



**CrossEU**

# D6.1 – Data Management Plan

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## Executive Summary

This Data Management Plan (DMP) provides a description of the data handling including data collection, its organisation, curation, storage, and provision for its access, preservation, security, quality assurance, allocation of persistent identifiers, metadata, licensing, rules, and procedures for sharing and deletion of data, both during and after the CROSSEU project. It aims to explain the data utilised and its connection to the project's Work Packages (WP), as well as how the data generated by the project will be accessible to various communities.

## Keywords

Impact data, biogeophysical and socio-economic risks of climate change, risk modelling, decision-support system, DAFNI platform

## Abbreviations and acronyms

Acronyms, Abbreviations	Full word
BGP	Biogeophysical
CA	Consortium Agreement
CC	Climate Change
CSA	Case Study Area
D	Deliverable
DAFNI	Data and Analysis Framework for National Infrastructure
DMP	Data Management Plan
DOI	Digital Object Identifier
SE	Socio-Economic
DSS	Decision Support System
FAIR	'Findability', 'Accessibility', 'Interoperability' and 'Reusability'



GA	Grant Agreement
GDPR	General Data Protection and Regulation
IPR	Intellectual Property Rights
SE	Socio-Economic
SO	Specific Objective
WP	Working Package



## Introduction

CROSSEU is a project funded by the European Union that aims to build a climate-sensitive framework, including a ready-to-use Decision Support System (DSS) platform and technical recommendations. This framework will help investment decisions, adaptation and mitigation decisions and policies.

To tackle all the specific objectives the project has set, CROSSEU was divided into 6 work packages. WP6 is dedicated to project management. Task 6.1 is dedicated to administrative, legal and financial management and reporting to EC plan in this project and includes the elaboration of the Data Management Plan (DMP).



## 1. DMP objectives and updates

The Data Management Plan of the CROSSEU project is built upon the initial version of the data management outline presented in the project proposal and provides further information on the datasets and data-sharing practices that will be applied during the implementation period of the project.

### 1.1. Objectives

The central objectives of the DMP are to provide details about:

- The data re-used and generated by the project.
- How the CROSSEU project consortium intends to make data findable, accessible, interoperable and reusable, and how it will be curated and preserved.
- Actively involve the stakeholders throughout the project and beyond.
- The management of personal data to be collected during the stakeholder engagement activities (throughout and beyond the project), and the principles for ensuring their protection in compliance with the GDPR.

### 1.2. Updates

The DMP will be periodically updated as essential additional information becomes available during the lifetime of the project and research activities progress. The DMP is therefore a ‘living’ document that should reflect the current state of the data and will be completed when the project ends.

This document will be updated twice during the lifetime of the project. The new versions of the DMP will be created to reflect the status of project data, including the outputs of the modelling protocols, data processing flows and data sharing within the project consortium and with stakeholders for co-designing the Decision Support System (DSS) of CROSSEU, as well as any changes in consortium policies or external factors, according to guidance. Generation of new data, changes in the consortium (e.g., the choice to file for a patent), and changes in the consortium composition (e.g., new members joining the consortium, members leaving the consortium) are also important factors to be mentioned in the updated versions of the DMP.

MeteoRo is responsible for the elaboration and update of the data management plan throughout the project implementation period.



In the CROSSEU project, as stated in the Grant Agreement (GA), the first version of the DMP will be implemented in M3 (D6.1 - Data Management Plan, version 1). The DMP will be updated in M17 (D6.2 - Data Management Plan, version 2) and further delivered as a final report in M35 (D6.3 - Data Management Plan, version 3). The final report of the DMP will describe the collection, storage, evaluation, and exploitation of the data produced by the project after its completion.

## 2. Data summary

The CROSSEU consortium defines a dataset as “any coherent set of data from single or multiple sources, as well as newly generated data within the CROSSEU project”. Datasets managed within the project are used for analysis, validation, reusability, dissemination, communication, and demonstration purposes. The project benefits from the exploitation of various available data sources from different fields (i.e., climatology, socioeconomics) at the European level, but especially at the case study area (CSA) level, which is used to provide input data to the CROSSEU project. During the project's lifetime, the CROSSEU partners decide on the process of incorporating any new robust data into the project's assessment approach. Data sources provided by CROSSEU partners, or third parties satisfy specific properties and are subject to constraints and limitations for access and exploitation. Thus, they should follow specific IPR (Intellectual Property Rights) and legal restrictions that have been specified in the CROSSEU consortium agreement (CA), already signed by the partners and subject to further refinement during the project duration, if necessary.

