Responsive hub for long term governance to destress the Mediterranean Sea from chemical pollution (RHE-MEDiation)

D7.5 – Data Management Plan first issue

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LIST OF ACRONYMS AND ABBREVIATIONS

CA	Consortium Agreement
DMP	Data Management Plan
EC	European Commission
EMODnet	European Marine Observation and Data Network
GA	Grant Agreement
GDPR	General Data Protection Requirements
HW	Hardware
WP	Work Packages

APPLICABLE DOCUMENTS

[AD1] European Commission, Directorate-General for Research & Innovation, Grant Agreement Number 101113045 The RHE-MEDiation project, 2023

[AD2] RHE-MEDiation Consortium Agreement, version 1.0

1. INTRODUCTION

The present report has been produced in the framework of WP7 (Deliverable (D) 7.5) of the RHE-MEDiation project contract [AD1].

The main goal of this deliverable is to outline, since the project start, how research data will be handled both during and after the project development and outreach. It identifies key actions and strategies to ensure that research data are of a high-quality, secure, sustainable, and – to the extent possible – accessible and reusable.

In particular, the Data Management Plan (DMP) is initiated and maintained as a live document by beneficiaries to achieve the following objectives:

- deposit the data produced within or collected for the purposes of the project in recognised open research data repositories;
- take measures to allow any user to access, mine, exploit, reproduce and disseminate the data in accordance of the prescribed rules;
- provide information about tools and instruments eventually necessary for validating the results (providing the tools and instruments themselves whenever possible, or alternatively providing information, via the chosen repository, about the tools and instruments necessary for validating the results, such as specialized software or code, algorithms, analysis, etc.).

D7.5 represents the first release of RHE-MEDiation project's DMP at Month (M) 6, whilst D7.7, on M36, will constitute the final issue of the project's DMP [AD1].

In particular, DMP updates will incorporate, among others:

- changes in information about datasets indicated in this DMP given that the project is at its earliest stage.
- new data;
- changes in the Consortium policies (e.g., new innovation potential, decision to file for a patent);
- changes in the Consortium composition and external factors (e.g., new consortium members joining or old members leaving).

1.1 Open Science in Horizon Europe

Horizon Europe is a continuation of Horizon 2020 programme; it integrates a more complete approach of the open science concept compared to its predecessor [R3]. For instance, unlike Horizon 2020 publication fees are reimbursable only if publishing venue offers full open access. Similarly, in Horizon Europe the following rules are mandatory:

- Open access to peer-reviewed scientific publications "immediate" and related research data "as soon as possible";
- Measures to ensure reproducibility of research outputs;
- Open access to research data under the principle "as open as possible, as closed as necessary" (but exploitation, protection of IPR, security and privacy rules have a higher priority);
- Research output management (DMP);
- Responsible management of research data and metadata of all research outputs (publications, data, software, algorithms, protocols, models, workflows etc.) in line with the FAIR (Findable, Accessible, Interoperable and Re-usable) principles;
- Digital or physical access to the results needed to validate the conclusions of scientific publications;
- In cases of public emergency, immediate open access to all research outputs, if requested by the granting authority;

Whilst in Horizon Europe projects, those considered recommended are, involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science); early and open sharing of research: Preregistration, registered reports, preprints, etc.; and Participation in open peer-review [R3].

1.2 Identification of the document and its structure

The present document is identified as "D7.5 Data Management Plan, first issue". It describes the RHE-MEDiation's strategy to sustain open access to research data, according to the RHE-MEDiation Contract [AD1].

In addition to make data available if needed to validate the results presented in scientific publications, the document also describes how the RHE-MEDiation Consortium is promoting the provision of open-access to other data on a voluntary basis, whenever identified as not sensitive or subject to protection.

The contents of the document are organized according to the following sections:

- Section 1 introduces the present document.
- Section 2 describes the contents of the DMP.
- Section 3 presents the DMP review process and related planning.
- Section 4 synthetizes the conclusions of the document.
- Section 5 lists the quoted references.

2 DATA MANAGEMENT PLAN

The RHE-MEDiation project DMP illustrates the strategy to manage data generated and collected during the project development with the aim to optimize access to and re-use of research data. The DMP is then necessarily a 'living' document and as such it is reviewed and updated at regular intervals. In particular, the DMP addresses the data management life cycle for all datasets to be collected, processed and/ or generated by the research project. It is then expected to cover:

- data handling during and after the project;
- data types and formats that will be generated / collected;
- methodologies and standards to be applied;
- data sharing and related modalities to make it accessible;
- data accuracy verification and preservation;
- legal requirements (intellectual property rights, GDPR);
- costs of preservation; if any
- data security and ethics;
- data retention periods.

The need to update the DMP along the project evolution is strictly linked to the verification of the applicability of the DMP to the generated data. RHE-MEDiation is expected to produce diverse outputs, including:

- design data, on different themes (micro-algae photo-bioreactor, nutrient and pollutant monitoring, sensors data management and integration with digital models, automation and control, logistics, operations, and maintenance etc.);
- data measurements;
- technical evidence and observations;
- protocols and procedures for unregulated chemicals characterization;
- results of surveys;
- scientific articles reporting RHE-MEDiation results, etc.

The ample range of data requires a DMP building on existing open science resources that are interoperable and trusted. Two Annexes are included in the DMP in this regard. Annex A consists of a Glossary of useful resources that are relevant to data management in the context of Horizon Europe projects, including a list of open-access resources to support beneficiaries in making their research and data openly accessible. Annex B includes a comprehensive description of RHE-MEDiation projects datasets.

2.1 DMP Principles

The DMP of RHE-MEDiation is developed within the WP 7 (Dissemination, communication and exploitation of projects results), and in particular it represents the output of the Task 7.1 (see, RHE-MEDiation Gantt chart, *Figure 1*)

WP/Task		LEADER	DURATION	From M	to M
WP1	**RHE-MEDiation Hub Ecosystem development**	RINA-C	36	1	36
Task 1.1	Setting-up of demo-sites network strategy	RINA-C	2	1	2
Task 1.2	Development collaborative actions with local stakeholders to design the demo-site evolution	EYDAP	3	3	5
Task 1.3	Up-scaling process of liaison with authorities and policy makers of the demo-sites member state from local to national	TUBITAK	3	5	7
Task 1.4	Fostering cross-cutting actions to implement the EC Mission implementation charter	RINA-C	30	7	36
Task 1.5	Deploying and participating to common initiative with European Networks, Living labs and Blue Parks to engage citizens	RINA-C	30	7	36
Task 1.6	Establishment of knowledge transfer events with Green Deal and HE funded projects to set-up a basket of selected technologies	CCMAR	34	3	36
Task 1.7	Cooperation with PRCP4DLUC CSA, the Mediterranean Lighthouse, and other Mission Dodies in addressing tools for co-design and co-implementa	CNR	25	12	36
WP2	**RHE-MEDiation technologies design for solutions up-scale**	BLUEMATER	12	1	12
Task 2.1	Bio-remediation solutions	BLUEMATER	8	1	8
Task 2.2	Monitoring, control and measurement solutions	MDM	10	3	12
Task 2.3	Data management and processing for the Ocean Digital Twin	RINA-C	10	3	12
Task 2.4	Social freedom to operate and technology appraisal	BLUEMATER	12	1	12
WP3	**RHE-MEDiation piloting: implementation and setting up**	HCMR	5	9	13
Task 3.1	Italian demo-site characterisation, procurement, and installation of technologies	CNR	5	9	13
Task 3.2	Greek demo-site characterisation, procurement, and installation of technologies	HCMR	5	9	13
Task 3.3	Turkish demo-site characterisation, procurement, and installation of technologies	TUBITAK	5	9	13
WP4	**RHE-MEDiation piloting: validation, demonstration and data monitoring follow-up**	EYDAP	13	14	26
Task 4.1	Italian demo-site testing, performance evaluation and endurance	CNR	13	14	26
Task 4.2	Greek demo-site testing, performance evaluation and endurance	EYDAP	13	14	26
Task 4.3	Turkish demo-site testing, performance evaluation and endurance	YURT MUH	13	14	26
WP5	**Development of replication activities and solution implementation roadmap**	CNR	15	22	36
Task 5.1	Identification of interest and tender phase setting-up	CNR	3	22	24
Task 5.2	Best candidates selection and setting-up of Third Parties agreement	CNR	3	25	27
Task 5.3	Deployment of co-creation activity of the selected Third Parties and strategy planning	RINA-C	6	28	33
Task 5.4	Up-scaling of the defined roadmaps at national level	CNR	4	33	36
WP6	**Integrated approach to Business, Social and Governance Innovation based on RHE-MEDiation technologies**	BLUEMATER	35	2	36
Task 6.1	Quantification through impact modelling and appraisal of market perspectives	BLUEMATER	32	2	33
Task 6.2	Evaluation of long-term social benefits through s-LCA and LCC combined models	RINA-C	20	14	33
Task 6.3	Scaling up governance through bottom-up knowledge transfer from local, through national, to European level	EMB	10	27	36
WP7	**Dissemination, Communication and Exploitation of projects results**	CNR	36	1	36
Task 7.1	Dissemination and Communication strategy	CNR	5	1	36
Task 7.2	Exploitation activity & IPR management	HCMR	35	2	36
Task 7.3	Dissemination activity	TUBITAK	32	5	36
Task 7.4	Communication and awareness raising activity	RINA-C	36	1	36
Task 7.5	Technology outreach	RINA-C	25	12	36
WP8	**Project and hub governance, ethical and social assessment, regulatory aspects**	RINA-C	36	1	36
Task 8.1	Overall project management and risk planning	RINA-C	36	1	36
Task 8.2	Administrative and financial management	RINA-C	36	1	36
Task 8.3	Ethical and social issues management	RINA-C	36	1	36
Task 8.4	Regulatory assessment and contribution to EC Directives	RINA-C	36	1	36

