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## Deliverable n°5.4

# Overall scheme for a Joint Programme on Radioactive Waste Management and Disposal

Work Package 5

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**RESPONSIBLE:**

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**Approbation for submission**

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## 1. Executive Summary

The JOPRAD Deliverable 5.4 aims to describe the overall scheme of the Joint Programme, and takes stock of all deliverables produced in the framework of the JOPRAD project, and includes elements considered as the necessary founding basis, developed up to an advanced status of readiness for use, for the implementation and functioning of a European Joint research Programme in radioactive waste management and disposal (RWMD):

- Joint Programme Actors
- Joint Programme Vision
- Joint Programme Strategic Research Agenda
- Joint Programme Governing principles
- Joint Programme Scope and objectives
- Joint Programme Expected impacts
- Joint Programme Deployment Activities
- Joint Programme Funding and co-funding mechanisms
- Joint Programme Rules for participation
- Joint Programme governance (governing bodies and decision mechanisms)

All these aspects were presented to the RWMD community at the JOPRAD Final Workshop held on 16 November 2017 in Prague.

## 2. European Joint Programme RD&D Actors

The European Joint Programme (EJP) in the field of Radioactive Waste Management and Disposal (RWMD) will bring together organisations with scientific and technical responsibilities and a national mandate for research in RWMD, and that are willing to share a Strategic Research Agenda (SRA) for European collaborative RD&D.

One of the first objectives of the JOPRAD project was to identify these organisations having a national mandate for research in RWMD in the 28 EU Member-States, Switzerland and Ukraine. Since the early phase of JOPRAD, the RD&D actors in the field have been split into 3 categories:

- **Waste Management Organisations (WMOs)** whose mission covers the management and disposal of radioactive waste,
- **Technical Support Organisations (TSOs)** carrying out activities aimed at providing the technical and scientific basis for notably supporting the decisions made by a national regulatory body and
- **Research Entities (REs)** which are involved in the R&D of radioactive waste management and disposal, under the responsibility of Member States

This first step of identification (within WP2) was crucial in order to involve these organisations in the JOPRAD feasibility study and in the development of the Programme Document (scientific and technical basis for the future EJP SRA) (WP3 and WP4).

Associated JOPRAD Deliverables: D2.1 and D2.8

### Illustration of the diversity of contexts within EU

Member-States and associated countries have various specificities:

- Member-States with no nuclear programme, operating or have operated research, training or demonstration reactors;
- Member-States with nuclear programme;
- Member-States with different amount of radioactive waste to manage;
- Member-States at different stages of advancement in the implementation of their national RWM programme;
- Member-States with plans for deep geological disposal for ILW, HLW and SF with different disposal concepts and at different stages of implementation.

In the EU, 16 Member States have a nuclear programme. 12 Member States (Malta, Luxembourg, Cyprus, Croatia, Ireland, Greece, Portugal, Latvia, Estonia, Denmark, Austria and Poland) have no nuclear programme. 6 of them (Portugal, Latvia, Estonia, Denmark, Austria and Poland) are operating or have operated research, training or demonstration reactors. 15 Member States have plans for deep geological disposal of intermediate level waste, high level waste and spent fuel. Finland, France and Sweden are expected to start operation respectively by 2022, 2025 and 2030. The 12 other Member States are at different stages of implementation.

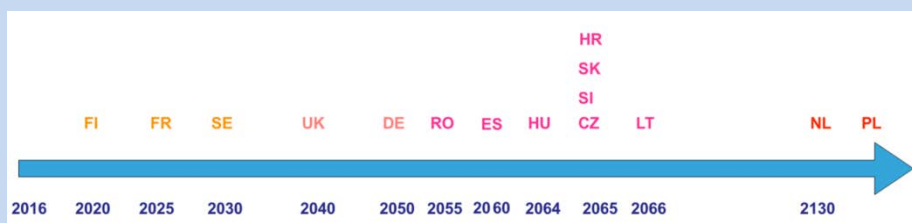


Figure 1- Planned start of operation of deep geological facilities (source: COM(2017)236)

### 3. Joint Programme Vision

#### **A step change in European collaboration towards safe radioactive waste disposal through a credible and sustained science and technology programme fostering mutual understanding and trust.**

Implement a joint strategic Programme of research and knowledge management activities at European level bringing together and complementing EU Member State programmes in order to ensure cutting-edge knowledge creation and preservation in view of delivering safe, sustainable and publicly acceptable solutions for the management and disposal of radioactive waste across Europe now and in the future.

The Joint Programme will support the implementation of the Waste Directive (2011/70/EURATOM) in EU Member-States, taking into account the various stages of advancement of national programme. This will encompass:

- Supporting Member-States in developing and implementing their national RD&D programmes for the safe long-term management of their radioactive waste through participation in the implementation of the EJP;
- Consolidating knowledge for the safe start of operation of the first geological disposal facilities for spent fuel, high-level waste, and other long-lived radioactive waste, and supporting optimization linked with the stepwise implementation of geological disposal;
- Enhancing knowledge management and transfer between generations, organisations and between Member States.

A **Roadmap**, with clear objectives, deliverables and high-level milestones for technical solutions per waste streams and waste types and on knowledge management will accompany the Joint Programme Vision. Associated deliverable: **Deliverable 5.1** (estimated delivery date: June 2018).

### 4. Joint Programme Strategic Research Agenda

Within JOPRAD Work Package 3, each group of Actors (WMOs, TSOs, REs and experts from Civil Society) have respectively identified different activities that could be part of a future Joint Programme at European level. Within the different activities considered, the actors participating in JOPRAD have indicated their preferences and priorities based on their own perceived needs.

Within Work Package 4 a step-wise process has been used to further define and prioritise the scientific and technical domains of common interest of the potentially mandated actors.

A first task consisted of compiling activities suggested as suitable for inclusion within a potential future Joint Programme. A key part of this step was to organise and coalesce suggested activities (identified from the WMO, TSO and RE-specific SRAs) into a suitable structure, considering the different types of activities suggested and the adoption of a common terminology and appropriate scope definition for a potential future Joint Programme SRA.

