2021-2027 and all decommissioning-related projects from 2016 on. The coordinators reminded the audience of the



needs that inspired the project, the general structure and focus of the work packages. WP2 presented objectives and activities, and the progress made regarding the gap analysis and stakeholder engagement. WP's 3, 4 and 5 presented the aspects of the gap analysis which are considered to be relevant for their domains. In a later stage, the topics will be discussed with the relevant stakeholders. WP6 filtered out regulatory-related aspects from the gap analysis and will ask the opinion of the regulators on these topics. WP7 presented the

website and social media channels

Discussions on the HARPERS project continued during the DigiDecom 2022 event in a dedicated breakout session.

### Work Package 2: Strategic Studies

This work package will perform a mapping of stakeholders with interest in decommissioning and waste management. Together with the technical work packages 3-5, we develop and execute an analysis through stakeholder engagement processes to define most important needs related to harmonisation of practices, regulations and standards. Based on the outcome of this engagement process, open calls will be launched on a list of prioritised topics in the field of cross border service/facility activities, circular economy and advanced technologies which will be further developed in respective work packages. The outcome of these studies will be consolidated to inform (future) strategic research agendas.

Networks of stakeholders have been identified and contacted in order to build the stakeholder community. Through a web form on the HARPERS website, SH can register for the engagement process.

A gap analysis has been organised and undertaken on existing SRA's and position papers from a wide variety of relevant networks to assess drivers and barriers towards harmonisation of decommissioning and waste management activities on a Europe-wide basis. This gap analysis was used to verify/underpin and further refine previously identified needs and challenges.

In the coming weeks, stakeholder solicitation will be intensified and stakeholder engagement meetings, through WP 3-6, will be set up to discuss and prioritize the identified needs and challenges.

WP2 lead: Norbert Maes, SCK CEN



## Work Package 3: Cross-Border Services

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This work package aims to identify the most important needs and opportunities for current and future cross border radioactive waste management activities (i.e., characterization, treatment, conditioning, and storage) and assess regulatory obstacles to providing such services (with WP6). The outcomes will provide Member States, the EC and other interested stakeholders with guidance on advancing safe and efficient cross border service/facility possibilities in radioactive waste management.

The WP3 partners have further developed and refined the previously identified needs and challenges relating to harmonisation and standardisation in Cross Border Waste Management Services and Facilities. Coupled with this activity, we have utilised the gap analysis works to underpin the needs and challenges, or to add new ones. Selection criteria will be defined to support the prioritisation of the needs/challenges after the stakeholders have been engaged to provide their views.

WP3 Lead: David Oxberry, Studsvik Limited, UK

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## Work Package 4: Circular Economy

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Circular economy concepts and principles aim to minimise waste and make more efficient use of available resources through, e.g., design considerations, careful operations and by recovering and regenerating products at the end of a facility lifecycle.

Efficient and sustainable waste management focusing on waste reduction, reuse and recycling would ensure that valuable materials are reinjected into the market. The circular approach will result in a more efficient and effective decommissioning in terms of environmental impacts and primary resource consumption.

Even if existing facilities were generally designed for a linear lifecycle, there is a great potential to align their approach to decommissioning with circularity principles.

In this context, differences in regulatory requirements translate into different prerequisites for reaching circularity. This includes for example, different approaches and criteria for clearance, and whether buildings and other structures can be repurposed or must be removed.

HARPERS Work Package 4 aims to identify the most important conditions and opportunities for establishing a circular economy in radioactive waste management activities across Europe. The outcomes will provide Member States, the European Commission and other interested Stakeholders with guidance on implementing circular economy principles and facilitating the safe reuse and recycling of materials.

In the first phase (Phase 1a) of the project, the objective of WP4 is to identify and prioritise the needs and opportunities for circular economy considerations, to define themes to be proposed for deeper analysis in Phase 2.

After an internal discussion between WP4 partners, a detailed list of topics (challenges/needs) was developed. It will be used to further discuss with the interested Stakeholders during the coming on-line webinars. All the collected information will be analysed, and selection criteria will be defined for the prioritization of the topics.