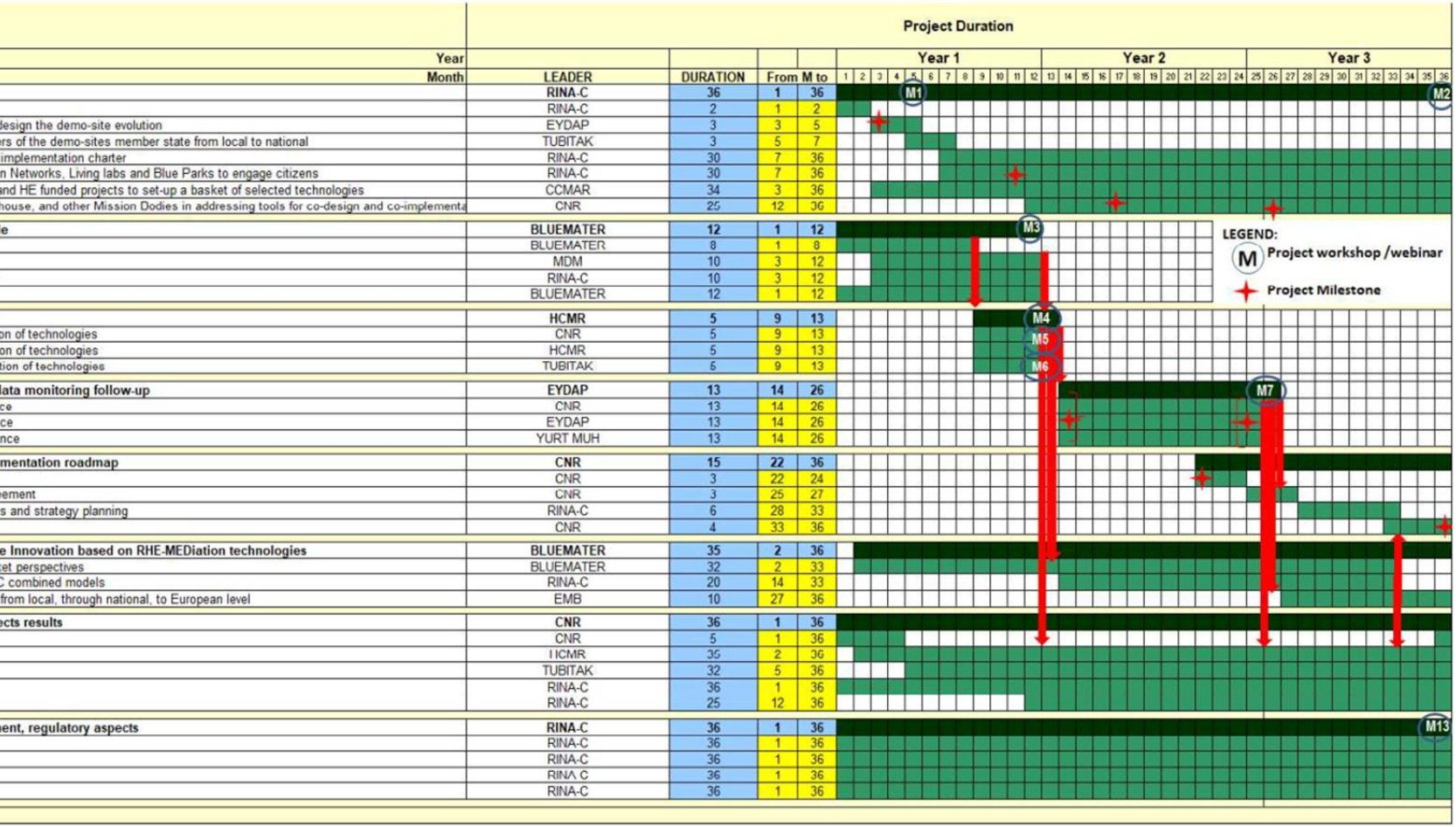

Figure 1. GANTT Chart of RHE-MEDiation development plan

It is articulated around the following key points:

- This DMP has been prepared by considering the online templet at [R4].
- The elaboration of the DMP allows RHE-MEDiation partners to address all issues related with IP protection and data.
- The RHE-MEDiation Consortium has to comply with the requirements of the General Data Protection Regulation (EU) 2016/679 ("GDPR") on data protection and privacy for all individuals within the European Union (EU) and the European Economic Area (EEA);
- Type of data, storage, confidentiality, ownership, management of intellectual property and access: procedures that are implemented for data collection, storage, access, sharing policies, protection, retention and destruction are in line with EU standards as described in the Grant Agreement, [AD1], and the Consortium Agreement, [AD2], particularly Articles 20, Keeping Records — keeping records and supporting documents; Article 16, Intellectual Property Rights (IPR)-background and Results-access rights and rights of use, Article 13, Confidentiality and security; Article 15, Data protection; Article 36, Communication between the parties, and "Annex I – Description of the Action" of the Grant Agreement, [AD1].

2.2 The RHE-MEDiation Data Management Policy

The RHE-MEDiation DMP observes FAIR (Findable, Accessible, Interoperable and Reusable) Data Management Protocols as one input. For each data set collected, processed and/or generated in the project the following elements will be addressed:

- **Dataset reference and name** – Internal project identifier for the data set to be produced. This follows the format: WP Number_Task Number__Partner Name_Data Subset_Dataset Name_Version__Date of Storage, where the project name is RHE-MEDiation, the Partner Name represents the name of the data custodian (WP Lead/ Task Leader).
- **Dataset description** - Description of the data that is generated or collected, including its origin (in cases where data is collected), nature and scale and to whom it could be useful outside the Consortium, and whether it underpins a scientific publication. Information on the existence (or not) of similar data and the potential for integration and reuse.
- **Standards and metadata** - Reference to existing suitable standards. If these do not exist, an outline on how and what metadata is developed.
- **Data sharing** - Description of how data is shared, including access procedures, embargo periods (if any), outlines of technical mechanisms for dissemination and necessary software and other tools for enabling reuse, and definition of whether access is open or restricted to specific groups. Identification of the repository where data is stored, if already existing and identified, indicating the type of repository (institutional, standard repository for the discipline, etc.). In cases where the dataset cannot be shared, the reasons for this are specified (e.g. ethical, rules of personal data, intellectual property, commercial, privacy-related and, security-related).
- **Archiving and preservation (including storage and backup)** - Description of the procedures that are put in place for long-term preservation of the data, including an indication of how long the data should be preserved, the approximate end volume, associated costs, and how these are planned to be covered.

2.3 Data summary

RHE-MEDiation will generate and collect diverse data outputs, as a result of: 1) stakeholders engagement activities 2) physico-chemical and pollutant sampling and monitoring 3) training of ML algorithms to identify

and classify pollutants 4) Interface development for transferring data from site up to a digital ocean model 4) design, installation and procurement for a microalgae photobioreactor based system.