Once the first compilation was prepared, it was recognised by the Work Package 4 Working Group, that this did not represent an exhaustive list of all the potential activities that could enter into the scope of a potential future Joint Programme. It simply indicated activities for which a sufficient level of common interest has been expressed among the JOPRAD contributors. Therefore, it was considered necessary

as a next step to obtain broader input, primarily to further refine the compilation, identify any gaps and understand individual organisations' priorities against each activity.

A questionnaire was subsequently issued to each of the organisations involved with the original WMO, TSO and RE working groups, and to all organisations identified as 'potential mandated actors' within JOPRAD WP2. The questions were framed to understand for each organisation their own individual priorities and to establish:

- Clear drivers for each RD&D activity – if they considered it implementation-driven or driven by enhanced understanding of the underlying science;
- Where Knowledge Management activities would be beneficial;
- Timescales of interest – high interest for 2019-2024, or beyond; and
- Financial/in-kind support – their interest to participate by providing a financial contribution or effort in-kind, versus interest supporting the steering of a project (i.e. as an end-user).

The questionnaire responses were collated and, using the data and information received (and after some merging of common topics), the compilation was screened using a method to identify priorities and to confirm the activities of high/medium/low common interest (see Programme Document Chapter 4 for details on the method).

All of these have been grouped into a hierarchy of Strategic Themes, Domains and Sub-Domains which form the scientific and technical basis of the JOPRAD SRA described in Chapter 5 of the Programme Document.

The Programme Document was drafted and disseminated for open consultation via publication on the JOPRAD web page. The Programme Document was presented at a workshop on 4<sup>th</sup> April 2017 in London. This final version of the Programme Document (**JOPRAD Deliverable 5.4**) has taken into account comments from the consultation and is scheduled for issuing to the European Commission in November/December 2017. Based on the consultation comments, some of the sub-domains have had their 'Level of Common Interest' altered. The methodology for this, and which sub-domains have changed Levels is outlined in Appendix 4 of the Programme Document. In addition to changes to existing sub-domains, one new sub-domain was suggested. This has been included as Appendix 5, and will be incorporated into the EJP SRA for future consideration.

## 5. Joint Programme governing principles

JOPRAD has defined the principles that shall be respected for joint programming:

**Maintenance of Independence** – It is possible for different Actors with different roles to work together, without prejudice to their own role in the national regulatory process. Most important is the independence between the “expertise function” (TSOs and Research Entities) and the “implementing function” (WMO). Different parties (WMOs and TSOs in particular) can have common agreement of what RD&D should be done and how, and can collaborate in the oversight of that research, however, developing their own view on the interpretation of the research results and data that are generated.

**Transparent Governance** – A transparent, balanced and efficient mode of governance, taking into concern all participants (including Civil Society) is a prerequisite of joint research between WMOs, TSOs and REs.

**Scientific Excellence** – RD&D activities shall focus on achieving passive safety (safety of a disposal facility is provided for by means of passive features inherent in the characteristics of the site and the facility and the characteristics of the waste packages, together with certain institutional controls, particularly for surface facilities [8]) and reducing uncertainties through excellence in science. Research actions are guided by a long-term vision.

**Balanced Programme** – Recognising that different Member States have a wide variance in the status of their National Programme, the scope should support programmes at all stages of advancement.

**Added Value** – Ensuring that Joint Programming provides real added value (e.g. improved financial arrangements, improved stakeholder acceptance of outputs, more robust RD&D outputs, etc.). Administration costs should not exceed a clearly defined maximum percentage (including ongoing legal, EC admin., etc.) versus money spent on the science and demonstration (e.g. administration should not exceed 10% of total costs and should preferably be lower).

**Inclusiveness** – Ensuring that the different categories of Actors and Groups of Interest are involved in the definition and implementation of the Joint Programme.

**Equitable Financing** – Financial costs (financial/in-kind) should be equitable; participants should contribute what they can afford, or what they consider matches their interest in a project.

**Complementary Participation** – Participation in Joint Programme is complementary to RD&D activities which will continue to be undertaken nationally or jointly outside of the auspices of Joint Programme where required.

**Tangible Results** – The scope is appropriately prioritised and focused on the objective to achieve tangible results within a reasonable timeframe. A key aspect is that participants recognise that Joint Programme is a distinct change from past work (and other collaborative working) on radioactive waste management and disposal. Translating the societal challenge of radioactive waste management and disposal into operational reality requires the generation of new knowledge, combined with the consolidation, maintenance and transfer of existing knowledge.

Associated JOPRAD deliverable: Deliverable 5.4



## 6. Joint Programme scope and objectives

The main goal of the European Joint Programme consists of implementing in a collaborative way those aspects of RD&D activities required within national research RWMD programmes as well as associated horizontal activities where synergy from Joint Programming at European level has been identified (**Strategic Research Agenda**). This main goal is broken down into 4 objectives, as follows:

### 6.1 Develop/maintain/consolidate scientific and technical knowledge

The main objective of the European Joint Programme consists of collaboratively developing/maintaining/consolidating the scientific and technical knowledge in the area of radioactive waste management and disposal through RD&D in order to serve the following purposes:

- Supporting the stepwise long-term management and disposal of radioactive waste, including the necessary predisposal steps;
- Developing solutions for the management of different waste streams and types;
- Continuously improving and optimizing waste management routes and of disposal solutions;
- Addressing evolving regulatory concerns;
- Helping bridge the risk of shortage of the skilled, multidisciplinary human resources needed to develop, assess, license and operate radioactive waste management and disposal facilities;
- Helping gaining or maintaining public confidence and awareness by driving for credibility and scientific excellence.

**The scientific and technical scope of the EJP on RWMD has been established in the JOPRAD Programme Document (JOPRAD Deliverable 4.4):**

Cutting-edge scientific and technical activities on radioactive waste management from cradle to grave:

- Radioactive waste characterization & processing (incl. treatment, conditioning/ packaging);
- Interim storage of radioactive waste;
- Disposal solutions – Mainly geological disposal of spent fuel, high level waste (HLW) and intermediate level waste (ILW).