The overall purpose of data collection and data packaging within the CROSSEU project is to develop a comprehensive impact database (the CROSSEU Impact Data Repository), which integrates all relevant data types (i.e., in situ, reanalyses, remote sensing, models), from various sources (e.g. EUROSTAT, COPERNICUS, national inventories), at different spatial and temporal resolutions and relevant research outputs from other EU research projects (i.e., the COACCH Data Repository). This repository integrates the aforementioned ready-to-use and freely available data (re-used data), which together with the modelling outputs produced by the project (new data), will be used to (i) feed SE risk analyses in CSAs, associated with event-based storylines, and CCHs (WP2) in different SE contexts and CC scenarios, employing both sectoral and cross-sectoral assessment approaches, (ii) upscale and (iii) develop the CROSSEU DSS hosted in the DAFNI (Data and Analysis Framework for National Infrastructure) environment and empowered with TEAL visualisation functionalities (WP3), for enhanced climate resilience and policy response to the SE risks of CC.

This impact data repository will be critically important in supporting the CROSSEU project ambition to provide a science-based, ready-to-use DSS, built on an enhanced understanding of the biogeophysical (BGP) and socio-economic (SE) risks of climate change (CC) in Europe, fully co-produced and implemented with practice stakeholders, and building upon the previous analytic frameworks and state-of-the-art knowledge (WP1).

The collected data and the completion of the harmonised impact data repository are essential for the achievement of project goals, and especially for some of its specific objectives (SOs): *SO1: To enhance the modelling of*

mitigation and adaptation strategies in relation to projected BGP, and SE risks to different sectors for different time horizons (i.e. 2030, 2050 and 2100), considering both the individual characteristics and interactions between the various sectors; and SO2: To co-assess synergies, conflicts and trade-offs between mitigation and adaptation strategies across different sectors and EU regions.

The CROSSEU Impact Data Repository will be continuously refined throughout the project, to provide input data for modelling (including model validation) and direct use in the DSS, while responding to the stakeholders' needs and requirements. The data flow (re-used and new data) in the CROSSEU project is summarised in Figure 1 below.

LGI is leading Stakeholder Mapping and Engagement plan. MeteoRo, UEA, WMO, K&I, HEREON, BOKU, WEMC and UB contribute to this task. All partners, especially those involved in WP1, WP2 and WP3 feed valuable inputs to this plan, to provide a relevant and up-to-date plan.

The Stakeholder Mapping and Engagement Plan will be followed by all partners. Its results feed into WP1 (T1.1), WP2 (T2.1, T2.4), WP3 (T3.1, T3.4), and WP4 (T4.5), highlighting its interdisciplinary relevance and contribution to the broader project objectives.

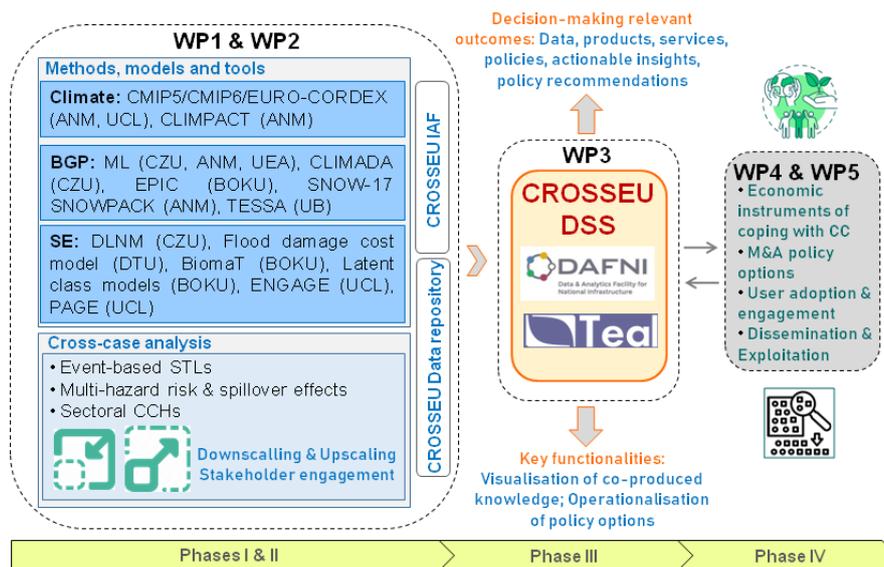


Figure 1: Modelling and data integration frameworks for co-developing the CROSSEU DSS.