The organization of data collection and most convenient format is responsibility of the relevant Task Leaders, and these are integrated in a database hosted on the project repository (WP7.4). A protocol for unique identifiers such as DOI is established (OpenAIRE+ and ZENODO infrastructures) will facilitate data upload to the database.

A detailed description of the type and format of RHE-MEDiation data expected to be generated and collected is given in Annex B. Below is a short summary of the 20 datasets identified for RHE-MEDiation (listed by Dataset number and Task number):

1. **Dataset 1, T 1.2,** 'Development collaborative actions with local stakeholders to design the demo-site evolution' which contains data generated during the engagement activities with local stakeholders to co-establish the social empowerment and shared accountability concerning the needs of remediation, its governance and evolution of the demo site (Surveys, information about stakeholders and results of the analysis).
2. **Dataset 2, T 1.3,** 'Liaison with authorities and policy makers (from local to national) of the demo-sites member state' which contains data generated during the engagement activities (Surveys, questionnaires, information about stakeholders and results of the analysis).
3. **Dataset 3, T2.1,** 'Bio-remediation solutions' which contains data generated at each demo-site pertaining to the preliminary physico-chemical analysis, concentration of contaminants. Also, the composition of the microbial consortium and design of the micro-algae photobioreactor.
4. **Dataset 4, T2.2,** 'Monitoring, control and measurement solutions' which contains generated data on the design of the chemical substances monitoring system composed of fixed and mobile stations. In addition, data will be generated when training the ML algorithms to identify pollutants.
5. **Dataset 5, T2.3,**' Data management and processing for the Ocean Digital Twin' which is related to the interface that will be designed to support pollutant monitoring data transfer from demo-sites to EMODnet.
6. **Dataset 6, T2.4,** 'Social freedom to operate and technology appraisal', which consists of data generated during the in-depth analysis about the social impact and acceptance of the micro-algae-based technology for use in the chemical pollution remediation, including a trade off with other competing technologies available on market.
7. **Dataset 7, T3.1,** 'Italian demo-site characterisation, procurement, and installation of technologies', which will consist of data generated due the full chemical characterization, design evaluation for the integration of the tertiary treatment for Citrello channel or/and the spring water joining Mar Piccolo or/and the sea water of Mar Piccolo. Also, the purchasing/manufacturing of components required for the final configuration assembly, the commissioning, and preliminary functional test will generate data.
8. **Dataset 8, T3.2,** 'Greek demo-site characterisation, procurement, and installation of technologies' is related to data generated as a result of the full chemical characterization of the effluent of Thriasio WWTP and the sea of Elefsis bay; evaluation of design for the integration of the micro-algae-based system as tertiary treatment for the effluents of the WWTP and the purchasing/manufacturing of components required for the final configuration assembly, the commissioning, and preliminary functional test.
9. **Dataset 9, T3.3,** 'Turkish demo-site characterisation, procurement, and installation of technologies will consist of data generated because of the activities, full chemical characterization of the effluent of Dilovasi WWTP and the sea of Izmit bay will be carried out incorporating existing data and defining

target contaminants. Evaluation of design for the integration of the Micro-algae-based system as tertiary treatment for the effluents of the WWTP and the purchasing/manufacturing of components required for the final configuration assembly, the commissioning, and preliminary functional test.

10. **Dataset 10, T4.1,** 'Italian demo-site testing, performance evaluation and endurance' is related to the data generated as a result of the activities; Monitoring of nutrient input to the Microalgae Photobioreactor, monitoring of contaminants removal by the Micro-algae photo-bioreactor, monitoring of biological composition of the microalgal consortia, monitoring of pollutant levels in the Mar-Piccolo Sea and transferring this data to EMODnet.
11. **Dataset 11, T4.2,** 'Greek demo-site testing, performance evaluation and endurance' is related to the data generated as a result of the activities; Monitoring of nutrient input to the Micro-algae Photobioreactor, monitoring of contaminants removal by the Micro-algae photo-bioreactor, monitoring of biological composition of the microalgal consortia, monitoring of pollutant levels in the Elfefsis bay and transferring this data to EMODnet.
12. **Dataset 12, T4.3,** 'Turkey demo-site testing, performance evaluation and endurance' is related to the data generated as a result of the activities; Monitoring of nutrient input to the Micro-algae Photobioreactor, monitoring of contaminants removal by the Micro-algae photo-bioreactor, monitoring of biological composition of the microalgal consortia, monitoring of pollutant levels in the Izmit bay and transferring this data to EMODnet.
13. **Dataset 13, T5.1,**' Identification of interest and tender phase setting-up' which consists of the development of the tender document that will be developed for the associated regions.
14. **Dataset 14, T5.2,** 'Best candidates' selection and setting-up of Third Parties agreement' consists of the sub-grant contracting document that will be prepared and issued. In addition, KPIs will be established at sub-contract level, to which the payment will be associated.
15. **Dataset 15, T5.3,** 'Deployment of co-creation activity of the selected Third Parties and strategy planning' consists of data generated as part of the preliminary design assessment for a potential establishment at the site under analysis and developing a work timetable and roadmap for future implementation, including specification of governance a financial process to be mobilised, stakeholders to involve, permissions to be achieved.
16. **Dataset 16, T6.1,** 'Quantification through impact modelling and appraisal of market perspectives' consists of data generated as a result of the impact modelling and analysis.
17. **Dataset 17, T6.2,** 'Evaluation of long-term social benefits through s-LCA and LCC combined models', consists of data generated because of the Life Cycle Costing evaluation (accordance with ISO 15686-5:2008 and the Code of Practice suggested by SETAC) and the Social Life Cycle Assessment (according to the recent UNEP/SETAC Guideline (2020))
18. **Dataset 18, T6.3,** 'Scaling up governance through bottom-up knowledge transfer from local through National to European level' which is associated to the development of a comprehensive policy document to replicate the RHE-MEDiation results to other basins.
19. **Dataset 19, T7.4,** 'Communication and awareness raising activity' that is associated with the design of Communication materials packages.
20. **Dataset 20, T8.4,** 'Regulatory assessment and contribution to EC Directives', development of a white paper for regulatory upgrades.

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2.4 FAIR data – Making data from RHE-MEDiation Findable, Accessible, Interoperable and Re-usable

The following subparagraphs describe how RHE-MEDiation is effective in ensuring that its data will be 'FAIR', that is findable, accessible, interoperable and reusable.

2.4.1 Making Data from RHE-MEDiation Findable, including provisions for metadata

As a Horizon Europe project, RHE-MEDiation is expected to deposit generated and collected data in an open online research data repository. This repository will be decided by agreement within the project Consortium.

There are potential repositories available that follow FAIR data principles among which is the ZENODO repository. ZENODO is an OpenAIRE and CERN collaboration that allows researchers to deposit both publications and data, providing tools to linking them to these through persistent identifiers and data citations. Nevertheless, beneficiaries already customed to use other public open access repositories (for instance research centers), may continue with current practice.

The operative procedure below outlines the management principles behind storing and making findable data collected through RHE-MEDiation.

OPERATIVE PROCEDURE – Storing data of RHE-MEDiation and making it 'Findable'

Task Leaders are responsible of the following process items for each dataset collected or generated in RHE-MEDiation:

- Storing and making findable any data of RHE-MEDiation that can be made openly accessible in an online data repository suitable for the type and format of data generated or collected. Any chosen online repository needs to facilitate identification of data and refer to standard identification mechanisms (ideally persistent and unique identifiers such as Digital Object Identifiers), which should be outlined.
- Ensuring that research outputs and datasets are cross-referencing each other (e.g., scientific publications and the data behind them).
- Outlining the discoverability of the data (give metadata provision).
- Organize and collect data under the most convenient format.
- Depositing the relevant data in appropriate open access online repository. Data will be made accessible within one month of publishing the data in peer reviewed scientific articles or similar, unless beneficiaries have outlined justifiable reasons for maintaining data confidentiality.
- Recording and documentation of generated data, in line with the accepted standards in the respective field. To avoid losses, suitable measures will be adopted to ensure that data is backed up using reliable methods.

Metadata vocabularies identified to-date for the RHE-MEDiation datasets are listed in Annex A. Information on naming conventions used, approach towards search keywords, approach for clear versioning, and specification of standards for metadata creation (if any) are also be provided.

