ONE EARTH

ONE EARTH
DATA MANAGEMENT PLAN (V1)
Deliverable 6.8

November, 2024

Funded by
the European Union

General Information

GA Number: 101135559
Start date of project: 01/06/2024
Project Duration: 4 years

Type and dissemination level of the Deliverable		
Document type	Document, Report (R)	X
Dissemination level	Public (PU)	X

Lead Beneficiary	**PEDAL Consulting**
Author(s)/Organisation(s)	**Olga Vergheles (PEDAL)**
Contributor(s)	**All partners**
Work Package	**WP6: Dissemination, communication and exploitation**
Reference period	**RP1**
Delivery date (DoA)	**30/11/2024 (month 6)**
Submission date	**16/12/2024**

Document Revision History			
Date	**Version**	**Author/Contributor/Reviewer**	**Summary of Main Changes**
31/10/2024	0.1	AUTHOR	Draft structure distributed for review and partners input
15.11.2024	0.2	AUTHOR	Feedback and partners input incorporated
28.11.2024	0.2	AUTHOR	Pre-final draft delivered for final review
16.12.2024			Submission

ONE EARTH Consortium			
#	Participant Organisation Name	Short Name	Country
1	UNIBO ALMA MATER STUDIORUM - UNIVERSITA DI BOLOGNA	UNIBO	COO
2	BOLTON FOOD SPA	BOLTON FOOD	BEN
3	GESCO SOCIETA COOPERATIVA AGRICOLA	GESCO	BEN
4	ASOCIACION NACIONAL DE FABRICANTES DE CONSERVAS DE PESCADOS Y MARISCOSCENTRO TECNICO NACIONAL DE CONSERVACION DE PRODUCTOS DE LA PESCA	ANFACO	BEN
5	CROMARIS DIONICKO DRUSTVO ZA MARIKULTURU	CROMARIS	BEN
6	BIOTREND-INOVACAO E ENGENHARIA EM BIOTECNOLOGIA SA	BIOTREND	BEN
7	VLAAMSE INSTELLING VOOR TECHNOLOGISCH ONDERZOEK N.V.	VITO	BEN
8	ANAVERIS MONOPROSOPI ANONYMI ETAIREIA	ANAVERIS	BEN
9	UNIVERSITA POLITECNICA DELLE MARCHE	UNIVPM	BEN
10	CASEIFICIO MAMBELLI SRL	MAMBELLI	BEN
11	ALLER AQUA RESEARCH GMBH	AAR	BEN
12	RESEARCH AND PRODUCTION CENTRE "FOREL"	FOREL	BEN
13	PEDAL CONSULTING SRO	PEDAL	BEN
13.1	OXIGEN SRL	OXIGEN	AE
14	FACHHOCHSCHULE NORDWESTSCHWEIZ FHNW	FHNW	AP

COO…Coordinator, BEN…Beneficiary, AP…Associated Partner, AE…Affiliated Entity

NOTICE

Funded by the European Union under grant agreement number 101135559. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

ONE EARTH

Grant Agreement: 101135559
Funding Scheme:
Call: HORIZON-CL6-2023-CIRCBIO-02
(Circular economy and bioeconomy sectors)
Topic: HORIZON-CL6-2023-CircBio-02-3-two-stage
Type of Action: HORIZON-RIA
(HORIZON Research and Innovation Actions)
Start Date of Project: 01 Jun 2024
Project end date: 31 May 2028

Table of Contents

List of Tables

List of Figures

EXECUTIVE SUMMARY

The Data Management Plan (DMP) is a crucial element of good data management as it provides the description of its life cycle, following the FAIR (findable, accessible, interoperable and re-usable) data principle. DMP includes information on:

- How the data will be handled (how it will be described, managed and stored) both during and after the end of the project;
- What data will be collected, processed and/or generated by the project;
- Which methodology and standards will be used;
- Whether data will be shared/made open access and;
- How data will be protected and preserved (including after the completion of the project).

This document constitutes of the ONE EARTH Data Management Plan, first version (DMP) and has been elaborated as Deliverable (D) 6.8 (due month 6 being the output of Task (T) 6.5) as part of the activities of Work Package (WP) 6 "Dissemination, communication and exploitation" in the framework of ONE EARTH project. This initial version will work as a living document for the whole duration of the project, hence it will be updated and further elaborated to reflect developments to have an accurate and comprehensive plan at any time throughout the project. The DMP will be revised and updated at two key stages of the project: an interim version (D6.9) will be provided at M24, followed by a final version (D6.10) at the project's conclusion (M48).

The structure has been drafted in line with the Horizon Europe Data Management Plan Template[1], with some additional information adapted to the particular characteristics of ONE EARTH.

Based on the objectives and expected outcomes of ONE EARTH, it became evident that to generate meaningful insights to feed into the project while fuelling the co-creation and delivery of real demand-driven and evidence-based results, ONE EARTH entails several activities involving collection, production and processing of data. Accordingly, the objective of this document is to collect, analyse and share the initial set up of rules for internal communication, and to have a common approach to how to gather, store and manage the data properly (where, how, who, title, version, revisions, use and storage etc.).

This document includes the description of:

- Data types and how this data will be collected, processed, maintained and shared during and after the end of the project;
- FAIR data management;
- Data Security;
- Social, Ethical, Legal, and Privacy concerns.

[1] https://enspire.science/wp-content/uploads/2021/09/Horizon-Europe-Data-Management-Plan-Template.pdf

1. Introduction

The current document constitutes the initial version of the DMP, elaborated as a deliverable (D6.8) of the ONE EARTH project, which has received funding from the European Union's (EU) Horizon Europe Research and Innovation Programme under Grant Agreement No 101135559.

The consortium of ONE EARTH consists of 14 partners across 9 different European countries. All the consortium partners adhere to sound data management principles to ensure that the meaningful data collected, processed and/or generated throughout the duration of the project is well-managed, archived and preserved, in line with the structure and guidelines of the Horizon Europe Data Management Plan Template.

Along these lines, this initial version of the DMP aims to achieve the following objectives:

- Provide the identification elements and the descriptions of the data sets and will include details regarding how the research data will be handled during the ONE EARTH project and preserved after it is completed.
- Specify the methodologies and standards to be used for data creation and management, as well as the timeline and process for sharing the data and making it available for open re-use.
- Ensure that the research data fulfil the FAIR (Findable, Accessible, Interoperable and Re-usable) and GDPR requirements.
- Present information on the resources to be allocated to make data FAIR clearly identifying responsibilities pertaining to data management, while addressing data security and ethical aspects.

With the above in mind, this initial version of the DMP is structured in 9 distinct chapters, as follows:

Chapter 1 presents the description of the ONE EARTH context and outlines the objectives and structure of the DMP.

Chapter 2 defines the purpose and objectives of the ONE EARTH activities leading to the data collection and generation processes. It also outlines data types and formats, origin and relevant stakeholders that might utilise them.

Chapter 3 describes the processes followed to ensure FAIR data management in the framework of ONE EARTH.

Chapter 4 plans for the FAIR management of other research outputs (digital or physical) that may be generated or re-used by the beneficiaries throughout the project.

Chapter 5 provides an overview of the resources to be used and the respective data management responsibilities.

Chapter 6 describes additional tools, platforms, infrastructure, or support systems that will be used to achieve the project's goals

Chapter 7 underlines the data security strategy followed by the ONE EARTH team.

Chapter 8 addresses ethical aspects involved under the scheme of ONE EARTH regarding the collected/generated data.

Chapter 9 concludes on the next steps foreseen in the framework of the project with respect to its data management plan.

PEDAL CONSULTING SRO (PC) is responsible for the elaboration of the DMP and with the support of all partners will update and enrich it when required.

Annexed in the document are (i) the project's Privacy Policy (Annex I), the templates for the (ii) Informed Consent Form (Annex II) and (iii) the Data Subject Request Form (Annex III) which will be used during the implementation of the project's activities to ensure compliance with relevant applicable EU and national regulation(s).

2. Data Summary

To meet its objectives, ONE EARTH will collect, generate, and re-use data classified as non-sensitive (not falling under any special categories of personal data per the General Data Protection Regulation (GDPR)). This section of the ONE EARTH DMP outlines the purpose, types, and formats of the data collected and generated during the project's implementation. Additionally, it will describe the data's origins, expected size, and conclude with an explanation of its utility and potential stakeholders who may re-use the data.

2.1 The purpose of this data collection

The purpose of this data collection is to help achieve successful fulfilment of the main objectives of the ONE EARTH project, with specific actions requiring data collection and generation:

Gap analysis. Analysing existing biomass resources such as dairy, poultry, and fish industry residues that may face challenges in ensuring the technological feasibility of converting these residues into valuable products, especially considering the variability in biomass quality.

Regulatory and safety assessments to assess the regulatory status of products derived from the development and assessment of bio-based innovative solutions.

Developing and testing solutions through pilot experiments in field and laboratory research could be constrained by limited scalability and the difficulty of replicating real-world conditions in controlled environments.

Stakeholder engagement and knowledge transfer from relevant industries and research communities with the full alignment or their involvement in co-developing and validating solutions.

Improving knowledge for assessing specific aspects of the sustainable transition. Development and assessment of new bio-based products such as nutraceuticals, cosmetics, bioadhesives, fertilizers, and aquaculture feeds from residual biomass.

Analysis of findings and derivation of main conclusions and recommendations. Evaluation of project potential and opportunities to promote industrial initiatives and new businesses, ensuring economic and social viability of the proposed solutions.

Capacity building for local stakeholders. Stakeholders at the national and regional levels will be empowered through e-learning materials and capacity-building activities will be created.

Setting up and Operation of ONE EARTH's Advisory Board. The representatives of the stakeholder Community of contributors, multipliers, and adopters will constitute knowledge transfer with Topic-related projects and initiatives.

Stakeholder Engagement activities, workshops and conferences. These will connect stakeholder feedback with the project results through engagement activities, considering all perspectives.

Monitoring and assessment of Communication, Dissemination activities of ONE EARTH with a view to measuring their results and impact, fine-tune ONE EARTH`s Dissemination and Communication Plan, as well as fulfilling the project's reporting requirements towards the Commission.

Collaboration with Related Networks and Initiatives to benefit from synergies with other relevant EU initiatives and to establish close collaboration with the project. The relevant past and ongoing H2020 and Horizon Europe projects, HORIZON-CL6-2023-CircBio-02-3-two-stage funded projects.

2.2 Types and formats of collected/generated data

ONE EARTH has set out to collect/generate data of various structures and formats. Along these lines, the data definition process used for this DMP is based on the source and the physical format of the data[2]. We define two main aspects: (i) the process under which the underlying data are created/captured which includes electronic texts documents, spreadsheets, questionnaires and transcripts, among others and (ii) the storage format of quantitative and qualitative data. Examples of this aspect include easily accessible formats, such as post scripts (e.g. pdf, xps, etc.), machine-readable formats (xml, html, etc.), spreadsheets, (e.g. xlsx, csv, etc.), text documents (e.g. docx, rtf, etc.), compressed formats (e.g. rar, zip, etc.) or any other format required by the objectives and methodology of the activity within the framework of which is produced.

Under this framework, special attention will be paid to using open formats[3] (such as csv, pdf, zip, etc.) and / or machine-readable formats[4] (such as xml, json, rdf, html, etc.) when possible, to enhance the interoperability and re-use of data. In doing so, we will be providing data that is easily readable and freely usable in any software program employed by third parties interested in utilizing the data.

The type and formats of the data collected/generated in the context of ONE EARTH can be divided into 3 categories, namely (i) data collected/generated by direct input methods, (ii) data collected/generated from dissemination, communication, clustering and exploitation activities, (iii) data collected/generated from project management and coordination as described in the following subsections.