## 2.1. Types and formats of data generated and re-used in the CROSSEU project

To achieve its specific objectives, the CROSSEU project re-uses as much data as is possible from its consortium members and societal partners, as well as any pertinent data to be found with permissive licences. Where additional data is needed to support the implementation of the co-designed methodology and its operationalisation, the consortium members aim to generate new data implementing the modelling protocols, as described in the D1.1 (WPI).

The project integrates various data (and metadata) from different available sources (in situ measurements, modelling, remote sensing) and fields, including economics (e.g., econometric evaluations, computational general equilibrium models, bottom-up and top-down approaches in and valuation methods), climate science (e.g., climate scenarios and climate-derived multi-hazard risks), BGP modelling (e.g., process modelling, land cover and ecosystem modelling), data engineering (e.g., harmonised database) and risk analysis (e.g., climate risks, economic and financial risks). Furthermore, combining modelling and stakeholder engagement is a high priority in all the CROSSEU case study areas (storyline and climate change hotspot areas) to co-produce actionable knowledge for the key climate-sensitive sectors (health, social justice, migration, finance, insurance, energy, tourism, transport, biodiversity and ecosystem services, forestry, agriculture and food security, and water management) across Europe.

This first version of the DMP provides preliminary details on the data types generated by the project (new data) and re-used data from different available resources, which are briefly described hereafter. Further updates on data types are to be provided in the next two versions of the DMP.

### 2.1.1. Re-used data from available resources

The CROSSEU project collects climate and BGP data from available resources such as in situ data, reanalyses (e.g., ERA5 - ECMWF/Copernicus), Earth Observation data acquired through the EC Copernicus Programme (e.g., C3S - Climate Data Store, Copernicus Space Component Data Access) to feed the SE risk analyses in STLs and CCHs. The project also integrates quantitative climate projections and associated risks from different inventories, including the projected impacts (e.g., the ISIMIP initiative and EU-funded projects such as IMPACT2C, PESETA and HELIX), as well as the IPCC WGI Interactive Atlas and the Tyndall Centre's Searchable Inventory. National and EU statistics and other project results (i.e., the COACCH Data



Repository) are also relevant data sources considered within the project, especially for developing the project's impact data repository.

### 2.1.2. New data generated by the project

The CROSSEU project will conduct BGP and SE modelling activities (WP1, WP2) to provide key input data for assessing the SE risks and feeding the CROSSEU Impact Data Repository (T1.5) and the CROSSEU DSS (WP3). The new data generated by the project is associated with the modelling outputs and will result mainly from the implementation of:

- (i) an updated version of the Integrated Assessment Model (IAM), i.e., PAGE2020 with a calibrated climate module to CMIP6/AR6 results, refined representation of damages and adaptation retrieved from CROSSEU results and previous projects (i.e., PESETA IV, COACCH), and integration of four EU regions within the modelling target (Central and Eastern, Northern, Southern, and Western Europe).
- (ii) climate-SE scenario modelling framework;
- (iii) updated econometric models (e.g., the UCL Environmental Global Applied General Equilibrium - ENGAGE model)
- (iv) downscaled climate projections in climate change hotspot areas
- (v) other models for assessing the socio-economic impacts in different sectors (i.e., the EPIC model for estimating soil productivity losses in agriculture - BOKU; the Flood Damage Cost Model for economic valuation of hydrological hazards - DTU; the CLIMADA model for heat-related mortality impact - CZU; the SNOWPACK model for estimating the snow avalanche hazard – MeteoRo; and the TESSA model for assessing the impacts on ecosystem services - UB).