2.4.2 Making RHE-MEDiation Data Openly Accessible (Data Sharing)

In RHE-MEDiation, the data generated during validation, demonstration, and data monitoring (WP4) follow-up will be used to validate the design assumptions of WP2 and strategies adopted in the implementation and setting up of the integrated technology on site of WP3. This approach is important in case any changes or improvements may be needed during future upscaling activities. Moreover, this knowledge will play a central theme when developing the preliminary design assessment for identified HOTSPOTS in the associated regions. In addition, it is expected that the data from different studies and engagement activities such as

workshops, surveys etc., will guide commercial perspectives of the designed HOTSPOT remediation solution. Data collected on market opportunities and economic feasibility will be used to guide the route to market and upscale.

In order to maximize the impact of data generated in RHE-Mediation, the project will facilitate sharing of results and deliverables within and beyond the Consortium. Selected data and results will be shared with the scientific community and other stakeholders through publications in scientific journals and presentations at conferences, as well as through open access data repositories. Open access policy will be applied to them following the rules outlined in the Grant and Consortium Agreements.

Task Leaders will collect data from each task and the IPR Committee will review and approve all data that is identified as appropriate for open access. This process will be carried out on an ongoing basis to facilitate the publication of appropriate data as soon as possible. The IPR Committee is responsible for the IPR issues within the RHE-MEDiation and their approval will avoid any possible conflicts between open access and IPR issues.

All data will be made available for verification and re-use, unless the Task Leader properly justifies why data cannot be made openly accessible. The IPR Committee will assess such justifications and make the final decision, based on examination of the following elements regarding confidentiality of datasets:

a) Commercial sensitivity of datasets.
b) Data confidentiality for security reasons.
c) Conflicts between open-access rules and national and European legislation (e.g., data protection regulations).
d) Potential damages to project interests / objectives.
e) Other legitimate reasons, to be validated by the IPR Committee.

Table 1 illustrates the expected levels of accessibility of data in RHE-MEDiation.

Table 1. Expected levels of accessibility of the RHE-MEDiation data

DATASET N.	TASK N.	DATASET NAME	OPEN/ RESTRICTED[1]	REASON FOR RESTRICTION
1	1.2	Development collaborative actions with local stakeholders to design the demo-site evolution	Open	
2	1.3	Up-scaling process of liaison with authorities and policy makers of the demo-sites member state from local to national	Open	
3	2.1	Bio-remediation solutions	Restricted	Commercially sensitive Ethics issues

[1] "Restricted/Open": it means that most of the dataset is restricted, but a portion of it (summary, concept, etc.) is open. "Open/Restricted": it means that most of the dataset is open, but with a portion restricted. "Restricted"; it means it has no portion of it made available for open access. "Open": it means its content is made available for open access.

4	2.2	Monitoring, control and measurement solutions	Restricted	Commercially sensitive
5	2.3	Data management and processing for the Ocean Digital Twin	Open/Restricted	
6	2.4	Social freedom to operate and technology appraisal	Open/Restricted	
7	3.1	Italian demo-site characterisation, procurement, and installation of technologies	Open/Restricted	
8	3.2	Greek demo-site characterisation, procurement, and installation of technologies	Open/Restricted	
9	3.3	Turkish demo-site characterisation, procurement, and installation of technologies	Open/Restricted	
10	4.1	Italian demo-site testing, performance evaluation and endurance.	Restricted	Commercially sensitive Ethics issues
11	4.2	Greek demo-site testing, performance evaluation and endurance.	Restricted	Commercially sensitive Ethics issues
12	4.3	Turkish demo-site testing, performance evaluation and endurance	Restricted	Commercially sensitive Ethics issues
13	5.1	Identification of interest and tender phase setting-up	Open	
14	5.2	Best candidates' selection and setting-up of Third Parties agreement	Open/Restricted	
15	5.3	Deployment of co-creation activity of the selected Third Parties and strategy planning	Open/Restricted	Commercially sensitive Ethics issues
16	6.1	Quantification through impact modelling and appraisal of market perspectives	Restricted	Commercially sensitive

17	6.2	Evaluation of long-term social benefits through s-LCA and LCC combined models	Open/Restricted	Commercially sensitive
18	6.3	Scaling up governance through bottom-up knowledge transfer from local through National to European level	Open	
19	7.4	Communication and awareness raising activity	Open	
20	8.4	Regulatory assessment and contribution to EC Directives	Open	

The operative procedure below outlines the management principles behind data sharing through the RHE-MEDiation project.

OPERATIVE PROCEDURE – Making RHE-MEDiation project Data Openly Accessible

Task Leaders will be responsible of the following process items for each dataset to be made accessible within the RHE-MEDiation project:

- Encouraging re-use and further application of project results by making scientific publications available via open-access online platforms, unless subject to protection, or if release of all or part of the data to open-access platforms would jeopardize the action's main objective.
- Ensuring that underlies scientific publications is submitted to the relevant Task Leader no more than 10 days following any related publication in scientific journals (unless data is subject to protection or embargo periods). An information template will be circulated to all beneficiaries upon publication of the DMP outlining the descriptive information required to evaluate and approve datasets for upload to open-access repositories. It is the responsibility of project partners to prepare the template for submission in a timely manner to facilitate this process.
- Managing data collection is completed prior to the official deadline. Partners are expected to observe such deadlines and have all data in a suitable format ready for sharing openly according to these deadlines unless the publications have not yet been accepted.
- Ensuring that the optimum level of confidentiality is upheld from an early stage. In this case concerned partners shall notify as soon as possible their exigencies. Evidence of applications for protection, and/ or associated legal processes, should be made available to the Consortium within six months of such notifications. If no evidence of protection is provided, then data should be made accessible.

In particular, when considering the potential to make data open access, partners are requested to review the project Consortium Agreement. This defines the main approach regarding the ownership, protection, and access to key knowledge like IPR and data. This approach will allow RHE-MEDiation partners, collectively and individually, to pursue market opportunities arising from the project's results. Some of the major aspects covered are briefly reported in the following:

- **Confidentiality**: Each partner will treat information from other partners as confidential unless otherwise stated and not disclose it to third parties unless the information is publicly available.

- **Open access to publications**: Any proposed publication or communication by one of the parties is required to be submitted to other beneficiaries for their consent.
- **Open access to Data**: Task leaders will notify the partnership of their planned intent to upload datasets to open-access repositories following joint approval of data for such purpose.
- **Pre-existing know how** (Background): Each partner is and remains the sole owner of its IPR over its pre-existing knowhow. The partners have identified and listed in the Consortium Agreement the Pre-Existing Know-How over which they may grant access rights for the project. The partners agree that the Access Rights to the Pre-existing Know-How needed for carrying out their own work under the project shall be granted on a royalty-free basis.
- **Ownership and protection of Results** (Foreground): The ownership of foreground will belong to the partner/s generating it. Protection will be done appropriately. When the Foreground is the result of a work carried out by two or more partners and their respective share of the work cannot be ascertained, joint ownership will be agreed between the partners as it is established in the Consortium Agreement. If a partner wishes to assign any knowledge to a third party, he/she should do so, while observing the conditions set out in Articles 16 of RHE-MEDiation project's Grant Agreement and should inform the other partners and request their consent, which should not unreasonably be withheld.
- **Access Rights**: Partners grant to each other royalty-free access right to knowledge generated in the project and to the background knowledge they bring to the project to the extent needed to successfully perform the project tasks allocated to them.
- **Patents**: Under Article 16 of the Grant Agreement, partners who own knowledge suitable for patent are stimulated to make applications for patents or similar form of protection and shall supply details of such application to the other partners. Information relating to patents that have been registered must be submitted under the 'IPR' section of the EU Participant Portal.
- **Use and dissemination**: If dissemination of knowledge does not adversely affect its protection or use and subject to legitimate interests, the partners shall ensure further dissemination of their own knowledge as provided under the Grant Agreement (Article 17) and the Consortium Agreement (Section 8.4) which has been signed by all partners.

As the project progresses and data is identified and collected, further information on making data openly accessible will be outlined in subsequent version of the DMP. In specific, information on methods or software tools needed to access the data, information on where data and associated metadata, documentation and code are deposited and how access will be provided in case there are restrictions.

2.4.3 Making RHE-MEDiation project Data Interoperable

RHE-MEDiation will observe OpenAIRE guidelines for online interoperability, including OpenAIRE Guidelines for Literature Repositories, OpenAIRE Guidelines for Data Archives, OpenAIRE Guidelines for CRIS Managers based on CERIF-XML. These guidelines are accessible at Ref. [R1]. Partners will also ensure that the RHE-MEDiation data observes FAIR data principles under Horizon Europe open-access policy, according to Ref. [R2].