Surface disposal / low-level waste (LLW) are not excluded, it is however assumed that it does not require specific RD&D, but RD&D studies may address both surface and deep geological disposal. It can also be addressed within horizontal activities (Networking / Knowledge Management).

The activities to be carried out within the Joint Programme should be a balance between topics in direct link with **operational RD&D** (in direct link with implementation of repository concepts) and **prospective RD&D** (long-term experiment and/or modelling works to demonstrate the robustness of the concepts or to maintain scientific excellence and competences throughout the stepwise long-term management of radioactive waste).

## 6.2 Share/exchange common methodological/strategical issues

Complementary to RD&D and in support to the implementation of the Member-States' national programmes, the forthcoming Joint Programme shall give the opportunity to its actors to network on methodological/strategical issues and challenges that are common to various national programmes and in direct links with scientific and technical issues:

- Share knowledge/know-how, discuss common methodological/strategical challenging issues (strategic studies) that are in close link with scientific, technical and societal aspects on radioactive waste management and that are common to various national programmes and actors;
- Identify the contribution of past and on-going RD&D projects to the resolution of these issues;
- Identify any emerging topics for collaboration that could be addressed within the Joint Programme;
- Take into account emerging science and technology as well as EURATOM research priorities.

## 6.3 Preserve/capitalize, transfer and disseminate Knowledge

It seems essential to implement an efficient and integrated Knowledge Management programme at EU level in order to establish, capitalize and transfer the state of scientific and technical knowledge in the field of RWMD. Objectives are to:

- Make sure that the publicly financed knowledge generated over the past, ongoing and future RD&D activities is preserved and made accessible.

### Preservation / capitalisation of generated knowledge

- Make sure that Member-States with national programmes at early-stage of implementation can take advantage of existing knowledge and know-how from the Member-States with most advanced national programmes

### Transfer of knowledge towards Member-States with early-stage RWM programme

- Ensure that the necessary expertise and skills are maintained through generations of experts in view of the long lead-times and operational time-spans (several decades) for radioactive waste management and disposal by providing training and mobility for researchers.

### Transfer of knowledge between generations

- Disseminate and demonstrate progress, results and added-value of the European Joint Programme to a wider audience.

### Dissemination of knowledge

The outcomes of Knowledge Management activities will be of interest for:

- Scientists/experts entering into and working in the field of RWMD in general, and especially for the Member-States that are at an early stage in the development of their national programme, in order to avoid duplication of RD&D work and make the best use of resources, this includes the experts reviewing safety assessment, safety cases and license applications;
- Policy and decision-makers;
- Policy and decision-makers;

- Broader interested community (incl. waste producers, NGOs involved in RWMD, local stakeholders...).

## 6.4 Knowledge Interaction with civil society

The successful implementation of RWMD programmes relies on both scientific/technical aspects for a sound safety strategy and scientific and engineering excellence and societal (social, legal, ethical, political) aspects. Interacting with Civil Society is important in this perspective and therefore one objective of the EJP is to **interact with Civil Society around RD&D and around methodological/strategical issues in direct links with RD&D**. Interactions between scientists and Civil Society Experts will enable Civil Society organisations to access, interpret and evaluate the results of the JP, to express their expectations and bring their views, and, as final result it will improve the general understanding on issues related to RWMD. Such activity should also develop ideas and propositions on how to interact with Civil Society on scientific and technical results, how to deal with uncertainties, and on how to interact with Civil Society stakeholders in order to promote mutual benefit of knowledge based on cooperation and sharing.

Civil Society stakeholders (institution, group or individual) under the JP include Civil Society Organisations' representatives (at local, national, EU levels) together with their experts (Civil Society Experts).

**Civil Society Organisations** (having expressed interest in the EJP activities), include:

- European or national Civil Society Organisations;
- Local stakeholders from communities (potentially) hosting a repository;

**Civil Society Experts** include knowledgeable experts vested with trust by the Civil Society representatives:

- NGOs representatives or non-institutional experts with standing knowledge/ long-term engagement on RWM and/or having a scientific/technical competence (e.g. on chemistry, hydrogeology...)
- Organisations having skills/experience on the involvement of Civil Society in scientific and technical issues (e.g. citizen science processes). It can be social scientists or other organisations having experience in this field) able to organise and facilitate work and interactions with Civil Society.

The purpose of the JP is not to develop self-standing activities of social and political research that will better fit into dedicated research programme regarding societal issues of RWM (with a broader scope than the development and implementation of RD&D), such as the programmes under the Societal Challenge of Horizon2020. Social sciences activities might however be developed where relevant in the future in the context of complex/multidisciplinary problem oriented activities together with technical sciences and citizen science, as suggested by the JOPRAD project results.