### 2.1.3. Data derived from stakeholder engagement activities

The project will benefit from and exploit the available case study area (stakeholder/user scale) data and information from the storyline areas (i.e., heat, drought, storm, snow, indirect, spillover) and climate change hotspot areas. The co-design and co-development of the CROSSEU DSS and elaboration of the policy recommendations (sectoral and cross-sectoral), significantly rely on the available knowledge at the case study level.

The CROSSEU project will conduct stakeholder engagement activities to co-design the methodological framework of the project and collect relevant data from local/national level (case studies, storylines and climate change hotspot areas). These data will be collected during the



engagement activities with different target stakeholder groups (i.e., decision- and policy-makers, local, national and regional governments, practitioners, business and industry, civil society, research and academia, other RDI projects). The methods to be adopted during the planned engagement activities include interviews, focus groups, and questionnaires to foster meaningful collaboration and relevant data collection at the case study area level from both sectoral and cross-sectoral perspectives.

During the engagement activities, the project will also collect and process non-sensitive personal data (e.g., participant name, contact person, email, affiliation), as defined under EU law. The project does not foresee the systematic collection of any special categories of data, as defined under Article 9 of the General Data Protection Regulation (GDPR). In this respect, a stakeholder consent letter will be developed, and all project partners will disseminate the document during their first interactions with stakeholders (e.g., the first stakeholder engagement workshop).

#### 2.1.4. Data derived from communication and dissemination activities

During the participation in public events (webinars, final event), registration data (name, email, organisation) will be collected in a GDPR-compliant online registration form and stored in dedicated archives stored in the project's sharing point, accessible within the project consortium. The data gathered will not be used for any purpose other than that explicitly outlined in the disclaimer or terms and agreements of a form and without prior explicit consent from the user. This data will be collected for tracking and reporting purposes and, with explicit consent from the users, for further communication and dissemination activities.

The information shared publicly will be limited to the number of participants in the event as well as the stakeholder and target groups categories to which they belong. For external events in which CROSSEU consortium partners participate to engage stakeholders and disseminate project's results, data collected will be limited to general information about the events attended on behalf of project partners, along with their outreach, whenever possible.

## 2.2. Data Formats

Data formats generated, retrieved, and collected in the CROSSEU project will include, but will not be limited to:



- 1) Tabular data in ASCII format (\*.txt, \*.csv);
- 2) Array data (\*.NetCDF, \*.HDF);
- 3) Spatial data, including vector data in ESRI shapefile/geodatabase format, raster data in GeoTIFF format;
- 4) Survey questionnaires and related quantitative data;
- 5) Audio files (\*.mp3), multimedia files (video recordings in \*.mp4), images (\*.jpg, \*.png);
- 6) Model scripts and data harmonisation codes, developed using open-source coding languages (e.g. Python, R), version control software (Git), and trusted repositories (e.g., GitHub.com, Zenodo);
- 7) Project reports, presentations, and documentations in text (\*.txt), Pdf (\*.pdf), MS Word (\*.docx), MS PowerPoint (\*.pptx) formats; compressed files (\*.rar, \*.zip).

## 2.3. Data curation and storage

The CROSSEU Impact Data Repository and other research outputs (i.e., scripts, codes), integrating both observational and numerical simulation data derived through climate projections and biophysical and socioeconomic risk modelling, have an initial total estimated size of up to 50 TB. The collected and generated data will be curated and preserved in the project's database, which will follow data quality, security, and privacy standards and relevant EU legislation (i.e., GDPR).

The CROSSEU Impact Data Repository (integrating the new and re-used data from WP1 and WP2) will be hosted within the DAFNI platform and in trusted open-access repositories (e.g., Zenodo) for free availability. This platform will provide access to its computational capabilities, for running models such as the IAM and impact models (WP1) either independently or using a system-of-systems approach, for the duration of the project and for the purposes of the project only. As stipulated in the Consortium Agreement of CROSSEU, after the lifetime of the project, the access to DAFNI platform will be available for the sole purpose of accessing the Results of the Project and for the lifetime of the platform only which shall be at the complete discretion of UKRI. Each WP, as well as local partners, will use the CROSSEU Impact Data Repository for research data preservation and exchange. In terms of long-term preservation, the datasets/models/processing codes are to be retained in the repository for at least 10 years after the project.