Information relating to the interoperability of the RHE-MEDiation datasets has been collated in Annex B. As the project progresses and data is identified and collected, further information on making data interoperable will be outlined. In specific, information on data and metadata vocabularies, standards or methodology to follow to facilitate interoperability and whether the project uses standard vocabulary for all data types present to enable interdisciplinary interoperability.

2.4.4 Ensuring RHE-MEDiation project Data Re-Use (through clarifying licenses)

The RHE-MEDiation project is expected to produce certain amount of data and knowledge through physico-chemical and pollutant monitoring of condition in the microalgae photobioreactor and the seawater/discharged water that will be presented to the scientific community, industry, policymakers and society at large through a carefully designed portfolio of dissemination actions. Datasets uploaded in the repository will be freely accessible after an embargo period determined per dataset if required. Potential users are expected to adhere with the chosen repositories Terms of Use and will be subject to scrutiny by the chosen repositories team.

As the project progresses and data is identified and collected, further information on increasing data re-use will be outlined. In specific, information on how data will be licensed to permit the widest reuse possible, when the data will be made available for re-use, whether the data produced and/or used in the project is useable by third parties, specifications of period of time for which the data will remain re-usable will be provided.

2.4.5 Allocation of resources

Costs related to open access to research data in Horizon Europe are eligible for reimbursement under the conditions defined in the Horizon Europe Grant Agreement. Costs cannot be claimed retrospectively. Project beneficiaries will be responsible for costs reimbursement application related to making data accessible to others beyond the Consortium.

2.5 Data Security

All research data underpinning publications will be made available for verification and re-use unless there are justified reasons for keeping specific datasets confidential. The main elements when considering confidentiality of datasets are:

- protection of intellectual property regarding new processes, products and technologies where the data could be used to derive sensitive information that would impact on the competitive advantage of the Consortium or its members;
- commercial agreements as part of the procurement of components or materials that might foresee the confidentiality of data;
- personal data that might have been collected in the project where sharing them is not allowed by the national and European legislation.

2.6 Ethics and Confidentiality

The RHE-MEDiation Ethical Issues Board (Figure 2) will ensure that ethical requirements are met for all research undertaken in the project, including data management aspects, in compliance with Horizon Europe ethical standards. All partners will assure that the EU standards regarding ethics and data management are fulfilled. All partners will comply with the ethical principles (Article 14) and confidentiality (Article 13) as set out in the Grant Agreement. The same applies to IPR issues (*Figure 2*).

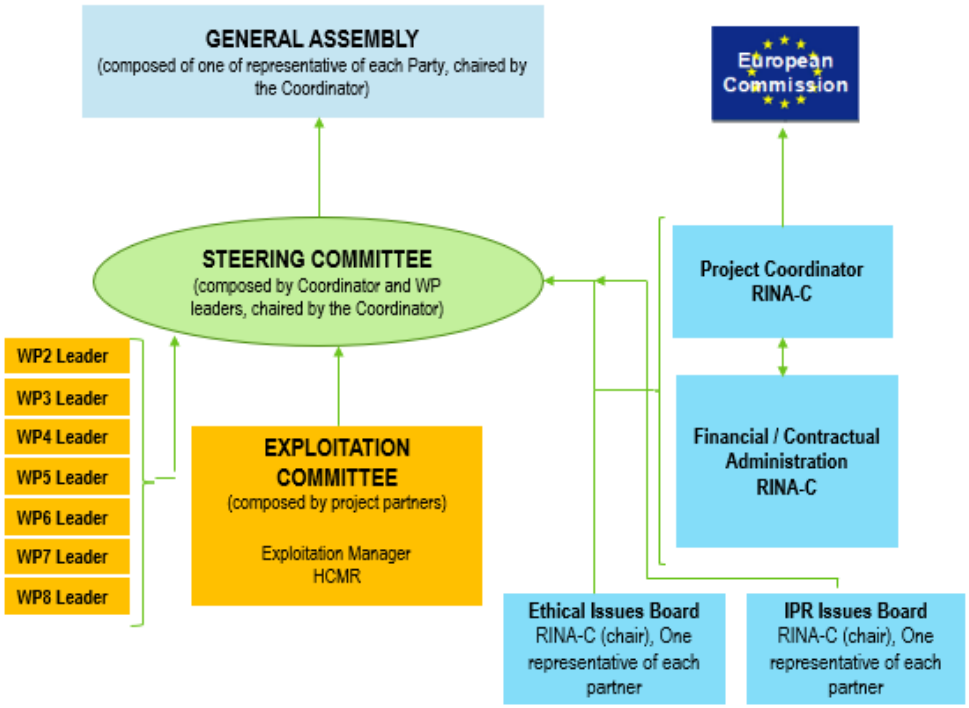


Figure 2. RHE-MEDiation project organization, including the Ethical and the IPR Issues Board

The project will comply with General Data Protection Regulation (EU) and security as specified in the Grant Agreement, [AD1].

An ethical management process, including actions, has been established by the board in order to properly manage the ethical issues identified during the proposal preparation and potentially arising during the validation, demonstration and exploitation phase of the project. This procedural scheme is described in Figure 3 a, b, c and d.

a)

ETHICAL ISSUES MANAGEMENT

Activity of the Ethical Issues Board

- Carry out monitoring and control of any ethical issue being arising during the project development in order to apply contingency actions whenever appropriate.

The following two ethical issues have been identified for the RHE-MEDiation project:

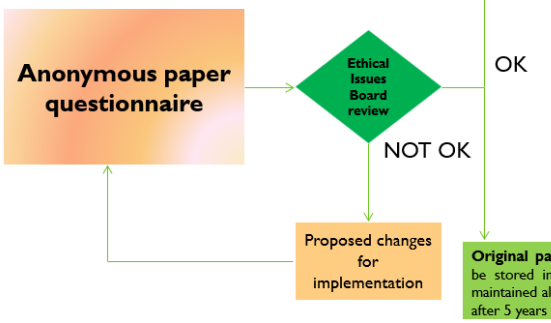
1. **Personal data management and information sharing**.

- The following actions are considered since the project start for implementation of activity at WORKSHOPs level:
  - ✓Information collected by the project that is not already in the public domain (i.e. interviews, surveys, summary from workshops) will be anonymized or otherwise used in an aggregated way (**CNR, HCMR, TUBITAK, EYDAP, YURT MUH, RINA-C**)
  - ✓Data from human participants to testing activity at partner's site and to concertation meetings where end users' responses are acquired about social acceptability, permitting / consenting phases (WP3, WP4, WP5) shall be collected and managed in full compliance of any European and national legislation and directives relevant to the country where the data collections are taking place (international/European) (**CNR, HCMR, TUBITAK, EYDAP, YURT MUH, RINA-C**)
  - ✓Close-cooperation with the Ethics Helpdesk of the European Commission to address any eventual new risk concerning personal data protection will be established (**RINA-C**).

b)

RHE-MEDIATION ETHICAL ISSUES MANAGEMENT

Partners involved in the local content activities (namely workshops organisation, citizens engagement, contacts with local and national authorities, etc.) may collect data about their views on chemical pollution issues, on the proposed remediation actions and related technologies, their perceived challenges, obstacles and awaited impacts on local and broad terms.



no questions about:
- ✓ racial or ethnic origin or gender,
- ✓ political opinions,
- ✓ religious beliefs or other beliefs of a similar nature,
- ✓ membership of a trade union,
- ✓ physical or mental health or condition,
- ✓ sexual life,
- ✓ commission or alleged commission of any offence,
- ✓ involvement in criminal proceedings for any offence or alleged offence committed by them, including outcomes such as judgement and sentencing will be asked

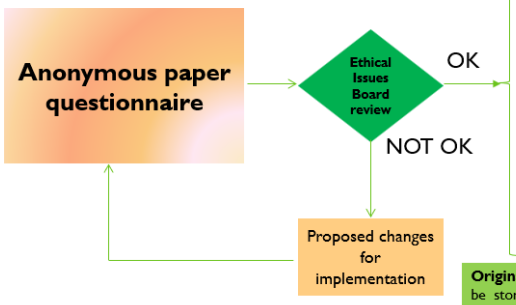
a questionnaire **side letter** clearly specifying:
- ✓ purpose of the questionnaire,
- ✓ a summary of the EC funded research under development and the procedure this data will be treated and the outcome it is expected from the elaboration

Original paper copies of compiled questionnaire will be stored in the project archive of the Coordinator and maintained along the project duration before being destroyed after 5 years of the project end, according to EC regulations

c)

RHE-MEDIATION ETHICAL ISSUES MANAGEMENT

Partners involved in the **exploitation and outreach activities** will collect data among sector stakeholders (technology providers, water and wastewater utilities, authorities) through dedicated meetings / workshops in order to boost the commercial exploitation of the project results.