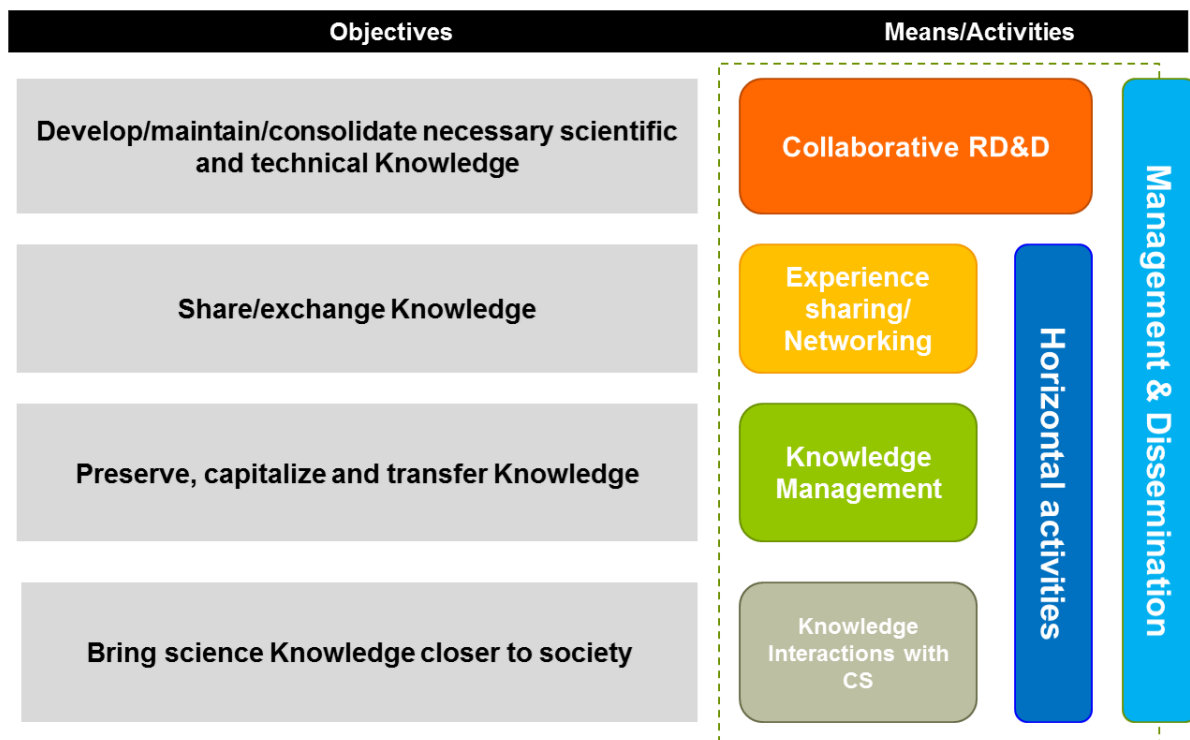
## 7. Joint Programme expected impacts

<p>Contribute to the responsible and safe management and disposal of radioactive waste, including the safe start of operation of the world's first geological disposal facilities for high-level and long-lived radioactive waste / spent nuclear fuel as well as improvement, innovation and development of science and technology for the management and disposal of other radioactive waste categories.</p>
<p>Help increasing/maintaining/consolidating scientific and technical knowledge supporting the stepwise long-term management and disposal of radioactive waste, including the necessary predisposal steps.</p>
<p>Help developing solutions for different waste streams and types.</p>
<p>Contribute to continuously improve and optimize waste management routes and of disposal solutions.</p>
<p>Contribute to address evolving regulatory concerns.</p>
<p>Help bridge the risk of shortage of the skilled, multidisciplinary human resources needed to develop, assess, license and operate radioactive waste management and disposal facilities, in view of the long lead-times and the intergenerational operational time-spans.</p>
<p>Help gaining or maintaining public confidence and awareness by driving for credibility and scientific excellence.</p>
<p>Enhance cross-fertilization, interaction and mutual understanding between the different actors on key areas of general interest (technical and societal issues as well as of safety, risk and uncertainties).</p>
<p>Foster a better transfer of acquired scientific and technical public knowledge, especially towards Member-States at early stage of advancement and across generations of experts.</p>
<p>Foster efficient use of the RD&amp;D resources at EU level by sharing and advancing existing knowledge, facilities and infrastructure rather than repeating and duplicating efforts</p>
<p>Support Member-States in implementing RD&amp;D, developing skills and providing for transparency in order to develop solutions for their radioactive waste (cf. Waste Directive articles 8, 10 and 12.1(f)).</p>

## 8. Joint Programme – Deployment Activities

Five different generic types of activities (work packages) shall be implemented for the deployment of the Joint Programme Vision, Roadmap and Strategic Research Agenda:

- ▶ Collaborative RD&D Work Packages;
- ▶ Networking Work Packages;
- ▶ Knowledge Management Work Packages;
- ▶ Knowledge Interaction with Civil Society Work Package;
- ▶ Overall Management and dissemination Work Package.



When developing the content of an EJP 5-year Implementation Phase, the activities shall be defined on a needs-driven basis and prioritised by the Beneficiaries themselves. The activities must:

- Contribute to the Joint Programme Vision
- Be in line with the Strategic Research Agenda
  - Activities should have an important strategic impact with respect to the implementation of the SRA
  - Activities should address one or several scientific/technical/horizontal sub-domains(s)
- Have a **sufficient level of common interest** , i.e. involve at least **5 countries from EU Member-States or associated countries and 2 categories of actors** (An activity that only addresses needs of one category of actors (i.e. only WMOs, only TSOs or only REs) is not eligible)
- **Demonstrate the expected knowledge gains** of the activity vis-a-vis the state of the art (taking into account past and ongoing EC projects) and/or expected impacts
- Must necessarily be achievable, practicable and complementary (i.e. avoid duplication) to other ongoing activities, e.g. scope should be complementary to ongoing EC EURATOM projects, to OECD - NEA, IAEA and of other international organizations and fora.

The table below describes the type of actions (tasks) for each activity:

Type of activities	Type of actions	Examples of possible deliverables
Collaborative RD&D	Actions aiming to establish new knowledge, to consolidate/refine existing knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. Basic and applied research, technology development and integration, testing and validation in a research laboratory or simulated environment.	State-of-the-art (initial and update), documents, reports, demonstrator, pilot, prototype, plan designs, software, technical diagram, etc.
Networking	Actions consisting in addressing methodological/strategical issues and sharing experience on challenging issues that are common to several programmes in different countries	Reports, strategic studies, generic methodologies, best practices...
Knowledge Management	Actions consisting of preserving, capitalizing and transferring generated knowledge	State-of-knowledge documents; Guidance documents, Training delivery and materials...
Knowledge Interaction with Civil Society	Actions consisting of engaging Civil Society Organisations so that they can express their expectations and bring their views in the Joint Programme. These actions will be facilitated by Civil Society Experts.	Reports, documents...
Management	Scientific and technical coordination/integration of the overall EJP (monitoring EJP progress, day-to-day administrative, financial and legal management, reporting exercises, interactions with EC, communication and disseminations activities).	Management tools, Periodic reports, financial statements, websites...