2.2.1 Data collected / generated through direct input methods

Within the scope of ONE EARTH, direct input methods refer to approaches for gathering data through desk research and collaboration between consortium partners and external stakeholders, where stakeholders contribute data to inform the consortium's efforts. Along these lines, external stakeholders undertake the role of a data subject that is a natural person whose personal data is being processed[5]. In particular, the identification and selection of suitable data subjects are based on purposeful sampling according to which, internal and external stakeholders are identified and selected by consortium partners. This is based on their role regarding to fine-tune the ONE EARTH approach through localised validation activities and co-create policy recommendations (i.e., policy makers, business leaders, authorities, action groups, civil society, NGOs, etc.) and the objectives of the

[2] Jakobsson, U., Braukmann, R., Lundgren M., Expert Tour Guide on Data Management. Retrieved from https://www.cessda.eu/Research-Infrastructure/Training/Expert-Tour-Guide-on-Data-Management/1.-Plan.

[3] According to the Open Data Handbook: "*An open format is a file format with no restrictions, monetary or otherwise, placed upon its use and can be fully processed with at least one free/open-source software tool and it is not encumbered by any copyrights, patents, trademarks or other restrictions so that anyone may use it*".

[4] According to the Open Data Handbook: "*Machine readable formats are file formats that can be automatically read and processed by a computer. Machine-readable data must be structured data*".

[5] Regulation (EU) 2016/679 of the European parliament and of the council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32016R0679.

respective activity for which data is collected. In this context, quantitative and qualitative data will be collected/generated during ONE EARTH:

- **Quantitative data** is numerical and acquired through counting or measuring[6]. Examples of quantitative data are the yearly turnovers of a business, the hourly compensation of a worker, the number of SMEs in Europe, etc. This data may be represented by ordinal, interval or ratio scales and lend themselves to statistical manipulation.
- **Qualitative data**, sometimes referred to as categorical data, is data that can be arranged into categories based on physical traits, gender, colours or anything that does not have a number associated with it[7]. Moreover, written documents, interviews, and various forms of in-field observation are all sources of qualitative data. Examples of qualitative data are the preferences of learning, skillsets, country of origin, etc.

Additional details with respect to the different types and formats of data that will be collected through direct input methods under the frame of ONE EARTH are provided below.

1. Gap analysis/assessments - results of the gap analysis and assessments produced as Public reports by all Partners involved in
2. Regulatory and safety assessments result assess whether the data management practices comply with applicable local, national, and international regulations.
3. Developing and testing solutions.

   UNIBO will produce protocols and experimental results deriving from research activities carried out by UNIBO team in the frame of WP2 (D2.4- SubTask 2.2.1) and WP3 (D3.1- Task 3.2. and D3.2- Task 3.2.), (related to the production of YL biomasess enriched in (P)UFA and extracted (P)UFA; the production of marine bacterial biomass enriched in LC-PUFAs/the extraction of PUFAs from marine bacteria as well as the pro-duction of bioactive protein hydrolysates from chicken feathers and from fish bones by microbial routes), will be stored in text documents (.docx), excel spreadsheets (.xlsx) and image files (.jpeg). Data will also be stored as .pdf files. One earth SHARE POINT will be used for data storage during the active phases of the research. VITO will produce protocols and experimental results derived from the research activities in WP2 (Task 2.4: enzymatic esterification of PUFA). There will be generation of new data that will be stored as (.xlsx, .doc, .pdf, .xml, .dwg, etc.) on VITO server. The compiled information in terms of presentations and reports will be stored also on One Earth SharePoint.

4. Stakeholder engagement and knowledge transfer.
   UNIBO will produce experimental data from lab-scale tests (in the frame of WP2-D2.4-SubTask 2.2.1). The data will be stored in text documents (.docx), excel spreadhseets (.xlsx) and image files (.jpeg). Also .pdf files will be used for data storage. ONE-EARTH Sharepoint will be used for data storage during the active phases of the research. The compiled information in terms of presentations and reports will be stored also on One Earth SharePoint.

5. In WP5/Task 5.1, UNIBO will gather qualitative and quantitative data related to mass and energy balances of unit processes included in the system under investigation to be and used for creating life cycle inventory (LCI) models (“in silico”). The perspective adopted in ONE EARTH will enable the collection of these data mainly from monitoring activities from other WPs, meeting high-quality data criteria for LCI. A thorough literature review and the most

[6] Neuman, W. L. (2014). Social research methods: Qualitative and quantitative approaches. Boston: Pearson.
[7] Neuman, W. L. (2014). Social research methods: Qualitative and quantitative approaches. Boston: Pearson.

complete databases including chemical products and processes (e.g., Ecoinvent, AIMST-IDEA) will be used to complement primary data and gather information relevant to the background systems, when not directly measurable. Quantitative LCA results will be generated by means of dedicated software for assessing the potential environmental impacts (D5.1, D5.2). These data will be mainly numerical, stored in tabular formats (.xlsx, .ods). ONE-EARTH Sharepoint will be used for data storage during the active phases of the research.

6. Analysis of findings and derivation of main conclusions and recommendations. By All Partners the evaluation of the current state of data management practices, identifying strengths, weaknesses, and areas for improvement and summarizing the key insights from the analysis and identify patterns, correlations, or issues in data management practices.
7. Capacity building for local stakeholders – OXYGEN will develop various strategies and approaches, tailored to the specific needs of the stakeholders and the context
8. Setting up and Operation of ONE EARTH`s Advisory Board – will be set up after the Kick Off meeting for continuous knowledge transfer with Topic-related projects and initiatives (coordinated by UNIBO)
9. Stakeholder Engagement activities, workshops and conferences.

PEDAL will catalyse connections and showcase project solutions and increase the database. Contact Information, data collected from joint events.

10. Monitoring and assessment of Communication, Dissemination activities (video/interview can be produced for dissemination purposes). PEDAL will lead the communication and dissemination activities making sure all Partners inputs
11. Collaboration with Related Networks and Initiatives to benefit from synergies with other relevant EU initiatives and to establish close collaboration with the project. All Partners involve partnering with other organizations, communities, or initiatives to improve data sharing, governance, analysis, and innovation. Collaboration ensures that data management practices are consistent, efficient, and aligned with broader industry standards.

2.2.2 Data collected/generated from dissemination, communication, stakeholder engagement and exploitation activities

The data deriving by monitoring and assessing the dissemination and communication results of the project and by the clustering and exploitation with a view to measuring the impact of the relevant activities, fall under WP6 (PC) and include (i). Website and social media accounts (i.e., LinkedIn, Twitter, Facebook) analytics; (ii). Data collected from project events; (iii) Data collected from dissemination and communication actions (e.g., participation in external events, participation in project workshops, etc.); (iii). Newsletter subscriptions and (iv) Exploitation of project results. The data will be identified through online analytics, utilizing social media accounts, partners reporting etc. PC is responsible for sending the necessary templates (.docx, .xlsx) to all partners, alongside with guidelines on how to fill them in, as well as for collecting input on an *ad-hoc* basis (i.e., each time a dissemination or stakeholder engagement action is performed). PC is also responsible for preparing the necessary reports to evaluate the overall progress of dissemination and communication activities (measuring outcomes against pre-set KPIs) throughout the lifespan of the project. The storage format of the data to be collected during the project's duration, includes .csv, .docx, .xlsx, .pdf, .ppt, .mp4, .jpeg and .png files.

2.2.2.1 Website and social media analytics

Website analytics: These data will be collected/generated through a Web Analytics Tool through periodic monitoring of the project's website statistics (#visitors; # views; time visited the website`s sections).

Social media statistics (YouTube, Twitter and LinkedIn): These data will be collected/generated through periodic monitoring of the project's social media statistics (i.e., YouTube, Twitter and LinkedIn) with a view to measuring and assessing the performance and results of the project's social media activity in terms of dissemination and communication. With that in mind, the data will be mostly quantitative in nature addressing the metrics reached on each channel (e.g., number of followers, tweets impressions on Twitter, number of people reached through LinkedIn posts, etc.). Additionally, these data will be followed by an analysis of the results stemming from them and possible ways to improve the results to reach the project's targets. All in all, the data will be stored in a Microsoft excel file (.xlsx) while at the same time, the analysis of the results will be stored in a standard word document (.docx).

2.2.2.2 Data collected from project events and stakeholder engagement activities

Data will be collected throughout the project via two main channels: (i) events organized by ONE EARTH, either independently or in collaboration with other projects or initiatives, such as co-creation workshops, validation workshops, conferences, interviews, and both physical and virtual events. These events will capture participant demographic information through attendee lists; and (ii) ONE EARTH partners' participation in relevant third-party events, where general information about the events and their stakeholder engagement will be recorded.

Along these lines, these data will be collected to keep track of the results of activities in events for stakeholder engagement and provide the opportunity to project partners to report on these activities. Moreover, this data will be updated every time a partner attends an event, or a partner organises an event. Finally, the data will be both quantitative and qualitative in nature and will be stored in a standard spreadsheet (.xlsx).

2.2.2.3 Data collected from dissemination and communication actions.

The data will be collected through regular monitoring of the project's various dissemination activities, such as journal publications, blog posts, and more. This will be tracked using an Excel form designed to record all communication and dissemination efforts, including (but not limited to) press releases, social media posts, website articles, interviews, events (conferences, meetings, workshops, etc.), other publications, emails, presentations, informal discussions, and seminars. The goal of collecting this data is to evaluate the reach and effectiveness of dissemination activities during the project. To facilitate this, a template will be shared with all partners, recommending specific activities and providing a log for those completed. The template will also be available online for partners to update directly. All the collected data will be consolidated into a single Excel file (.xlsx).

2.2.2.4 Newsletter subscriptions.

A subscription form hosted on the project's website will aid the collection of these data in which any interested stakeholder can freely provide their contact details in a dedicated sign-up form so as to receive the most up-to-date news and outcomes of the project. A newsletter will be sent to subscribers once per 12 months. With that in mind, these data will be collected so that interested stakeholders can be informed about ONE EARTH's progress and upcoming events. The data will be

comprised of a list of subscribers along with their personal information such as: (i) email address, (ii) first and last name, (iii) country, (iv) type of organisation, (v) region and (vi) gender. A copy of this contact list will be stored to a dedicated cloud server BlueiTech (https://blueitech.com/), which is used for e-mail campaigns and newsletters distribution. All personal information included in this contact list will be used and protected according to BlueiTech's Privacy Policy. Subscribers can find details about how their personal information is managed on the respective privacy policy section of the ONE EARTH website.

2.2.3 Data collected/generated from project management and coordination.

During the implementation phase of ONE EARTH, data will be collected from management and coordination activities. Specifically, data will be generated from partners' communications, quality assurance processes, progress monitoring, risk analysis, workshops, and events. This data will include both qualitative and quantitative elements and will be stored in various formats such as photographs, meeting minutes, written insights in text documents, activity progress reports, and participant lists. The data will be stored in formats such as .csv, .docx, .xlsx, .pdf, .ppt, .jpeg, and .png files.

2.3 Origin of data and re-use of pre-existing data.

In the context of ONE EARTH, new data will be collected/generated by partners as well as external stakeholders participating in the activities of the project. With that in mind and aside from consortium partners, external groups of stakeholders from which new data will originate include:

- Business Community
- Authorities
- Policy makers at regional, national and EU level
- Civil society
- Researchers and academic experts
- Others

Moreover, pre-existing data will be utilised within the context of ONE EARTH as well. Outputs from EU-funded projects under the topic HORIZON-CL6-2023-CircBio-02-3-twostage including those past and ongoing EU research projects (including those the Bio-based Industries Joint Undertaking (BBI JU) /Circular Bio-based Europe Joint Undertaking (CBE JU), national projects and other relevant initiatives to a large extent will provide a solid basis for ONE EARTH. The ONE EARTH consortium will strive to make the most of and advance the work and results of these projects. Finally, consortium partners' internal knowledge, experience, and expertise from their participation in other projects and initiatives will directly and indirectly support the implementation of activities throughout the project.

2.4 Expected size of data.

The table that follows presents the different activities implemented while the project in which data is collected/generated, the types and formats of the data as well as the expected size of the data.