Data typology:
- ✓ commercial data (price) of supply chain (potential customization of state of the art solutions for the industrialization of the microalgae based system)
- ✓ operational costs related to the proposed technology based activities over the life cycle,
- ✓ valorisation of the treatment process circularity by producing biogas from the biomass waste to attract investors' interest

a questionnaires **side letter** clearly specifying:
- ✓ purpose of the questionnaire,
- ✓ a summary of the EC funded research under development and the procedure this data will be treated and the outcome it is expected from the elaboration.

Original paper copies of compiled questionnaire will be stored in the project archive of the Coordinator and maintained along the project duration before being destroyed after 5 years of the project end, according to EC regulations

d)

ETHICAL ISSUES MANAGEMENT

2. Check for AI (Machine Learning) Trustworthiness

A Due Diligence on SENSICHIPS Pollutants Classification components (algorithms) will be carried out basing on the Assessment List of Independent High-Level Expert Group on Artificial Intelligence (ALTAI) set up by the European Commission the 17th July 2020, with specific reference to the following 4 main evidences requested by the European Commission guidelines:

1. Technically robust, accurate and reproducible, and able to deal with and inform about possible failures, inaccuracies and errors, proportionate to the assessed risk posed by the AI based system or technique.
2. Socially robust, in that they duly consider the context and environment in which they operate.
3. Reliable and function as intended, minimizing unintentional and unexpected harm, preventing unacceptable harm and safeguarding the physical and mental integrity of humans.
4. Able to provide a suitable explanation of its decision-making process, whenever an AI based system can have a significant impact on people's lives"

Figure 3. Ethical Issues management methodology in RHE-MEDiation

3 THE RHE-MEDIATION DMP REVIEW PROCESS & TIMETABLE

This first version of the RHE-MEDiation DMP has been validated by the Consortium and will function as a living document until the next update is released as per the GA. The DMP can be also updated over the course of the project whenever significant changes arise, such as:

- changes in information about datasets indicated in this DMP given that the project is at its earliest stage.
- new data;
- changes in Consortium policies;
- changes in Consortium composition and external factors etc.

Current timetable of contractual issues of the RHE-MEDiation DMP is reported in Table *2*.

Table 2. Contractual updates of the RHE-MEDiation project DMP

N.	DELIVERABLE N.	DELIVERABLE TITLE	DUE DATE	NOTES
1	D7.5	Data Management Plan, first issue	M6	First Issue
2	D7.7	Data Management Plan, final issue	M36	Final issue

4 CONCLUSIONS

This first issue of the Data Management Plan (DMP) for RHE-MEDiation is developed in accordance with the Pilot Action on Open Research Data and the RHE-MEDiation Grant Agreement. The primary goal of this document is to outline how data will be handled since the project's inception, both during and after development and outreach. Key actions and strategies are identified to ensure that research data are of a high-quality, secure, sustainable, and – to the extent possible – accessible and reusable. Moreover, the final issue DMP that will come on month 36 will be more comprehensive and refined as compared to this version. Furthermore, the finial issue will include, new datasets, changes in information about datasets indicated in this DMP given that the project is at its earliest stage, Consortium policies and composition.

REFERENCES

[R1] https://guidelines.openaire.eu/en/latest/
[R2] https://www.openaire.eu/how-to-make-your-data-fair
[R3] https://openscience.eu/Open-Science-in-Horizon-Europe
[R4] https://www.openaire.eu/images/Guides/HORIZON_EUROPE_Data-Management-Plan-Template.pdf

ANNEX A

Table 3 : Literature Resources & Useful Links

LITERATURE RESOURCES	WEB LINK
OpenAIRE	https://www.openaire.eu/how-to-comply-with-horizon-europe-mandate-for-rdm

Table 4 : Data types and formats

Type of data	Recommended formats	Acceptable formats
Tabular data with extensive metadata (variable labels, code labels, and defined missing values)	SPSS portable format (.por) delimited text and command ('setup') file (SPSS, Stata, SAS, etc.) structured text or mark-up file of metadata information, e.g. DDI XML file	proprietary formats of statistical packages: SPSS (.sav), Stata (.dta), MS Access (.mdb/.accdb)
Tabular data with minimal metadata (column headings, variable names)	comma-separated values (.csv) tab-delimited file (.tab) delimited text with SQL data definition statements	delimited text (.txt) with characters not present in data used as delimiters widely-used formats: MS Excel (.xls/.xlsx), MS Access (.mdb/.accdb), dBase (.dbf), OpenDocument Spreadsheet (.ods)
Geospatial data (vector and raster data)	ESRI Shapefile (.shp, .shx, .dbf, .prj, .sbx, .sbn optional) geo-referenced TIFF (.tif, .tfw) CAD data (.dwg) tabular GIS attribute data Geography Markup Language (.gml)	ESRI Geodatabase format (.mdb) MapInfo Interchange Format (.mif) for vector data Keyhole Mark-up Language (.kml) Adobe Illustrator (.ai), CAD data (.dxf or .svg) binary formats of GIS and CAD packages

Textual data	Rich Text Format (.rtf) plain text, ASCII (.txt) eXtensible Mark-up Language (.xml) text according to an appropriate Document Type Definition (DTD) or schema	Hypertext Mark-up Language (.html) widely used formats: MS Word (.doc/.docx) some software-specific formats: NUD*IST, NVivo and ATLAS.ti
Image data	TIFF 6.0 uncompressed (.tif)	JPEG (.jpeg, .jpg, .jp2) if original created in this format GIF (.gif) TIFF other versions (.tif, .tiff) RAW image format (.raw) Photoshop files (.psd) BMP (.bmp) PNG (.png) Adobe Portable Document Format (PDF/A, PDF) (.pdf)
Audio data	Free Lossless Audio Codec (FLAC) (.flac)	MPEG-1 Audio Layer 3 (.mp3) if original created in this format Audio Interchange File Format (.aif) Waveform Audio Format (.wav)
Video data	MPEG-4 (.mp4) OGG video (.ogv, .ogg) motion JPEG 2000 (.mj2)	AVCHD video (.avchd)
Documentation and scripts	Rich Text Format (.rtf) PDF/UA, PDF/A or PDF (.pdf) XHTML or HTML (.xhtml, .htm) OpenDocument Text (.odt)	plain text (.txt) widely-used formats: MS Word (.doc/.docx), MS Excel (.xls/.xlsx) XML marked-up text (.xml) according to an appropriate DTD or schema, e.g. XHMTL 1.0

ANNEX B

Table 5 :Comprehensive description of the RHE-mediation project's datasets

Data set no.	Task No.	Dataset Name	Data subset	Type of data	New/ Existing data	Method of Data capture	Format of data capture	Expected size	Quality control procedures	Data Utility- (potential user outside Consortium)	Ethical issues? Y/N	Type of access (open/ restricted)
1	T1.2	Development collaborative actions with local stakeholders to design the demo-site evolution	Survey results for stakeholder mapping and analysis.	Survey results	New	Microsoft Form	Excel	TBD	Quality assurance at source	Policy makers, Authorities, Scientific community EC	N	Open
2	T1.3	Up-scaling process of liaison with authorities and policy makers of the demo-sites member state from local to national	Survey results for stakeholder mapping and analysis	Interview results	New	In person and offline engagement	PDF, Audio, Video	TBD	Internal QA procedure,	Policy makers, Authorities, Scientific community EC	N	Open
3	T2.1	Bio-remediation solutions	Preliminary Physicochemical analysis	data of nutrients concentration	New/ Existing	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Composition of the microbial consortium	data on composition of microbial consortium	New/ Existing	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Concentration of contaminants	data of pollutant concentration	New/ Existing	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Design of the micro-algae photobioreactor and its monitoring system.	Engineering design	New	Laboratory analysis	PDF	TBD	Internal QA procedure	Scientific community EC	N	Restrictive