The table below shows how the different type of activities will contribute to reach the expected impacts of the Joint Programme.

<p>Contribute to the responsible and safe management and disposal of radioactive waste, including the safe start of operation of the world's first geological disposal facilities for high-level and long-lived radioactive waste / spent nuclear fuel as well as improvement, innovation and development of science and technology for the management and disposal of other radioactive waste categories.</p>	<div style="display: flex; flex-direction: column; align-items: flex-end;"> <div style="display: flex; gap: 10px;"> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">RD&amp;D</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #fff9c4;">Networking</div> </div> <div style="border: 1px solid green; border-radius: 10px; padding: 5px; background-color: #e8f5e9; margin-top: 10px;">KM</div> </div>
<p>Help increasing/maintaining/consolidating scientific and technical knowledge supporting the stepwise long-term management and disposal of radioactive waste, including the necessary predisposal steps</p>	<div style="display: flex; gap: 10px;"> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">RD&amp;D</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #fff9c4;">Networking</div> </div>
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<p>Contribute to continuously improve and optimize waste management routes and disposal solutions</p>	<div style="display: flex; gap: 10px;"> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">RD&amp;D</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #fff9c4;">Networking</div> </div>
<p>Contribute to address evolving regulatory concerns</p>	<div style="display: flex; gap: 10px;"> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">RD&amp;D</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #fff9c4;">Networking</div> </div>
<p>Help bridge the risk of shortage of the skilled, multidisciplinary human resources needed to develop, assess, license and operate radioactive waste management and disposal facilities, in view of the long lead-times and the intergenerational operational time-spans</p>	<div style="display: flex; flex-direction: column; align-items: flex-end;"> <div style="display: flex; gap: 10px;"> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">RD&amp;D</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #fff9c4;">Networking</div> </div> <div style="border: 1px solid green; border-radius: 10px; padding: 5px; background-color: #e8f5e9; margin-top: 10px;">KM</div> </div>
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<p>Enhance cross-fertilization, interaction and mutual understanding between the different actors on key areas of general interest (technical and societal issues as well as of risk and uncertainties)</p>	<div style="display: flex; flex-direction: column; align-items: flex-end;"> <div style="display: flex; gap: 10px;"> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">RD&amp;D</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #fff9c4;">Networking</div> </div> <div style="display: flex; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid green; border-radius: 10px; padding: 5px; background-color: #e8f5e9;">KM</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">KICS</div> </div> </div>
<p>Foster a better transfer of acquired scientific and technical public knowledge and especially towards Member-States at early stage of advancement and across generations of experts.</p>	<div style="border: 1px solid green; border-radius: 10px; padding: 5px; background-color: #e8f5e9; width: fit-content; margin: auto;">KM</div>
<p>Foster efficient use of the RD&amp;D resources at EU level by sharing and advancing existing knowledge, facilities and infrastructure rather than repeating and duplicating efforts</p>	<div style="border: 1px solid green; border-radius: 10px; padding: 5px; background-color: #e8f5e9; width: fit-content; margin: auto;">KM</div>
<p>Support Member-States in implementing RD&amp;D, developing skills and providing for transparency in order to develop solutions for their radioactive waste (cf. Waste Directive articles 8, 10 and 12.1(f)).</p>	<div style="display: flex; flex-direction: column; align-items: flex-end;"> <div style="display: flex; gap: 10px;"> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">RD&amp;D</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #fff9c4;">Networking</div> </div> <div style="display: flex; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid green; border-radius: 10px; padding: 5px; background-color: #e8f5e9;">KM</div> <div style="border: 1px solid gray; border-radius: 10px; padding: 5px; background-color: #f0f0f0;">KICS</div> </div> </div>

## 9. Joint Programme - H2020 EJP Cofund instrument

After a comparison of the two main existing EC co-funding instruments for joint research actions - ERA-NET Cofund and EJP Cofund - it appears that the EJP Cofund is the most suitable EC co-funding instrument for the JP on RWMD (JOPRAD Deliverable 3.2).

The sections below detail the duration of a Cofund action, the participation rules, the cofunding rate and funding mechanisms as well as the eligible costs, and are based on JOPRAD Deliverable 5.2.

### 9.1 Duration

The EJP Cofund instrument allows EC to co-fund **5-year programme of activities**. Therefore, SRA will be deployed through **5-year implementation phases**.

### 9.2 Participation rules

#### 9.2.1 Generic rules for participation

Within EJP Cofund instrument, participation as **Beneficiary** is limited to legal entities (from at least 5 Member States or associated countries) that can fully participate through their contribution of national/regional programmes, i.e. legal entities owning (*Programme Owner*, Ministry/regional authority) or managing (Programme Manager mandated by a *Programme Owner*) national research and innovation programmes.

Beneficiaries can call for **Linked Third Parties** (LTP) to carry out part of the work plan in the WPs. A Linked Third Party is an organisation to which a Beneficiary has a pre-existing legal relationship (options are: Memorandum of Understanding, agreement, contract, affiliation, joint research unit...) which is not based on a contract for the purchase of goods works or services.

Other legal entities (such as association) may participate if justified by the nature of the action, in particular entities created to coordinate or integrate transnational research efforts.

Reference documents:

- H2020 Participation rules
- EJP Cofund Annotated Model Grant Agreement

#### 9.2.2 Specific participation rules for the JP on RWMD

In the early phase of JOPRAD and given that the RWMD community has already been sufficiently integrated since several years, the option for an internal implementation of activities has been retained, meaning here that the EJP Beneficiaries are expected to be directly the RD&D actors, and not funding agencies as it is the case in other EJP.