Table 1 Expected size of data

No	Name of activity	Data	Type of data	Format of data	Expected size of data (KB)*
1	Gap analysis/assessments				

2	Regulatory and safety assessments				
3	Developing and testing solutions	Primary data on the analysis of physical, chemical, biochemical, organometric, histological parameters of the objects of study within the framework of the project objectives. Observational, Experimental, Compiled/aggregated data and analytical data Data from chromatographic, microscopic, electrophoretic, electrochemical, potentiometric, optical analyses, organometric studies, protocols for conducting analyses, intermediate results, calculations and conclusions Research activities (production of YL biomasess enriched in (P)UFA and extracted (P)UFA; production of marine bacterial biomass enriched in LC-PUFAs as well as for the extraction of PUFAs from marine bacteria; production of bioactive protein hydrolysates from chicken feathers and from fish bones and scales by microbial routes) carried out by UNIBO teams will	Notes, spreadsheets, images Numerical data in a structured tabular form and spreadsheets; images, and text documents	.docx, .xlsx, .pdf, .jpeg, .tiff, .chd	1000 - 5000 KB

		produce experimental results and protocols.			
4	Stakeholder engagement and knowledge transfer	1.Stakeholder Identification and Characteristics Names, roles, and affiliations of stakeholders. Stakeholder demographics (e.g., geographic location, sector, organization size). Influence and interest levels (e.g., their power to affect outcomes and their level of interest in the initiative). Stakeholder needs, expectations, and priorities. 2. Engagement Process and Participation Metrics Number and type of stakeholders engaged (e.g., government, private sector, civil society, academia). Attendance and participation rates at events, workshops, or consultations. Channels and methods of engagement (e.g., surveys, meetings, online platforms). Frequency and duration of interactions.	Numerical data in a structured tabular form and spreadsheets; images, and text documents	.docx, .xlsx, .odt, .ods., .jpeg, .png	5 000 KB

		3. Feedback and Insights Stakeholder opinions, concerns, and suggestions on the project or initiative. Identification of challenges, barriers, and opportunities based on stakeholder perspectives. Level of satisfaction with engagement activities and methods. Perceptions of the initiative's impact or relevance. 4. Knowledge Transfer and Capacity Building Metrics Types of knowledge or skills transferred (e.g., technical, procedural, organizational). Number of training sessions, workshops, or knowledge-sharing events conducted. Participant demographics and engagement in knowledge-sharing activities. Pre- and post-activity evaluations to measure knowledge or skill improvement. Case studies or success stories illustrating knowledge transfer outcomes. 5. Communication and			

		Outreach Effectiveness Awareness and understanding levels of the project or initiative among stakeholders. Effectiveness of communication materials and channels (e.g., newsletters, webinars). Uptake or dissemination of shared knowledge (e.g., use of guidelines, implementation of practices).			
5	Improving knowledge for assessing specific aspects of the sustainable transition	Qualitative and quantitative data for mass and energy inputs and outputs related to the system under investigation will be gathered and used for creating LCA models by UNIBO. Quantitative LCA results will be generated by means of LCA software for assessing the potential environmental impacts	Numerical data in a structured tabular form and spreadsheets; images, and text documents	.docx, .xlsx, .odt, .ods., .jpeg, .png	5000 kB
6	Analysis of findings and derivation of main conclusions and recommendations	Primary data on the analysis of biochemical, organometric, histological parameters of the objects of study within the framework of the project objectives. Data from chromatographic, electrophoretic, optical analyses, organometric studies, protocols for conducting analyses,	Notes, spreadsheets, images	.docx, .xlsx, .pdf, .jpeg, .tiff, .chd	1000 - 5000 KB

		intermediate results and conclusions. Literature review, Regulatory review & Fraction Specifications Testing & Product development DHA powder or Esters			
7	Capacity building for local stakeholders	To perform ad hoc business models and feasibility studies to enable market exploitation of developed innovations;develop policy recommendations to populate regulatory barriers and constraints; enable wider outreach through international cooperation;design co-creation, knowledge sharing and exploitation workshops involving at least 15 – 25 stakeholders among with potentially interested SMEs; conduct a min. of 1 webinar/ year and 1 training course/ country in relevant industrial and academic contexts.	Notes, spreadsheets, images	docx, .xlsx, .pdf, .jpeg, .tiff, .chd	1000 - 5000 KB
8	Setting up and Operation of ONE	To plan and conduct common online	Notes, spreadshee	.docx, .xlsx,	1000 KB

	EARTH`s Advisory Board	meetings and the planning of interexchange activities	ts, images, presentations	.pdf, .ppt, .jpeg, .png	
9	Stakeholder Engagement activities, workshops and conferences	Photos, number of event participants, presentations, interviews, surveys, Direct data input by users by newsletter subscription	Notes, spreadsheets, images, presentations	.docx, .xlsx, .pdf, .ppt, .jpeg, .png	1000 KB
10	Monitoring and assessment of Communication, Dissemination activities	Website and social media analytics, Data collected from project events, Newsletter subscriptions, Data collected from dissemination and communication activities/actions	Text document spreadsheets, presentations, audio-visual files, images	.docx .pdf .xlsx .csv .ppt .mp4 .jpeg .png	1000 KB
11	Collaboration with Related Networks and Initiatives to benefit from synergies with other relevant EU initiatives and to establish close collaboration with the project.	Contact Information, data collected from joint events, collaboration records, agreements and MoUs, feedback and evaluation	Notes, spreadsheets, images	.docx, .xlsx, .pdf, .jpeg	500 KB
* The estimated expected size of the data is based on the adjusted size of data generated via similar activities of project partners in the past unless otherwise indicated.					

2.5 Data utility.

The stakeholders who may find significant value in the data collected and generated by the project, both within and beyond the ONE EARTH consortium, along with the potential benefits they could gain from utilizing this data, are summarized in the table below.

Table 2 Data utility

Stakeholder group	Data utility
Policy makers	ONE EARTH aims at supporting policy makers in their efforts to develop sustainable pathways to develop innovative bio-based solutions for a sustainable circular economy. The project's

	generated data and results will specifically contribute to creating a circular value chain by developing innovative bio-based solutions that transform and valorize residual biomass of animal origin. Along these lines, data generated may be of great utility for experts who design, implement and/or fund relevant policies.
Commercial actors	The data created/generated through ONE EARTH will provide insights on how to accomplish food supplement producers, cheese, chicken and fish producers' engagement to build the connections required to accelerate innovative bio-based solutions. The results of the project are expected (i) to increase awareness regarding bio-based solutions and their benefits and (ii) to provide useful feedback on a policy making level regarding integrating bio-based solutions into broader policies and regional development plans.
Researchers and Developers	In the frame of the ONE EARTH project, interdisciplinary research is performed that largely builds upon prior research efforts to generate insights on the transition from linear fossil-based systems to circular and bio-based solutions across Europe. Additionally, local stakeholders are engaged in the project's co-creation, mutual learning, and validation activities in identifying environmental, economic and social limits of a bio-based economy and improving existing assessment methodologies. Research data of the project that will be published in reports or peer-reviewed scientific journals as well as deposited in open repositories can be of great utility for scientists in the field, aggregating and classifying existing scientific knowledge and creating new knowledge and empirical open data on the transition to circular and bio-based systems.
Civil society	ONE EARTH seeks to actively involve local stakeholders in its activities to ensure their perspectives are fully considered in the development of regional policies.
Project partners	The data collected/generated during ONE EARTH is the cornerstone for project partners to produce evidence-based results and ultimately achieve the objectives of the project. Indeed, these data enable the co-creation and validation of findings that will assist in embedding policy priorities in regional and European agendas. At the same time, this data may be meaningful for project partners beyond the end of the project as well, enabling them to build and capitalise upon interesting ideas and Opportunities that may emerge to ensure the long-term sustainability of the ONE EARTH results.

3. FAIR DATA

The guidelines on Data Management Plans available in the *Horizon Europe Data Management Plan Template* of the Commission emphasise the importance of making the data produced by projects funded under Horizon Europe **Findable, Accessible, Interoperable as well as Reusable (FAIR)**, with a view to ensuring its sound management. This means using standards and metadata to make data discoverable, specifying data sharing procedures and which data will be open, allowing data exchange via open repositories as well as facilitating the reusability of the data. With that in mind, the following sections of the DMP lay out the methodology followed in the framework of ONE EARTH with respect to making data findable, accessible and interoperable as well as ensuring their preservation and open access, with a view to increasing its re-use.

3.1 Making data findable, including provisions for metadata.

3.1.1 Data discoverability and identification mechanism.

ONE EARTH prioritizes improving the discoverability of the data collected or generated throughout its activities. To achieve this, the project employs a metadata-driven approach, enhancing the searchability of the data while also supporting its comprehension and reuse. Metadata, often referred to as "data about data" or "information about information," is structured textual information that provides details about the creation, content, or context of a digital resource—whether it's a single file, a portion of a file, or a collection of files. Metadata serves as the critical link connecting information and data across the web, enabling users to discover, manage, describe, preserve, and establish relationships with and between digital resources[8].

Three distinct types of metadata exist[9], as presented below:

- **Descriptive metadata** is used to identify and describe collections and related information resources. Descriptive metadata at the local level helps with searching and retrieving. In an online environment, descriptive metadata helps to discover resources. Most of the time, it includes information such as the title, author, date, description, identifier, etc.
- **Administrative metadata** is used to facilitate the management of information resources. It is helpful for both short-term and long-term management and processing of data. This is information that will not usually be relevant to the public but will be essential for staff to manage collections internally. Such metadata may be location information, acquisition information, etc.
- **Structural metadata** enables navigation and presentation of electronic resources. It documents how the components of an item are organized. Examples of structural metadata could be the way in which pages are ordered to form chapters of a book, a photograph that is included in a manuscript or a scrapbook or the JPEG and TIF files that were created from the original photograph negative, linked together.

With that in mind, **data produced/used during ONE EARTH is discoverable with metadata** suitable to its content and format. The project employs **metadata standards** to produce rich and consistent

[8] Foulonneau, M., & Riley, J. (2008). Metadata for digital resources: Implementation, systems design and interoperability. Oxford: Chandos.

[9] Caplan, P. (2003). Metadata fundamentals for all librarians. Chicago: American Library Association.

metadata with a view to supporting the long-term discovery, use and integrity of its data (see Subsection 3.1.5 for more details on the metadata standards adopted by ONE EARTH).

In parallel, to further increase data discoverability, the **data produced by ONE EARTH and deemed open for sharing and re-use, will be deposited to Zenodo portal (**https://zenodo.org). Zenodo is an open-access repository developed by CERN under the European OpenAIRE program and launched in 2013. It is designed to allow researchers from all disciplines to share, preserve, and showcase their research outputs., an open data repository.

Key features of Zenodo:

1. Open Access and Free to Use:

Zenodo provides free access to anyone to upload and download content. This aligns with the open science principles of making research outputs available to the public without barriers.

2. Multidisciplinary:

Unlike many repositories focused on specific subjects, Zenodo accepts all forms of research outputs from any field, including natural sciences, humanities, social sciences, and more.

3. Wide Range of Research Outputs:

You can upload various types of content such as research papers, datasets, software, reports, posters, presentations, and more. This makes it a versatile platform for researchers.

4. DOI Assignment:

Zenodo assigns Digital Object Identifiers (DOIs) to all uploads, which makes the content easily citable and ensures long-term availability and traceability.

5. Integration with GitHub:

Zenodo integrates with GitHub, enabling researchers to automatically archive their code repositories and assign DOIs to specific versions, making software and code publications easier to manage and cite.

6. Storage and Preservation:

All data uploaded to Zenodo is stored and preserved in the long term by CERN, ensuring that research outputs remain accessible and well-protected.

7. Compliance with Funders' Policies:

Zenodo helps researchers meet open-access requirements from funding bodies such as the European Commission, which mandates open access to research data and publications.

8. Community Support and Collaboration:

Zenodo supports community-based collections, where users can create communities for specific topics or research groups, allowing for collaboration and shared resources within specific fields.

9. Searchable and Discoverable:

The portal offers easy discoverability of research outputs with robust search functionalities, including filters for types of content, disciplines, publication dates, and more.