WP4 Lead: Federica Pancotti, SOGIN, Italy

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## Work Package 5: Advanced Technologies

This work package aims to evaluate the regulatory implications of using advanced technologies in waste management and decommissioning, identify opportunities for harmonisation of standards across MS and investigate and conclude on the need and benefits of the adoption and standardisation of advanced technologies to enhance waste management and decommissioning operations in Europe.

During the first stages of the project, we will focus on prioritising the needs and opportunities in advanced technologies by reviewing the available relevant strategic research agendas and other relevant literature. We will formulate a list of conditions and opportunities to increase the acceptance and use of cutting-edge technologies and tools, and through expert discussions, engagement with stakeholders and analysis of the collected information we will develop the priorities to take forward into the next stages of the project. Since the project has commenced, we have held the following sessions:

- WP5 Kick off 1st September - expectations for the WP5 activities and a working session on the technical topics that had been gathered for the proposal grouped into the three key areas Waste Management, Automation and Robotics, and Digitalisation.
- WP5 Thematic Questions session 27th Sept – Review of the Gap Analysis work to evidence the topics and questions that are to be taken forward with the experts and stakeholders.

These sessions are feeding into the first WP milestone at the end of October to produce a list of WP5 thematic questions/topics that will be used in future engagement with stakeholders.

WP5 Lead: Anthony Banford, NNL, UK

## Work Package 6: Regulatory Framework

This work package aims at assessing similarities and differences in regulatory requirements and addressing the possibilities for harmonisation with respect to the areas of interest for WPs 3-5 (i.e., cross border services/facilities, circular economy considerations and the implementation of advanced technologies) in radioactive waste management and decommissioning. WP6 will seek to directly address harmonization possibilities by engaging with European regulatory authorities and technical safety organisations specific to these areas of interest. This work package is comprised of 12 partners (IFE, SCK CEN, Studsvik, SOGIN, NNL, VTT, ENEA, Bel V, SURO, GRS, MERIENEC and IRSN) contributing 38.5 person-months of effort.

At present, we are actively engaged in reaching out to our partner's national regulators to establish an initial stakeholders group which is our first milestone. We have also held discussions with IAEA and NEA-OECD with regard to finding synergistic opportunities and we will be exploring such possibilities with WENRA, ENSREG, SITEX and ETSON in the near future. Building an independent and effective stakeholders group is important to the work of WP6 and we anticipate that this group will continue to grow and be called upon over the course of the HARPERS project.

On a parallel track, WP6 has been analysing the results of the WP2 gap analysis to develop a list of topics which directly address harmonization needs and regulatory interests across all HARPERS technical areas of interest. We will use this list for discussions with our stakeholders in order to prioritise the most promising of these topics and possibly identify new matters for consideration. This prioritized and updated list is our second milestone.

WP6 Lead: Tim Schatz, VTT, Finland



## Project Partners

sck cen



Studsvik



NATIONAL NUCLEAR  
LABORATORY

ENEA



BELV



merience



CEPN



javys



AMPHOS<sup>21</sup>



### HARPERS Upcoming Events

**25 January 2023**

EURAD Launch & Learn HARPERS & HARMONISE

**20-21 April 2023**

HARPERS Consortium Meeting in Rome (Italy)

### Other Events of Interest

**22 November 2022 - 24 November 2022**

NEA workshop on [Remembering the past in the future: Building awareness of radioactive waste repositories together.](#)

**29 November 2022 - 1 December 2022**

NEA workshop on [Innovative Techniques and Technologies to Support Characterisation and Decommissioning of Complex and Legacy Sites.](#)

**30 November 2022**

EURAD webinar Lunch & Learn on [The role of Knowledge Management in Civil Society](#)

**18 January 2023**

EURAD training course - [Information session and discussion on the Spent Fuel State-of-Knowledge document.](#)

**22 February 2023**

EURAD WP 13 webinar Lunch & Learn on [The Swiss proposal for a combined repository in clay rocks.](#)



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## Main contacts and links



WEBSITE: <https://www.harpers-h2020.eu/>

### Coordinators and Work Packages leaders list and contacts:

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**Are you part of the stakeholder community? Would you like to be informed or actively involved in the HARPERS project? Join us! <https://www.harpers-h2020.eu/stakeholder-engagement.html>**