As a consequence, the Participation as Beneficiary is limited to **legal entities that have a national responsibility to carry out research in support of the national RWMD programme** either as Programme Owner or as Programme Manager (for the latter, there is a need for a confirmation by the Programme Owner). Typically, the following actors:

- **Waste Management Organisations** (WMOs) whose mission covers the management and disposal of radioactive waste



- **Technical Support Organisations** (TSOs) carrying out activities aimed at providing the technical and scientific basis for notably supporting the decisions made by a national regulatory body
- **Nationally funded Research Entities** (REs) which are involved in the R&D of radioactive waste management, under the responsibility of Member States.

### 9.3 Cofunding rate and form of grant

With an EJP Cofund, the Euratom Programme contribution takes the form of a **grant** consisting of reimbursement of the eligible costs related to the implementation of the actions (Work Packages). In EURATOM WP2018, the cofunding rate for EJP on RWMD has been set at 55% of the total eligible costs. There will be **no cash collection** from the Programme Owners/ Programme Managers to be put in a “common pot”. Therefore, participants (Beneficiaries and Linked Third Parties) shall be able to bear the costs that are not funded by EC, or to find other co-funding sources.

### 9.4 Eligible costs

- Direct Personnel costs (unit or actual costs)
- Other Direct costs:
  - o Travel
  - o Equipment
  - o Costs of large research infrastructure
  - o Other goods and services
- Indirect costs (flat rate: 25% of direct costs)
- Costs for subcontracting

that are necessary to implement the actions that will be included in the Description of Action (Annex 1 of the Grant Agreement). See Article 6 of the [Grant Agreement Model](#)

## 10. RWMD EJP - Funding mechanisms

Under an EJP Cofund tool, the Euratom contribution takes the form of a **grant** consisting of **reimbursement (55%) of the eligible costs related to the implementation of the activities (Work Packages)**.

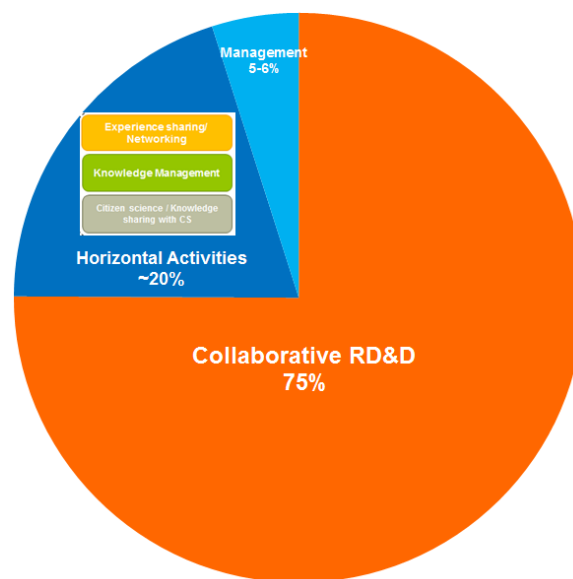
The sections below describe the different funding mechanisms as they are in the latest scenario (Associated JOPRAD Deliverable: **Deliverable 5.2**).

### 10.1 Distribution of EC funding between the different type of activities

For the Joint Programme on RWMD, the budget allocation between the different categories of activities has been initially set as follow:

- ▶ at least 75% of the EC contribution to RD&D activities;
- ▶ about 20% of the EC contribution to Horizontal activities;
- ▶ max 6% of the EC contribution to management.

This can be adjusted during the development of an 5-year implementation phase.



### 10.2 Internal funding rates for each type of activity

Under an EJP Cofund action, the Beneficiaries are free to redistribute EC co-funding as they will decide it, i.e. **internal funding rates** can be set for the different types of activities. For the future EJP on RWMD, the latest scenario is as follows:

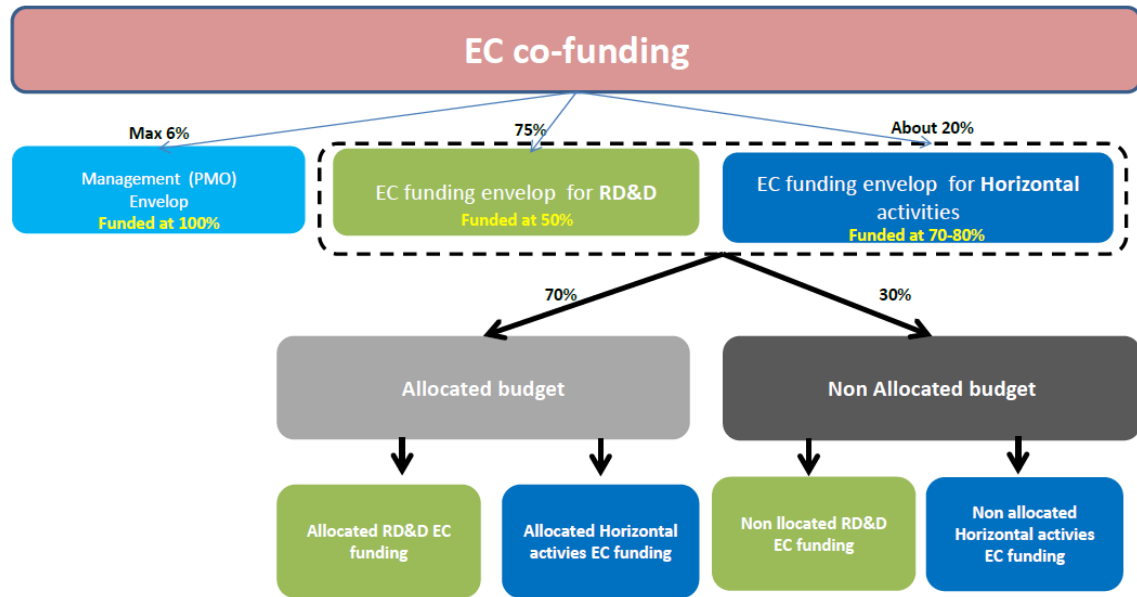
Type of activity	Indicative internal rate
Collaborative RD&D	50 %
Horizontal activities	70-80 % (it will be adjusted so that RD&D funding rate does not go under 50%)
Programme Management Office	100 %

### 10.3 Budget flexibility

An EJP must remain flexible in order to i) **include new activities** in order to be as needs-driven as possible and ii) **integrate new Actors**, i.e. actors that would not be mandated on time for the submission of the EJP proposal but will be mandated in the course of EJP, shall be able to join the Consortium as Beneficiary and contribute to the activities.