The estimated size for project management data (project reports, presentations, documentation, images, and multimedia files) is 500 GB.



These data will be preserved in the dedicated Teams Sharing Point of the project, with open access provided to all project partners.

## 2.4. Roles and responsibilities

The data management roles and responsibilities within the project consortium are set for managing any emerging issues regarding the data collection, processing, storage, sharing, and preservation of IPR, GDPR, and Open Access (OA) principles and regulations during the lifetime of the project.

The CA stipulates specific responsibilities for data protection. Accordingly, “the Parties shall, where necessary, conclude a separate data processing, data sharing, and/or joint controller agreement before any data processing or data sharing takes place. Non-EU/EEA Parties must ensure and demonstrate data protection adequacy under EU law. Data transfers outside the EU/EEA shall always take place in compliance with the GDPR and relevant data protection legislation. In that case, each Party shall implement appropriate measures that can meet the EU’s data protection standards”.

The management of IPR throughout the project’s implementation period and beyond will include a joint ownership agreement between project partners, which will define the contributions of each partner and its valid role in carrying out the project activities. In addition, an interdisciplinary team including experts from MeteoRo (RO), UEA (UK), UKRI (UK), UCL (UK), DTU (DK) and WEMC (UK), coordinated by the Project Coordinator (MeteoRo), will supervise the correct and secure handling of all collected data in compliance with the local and European data security laws for research data management and quality assurance of research outputs.

The LGI/WEMC team will manage and coordinate all communication, exploitation, and dissemination activities following the regulations of the CROSSEU Communication and Dissemination Plan (D5.2) and Exploitation Plan Strategy (D5.3), as core actions under WP5. The implementation of the two plans will ensure the management and protection of the CROSSEU data. The communication, exploitation, and dissemination team also have the responsibility to reach the largest possible audience, maximise the project’s impact, and achieve the project’s key performance indicators. In addition, LGI/WEMC team is responsible for the visual identity of the project.

Principal Investigators (PI) from each partner within the Consortium will ensure that every member of their working group knows, understands, and follows the regulations of the DMP and Consortium Agreement (CA) stipulations regarding “the data, know-how or information (...) that is (...) needed to implement the Action or exploit the project results”. The



principal investigators will communicate with the Project Coordinator when any practical data handling issues emerge during the project's implementation period.

### 3. FAIR data

The research data managed within the CROSSEU project will follow the 'Findability', 'Accessibility', 'Interoperability' and 'Reusability' (FAIR) principles, EU standards and regulations.

#### 3.1. Making data findable, including provisions of metadata

To make CROSSEU project data findable, all research data (newly generated and re-used) will be discoverable and identifiable through metadata, which will be added to all datasets. These metadata will be rich and comprehensive to allow description of the content, context, and origin of the data. All the research data preserved under the CROSSEU database will follow the FAIR principles with the following details:

- *Data identifier*: Every published dataset will have a persistent and unique identifier called dataset ID (such as DOIs generated with figshare, researchgate or other available instruments), that is valid throughout the entire lifetime of the project. The persistent identifiers will facilitate findability and accessibility for both humans and machines, enabling the research partners, professionals and other interested parties (i.e., forest users, decision makers) to locate and access the data in a rapid and efficient way.
- *Metadata*: Metadata input is mandatory for all research data (newly generated or re-used) and is recorded at the time of each dataset's creation or collection. The metadata will be made compatible with metadata standards from data archive centres (e.g., INSPIRE, Pangaea), stored in a centralised metadata catalogue, and will be openly accessible for all audiences, increasing the project's impact and guaranteeing transparent research. Metadata of deposited data will be open under a Creative Common Public Domain Dedication (CC 0) or equivalent (to the extent legitimate interests or constraints are safeguarded), in line with the FAIR principles (in particular machine-actionable) and provide information at least about the following: datasets (description, date of deposit, author(s), venue and embargo; Horizon Europe funding; grant project name, acronym and number; licensing terms; persistent identifiers for the dataset, the authors involved in the action, and, if possible, for their organisations. Where applicable, the metadata will include persistent identifiers for related publications and other research outputs.