			Sampling strategy for nutrients and pollutants	Scheduling	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
4	T2.2	Monitoring, control, and measurement solutions	Design and testing of the chemical substances monitoring system.	Engineering design	New	Website / APIs	CSV / Excel / JSON	TBD		Scientific community EC	N	Restrictive
			Training of sensors to identify pollutants	Data on pollutant concentration	New/Existing	Text file	Text editor	TBD	Internal QA procedure	Scientific community EC	N	Restrictive
5	T2.3	Data management and processing for the Ocean Digital Twin	Design of the data transferring interface from demo-site to EMODnet.	Interface design	New/Existing	Scripts	Text editor	TBD	Internal QA procedure	Scientific community EC	N	Restrictive
6	T2.4	Social freedom to operate and technology appraisal	Collect data on competing technologies available for chemical pollution remediation.	Literature review	Existing	Literature review search	PDF	TBD	Internal QA procedure	Authorities Businesses Investors Scientific community EC	N	Open
			impact produced by the fixed and mobile control system for the pollution monitoring.	Literature review	Existing	Literature review and site investigation	PDF	TBD	Internal QA procedure	Authorities Businesses Investors Scientific community EC	N	Open/ Restrictive
7	T3.1	Italian demo-site characterisation, procurement, and installation of technologies	Full chemical characterization of the effluent of site and Mar-Piccolo will be carried out incorporating existing data and defining target contaminants.	Data of pollutant concentration	New/ Existing	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Open/ Restrictive
			Evaluation of the design in 2.1, 2.2 and 2.3 for the Mar-piccolo	Data of nutrients concentration, composition of microbial consortium, pollutant	New/ Existing	Laboratory analysis	Excel PDF	TBD	Standards/ Internal QA procedure	Scientific community EC	N	Open/ Restrictive

				concentration, Engineering design, Scheduling, Interface design								
			The purchasing/manufacturing of components required for the final configuration assembly, the commissioning, and preliminary functional test.	Engineering design,	New	Laboratory analysis	PDF	TBD	Internal QA procedure	Scientific community EC	N	Open/ Restrictive
8	T3.2	Greek demo-site characterisation, procurement, and installation of technologies	Full chemical characterization of the effluent of WWTP and the sea of Saronikos Gulf will be carried out incorporating existing data and defining target contaminants.	Data of pollutants concentrations	New/ Existing	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Open/ Restrictive
			Evaluation of the Design for the integration of the micro-algae-based system as tertiary treatment for the effluents of the WWTP.	Data of nutrients concentration, composition of microbial consortium, pollutant concentration, Engineering design, Scheduling, Interface design	New/ Existing	Laboratory analysis	Excel PDF	TBD	Standards/ Internal QA procedure	Scientific community EC	N	Open/ Restrictive
			Purchasing/manufacturing of components required for the final configuration assembly, the commissioning, and preliminary functional test.	Engineering design,	New	Laboratory analysis	PDF	TBD	Internal QA procedure	Scientific community EC	N	Open/ Restrictive

9	T3.3	Turkish demo-site characterisation, procurement, and installation of technologies	Full chemical characterization of the effluent of Dilovasi WWTP and the sea of Izmit bay will be carried out incorporating existing data and defining target contaminants.	Data of pollutants concentrations	New/ Existing	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Open/ Restrictive
			Evaluation of the Design for the integration of the micro-algae-based system as tertiary treatment for the effluents of the WWTP.	Data of nutrients concentration, composition of microbial consortium, pollutant concentration, Engineering design, Scheduling, Interface design	New/ Existing	Laboratory analysis	Excel PDF	TBD	Standards/ Internal QA procedure	Scientific community EC	N	Open/ Restrictive
			The purchasing/manufacturing of components required for the final configuration assembly, the commissioning, and preliminary functional test.	Engineering design,	New	Laboratory analysis	PDF	TBD	Internal QA procedure	Scientific community EC	N	Open/ Restrictive
10	T4.1	Italian demo-site testing, performance evaluation and endurance.	Monitoring of nutrient input to the Micro-algae Photobioreactor	Data of nutrient concentration	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Monitoring of treatment efficiency / contaminant removal	Data of pollutant concentration	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive

			Collect data measured from monitoring, control and measurement solutions (both fixed and mobile installations) in HW case to the sensors.	Data of pollutant concentration and chemical/physical parameters	New/Existing	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Convert measured data stored in HW in a format compatible with EMODnet	Interface design	New/Existing	Scripts	Text editor	TBD	Internal QA procedure	Scientific community EC	N	Restrictive
			Samples will be tested on the final leachate to detect and quantify the persistent pollutants.	Data of pollutant concentration	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
11	T4.2	Greek demo-site testing, performance evaluation and endurance.	Monitoring of biological composition of the microalgal consortia	Data of microalgal consortia	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Monitoring of treatment efficiency / contaminant removal	Data of pollutant concentration	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Collect data measured from monitoring, control, and measurement solutions (both fixed and mobile installations) in HW case to the sensors.	Data of pollutant concentration and chemical/physical parameters	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Convert measured data stored in HW in a format compatible with EMODnet	Interface design	New/Existing	Scripts	Text editor	TBD	Internal QA procedure	Scientific community EC	N	Restrictive
12	T4.3	Turkish demo-site testing, performance evaluation and endurance	Monitoring of biological composition of the microalgal consortia	Data of microalgal consortia	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive

			Monitoring of treatment efficiency / contaminant removal	Data of pollutant concentration	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Collect data measured from monitoring, control and measurement solutions (both fixed and mobile installations) in HW case to the sensors.	Data of pollutant concentration and chemical/physical parameters	New	Laboratory analysis	Excel	TBD	Standards	Scientific community EC	N	Restrictive
			Convert measured data stored in HW in a format compatible with EMODnet	Interface design	New/Existing	Scripts	Text editor	TBD	Internal QA procedure	Scientific community EC	N	Restrictive
13	T5.1	Identification of interest and tender phase setting-up	Develop the tender document.	Customer requirements and instructions on how to respond to the tender	New	Tender	PDF	TBD	Internal QA procedure,	Policy makers, Authorities, Scientific community EC	N	Open
14	T5.2	Best candidates' selection and setting-up of Third Parties agreement	a model of sub-grant contracting will be prepared and issued.	Customer requirements	New	Tender	PDF	TBD	Internal QA procedure,	Policy makers, Authorities, Scientific community EC	N	Open/ Restrictive
			payment schedule and conditions, rights, and obligations (including communication obligations), annexes (project description, guidelines, status information, any other document required to assure correct execution of sub-granted projects).	Guidelines, technical documents	New	Tender	PDF	TBD	Internal QA procedure,	Policy makers, Authorities, Scientific community EC	N	Open/ Restrictive

			Specific milestones linked to a set of KPIs will be established at sub-contract level, to which the payment is associated	Technical document laying out the project KPIs	New	Tender	PDF	TBD	Internal QA procedure,	Policy makers, Authorities, Scientific community EC	N	Open/ Restrictive
15	T5.3	Deployment of co-creation activity of the selected Third Parties and strategy planning	a preliminary design assessment for a potential establishment at the site under analysis and developing a work timetable and roadmap for future implementation, including specification of governance a financial process to be mobilised, stakeholders to involve, permissions to be achieved.	Engineering design. Project documentation for the development of the plant in the locations defined in the tender phase;	New	Tender	PDF	TBD	Internal QA procedure,	Policy makers, Authorities, Scientific community EC	N	Open/ Restrictive
16	T6.1	Quantification through impact modelling and appraisal of market perspectives	Dataset for impact modelling and analysis will complement the data required to potential investors, jointly to the business plan.	A strategic report	Existing	Literature review search, patent search, analysis of project results	PDF	TBD	Internal QA procedure,	Investors, Policy makers, Authorities, Scientific community EC	N	Restricted
17	T6.2	Evaluation of long-term social benefits through s-LCA and LCC combined models	Life Cycle Costing (accordance with ISO 15686-5:2008 and the Code of Practice suggested by SETAC). It will enable the estimation of the total costs	A strategic report	Existing	Literature review search, analysis of project results	PDF	TBD	accordance with ISO 15686-5:2008 and the Code of Practice suggested by SETAC	Investors, Policy makers, Authorities, Scientific community EC	N	Open/ Restricted
			Social Life Cycle Assessment (according to the recent UNEP/SETAC Guideline (2020))	A strategic report	Existing	Literature review search, analysis of project results	PDF	TBD	according to the recent UNEP/SETAC Guideline (2020))	Investors, Policy makers, Authorities, Scientific community	N	Open

										EC		
18	T6.3	Scaling up governance through bottom-up knowledge transfer from local through National to European level	a comprehensive policy document to replicate the RHE-MEDiation results to other basins.	A policy document	Existing	Literature review search, analysis of project results	PDF	TBD	Internal QA procedure,	Policy makers, Authorities Businesses Investors Scientific community EC	N	Open
19	T7.4	Communication and awareness raising activity	Communication materials packages	Project Website, social media accounts, Leaflet, banner, poster, standard templates, invitation letters, certificates, Roll ups, Feedback to stakeholders after workshops. Surveys etc.	New/Existing	prepared by the graphics teams of RINA and a third-party website developer	Different in kind (i.e. scripts, texts, images etc.)	TBD	Internal QA procedure	Policy makers, Authorities Businesses Investors Scientific community EC	N	Open/ Restrictive
20	T8.4	Regulatory assessment and contribution to EC Directives	white paper will be generated together.	White paper	Existing	Literature review search, analysis of project results	PDF		Internal QA procedure,	Policy makers, Authorities, Scientific community EC	N	Open

Table 6 :Making data Findable, Including provisions for Metadata.