In order to meet the principles of flexibility and inclusiveness, 70% of the budget shall be allocated at the time of the submission to EC, meaning that remaining 30% shall be allocated during the course of the EJP in order to integrate new activities or to include any new mandated actors, in accordance with the governing mechanisms of the EJP.

## 10.4 Overview of funding streams of a EJP implementation phase

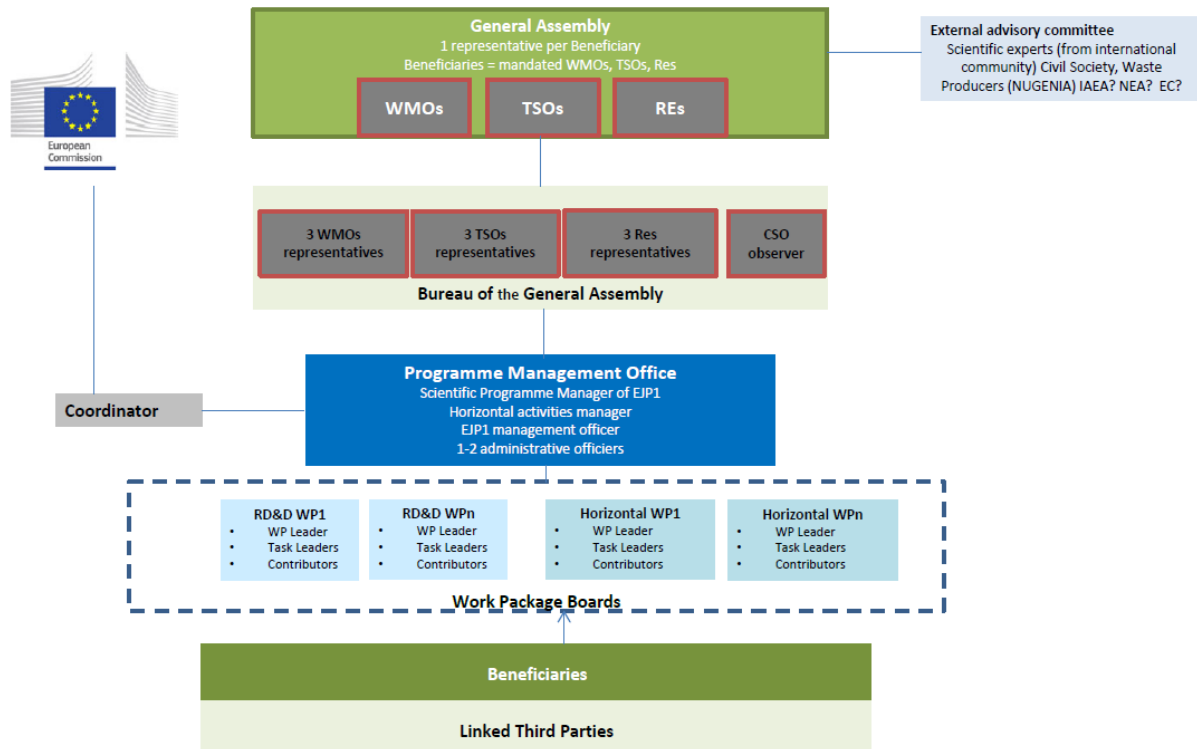


## 11. Joint Programme Governance

An EJP 5-year implementation phase will be ruled by two contractual documents:

- The Grant Agreement with EC (See Model)
- The Consortium Agreement

Governance rules and structures will be described in the Consortium Agreement, in alignment with the provisions of the Grant Agreement. Based on JOPRAD outcomes, as well as feedback from EC projects' governance structure, and the on-going EJP EUROFUSION, the latest version of the discussed governance scheme is as follow:



### 11.1 Governance Bodies

#### 11.1.1 General Assembly

The General Assembly is the ultimate decision-making body of the consortium.

**Composition:** one representative per beneficiary

**Role:** The General Assembly shall be free to act on its own initiative to formulate proposals and take decisions in accordance with the procedures set out in the Consortium Agreement. In addition, proposals made by the Bureau of the General Assembly and by the Programme Management Office shall also be considered and decided upon by the General Assembly.

The following decisions shall be taken by the General Assembly:

- Approval of the Annual work plan (incl. budget) (incl. approval of new WPs within « 2nd wave »)
- Approval of possible updates of the strategic research agenda
- Approval of synthetic annual progress report
- Proposal for changes to Annex I (Work Plan) and II (Estimated budget) of the Grant Agreement to be agreed by the Commission
- Modification of the attachments of the Consortium Agreement

- Approval for management procedures (incl. Financial procedures, procedures for preparing the reporting required under the Grant Agreement)
- Approval of the internal communication plan
- Approval of publication procedure
- Approval of annual dissemination plan
- Approval of the yearly budget for the PMO
- Approval of Financial procedures (budgeting and payments)
- Approval of procedures for preparing the reporting required under the Grant Agreement
- Approval of procedures concerning the composition of the EAB
- Entry of a new party/Withdrawal of a party
- Identification of a breach by a Party of its obligations under the Consortium Agreement or the Grant Agreement
- Declaration of a Party to be a defaulting party
- Remedies to be performed by a defaulting party
- Termination of a defaulting party's participation in the Consortium and measures thereto
- Approval of the consortium quality management system
- Decision on the consequences in case of a force majeure or exceptional circumstances
- Proposal to the Commission for a change of the Coordinator
- Proposal to the Commission for suspension of all or part of the Programme
- Proposal to the Commission for termination of the Programme and the CA

The General Assembly defines and regularly reviews the overarching strategy as laid down by the Joint Programme Strategic Research Agenda and Vision necessary to implement the EJP1 Work Plan in consistency with the Grant Agreement. The details of the strategy and Work Plans, and any supporting policies and procedures, are elaborated by the Bureau of the General Assembly and/or the Programme Management Office.