10. Licensing Options:

Users can choose from a variety of licenses when uploading content, including Creative Commons, which allows authors to define how their work can be used by others.

Zenodo has become an important tool for the research community, offering an easy, transparent, and free way to share knowledge and comply with open-access mandates.

Moreover, by employing this data repository, the **data produced during the implementation of the project is locatable by means of a standard identification mechanism.** Indeed, ONE EARTH will be able to assign globally resolvable **Persistent Identifiers (PIDs)** on any data uploaded to Zenodo. An identifier is a unique identification code that is applied to a dataset, so that it can be unambiguously referenced[10]. For example, a catalogue number is an identifier for a particular specimen and an ISBN code is an identifier for a particular book. PIDs are simply maintainable identifiers that allow for permanent reference to a digital object. In other words, PIDs are a way of giving digital resources, such as documents, images and data records, a unique and persistent reference number.

At the same time, **datasets not uploaded to Zenodo will be preserved in a searchable resource (**the cloud web storage service of the project) and utilise well-tailored identification mechanisms as well, in the form of standard naming conventions that will safeguard their consistency and make them **easily locatable** for partners within the frame of the project. The following subsection provides further details in this respect.

3.1.2 Naming conventions

Adopting consistent naming conventions for the project's data files significantly improves their searchability. With this in mind, ONE EARTH ensures that data file names are structured to clearly indicate their content, status, and version, thereby enhancing discoverability. This approach allows project partners and stakeholders to easily identify, classify, and sort files efficiently.

According to the UK Data Archive (UK Data Service, 2017b), a best practice in naming convention is to create brief yet meaningful names for data files, that facilitate classification. The naming convention should avoid the utilisation of spaces, dots and special characters (such as & or !), whereas the use of underscores is endorsed, to separate elements in the data file name and make them understandable. At the same time, versioning should be a part of a naming convention to clearly identify the changes and edits in a file.

With that in mind and to facilitate the reference of the datasets that will be produced during its implementation, ONE EARTH suggests a **standard naming convention that integrates versioning and considers the possibility of creating multiple datasets** during an activity that entails data collection/generation. Indeed, ONE EARTH's naming convention considers this issue and addresses it by employing a unique element that captures the number of datasets that are produced under the same activity.

In particular, the **naming convention employed by the project is described below**.

[Name of project] _ [Name of Study] _ [Number of dataset] _ [Issue Date] _ [Version number]

- **Name of project:** ONE EARTH
- **Name of Study:** A short version of the name of the activity for which the dataset is created.
- **Number of dataset:** An indication of the number assigned to the dataset.

[10] Tonkin, E. Persistent identifiers: considering the options (2008), Ariadne Issue 56

- **Issue Date:** The date on which the latest version of the dataset was modified (YYYY.MM.DD.).
- **Version number:** The versioning number of a dataset.

With the above in mind, some **indicative examples** to showcase the naming structure applied in the context of ONE EARTH are provided below:

- **2024.11.30_ONE EARTH_Casestudies_Dataset1__v1 –**The first dataset generated from the collection of case studies form four critical sector. In this task, cases are selected from four sectors that have been identified as facing critical challenges within the current linear system: (a) the cosmetics; (b) the feed sector; (c) the (fine) chemical; and (d) the fertilizers sector. This is the first version of the dataset that was last modified on the 30^{ht} of November 2024 (30/11/2024).
- **2025.02.15_ONE EARTH_GapAnalysis_Dataset1__v1** -The first dataset generated from the gap analysis after the literature review. In this task, the environmental, economic, and social limits of the bio-based solutions for nutraceuticals, cosmetics, bioadhesives, fertilizers, and fish feed have been identified. This is the first version of the dataset that was last modified on the 15th of February 2025 (15/02/2025).
- **2026.03.31_ONE EARTH _Assessments_Dataset1__v1-** The first dataset generated from the assessment of the regulatory status of products derived from the development and assessment of bio-based innovative solutions.

3.1.3 Search keywords

The project's data will be provided with search keywords with a view to optimizing its re-use by interested stakeholders during its entire lifetime. With that in mind, the metadata standards employed by ONE EARTH provide opportunities for tagging the data collected/generated and its content with keywords. In general, keywords are a subset of metadata and include words and phrases used to name data. In the context of ONE EARTH, keywords are used to add valuable information to the data collected/generated as well as to facilitate the description and interpretation of its content and value.

Along these lines, the project's strategy on keywords is underpinned by the following principles:

- The who, the what, the when, the where, and the why should be covered.
- Consistency among the different keyword tags needs to be ensured.
- Relevant, understandable and clear keywording ought to be sought.

In general, the keywords will comprise terms related to circular bioeconomy, governance models, and regional authorities. The keywords will accurately reflect the content of the datasets and avoid words used only once or twice within them.

3.1.4 Versioning

Versioning of information ensures that revisions of datasets are uniquely identifiable, allowing users to track how data has changed over time and to clearly identify the version being used by creators or editors. Additionally, effective data versioning makes it easy to determine if a newer version of a dataset is available and to understand the changes between different versions, facilitating comparisons and helping to avoid confusion. In this context, **a clear version number indicator is used in the naming convention** of every data file produced during ONE EARTH to facilitate the identification of different versions.

3.1.5 Standards for metadata creation

ONE EARTH employs standards for creating metadata for data collected/generated by the project, with a view to describing it with **rich metadata** and thus improving their discoverability and searchability. As a result, effective searching, improved digital curation and easy sharing will be realized. In addition, the metadata standards applied enable the integration of metadata from a variety of sources into other technical systems.

With that in mind, for **ONE EARTHS's** openly available data, the metadata standards provided by ZENODO will be used. ZENODO creates metadata to accompany the datasets that are uploaded to its repository, extending their reach to a wider audience of interested stakeholders. This metadata can be exported in several standard formats, including open and machine-readable ones (such as MARCXML, Dublin Core, and DataCite Metadata Schema).

Project **data not available for re-use, will also be annotated with open and machine-readable metadata** following the **Dublin Core Metadata standard**. The Dublin Core Metadata element set (certified with the ISO Standard 15836) is a standard which can be easily understood and implemented and as such, is one of the best-known metadata standards. It was originally developed as a core set of elements for describing the content of web pages and enabling their search and retrieval. Among the reasons for selecting this standard is also the fact that **ZENODO is compatible with Dublin Core metadata formats** and thus any initially closed data, that may become open at a later stage (e.g., due to a change in the consortium's policy), will not lose its metadata. With that said, the Dublin Core metadata standard is a simple yet effective set for creating rich metadata that will describe a wide range of resources. The fifteen-element "Dublin Core" described in this standard is part of a larger set of metadata vocabularies and technical specifications maintained by the *Dublin Core Metadata Initiative (DCMI)*. The full set of vocabularies also includes sets of resource classes, vocabulary encoding schemes, and syntax encoding schemes. **An online metadata generator will be used** to produce the different metadata elements required (*dublincoregenerator.com*).

3.2 Making data accessible

3.2.1 Openly available and closed data

ONE EARTH follows the guidelines of the *Horizon Europe Data Management Plan Template*, and is in line with FAIR principles and the rule "as open as possible, as closed as necessary", aiming to "*make the data collected/generated openly available with as few restrictions as possible, while at the same time protecting sensitive data from inappropriate access*"[11]. This calls project partners to disseminate the project's data that have the potential to offer long-term value to external stakeholders and do not harm the confidentiality and privacy of the stakeholders that contributed to the collection/generation of this data, maximising the beneficial impact of ONE EARTH.

Only anonymised and aggregated data will be made open to ensure that data subjects cannot be identified in any reports, publications and/or datasets resulting from the project. The relevant project partner in each case will **undertake all the necessary anonymisation procedures** to anonymise the

[11] Koulocheri, E. (2017). What is the Open Research Data Pilot? Retrieved from https://www.openaire.eu/what-is-the-open-research-data-pilot

data in such a way that the data subject is no longer identifiable (more details on data management responsibilities are provided in Section 6.2).

In this regard, it is essential to remember that during the process of data anonymisation, identifiers must be removed, generalized, aggregated, or altered. Additionally, anonymisation differs from pseudonymisation, which is classified separately under GDPR. While anonymisation theoretically eliminates any possibility of identifying the data subject, pseudonymisation retains the ability to re-identify the subject with the use of additional information. Along these lines, the table which follows provides a **list of good practices** for the anonymisation of quantitative and qualitative data derived from the tour guide on data management of the Consortium of European Social Science Data Archives (CESSDA).

Table 3 Good practices for data anonymization

Type of data	Good practices
Quantitative data	• Remove or aggregate variables or reduce the precision or detailed textual meaning of a variable. • Aggregate or reduce the precision of a variable such as age or place of residence. As a general rule, report the lowest level of geo-referencing that will not potentially breach respondent confidentiality. • Generalise the meaning of a detailed text variable by replacing potentially disclosive free-text responses with more general text. • Restrict the upper or lower ranges of a continuous variable to hide outliers if the values for certain individuals are unusual or atypical within the wider group researched.
Qualitative data	• Use pseudonyms or generic descriptors to edit identifying information, rather than blanking-out that information. • Plan anonymisation at the time of transcription or initial write-up, (longitudinal studies may be an exception if relationships between waves of interviews need special attention for harmonised editing). • Use pseudonyms or replacements that are consistent within the research team and throughout the project. For example, using the same pseudonyms in publications and follow-up research. • Use 'search and replace' techniques carefully so that unintended changes are not made, and misspelt words are not missed. • Identify replacements in the text clearly, for example with [brackets] or using XML tags such as <seg> word to be anonymised</seg>. Create an anonymisation log (also known as a de-anonymisation key) of all replacements, aggregations or removals made and store such a log securely and separately from the anonymised data files.

Source: Tour guide on data management of the CESSDA[12]

With that in mind, the following table presents the data collected/generated while the project that will be made openly available. In case certain data cannot be shared (or need to be shared under restrictions), a justification for that choice is provided.

It is important to note that all personal data collected/generated will be considered as closed data prior to their anonymisation and aggregation to safeguard the confidentiality of the data subjects.

3.2.2 Data accessibility and availability

Public access to the open data will be made available through Zenodo. The data will be fully accessible thanks to the included metadata and the search facility available on Zenodo. At the same time, closed data are intended to be stored and shared amongst authorised members of the consortium through cloud storage and file sharing providers which constitute structures that maintain and manage data and make these data accessible over a network, usually the internet (i.e. Google Drive). Before starting using these cloud services from providers situated both inside and outside the EEA we have ensured that they comply with the relevant GDPR requirements.

The following table (Table 4) presents where data will be made accessible in the context of ONE EARTH.

Table 4 Data accessibility

No	Data	Accessibility
1	Gap analysis/assessments	The results will be shared in D5.1, D5.3, D5. 5 which is a public report.
2	Regulatory and safety assessments	Stakeholders—such as businesses, researchers, policymakers, and the general public—can access and understand the information related to regulatory compliance and safety evaluations.
3	Developing and testing solutions	UNIBO will produce data for the optimization of process parameter values at TRL3 for maximizing the production of PUFAs by the fermentation of volatile fatty acids. BIOTREND will perform the further optimization and transition of such process to TRL5, summarized in D2.2, report on pilot scale-PUFA production. The results on fish feed production using such PUFAs will be shared within the consortium in D 2.4

[12] Retrieved from: https://www.cessda.eu/Research-Infrastructure/Training/Expert-Tour-Guide-on-Data-Management/5.-Protect/Anonymisation

		which is a public report (but should be changed to sensitive). UNIBO will produce data for the optimization of process parameters for the production of marine bacterial biomass enriched in LC-PUFAs/ PUFAs from volatile fatty acids at TRL3. The results will be shared within the consortium in D2.4 which is currently a public report. (but should be changed to sensitive). VITO will produce data for enzymatic esterification of PUFAs on lab scale (WP2). The results will be shared within the consortium. Out of the due deliverables (D2.8, D2.9 and D2.10), D2.8 and D2.10 are public dissemination level but both of them should be changed to sensitive. UNIBO will produce data for the optimization of process parameters the production of bioactive protein hydrolysates from chicken feathers and from fish bones and scales by microbial routes at TRL3 and then at TRL4/5. The results will be shared within the consortium in D3.1 and D3.2 which are public reports. (but should be changed to sensitive). The above Unibo results (shared in D2.4, D3.1 and D3.2) will be exploited through peer-reviewed publications and/or patents. After the required embargo period (which will depend on the type of exploitation i.e publication or patent), the data will be made publicly available on zenodo.
4	Stakeholder engagement and knowledge transfer	PEDAL will address the specific needs of identified target groups through tailored activities and initiatives. Facilitate the exploitation of ONE EARTH project results by fostering synergies with other EU projects and initiatives.