- *Search function:* Users can search for metadata using various types of keywords (author, year, research topic, or other free text), facilitating the research datasets' findability.
- *Versioning:* Versioning is included in all structured datasets and is identifiable via a version ID. One Dataset ID can be linked with multiple version IDs for multiple versions. When downloading a forest-climate dataset, users will be able to choose a specific version ID to download the version of interest.

### 3.2. Making data openly accessible

All CROSSEU data, including newly generated or re-used from external resources, will be harmonised, and made part of the CROSSEU Impact Data Repository, as well as other research results (i.e., scripts, codes) that will be made openly available. Exceptions are made to the data subject to any legal or ethical restrictions. The CROSSEU Impact Data Repository (integrating the new and re-used data from WP1 and WP2) will be openly accessible through the Data and Analysis Framework for National Infrastructure (DAFNI) platform and trusted open-access repositories (e.g., Zenodo), in compliance with European Open Science Cloud (EOSC) requirements and 'Web of FAIR data' principles. The repositories will ensure that the data is assigned unique data identifiers. Access to the data and metadata will be provided through free and standardised access and communication protocols, which will be retrievable by their identifiers. The research data and metadata will remain available and findable during the lifetime of the project.

The CROSSEU DSS data (inputs and outputs) will be ensured through IAF and DAFNI functionalities, using their data sharing utilities in the further support of the sectoral policy analysis conducted in WP4.

The Project Coordinator will coordinate the development of the procedures regarding the data usage beyond the end of the project, considering that (i) the project will find out new data challenges and opportunities to be valued after the end of the project, and (ii) the DMP will be continuously updated and further developed during the project.

The CROSSEU project will provide several public documentations that aim to maximize the accessibility and uptake of project's research results, such as:

- A report on co-design and operationalisation of the CROSSEU methodology, which provides details on the modelling, upscaling and co-designing DSS (D1.1 / WP1);



- A report on the results of the biogeophysical (BGP) and macroeconomic models, which provides details on the output data of the BGP and socio-economic modelling and their added value, meaningful for adaptation (D1.2/ WP1);
- Impact data repository, which presents the structure and key data and metadata of the CROSSEU Impact Data Repository hosted by DAFNI (D1.3 / WP1);
- A report on assessment methodology for climate change hotspots and storyline analyses, which provides details on the assessment framework of socio-economic risks associated to climate change (D2.1 / WP2);
- A report on the CROSSEU DSS processing workflow, which provides details on the DSS components, functionalities and design of the workflow (D3.1 / WP3).

The research data available through specific agreements with third parties will only be accessible with permission granted by the original data owners. The data access protocols will allow for authentication and authorization.

Project management-related data, stored in the CROSSEU Teams Sharing Point, is accessible to all project members without restriction if no confidential information is considered. Project management-related data include contact details of partners, financial information (expenses and resources), meeting minutes, and participant lists. These data cannot be passed to third parties outside the consortium unless the following conditions are met: 1) No confidential, personal, financial, or commercially sensitive information is included; 2) Permission from the beneficiaries or relevant stakeholders has been obtained; 3) Sharing the data does not damage the project's communication, exploitation, or dissemination results falling under IPR or GDPR regulations.

The CA stipulates the responsibilities regarding the protection of data, including the Partner's personal data. Accordingly, “the Parties shall cooperate in order to enable one another to fulfil legal obligations arising under applicable data protection laws (the 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 relevant national data protection law applicable to said Party) within the scope of the performance and administration of the Project and of this Consortium Agreement”. In addition, “the Parties shall, where necessary, conclude a separate data processing, data sharing and/or joint controller agreement before any data processing or data sharing takes place”.

### 3.3. Making data interoperable

All CROSSEU project data will adhere to widely adopted standard formats, facilitating compatibility with available open applications. Standard and open formats will be chosen whenever possible. Otherwise, format specifications will be defined and provided.

A joint ownership agreement between all project partners will establish the specific conditions for granting licenses related to the research output copyrights and design rights of the datasets, tools, and solutions developed within the project. This agreement is in compliance with the guidelines of the GA, in order to guarantee the long-term preservation of the CROSSEU data, as well as its findability, accessibility, interoperability and reusability during the lifetime of the project and beyond.