Dataset no.	Task No.	Dataset Name	Data format	Metadata standard	What type of metadata will be associated with it?	Metadata vocabularies	How will data be findable (which open-access repositories are best suited to your data?)	Is a unique identifier used?	Is any specialist software required to read / use the data?
1	T1.2	Development collaborative actions with local stakeholders to design the demo-site evolution	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO
2	T1.3	Up-scaling process of liaison with authorities and policy makers of the demo-sites member state from local to national	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO
3	T2.1	Bio-remediation solutions	Graphic Numeric	TBC	TBC	TBC	TBC	NO	NO
4	T2.2	Monitoring, control and measurement solutions	Graphic Numeric Multimedia	TBC	TBC	TBC	TBC	NO	NO
5	T2.3	Data management and processing for the Ocean Digital Twin	Graphic Numeric Multimedia	TBC	TBC	TBC	TBC	NO	NO
6	T2.4	Social freedom to operate and technology appraisal	Graphic Numeric	TBC	TBC	TBC	TBC	NO	NO
7	T3.1	Italian demo-site characterisation, procurement, and installation of technologies	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO
8	T3.2	Greek demo-site characterisation, procurement, and installation of technologies	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO
9	T3.3	Turkish demo-site characterisation, procurement, and installation of technologies	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO
10	T4.1	Italian demo-site testing, performance evaluation and endurance.	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO
11	T4.2	Greek demo-site testing, performance evaluation and endurance.	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO

12	T4.3	Turkish demo-site testing, performance evaluation and endurance	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO
13	T5.1	Identification of interest and tender phase setting-up	Text Files Multimedia	TBC	File properties	YES	TBC	NO	NO
14	T5.2	Best candidates' selection and setting-up of Third Parties agreement	Text Files Multimedia	TBC	File properties	YES	TBC	NO	NO
15	T5.3	Deployment of co-creation activity of the selected Third Parties and strategy planning	Graphic Numeric Multimedia	TBC	File properties	YES	TBC	NO	NO
16	T6.1	Quantification through impact modelling and appraisal of market perspectives	Graphic Numeric	Value	File properties	YES	ZENODO	NO	NO
17	T6.2	Evaluation of long-term social benefits through s-LCA and LCC combined models	Graphic Numeric	Value	File properties	YES	ZENODO	NO	NO
18	T6.3	Scaling up governance through bottom-up knowledge transfer from local through National to European level	Graphic Numeric	Value	File properties	YES	ZENODO	NO	NO
19	T7.4	Communication and awareness raising activity	Graphic Numeric Multimedia	Value	File properties	YES	ZENODO	NO	NO
20	T8.4	Regulatory assessment and contribution to EC Directives	Graphic Numeric	Value	File properties	YES	ZENODO	NO	NO

Table 7 :Storage of Data

Dataset no.	Task No.	Dataset Name	Data storage location (short-term)	Storage media	Data security provisions	Expected size of dataset	Length of time data will be stored by project	Location where data will be stored (long-term)	Person responsible	Costs
1	T1.2	Development collaborative actions with local stakeholders to design the demo-site evolution	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
2	T1.3	Up-scaling process of liaison with authorities and policy makers of the demo-sites member state from local to national	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
3	T2.1	Bio-remediation solutions	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
4	T2.2	Monitoring, control and measurement solutions	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
5	T2.3	Data management and processing for the Ocean Digital Twin	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
6	T2.4	Social freedom to operate and technology appraisal	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
7	T3.1	Italian demo-site characterisation, procurement, and installation of technologies	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
8	T3.2	Greek demo-site characterisation, procurement, and installation of technologies	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
9	T3.3	Turkish demo-site characterisation, procurement, and installation of technologies	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD

10	T4.1	Italian demo-site testing, performance evaluation and endurance.	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
11	T4.2	Greek demo-site testing, performance evaluation and endurance.	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
12	T4.3	Turkish demo-site testing, performance evaluation and endurance	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
13	T5.1	Identification of interest and tender phase setting-up	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
14	T5.2	Best candidates' selection and setting-up of Third Parties agreement	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
15	T5.3	Deployment of co-creation activity of the selected Third Parties and strategy planning	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
16	T6.1	Quantification through impact modelling and appraisal of market perspectives	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
17	T6.2	Evaluation of long-term social benefits through s-LCA and LCC combined models	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
18	T6.3	Scaling up governance through bottom-up knowledge transfer from local through National to European level	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
19	T7.4	Communication and awareness raising activity	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD
20	T8.4	Regulatory assessment and contribution to EC Directives	Consortium repository	Microsoft SharePoint	Access restricted to consortium – Automated periodic backup	TBC	2 years after Project termination	Consortium repository	Data owner	TBD

Table 8 :Increasing re-use of the RHE-MEDiation Data through Clarifying Licenses

Dataset no.	Task No.	Dataset Name	How will data be re-used	Open/ Restricted	Type of IP/ protection sought	Type of licensing agreement to be implemented
1	T1.2	Development collaborative actions with local stakeholders to design the demo-site evolution	New R&D	Open	None	None
2	T1.3	Up-scaling process of liaison with authorities and policy makers of the demo-sites member state from local to national	New R&D	Open	None	None
3	T2.1	Bio-remediation solutions	Commercial use	Restricted	TBC	TBC
4	T2.2	Monitoring, control, and measurement solutions	Commercial use	Restricted	TBC	TBC
5	T2.3	Data management and processing for the Ocean Digital Twin	New R&D	Open/Restricted	TBC	TBC
6	T2.4	Social freedom to operate and technology appraisal	New R&D	Open/Restricted	TBC	TBC
7	T3.1	Italian demo-site characterisation, procurement, and installation of technologies	Commercial use	Open/Restricted	TBC	TBC
8	T3.2	Greek demo-site characterisation, procurement, and installation of technologies	Commercial use	Open/Restricted	TBC	TBC
9	T3.3	Turkish demo-site characterisation, procurement, and installation of technologies	Commercial use	Open/Restricted	TBC	TBC
10	T4.1	Italian demo-site testing, performance evaluation and endurance.	Commercial use	Restricted	TBC	TBC
11	T4.2	Greek demo-site testing, performance evaluation and endurance.	Commercial use	Restricted	TBC	TBC
12	T4.3	Turkish demo-site testing, performance evaluation and endurance	Commercial use	Restricted	TBC	TBC
13	T5.1	Identification of interest and tender phase setting-up	New R&D	Open	None	None
14	T5.2	Best candidates' selection and setting-up of Third Parties agreement	New R&D	Open/Restricted	TBC	TBC
15	T5.3	Deployment of co-creation activity of the selected Third Parties and strategy planning	Develop strategic plans. Commercial use	Open/Restricted	TBC	TBC
16	T6.1	Quantification through impact modelling and appraisal of market perspectives	Develop strategic plans. Commercial use	Restricted	TBC	TBC
17	T6.2	Evaluation of long-term social benefits through s-LCA and LCC combined models	Develop strategic plans. Commercial use	Open/Restricted	TBC	TBC
18	T6.3	Scaling up governance through bottom-up knowledge transfer from local through National to European level	Develop strategic plans.	Open	None	None
19	T7.4	Communication and awareness raising activity	Other C&D activities	Open	None	None
20	T8.4	Regulatory assessment and contribution to EC Directives	Develop strategic plans.	Open	None	None