#### **Voting rights**

The weight of the voting rights will be defined in the Consortium Agreement. It will be discussed between Mandated Actors in a later stage in the RWMD EJP1 proposal development phase.

The voting rights will be described in the Consortium Agreement.

**Meeting:** one annual meeting

Additional meetings may be required. Extraordinary meetings for urgent issues may be convened at any time upon written request.

The annual meeting of the General Assembly will be open to non-voting observers such as Linked Third Parties, Civil Society participants and representatives.

#### **11.1.2 Bureau of the General Assembly**

**Role:** The Bureau is accountable to the General Assembly. It proposes documents and decisions to be taken by the General Assembly, it prepares the agenda of the General Assembly, acts on behalf of the General Assembly in the detailed interactions with the Programme Manager during the elaboration of proposals, for subsequent decision by the General Assembly, defining the Consortium Strategy, Work plans, policies and procedures.

**Composition:** The Bureau will be composed of:

- Three WMOs' representatives (elected by mandated WMOs)
- Three TSOs' representatives (elected by mandated TSOs)
- Three REs' representatives (elected by mandated REs)
- One CSO observer (elected by the CSOs)

The designation of these representatives will be done within each “community” of actors. WMOs will elect their 3 representatives, TSOs will elect their 3 representatives and REs will elect their 3 representatives. The Bureau members shall represent the interest of their own community and not the interest of their respective organisation.

The composition of the Bureau shall be reviewed at mid-term of the 5-year implementation phase.

**Meetings** at least 4 per year

Project Management Office and additional experts shall also participate to the Bureau meeting as needed.

### 11.1.3 Programme Management Office (PMO)

**Role:** The PMO is in charge of scientific and technical coordination of the programme, as well as the day-to-day management, and dissemination and communication activities. It is responsible to the General Assembly for the overall top-level planning, coordination, implementation of the EJP Work Plan in line with the strategy agreed by the General Assembly. It interacts with EC and key stakeholders: national programmes, international organisations/programmes, Citizen Science Organisations, science/policy interface.

**Composition:**

It will be composed of:

- Scientific Programme Manager of EJP1
- Horizontal activities coordinator
- EJP1 management officer

The PMO will possibly be housed in the premises of the Coordinator, to which staff from the Beneficiaries can be seconded on a full-time basis.

PMO shall organise regular meetings (at least twice a year) gathering all the WP Leaders to ensure interactions between the projects and ensuring joint programming of activities.

### 11.1.4 Work Package Boards

For each Work Package a WP Board is set-up. It is composed by the Work Package Leader and the task leaders. The WP Board ensures that the project is progressing according to the agreed specifications, milestones and planning. The WP Board is also responsible to report the work progress, any WP deliverables and eventual modifications of the WP work plan to the Programme Management Office.

### 11.1.5 External advisory board

External advisory board (EAB) advises the General Assembly on strategic and implementation issues related to the EJP Work Plan and its coherence with respect to the Strategic Research Agenda and Vision.

**Composition:**

- Scientific and technical experts at international level
  - Civil Society Representatives
- The EAB will be invited to annual meeting and shall provide external advice and recommendation for the implementation of the EJP.

**Coordinator** is the legal entity acting as the intermediary between the Parties and the European Commission.

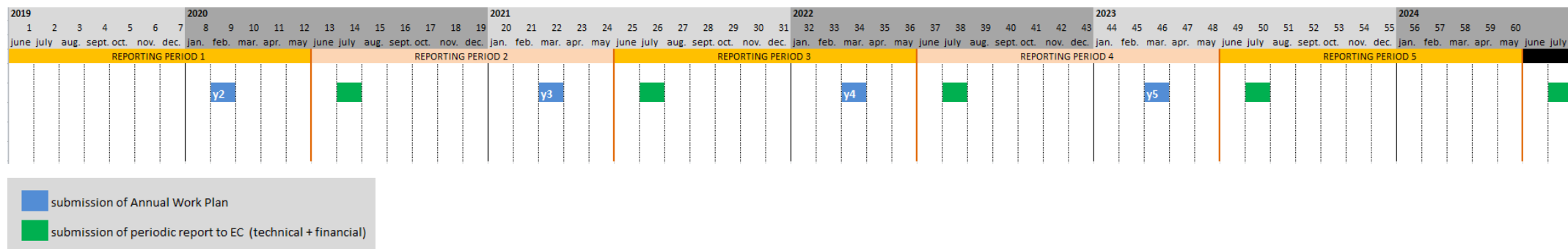
## 11.2 Approval of the Annual Work Plan

Under an EJP implementation phase, the Annual Work Plan is a regular deliverable for the implementation of the EJP on a rolling basis. It provides the detailed description of activities for the first twelve months (AWP1, submitted to EC together with the EJP1 proposal) and each successive twelve-month periods of the EJP (AWP2, AWP3, AWP4 and AWP5).

The Annual Work Plan contains the details of the implementation of the action with regard to the integration of the Annual Work Plan under the overall EJP, set of activities, annual deliverables, specific resources and costs of the beneficiaries – organised in a table format – as well as a detailed narrative description of the work.

The programmed activities are those planned to be carried out in full or simply initiated during the relevant twelve-month reporting period. Depending on the detail of Annex 1, it is not excluded that sections of Annex 1 and the Annual Work Plan contain the same information.

The figure below shows the timeline when AWP must be approved by the General Assembly and submitted to EC, as well as for periodic reports.





## 12. Conclusion

The JOPRAD Deliverable 5.4 aims to describe the overall scheme of the Joint Programme, and takes stock of all deliverables produced in the framework of the JOPRAD project, and includes elements considered as the necessary founding basis, developed up to an advanced status of readiness for use, for the implementation and functioning of a European Joint research Programme in radioactive waste management and disposal (RWMD). This deliverable shall be used as a founding document for the future development of an EJP implementation proposal.