		Build a strong community of stakeholders and collaborators with shared goals and connections to ONE EARTH.
5	Improving knowledge for assessing specific aspects of the sustainable transition	The LCA results produced by UNIBO will be shared in D5.1 and D5.2 as public reports. Data will be made available through the selected repository at the time of results publication in selected journals. Data will be kept embargoed to ensure confidentiality but will be made openly available as soon as the paper will be published
6	Analysis of findings and derivation of main conclusions and recommendations	Stakeholders can access, understand, and use the results of a study, investigation, or assessment, as well as the conclusions and recommendations drawn from those findings. It emphasizes ensuring that the process and outputs are transparent, inclusive, and user-friendly for all intended audiences.
7	Capacity building for local stakeholders	Capacity-building materials will be made available as presentations, documentation or videos on the ONE EARTH website and during stakeholder engagement activities.
8	Setting up and Operation of ONE EARTH`s Advisory Board	Data will be stored in a consortium cloud server.
9	Stakeholder Engagement activities, workshops and conferences	Data will be stored in a consortium cloud server.
10	Monitoring and assessment of Communication, Dissemination activities	Data will be stored in a consortium cloud server and will be used to fill the communication and dissemination templates on the EC participant portal
11	Collaboration with Related Networks and Initiatives to benefit from synergies with other relevant EU initiatives and to establish close collaboration with	The data will be made available as presentations, documentation or videos on the ONE EARTH website and during stakeholder engagement

	the project.	activities.
12	Website and social media analytics	Quantitative data from website and social media analytics are anonymous and will be shared with the consortium, the EU Commission and the large public, if necessary.
13	Data collected from project events	Data collected from project events will be shared with the consortium, the EU Commission and the participants of the event upon the sign of a consent form.
14	Newsletter subscription	Data will be collected in a dedicated cloud server owned by PEDAL (communication and dissemination leader) The data will only be used by the communications manager of the project and it won't be shared with anyone else. Quantitative data will be extracted from it to share the analytics with the project partners. Permission to manage the data was provided at the time of collecting it.

3.2.3 Methods, software tools and documentation to access the data

ONE EARTH prioritizes ensuring the accessibility of the data collected and generated throughout the project. At present, no specialized methods, software tools, or documentation are anticipated to be necessary for accessing the data. Stakeholders will have straightforward access to the data through commonly used web browsers (such as Mozilla Firefox, Google Chrome, Internet Explorer, Safari, etc.) on their computers, smartphones, or tablets.

More specifically, they first need to access Zenodo through its webpage (following the link https://about.zenodo.org/) and utilise the search engine of the repository to search for interesting data. By typing the name of the project (or any other relevant keyword connected to the ONE EARTH data) the search engine will direct the user to the project's data, ready to be explored and re-used. Moreover, since the data will be available in open formats, we will be ensuring that they can appropriately be read by a range of different software that is widely and freely accessible to all potential users of the data.

Closed data will only be accessed by authorised project partners through the usage of a cloud storage service. Again, no specialised method, software tool and/or documentation is needed to this end.

3.2.4 Data, metadata, code and documentation repositories

ONE EARTH's open data along with their linking metadata as well as any relevant code and documentation (if applicable) required to access these data, will be deposited to and securely stored

by ZENODO. It is quite unlikely that ZENODO will terminate its operation and stop providing its services, but in such a case all data, metadata, code and documentation uploaded will be transferred and hosted to other suitable repositories without undue delay. In this respect, it is important to note that, since all of ONE EARTH's openly available data will make use of PIDs (i.e., DOIs), the links to the data will not be affected. In parallel, the project's data that will not be openly available for sharing will be deposited, together with their accompanying metadata, code and documentation (if necessary), to the cloud web storage service employed by the project.

3.2.5 Restrictions

By utilising Zenodo for sharing the project's openly available data, ONE EARTH can apply different levels of accessibility for this data considering any relevant issues (such as ethical, rules of personal data, intellectual property, commercial, privacy-related, security-related, etc.).

Zenodo offers several levels of data accessibility to accommodate different needs for sharing and protecting research outputs. These options provide flexibility in how openly or restrictively content is shared with others. Here are the levels of data accessibility that Zenodo offers:

Open Access:

- Data is fully accessible to anyone. This is the default and most common level of accessibility on Zenodo, aligning with the principles of open science. Anyone can download and use the content, depending on the licensing terms specified by the author.

Embargoed Access:

- The data is deposited in Zenodo but will only become publicly available after a specified embargo period. This is often used when authors need to restrict access for a limited time due to publishing agreements or ongoing research. After the embargo period, the data will automatically switch to open access.

Restricted Access:

- Data is available only to authorized users or upon request. Researchers can specify who can access the data, and others need to submit a request to view or download the files. The author can manually approve or deny these requests, providing a controlled way to share data.

Closed Access:

- The data is deposited in Zenodo but not accessible to anyone other than the depositor. This option is useful for archiving purposes or when data must remain confidential due to legal or ethical reasons. Metadata about the deposit (such as title and author) is still visible to others, but the actual content remains private.

Project partners will mainly use the open access level to disseminate the project's data amongst the interested stakeholders. Nevertheless, in some cases embargo periods or restricted access may be used as described in Subsection 3.2.1. Data that will not be available for re-use will be accessible only by authorised partners of ONE EARTHS's consortium and /or authorised personnel from the European Commission.

Moreover, ONE EARTH will ensure open access to all peer-reviewed scientific publications that may be produced in the framework of the project. According to the Grant Agreement, ONE EARTH will ensure that:

- at the latest at the time of publication, a machine-readable electronic copy of the published version or the final peer-reviewed manuscript accepted for publication, is deposited in a trusted repository for scientific publications
- immediate open access is provided to the deposited publication via the repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g., CC BY-NC, CC BY-ND) and
- information is given via the repository about any research output or any other tools and instruments needed to validate the conclusions of the scientific publication.

Beneficiaries (or authors) must retain sufficient intellectual property rights to comply with the open access requirements.

Metadata of deposited publications must be open under a Creative Common Public Domain Dedication (CC 0) or equivalent, in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: publication (author(s), title, date of publication, publication venue); Horizon Europe; grant project name, acronym and number; licensing terms; persistent identifiers for the publication, the authors involved in the action and, if possible, for their organisations and the grant. Where applicable, the metadata must include persistent identifiers for any research output or any other tools and instruments needed to validate the conclusions of the publication.

Only publication fees in full open access venues for peer-reviewed scientific publications are eligible for reimbursement.

Along these lines, this section has provided the methodology applied in the frame of ONE EARTH to ensure that its data are as openly accessible as possible by any stakeholder that may find it interesting for re-use. In this context, ONE EARTH also focuses on providing metadata standards and appropriate metadata vocabularies to increase data interoperability. The following section provides further details in this respect.

3.3 Making data interoperable.

Data interoperability refers to the capacity of systems and services that create, exchange, and utilize data to maintain clear, shared expectations regarding the content, context, and meaning of that data. Considering this, ONE EARTH has incorporated the use of metadata vocabularies, standards, and methods into its data management methodology, ensuring enhanced interoperability for the data collected and generated throughout its activities.

More specifically, **the interoperability of the data that will not be publicly shared will be facilitated using the Dublin Core Metadata standard.** This standard is a small “metadata element set” which accounts for issues that must be resolved to ensure that data meet traditional standards for quality and consistency, while remaining broadly interoperable with other data sources in the linked data environment. The fifteen elements of the standard provide a vocabulary of concepts with natural-language definitions (e.g., title, creator, author, etc.) that are instantly converted into open machine-readable formats (such as XML, HTML, etc.), enabling machine-processability. Each element is optional and may be repeated, while the standard itself offer ways exist for refining them, encouraging the use

of encoding and vocabulary schemes. The vocabulary of the Dublin Core Metadata standard is presented by the following table[13]:

Table 5 Dublin Core Metadata standard vocabulary

No	Element	Element definition
1	Title	A name given to the resource.
2	Creator	An entity primarily responsible for making the content of the resource.
3	Subject	The topic of the content of the resource.
4	Description	An account of the content of the resource.
5	Publisher	An entity responsible for making the resource available.
6	Contributor	An entity responsible for making contributions to the content of the resource.
7	Date	A date associated with an event in the life cycle of the resource
8	Type	The nature or genre of the content of the resource.
9	Format	The physical or digital manifestation of the resource.
10	Identifier	An unambiguous reference to the resource within a given context.
11	Source	A reference to a resource from which the present resource is derived.
12	Language	A language of the intellectual content of the resource.
13	Relation	A reference to a related resource.
14	Coverage	The extent or scope of the content of the resource.
15	Rights	Information about rights held in and over the resource.

Along similar lines, **the interoperability of openly available data will be facilitated through ZENODO**, since its metadata will be stored internally in JSON format according to a defined JSON schema. This encloses HTML microdata that allows machine-readable data to be embedded in HTML documents in the form of nested groups of name-value pairs. Moreover, the JSON schema provides a collection of shared vocabularies in microdata format that can be used to mark-up pages in ways that can be understood by the major search engines. Moreover, all metadata linked to the open data is exported via the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) and can be harvested.

[13] Sugimoto, S., Baker, T., & Weibel, S. L. (2002). Dublin Core: Process and Principles. Lecture Notes in Computer Science Digital Libraries: People, Knowledge, and Technology, 25-35.

The OAI-PMH develops and promotes interoperability standards that facilitate the efficient dissemination of data amongst diverse Communities[14].

3.4 Increase data re-use.

3.4.1 License schemes to permit the widest use possible.

The application of a licence to ONE EARTH open data is a simple way to ensure that any interested third-party can re-use it. In this context, licences are the instruments which permit a third-party to copy, distribute, display and/or modify the project's data only for the purposes that are set by the licence. Licences typically grant permissions on conditions that certain terms are met. While the precise details vary, three conditions are commonly found in licences which are attribution, non-derivative, and non-commerciality.

Along these lines, ONE EARTH publishes openly available data under the **Creative Commons licencing scheme** to foster their re-use and build an equitable and accessible environment for them. ZENODO provides ONE EARTH the **opportunity to publish its open data under five Creative Common licences** as follows:

- **Creative Commons Attribution-Share Alike 4.0** (CC BY-SA 4.0) according to which any third party can freely copy, distribute, display and modify the datasets for any purpose. Remix, transform, or built upon data, must be distributed under the same license as the original. Third parties must give appropriate credit, provide a link to the license, and indicate if changes were made.

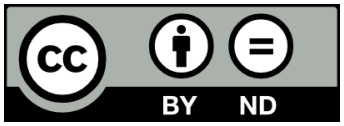
Figure 1 CC BY-SA 4.0

- **Creative Commons Attribution 4.0 International** (CC BY 4.0) according to which any third party can freely copy, distribute, display and modify the datasets for any purpose. Third parties must give appropriate credit, provide a link to the license, and indicate if changes were made.

Figure 2 CC BY 4.0

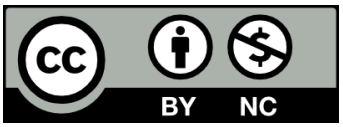
- **Creative Commons Attribution-No Derivatives 4.0 International** (CC BY-ND 4.0) during which any third party can freely copy, distribute, display and modify the datasets for any purpose. Remix, transform, or built upon data, however, must not be distributed. Third parties must give appropriate credit, provide a link to the license, and indicate if changes were made.

Figure 3 CC BY-ND 4.0



- **Creative Commons Attribution-NonCommercial 4.0 International** (CC BY-NC 4.0) based on which third parties can copy, distribute, display and modify the datasets for any purpose other than commercial unless they get permission from project partners first. Third parties must give appropriate credit, provide a link to the license, and indicate if changes were made.

Figure 4 CC BY-NC 4.0



- **Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International** (CC BY-NC-ND 4.0) according to which third parties can copy, distribute, display and modify the datasets for any purpose other than commercial unless they get permission from project partners first. Remix, transform, or built upon data, however, must not be

Figure 5 CC BY-NC-ND 4.0

[14] Corrado, E.M. (2005) 'The importance of open access, open source, and open standards for libraries', Issues in Science and Technology Librarianship.

distributed. Third parties must give appropriate credit, provide a link to the license, and indicate if changes were made.

Different licensing schemes may be selected to better fit the need of ONE EARTH's open data ensuring not only their long-term preservation and re-use but also the interests of the consortium along with the rights of individuals for whom the data is about. In such a case, this subsection of the DMP will be updated accordingly.

3.4.2 Availability for re-use

The re-use of data is a key component of ONE EARTH's methodology for making data FAIR. In fact, making data available for re-use ensures interested stakeholders, other than project partners, can benefit from this data, contributing towards maximising the impact of the project. Rich metadata created based on metadata standards that enable proper discovery as well as appropriate licensing schemes facilitate the re-use of ONE EARTH's open data, allowing them to find valuable utility.

In principle, it is expected that data will become available for re-use no later than 120 days after the end of its processing in the framework of the project (i.e., collection, anonymisation, aggregation, etc.) to ensure that any additional data management activities required to this end do not compete with the timely delivery of the project's planned outputs.

With that in mind, the expected time that ONE EARTHS's data will be made openly accessible and uploaded to Zenodo is indicatively provided in the following table:

Table 6 Expected time that data will be made open through Zenodo

No	Data	Expected time for making data open	Notes
1	Gap analysis/assessments	M45	Lead: UNIBO – participants: ALL
2	Regulatory and safety assessments	M45	Lead: UNIBO – participants: ALL
3	Developing and testing solutions	Data produced by UNIBO and derived from the activities of Optimization of process parameter values at TRL3 for maximizing the production of PUFAs by the fermentation of volatile fatty acids will be available at Month 22 (31/03/2026) or by the END OF THE	To be completed by UNIBO; participants: VITO, BIOTREND, FHNW

		PROJECT in 2028 (depending on Data produced by UNIBO and derived from the activities of optimization of process parameters the production of bioactive protein hydrolysates from chicken feathers and from fish bones and scales by microbial routes at TRL3 and then at TRL4/5 will be available at Month 31 (31/12/2026) or by the END OF THE PROJECT 2028 (depending on patents) Data produced by BIOTREND and derived from the activities of optimization and scale-up of process for the production of biomass enriched in LC-PUFAs/ PUFAs from volatile fatty acids at TRL5 will be available at Month 27 (31/07/2026) or by the END OF THE PROJECT 2028 (depending on	

		decisions regarding the exploitation strategy, including patent submission) The data produced by VITO in WP2 (Enzymatic PUFA esterification) will be available by the end of the project (depending on decisions regarding the exploitation/IP) Data produced by FHNW on PUFA-rich algae production from CO2-rich effluents will be available by M30 or at the end of the project depending on the IP strategy. Data produced by FHNW on CF, FS and fishbone peptides production (Enzymatic proteolytic CF and FS treatment and Chemical proteolytic CF and FS treatment) will be available in the corresponding deliverable (M30 or before end of the project, depending on IP strategy decided).	

4	Stakeholder engagement and knowledge transfer	M6-M 48	To be completed by PEDAL
5	Improving knowledge for assessing specific aspects of the sustainable transition	M 48	To be completed by UNIBO
6	Analysis of findings and derivation of main conclusions and recommendations	M45	Lead: UNIBO – participants: ALL
7	Capacity building for local stakeholders	M6-M48	To be completed by PEDAL
8	Setting up and Operation of ONE EARTH`s Advisory Board	M1-M3	Coordinated by UNIBO
9	Stakeholder Engagement activities, workshops and conferences	M6-M48	To be completed by PEDAL
10	Monitoring and assessment of Communication, Dissemination activities	N/A	N/A
11	Collaboration with Related Networks and Initiatives to benefit from synergies with other relevant EU initiatives and to establish close collaboration with the project.	M6-M48	OXYGEN
12	Website and social media analytics	N/A	N/A
13	Data collected from project events	N/A	N/A

14	Newsletter subscription	N/A	N/A
15	Data collected from dissemination and communication actions	N/A	N/A

4. Data Quality Assurance

Quality Assurance (QA) and Quality Control (QC) activities form a crucial part of ONE EARTH's data management methodology and are applied before any data is published to the ZENODO, ensuring the transparency, consistency, comparability, completeness, and accuracy of the data.

QA refers to a planned system of review procedures conducted by personnel who are not directly involved in the dataset development process. In the context of ONE EARTH, QA is implemented through peer reviews of methods and data summaries to assess the quality of the dataset and

identify any areas for improvement, ensuring the dataset accurately reflects the scientific knowledge and data generated.

QC, on the other hand, is a system of checks designed to maintain and assess the quality of the dataset being compiled. ONE EARTH's QC procedures involve routine technical checks that measure and control the consistency, integrity, correctness, and completeness of the data, while also identifying and addressing any errors or omissions. These checks cover various aspects, from data acquisition and handling to the application of approved procedures and documentation. General quality checks within the project include verifying (i) the absence of transcription errors in data input; (ii) that scale measures fall within acceptable ranges; and (iii) the correct use of naming conventions.

5. Other Research Outputs

ONE EARTH partners are committed to providing immediate open access (OA) to all peer-reviewed scientific publications by publishing through OA channels and journals. To ensure compliance with OA requirements, the Directory of OA Journals and the Journal Checker Tool will be used for verification. The consortium will adopt both Open Access self-archiving (Green Access) and Open Access publishing (Gold Open Access) as part of its policy, with the associated costs covered in the project's budget. Additionally, the consortium will consider open peer review processes when permitted by the scientific journals.

The research outputs of ONE EARTH are expected to result in publications of high quality and as such they will be disseminated through top journals of relevant scientific fields such as: Journal of Functional foods, Alleraqua.com, New Biotechnology, Chemosphere, Fisheries Research, Environmental Science and Technology, LWT– Food Science and Technology, Frontiers in Catalysis, Bioresource technology and Critical Reviews in Biotechnology among others.

6. Allocation of Resources

6.1 Estimated costs for making data FAIR

The costs associated with ensuring that the data collected and generated during ONE EARTH's activities comply with FAIR principles have been accounted for in the project's budget.

In order to produce the estimations of the costs for making data FAIR in the context of ONE EARTH, a series of assumptions were made, taking into account the respective guidelines provided by the Research Data Management Support, a multidisciplinary network of data experts within Utrecht University[15], as well as of the UK Data Service and its data management costing tool[16]. With that in mind, the estimated costs for making ONE EARTH's data FAIR cover data-related activities and resources across the data lifecycle, spanning from collection and documentation through storage and preservation over to sharing and re-use.

Costs for data collection cover activities necessary for acquiring external datasets (if required), gathering/generating new data, transcribing (if applicable), formatting and organising this data as well as acquiring informed consent from data subjects. This data processing activity reflects most of the costs required for making data FAIR as many ONE EARTH's data constitutes new data collected/generated over the course of the project. At the same time, data documentation costs address the effort required for describing data (e.g. marking data with variable and value labels, code descriptions, etc.) as well as creating well-defined metadata along with a meaningful description of the context and methodology of how data was collected/generated and processed (where necessary).

Costs for data storage include the resources required for ensuring adequate storage space for the data as well as the effort necessary for conducting data back-ups, while data access and security costs encompass costs related to ensuring access to the data as well as for protecting it from unauthorised access or use or from disclosure. Given that the storage of ONE EARTH's data will not require the procurement of additional space (other than what is already available to project partners) as well as that no special measures or software are required to access and secure the data (other than what is inherently built into the repositories of ONE EARTH's data), such costs are kept to a minimum.

Data preservation costs, on the other hand, are estimated relatively higher than data storage, access and security costs, as additional effort will be required in several cases in order to convert the collected/generated data from their original form (e.g. physical interview transcripts) to an open and/or machine-readable format suitable for long-term preservation (e.g. to an .xlsx format.). Adequate effort for data availability and re-use costs is also foreseen to safeguard the appropriate digitisation and anonymisation of the data as well as cover any resources required for data sharing and cleaning. Along the same lines, an appropriate effort is foreseen for overall data management as

[15] Research Data Management Support. Guides: Costs of data management. Utrecht University. Retrieved from: https://www.uu.nl/en/research/research-data-management/guides/costs-of-data-management

[16] UK Data Service. Costing Data Management. Retrieved from: https://www.ukdataservice.ac.uk/manage-data/plan/costing

well, to cover the effort related to the operationalisation of data management in the framework of ONE EARTH.

Finally, costs for long-term preservation in the framework of ONE EARTH are assumed to be negligible, since the open data of the project will be hosted in the repository of ZENODO free of charge.

6.2 Data management responsibilities

For the effective, proper and secure handling of the data collected/generated in the frame of ONE EARTH, specific data management roles have been established within the data management methodology and procedures of the project. These responsibilities are outlined in this section of the DMP and are as follows.

Project Coordinator: UNIBO, is responsible for overall data management in the framework of ONE EARTH. PC is responsible for the elaboration of the DMP and its updates (when necessary, along with the support of all partners). At the same time, the PC is responsible for the elaboration of proper templates for the Informed Consent Form and the Data Subject Request Form to be appropriately adjusted and utilised by project partners during the relevant activities of the project as well as for drafting the project's Privacy Policy that has been uploaded on the project's website. The PC in collaboration with the relevant project partners (e.g., Task Leaders) will examine if additional specific privacy policies are required for certain project tasks and will coordinate the elaboration of such privacy policies. Finally, the UNIBO coordinates with Work Package Leaders, Task Leaders and Responsible Partners to determine whether and how the data collected/generated by the project are shared and become available for re-use, contributes to its quality assurance and uploads the project's openly available data to ZENODO.

Work Package Leaders (WPLs): The WPL is responsible for coordinating the implementation of the data processing activities performed under the WPs they are leading. Moreover, they align with the PC and the respective Work Task Leader on whether and how the data gathered/produced under the tasks that fall within the WP they are leading will be shared and/or re-used. This includes the definition of access procedures as well as potential embargo periods along with any necessary software and/or other tools which may be required for data sharing and re-use. Finally, the WPLs are the main ones responsible for assuring the quality of the data stemming from the activities of the WP they are leading, including assessing their quality and indicating any need for improvement to the respective Work Task Leaders.

Task Leaders (TLs): TLs are responsible for the data collected/generated in the frame of the tasks that fall under their leadership as well as for safeguarding their appropriate and timely processing. Moreover, they are responsible for properly adjusting the Informed Consent Form and Data Subject Request Form templates, to the needs and specificities of the activities carried out in the task they are leading. WTLs are responsible for identifying the need for a specific privacy policy regarding the task they are leading and for collaborating with UNIBO for drafting and releasing it to the public. Finally, they undertake any necessary actions to prepare the data collected/generated through the tasks they are leading for sharing either within the consortium or openly (including the use of proper naming conventions, application of suitable anonymisation techniques, creation of appropriate metadata and documentation, etc.).

Partners: All project partners are tasked to collect, digitise, anonymise, store, destroy and/or otherwise process data for the specific purpose of the activity in which it has been collected/generated within the project. They are responsible for appropriately collecting the necessary consent for

processing data as well as for ensuring that the Informed Consent Form and the Data Subject Request Form used to this end are properly adjusted to the needs of the activity they are participating (including references to the project's Privacy Policy and any other applicable specific privacy policies) and, in any particularities, applicable to their organisation while ensuring adherence to provisions of relevant national data protection legislation in their respective country. Moreover, they are responsible for managing the consent forms they have collected with a view to demonstrating their compliance with the relevant applicable EU and national regulation(s). Finally, they perform quality checks to assess and maintain the quality of the dataset(s) held within their records.

Data repositories: Data repositories are tasked with the storage and long-term preservation of the project's data. In this respect, ZENODO will maintain and preserve the openly available data of ONE EARTH, enabling its sharing and re-use. To this end, ZENODO assigns metadata and DOIs to the data, while also taking all necessary measures to securely back-up the data and restore it, safeguarding its long-term preservation.

In this context, the following table illustrates the allocation of data management responsibilities amongst the members of the ONE EARTH consortium per data collected/generated under each WP.

Table 7 Data management responsibilities of ONE EARTH's partners per data collected/generated under each WP

WP	WPL	Data	Task	WTL	Responsible partners
WP1	UNIBO	Project Handbook	T1.1 T1.2 T1.3	UNIBO	All Partners
WP2	VITO	Public Summary of Report on pilot scale Volatile Fatty Acid (VFA) production	T2.1	VITO	MAMBELLI
		Public Summary of Report on pilot scale-poly unsaturated fatty acids (PUFA) production	T2.2	BIOTREND	UNIVPM, UNIBO, VITO
		Public Report on optimized polyunsaturated fatty acids (PUFA) esters production	T2.3	FHNW	UNIVPM
WP3	UNIVPM	Public Summary of Report on organic fertilizer	T3.1 T3.2	CROMARIS	GESCO, FOREL

		production	T3.3		
		Data on CF, FS and fishbone peptides production.	T3.2	FHNW	FHNW
WP4	ANAVERIS	Public Summary of Report on the formulation of bio-based adhesives from polypeptides (PPs)	T4.1 T4.2	ANAVERIS	UNIVPM, FOREL, ANFACO, UNIBO, BOLTON, VITO
		Public Summary of Report on the formulation of nutraceutical and cosmetic prototypes	T4.3 T4.4	ANAVERIS	FHNW, VITO
WP5	UNIBO	Life Cycle Assessment (LCA)	T5.1	UNIBO	All Partners
		Socio-economic and circularity assessment	T5.2	PEDAL	All Partners
		First policy recommendation brief	T5.3	PEDAL	All Partners
		Second Policy recommendation brief	T5.4	PEDAL	All Partners
WP6	PEDAL	Setting up and Operation of ONE EARTH's Advisory Board	T6.2	PC	All Partners
		Stakeholder Engagement activities, workshops and conferences	T6.2	PC/Oxygen	All Partners
		Monitoring and assessment of Communication, Dissemination activities	T6.1	PEDAL	All Partners

7. Data Security

ONE EARTH is committed to securely managing all collected and generated data throughout its entire lifecycle, ensuring it is protected from accidental loss and unauthorized access. To achieve this, the project will implement appropriate technical and organizational measures based on a risk assessment of the relevant data, considering both the potential impact and likelihood of a data breach. The project's data security strategy is designed to minimize the risk of breaches during and after the project, whether caused by human error or hardware failure, while preventing unauthorized access. In particular, when personal data is collected or generated, it is critical that access is restricted to authorized individuals only.

All project partners are responsible for processing[17] data using appropriate means, such as private servers or cloud service providers that adhere to the relevant legal data protection requirements (e.g., GDPR) and will ensure that these data are protected, and any necessary data security controls have been implemented, to minimize the risk of information leak and destruction. This case refers to the data that will be closed and therefore will not be shared and/or re-used within the framework of the project. In this case, to minimize the consequences of potential data losses, the data will be backed up at regular time intervals based on change frequency and criticality. The backed-up files will be stored in appropriate storage media including external hard drives, flash drives, NAS devices and reputable cloud services, to safeguard their preservation, while also enabling their recovery at any time. Moreover, integrity **checks**[18] will be carried out regularly ensuring that the stored data have not been changed or corrupted.

Access to closed data will only be permitted to authorised project partners. In case there is a personal data breach, the responsible project partner will notify, without undue delay and, where feasible, not later than 72 hours after having become aware of it, its competent national supervisory authority (e.g., data protection authority) as well as the data subject(s) that may be affected by the breach. Moreover, the responsible partner will document any personal data breaches, including information such as the facts relevant to the breach, its effects and the remedial action(s) taken.

Identification and authentication access controls play an important role in the context of the project, as they help partners to protect the data collected/generated during ONE EARTH and especially personal data. To this end, each project partner is responsible for and committed to ensuring the application of appropriate access controls to the data they are processing. At the same time, technical access controls are built into the ONE EARTH website and will be built into the setting out clear roles with access rights to the data stored there, so that only authorised personnel have access. Each project partner will be provided with unique accounts containing one or more roles assigned to them and at the same time enforcing role-based security when its staff processes the project's data. These accounts are expected to be username/password protected, maximising access control. Finally, to

[17] Processing, according to Regulation (EU) 2016/679 of the European Parliament (General Data Protection Regulation), means any operation or set of operations which are performed on personal data or on sets of personal data, whether or not by automated means, such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction.

[18] An integrity check is the process of comparing the current state of stored data and/or programs to a previously recorded state in order to detect any changes.

safeguard the privacy of the users of the ONE EARTH website dedicated privacy policies define how these online spaces collect, process personal data, the security procedures followed, the users' rights as well as the cookies policy employed.

On another note, openly available data will be stored safely for long-term preservation on ZENODO. Both data files and metadata are kept in multiple online replicas and independent replicas ensuring their long-term preservation as well as their recovery when necessary. Moreover, for each file, two independent MD5 checksums are stored. One checksum is stored by INVENIO, used to detect changes to files made from outside of it whereas the other checksum is stored by EOS, and used for automatic detection and recovery of file corruption on disks. In this context, access control is applied by the different levels of openness that ZENODO allows (i.e., open, embargoed, restricted and closed).

8. Ethics and other issues

This Chapter addresses the ethical aspects of ONE EARTH's Data Management Plan and the ethical compliance of the underlying data foreseen to be collected/generated under the project's activities. The project will process data that is not included in any special category of personal data (i.e., non-sensitive data) according to the relevant data protection legislation (e.g., GDPR). In accordance with the Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 (GDPR), all personal data processed for the project's activities shall be:

- processed lawfully, fairly and in a transparent manner in relation to the data subject;
- collected for specified, explicit and legitimate purposes relative to project's objectives and not further processed in a manner that is incompatible with those purposes;
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed;
- accurate and, where necessary, kept up to date;
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed;
- processed in a manner that ensures appropriate security of the personal data (see section 6).

For all personal data processing activities within the framework of the project, at least one lawful basis as of Art. 6 GDPR applies. Where informed consent is chosen as the lawful basis for processing, all relevant provisions of the data protection legislation (e.g., Art.7 GDPR) are observed. The project's Privacy Policy and the templates of the Informed Consent Form and the Data Subject Request Form, used in the implementation of the project's activities, are compliant with the General Data Protection Regulation and annexed to this DMP (see Annex). Last but not least, no transfer of personal data outside the EU is foreseen as part of the project's implementation. In the case of data storage providers situated both inside and outside the EEA, partners are committed to ensure their compliance with the relevant GDPR requirements before start using their services.

It is important to highlight that each partner is responsible for ensuring that the templates for the Informed Consent Form and Subject Data Request Form (including references to the project's Privacy Policy and any other applicable specific privacy policies) are appropriately adjusted according to (i) the needs of the activity for which they are being used by them as well as to (ii) the relevant data protection laws and regulations applicable to their respective countries and / or organisation. All partners should keep records to demonstrate that data subjects have consented to the processing of their personal data and use consent management mechanisms that make it easy for individuals to withdraw their consent.

Finally, no other national/funder/sectoral/departmental procedures for data management were used in the framework of ONE EARTH.

9. Conclusions and way forward

This initial version of the ONE EARTH DMP is designed to ensure the effective management of data collected, processed, and generated throughout the project's activities, while adhering to FAIR principles. It outlines the entire data lifecycle and details the processes involved in data management, collection, processing, and generation, all in compliance with GDPR guidelines. Specifically, it provides clarity on (i) the data being collected, processed, or generated during the project, (ii) the objectives behind each dataset, (iii) the allocation of resources and data management responsibilities, and (iv) the security and ethical considerations related to the data.

In the framework of ONE EARTH, the DMP is a living document and is updated throughout the course of the project, considering its latest developments and available results. It is expected to be further developed and updated at least once and finalized at the end of the project (i.e., D6.9 by M24 and D6.10 by M48). If necessary, additional ad-hoc updates may be realized to include new data, better detail and/or reflect modifications in the methodologies applied or other aspects relevant to data management (such as costs for making data FAIR, size of data, etc.), changes in consortium policies and plans or other potential external factors.

10. Annexes

Annex I Privacy Policy

Within this Annex, the reader can find the draft project's overall Privacy Policy, which is uploaded on the project's website. Task leaders are responsible for developing any additional privacy policy needed in their tasks and activities in close collaboration with the UNIBOELMA. Moreover, they are responsible for appropriately adjusting and translating the templates to fit the needs and specificities of their task's activities.

Privacy Policy

LAST UPDATE: 30.09.2024

1. Who we are

ONE EARTH is a four-year long research project, aims to develop and assess bio-based solutions for nutraceuticals, cosmetics, bioadhesives, fertilizers, and fish feed. By exploiting residual biomass of animal origin from terrestrial and aquatic resources and using terrestrial biomass for aquaculture products, it will create integrated circular value chains. Thus, addressing global sustainability challenges and promoting a self-reinforcing carbon cycle.

Within the framework of ONE EARTH project, accessible from https://www.oneearth-project.eu/ , one of our main priorities is the privacy of our visitors. This Privacy and Cookies Policy document contains types of information that is collected and recorded by ONE EARTH project and how we use it. If you have additional questions or require more information about our Privacy and Cookies Policy, do not hesitate to contact us.

The partners of the ONE EARTH consortium, listed below, process certain types of personal data for the purposes of the project. Each partner is responsible for the personal data they collect and process during their activities under the framework of the project:

- **Aller Aqua Research GmbH (AAR)**
- **Anaveris Monoprosopi Anonymi Etaireia**
- **ANFACO-CECOPESCA**
- **Biotrend – Inovação e Engenharia em Biotecnologia, S.A**
- **Bolton Food S.p.a**
- **Caseificio Mambelli s.r.l**
- **Cromaris Dionicko Drustvo za Marikulturu -**
- **Gesco Societe Cooperativa Agricola (GESCO)**
- **Fachhochschule Nordwestschweiz (FHNW)**
- **Oxigen**

- **Pedal Consulting s.r.o**
- **Research and Production centre "Forel"**
- **Università Politecnica delle Marche (UNIVPM)**
- **Vlaamse Instelling voor Technologisch Onderzoek NV (VITO)**

For further information, we can be contacted at: o.verheles@pedal-consulting.eu

2. How we collect your personal data?

We collect personal data both directly and indirectly:

Directly. We obtain personal data directly from individuals in a variety of ways, including but not limited to the following cases:

- an individual subscribes to our newsletter/s;
- an individual registers to attend meetings and events we host and during attendance at such events;
- we establish cooperative relationships with an individual;
- we provide professional services pursuant to our contract with the European Commission;
- an individual participates in an interview or survey organized by us.

Indirectly. We obtain personal data indirectly about individuals from a variety of sources, including:

- our research partners;
- our networks and contacts;
- public and open data sources such as public registers, news articles and internet searches;
- social and professional networking sites (e.g., LinkedIn).

3. What type of data we collect?

We only collect the data that are necessary for the smooth implementation of our project. These data fall into the following categories:

contact details (name/ surname, e-mail address, street address, mobile phone number, land line phone number);

professional information (job title, organization, field of expertise);

demographics (e.g., age, gender, nationality);

information about what a person knows or believes.

videos and photos (from people that attend our events).

4. Basis of lawful processes

We process personal data on the following legal bases:

Legal obligations – for processing activities required for compliance both with applicable national and European legislation as well as with the specific legal and regulatory framework of the Horizon Europe Framework Programme for Research and Innovation of the European Union.

Consent – for processing activities such as organization of surveys and interviews, completing of questionnaires and dissemination of project's results.

Contractual obligations – for processing activities such as reporting to the European Commission and complying with project's publicity obligations.

5. What we do with your personal data?

We process your personal data with the purpose of:

- Conducting research (e.g., interviews, surveys);
- Dissemination our project's results to different types of stakeholder;
- Sending invitations and providing access to guests attending our events and webinars;
- Administering, maintaining, and ensuring the security of our information systems, applications, and websites;
- Processing online requests or queries, including responding to communications from individuals;
- Complying with contractual, legal, and regulatory obligations.

6. How we secure your personal data when we process it?

We continuously apply a personal data risk assessment process to identify, analyse, and evaluate the security risks that may threat your personal data. Based on the results of this risk assessment, we define and apply a set of both technical and organizational measures to mitigate the above security risks, including but not limited to:

- Data Protection Policies to guide our personnel when processing your data;
- Written contracts with organizations that process personal data on our behalf;
- Non-Disclosure Agreements with our personnel;
- Back up process, antimalware protection, access control mechanisms, etc.
- Some of our partners have appointed a Data Protection Officer.

7. Do we share personal data with third parties?

We may occasionally share personal data with trusted third parties to help us deliver efficient and quality services. When we do so, we ensure that recipients are contractually bound to safeguard the data we entrust to them before we share the data. We may engage with several or all the following categories of recipients:

- Parties that support us as we provide our services (e.g., cloud-based software services such as Dropbox, Microsoft SharePoint, Google);

- Our professional advisers, including lawyers, auditors, and insurers;
- Dissemination services providers (e.g., MailChimp);
- Law enforcement or other government and regulatory agencies or other third parties as required by, and in accordance with applicable law or regulation;
- The European Commission according to our relevant contractual obligations.

ONE EARTH project's Privacy Policy does not apply to other advertisers or websites. Thus, we are advising you to consult the respective Privacy Policies of these third-party ad servers for more detailed information. It may include their practices and instructions about how to opt-out of certain options. You can choose to disable cookies through your individual browser options. To know more detailed information about cookie management with specific web browsers, it can be found at the browsers' respective websites.

8. Do we transfer your personal data outside the European Economic Area?

We do not own file servers located outside the European Economic Area (EEA). However, some partners may use cloud and / or marketing services from reputable providers such as SharePoint, DropBox, MailChimp, Google, etc., situated both inside and outside the EEA. We always check that such providers comply with the relevant GDPR requirements before start using their services.

9. General Data Protection Regulation (GDPR)

We are a Data Controller of your information and will retain your personal information only for as long as it is necessary for the purposes set out in this Privacy Policy. We will retain and use your information to the extent necessary to comply with our legal obligations, resolve disputes, and enforce our policies. If you are a resident of the European Economic Area (EEA), you have certain data protection rights. If you wish to be informed what Personal Information, we hold about you and if you want it to be removed from our systems, please contact us. In certain circumstances, you have the following data protection rights:

- The right to access, update or to delete the information we have on you
- The right of rectification
- The right to object
- The right of restriction
- The right to data portability
- The right to withdraw consent

10. Log files

ONE EARTH project follows a standard procedure of using log files. These files log visitors when they visit websites. All hosting companies do this and a part of hosting services' analytics. The information collected by log files include internet protocol (IP) addresses, browser type, Internet Service Provider (ISP), date and time stamp, referring/exit pages, and possibly the number of clicks. These are not

linked to any information that is personally identifiable. The purpose of the information is for analysing trends, administering the site, tracking users' movement on the website, and gathering demographic information.

11. Privacy Policies

You may consult this list to find the Privacy Policy for each of the advertising partners of ONE EARTH project. Third-party ad servers or ad networks uses technologies like cookies, JavaScript, or Web Beacons that are used in their respective advertisements and links that appear on ONE EARTH project, which are sent directly to users' browser. They automatically receive your IP address when this occurs. These technologies are used to measure the effectiveness of their advertising campaigns and/or to personalize the advertising content that you see on websites that you visit. Note that ONE EARTH project has no access to or control over these cookies that are used by third-party advertisers.

12. Children information

Another part of our priority is adding protection for children while using the internet. We encourage parents and guardians to observe, participate in, and/or monitor and guide their online activity. ONE EARTH project does not knowingly collect any Personal Identifiable Information from children under the age of 13. If you think that your child provided this kind of information on our website, we strongly encourage you to contact us immediately and we will do our best efforts to promptly remove such information from our records.

13. Online Privacy Policy Only

Our Privacy Policy applies only to our online activities and is valid for visitors to our website with regards to the information that they shared and/or collect in ONE EARTH project. This policy is not applicable to any information collected offline or via channels other than this website.

14. Do we use cookies?

Our websites use cookies. Where cookies are used, a statement will be sent to your browser explaining the use of cookies. To learn more, please refer to our cookie policy.

Cookies are small text files which are saved on your computer, mobile phone or tablet. They allow the website to remember your actions and preferences (such as login, language, font size and other display preferences) so you don't have to keep re-entering them whenever you come back to the site. You can control and/ or delete cookies as you wish. If you do this, however, you may need to manually adjust your preferences every time you visit a site. For more information on how to manage cookies, please visit: http://www.aboutcookies.org/

15. Consent

By using our website, you hereby consent to our Privacy Policy and agree to its terms.

Annex II Informed Consent Form

Text in red colour contains guidelines for adjusting this template and should be deleted.

Text included in < > and/or highlighted with yellow should be replaced with content that is suitable to the context of each activity & project as well as to the organisation seeking to obtain the consent.

Before using this template take the time to carefully read and adjust it to the needs of the activity at hand as well as to any relevant regulations and particularities applicable to your country and organisation. Specifically, this template has been developed for a data processing activity involving interviews, however you can easily adapt it to other common data processing activities such as surveys, events organizing, etc.

INFORMED CONSENT FORM

Who we are:

We are < Insert Partner Name > and we are contacting you in the framework of ONE EARTH, a project funded by the European Union under the Horizon Europe Research and Innovation funding programme. A detailed description on how ONE EARTH handles personal data is presented in the project's Privacy Policy that accompanies this Consent Form.

Project: ONE EARTH - Earth-to-marine-to-earth virtuous cycle: Harnessing residual biomass of animal origin for terrestrial-marine integrated circular economy (ONE EARTH). (GA #101135559).

Partner:

Organisation name: < Insert Partner Name >

Address: < Insert Partner Address >.

Phone: < Insert Partner Phone >.

E-mail: <Insert Partner Generic E-mail Address >

Responsible persons:

You may delete the line referring to the Data Protection Officer if your organisation does not have one.

#	Role	Name	E-mail
1	ONE EARTH Project Manager	<Insert name of project manager>	<Insert email of project manager>
2	Interviewer	<Insert name of interviewer>	<Insert e-mail of interviewer>
3	Data Protection Officer	<Insert name of DPO >	<Insert e-mail of DPO >

What do we need from you?

Please explain in a brief paragraph (4-5 lines) the activity and its purpose under the frame of the project.

Example: We need you to participate in an interview that will be carried out by ONE EARTH with a view to validate the limits of the linear, carbon-intensive and fossil- based economy.

The interview is expected to last for no more than < Insert number of minutes > minutes. We will take written notes and we will be making a sound recording of the interview.

Please adapt the following text to accurately depict the type of personal data to be collected.

To effectively conduct this interview, we need to process some of your personal data:

- Your contact details (full name, email, phone number);
- Some basic demographics (age, gender);
- Your professional info (organization, job position, field of expertise);
- Your opinions on the subject matter.

Why do we need your data & what will we do with them?

We need your data to contact you in order to plan and carry out the aforementioned interview and to resolve any ambiguities, questions and other issues that may arise after and as a result of the interview. We also need to record your data to keep track of the interview process. The project's deliverables that will be derived by the interview will not include your personal data or any other information that could identify you. Your personal data will remain on our written notes (interview's transcript) and/or the sound recording we will make during the interview.

We will share your data with a few other ONE EARTH project partners that are also involved in this task and will participate in the drafting of the relevant deliverables. We are also obliged to grant access to your data to:

- EU officials such as our Project Officer for purposes related to project's evaluation;
- EU agencies and other authorities for project's auditing purposes.

We would also be very happy if you gave us your consent to contact you in the future to ask you to participate in other project's activities (e.g., surveys, interviews, project events, ONE EARTH Advisory Board, etc.) and also to inform you about the project's progress (e.g., by sending you a newsletter or similar messages).

How can you withdraw your consent?

You should know that you can withdraw your consent at any time by communicating either on the phone or by email with the responsible persons listed in the previous page. With regards to the informational messages and newsletters you can always opt out by simply clicking the link ''Unsubscribe'' or something similar included at the end of all the relevant messages.

I hereby give my consent to the processing of my personal data needed for:

*(Please, tick the boxes below to confirm that you give us your consent for the respective subject. Any boxes left unticked mean that **you do not consent to the relevant subject**.)*

#	Consent Subject	Tick box

1	My participation in an interview that will be carried out by ONE EARTH to < insert key objective of the interview >	
2	My participation in future activities of ONE EARTH	
3	Receiving newsletters and messages regarding ONE EARTH activities	

_____ _____ _____

Name of participant Date Signature

Annex III Data Subject Request Form

Text in red colour contains guidelines for adjusting this template and should be deleted.

Text included in < > and/or highlighted with yellow should be replaced with content that is suitable to the context of each activity & project as well as to the organisation seeking to obtain the consent.

ONE EARTH

Data Subject Request Form

You may delete the data referring to the Data Protection Officer if your organisation does not have one.

Contact

<Insert name of responsible Project Manager> <Insert name of DPO > **(Data Protection Officer)**

<Insert email of responsible Project Manager> <Insert e-mail of DPO >

Data Subject Request Form

This form should be used to submit a data subject request under the provisions of the European Union General Data Protection Regulation (GDPR).

Submitter Details

Title:	
Name:	
Address:	

Type of Request

Please select the type of request you are making:

☐ *Consent Withdrawal*

☐ *Access request*

☐ *Rectification of personal data*

☐ *Erasure of personal data*

☐ *Restriction of processing of personal data*

☐ *Personal data portability request*

☐ *Objection to processing of personal data*

☐ *Request regarding automated decision making and profiling*

Personal data involved

Request details

Request reason/justification

Name: .....

Signature: .....

Date: .....

***

Once completed, this form should be submitted via e-mail to < Insert contact e-mail of Partner > or posted to:

< Insert Partner Name >

< Insert Partner Address >

[1] Tonkin, E. Persistent identifiers: considering the options (2008), Ariadne Issue 56

[2] Jakobsson, U., Braukmann, R., Lundgren M., Expert Tour Guide on Data Management. Retrieved from https://www.cessda.eu/Research-Infrastructure/Training/Expert-Tour-Guide-on-Data-Management/1.-Plan.

[3]According to the Open Data Handbook: "*An open format is a file format with no restrictions, monetary or otherwise, placed upon its use and can be fully processed with at least one free/open-source software tool and it is not encumbered by any copyrights, patents, trademarks or other restrictions so that anyone may use it*".

[4] According to the Open Data Handbook: "*Machine readable formats are file formats that can be automatically read and processed by a computer. Machine-readable data must be structured data*".

[5] Regulation (EU) 2016/679 of the European parliament and of the council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32016R0679.

[6]Neuman, W. L. (2014). Social research methods: Qualitative and quantitative approaches. Boston: Pearson.

[7]Neuman, W. L. (2014). Social research methods: Qualitative and quantitative approaches. Boston: Pearson.

[8] Foulonneau, M., & Riley, J. (2008). Metadata for digital resources: Implementation, systems design and interoperability. Oxford: Chandos.

[9] Caplan, P. (2003). Metadata fundamentals for all librarians. Chicago: American Library Association