Full metadata will be given for all datasets (new and re-used) within the CROSSEU project, including general details, data coverage usage (e.g., license, citations, digital object identifiers), standards, formats, vocabularies, and lineage statements (e.g., original data source, tools for processing) to ensure findability, accessibility, and interoperability of data/research outputs. Metadata will use a formal, accessible, shared, and broadly applicable language (XML format) to ensure efficient knowledge representation for users. Furthermore, metadata uses vocabularies that follow FAIR principles and will include qualified references to other data/metadata, where necessary. All CROSSEU data and associated metadata will be made available under an OA license to facilitate their reusability.

### 3.4. Increase data re-use

Both newly generated or re-used data and project management data can be exchanged and re-used within the CROSSEU project consortium. The project will use the specific functionalities of DAFNI, co-designed with the engaged end-users for the ingestion, search and download of tailored data and access the core metadata. The CROSSEU data will be annotated via a common open metadata standard for search and discovery – according to FAIR principles, based on common metadata standards and transforming metadata from data sets to comply.

The project partners will agree on license types for the newly generated datasets within the project and will preserve the licenses of re-used data, to optimise the reuse of the forest-climate data. The CROSSEU data will not be made reusable by third parties if the owner of the data is not a public entity. Data will be made available for re-use after the end of the CROSSEU project, and it is intended to remain re-usable indefinitely.



Openly available research data produced by the project will be licensed under Creative Commons Public Domain Dedication (CC-0) and Creative Commons Attribution- Non Commercial-Non Derivatives 4.0 International (CC BY-NC-ND 4.0). Other licenses will be used for the data made openly available in trusted repositories such as Zenodo (GNU General Public License version 2). The re-usability of the CROSSEU data will also be ensured through: (i) detailed and accurate description of the relevant attributes of each indicator and time series, (ii) clear and accessible description of the data usage licenses and provenance, (iii) the compliance of the forestry domain community standards.

Embargo times for opening access to the CROSSEU data are defined by each dataset owner in the metadata, but they will not cover more than three years after data collection. All data that can encompass any personal data protection or privacy (GDPR) and IPR issues will not be publicly disclosed.

The CROSSEU project partners adhered to the ‘gold standard’ of open access, which will facilitate the availability and reusability of all project research data and outputs, including the output data and peer-reviewed articles in open-access scientific journals.



## 4. Other research outputs

The other research outputs generated within the CROSSEU project refer to source model codes and scripts for data harmonisation, read and post-processing to derive tailored products to meet stakeholder needs and data visualisation. These research results will be openly available in trusted and dedicated repositories such as Github (<https://github.com/>) and Gitlab (<https://gitlab.com/>).

Open access will be ensured primarily for the project partners from WP1-WP3 deeply involved in the BGP and SE modelling, risk assessments and co-development of the CROSSEU DSS.

## 5. Allocation of resources

WP6 lead partner (MeteoRo) is responsible for the overall project management and coordination of the project, including the efficient cooperation between project partners towards the achievement of the specific objectives of the project, the monitoring and management of the scientific consistency and quality of the research outputs and results, and the minimization of project management risks. Compliance with data management decisions as they relate to the DMP will be ensured through the implementation of the following measures:

- WP leaders are considered responsible for adhering to the specifications above in their respective work packages.
- The principal investigators of each beneficiary organisation in the consortium are considered responsible for the DMP actions. They will support the WP6 in all issues related to research data management. The principal investigators of each beneficiary should ensure that personnel working on the project have read the DMP and apply/exercise all the principles as described in the present document.
- Data collectors and providers contributing to the development of the CROSSEU Impact Data Repository (WPI, WP2, and WP3) have the ultimate responsibility of complying with the specifics of the CROSSEU DMP, as well as with the related GDPR policies and IPR regulations.

For all work packages, no additional costs are expected compared to how all beneficiaries currently store data as part of their normal work. Resources for long-term preservation will be decided in due course.

## 6. Data security

The CROSSEU consortium acknowledges that the collected, processed, post-processed and shared data (both research and project management data) during the lifetime of the project may contain sensitive and confidential information. The project consortium ensures the protection and security of the data through the use of servers and security systems offering encryption at several levels and providing flexibility in protecting data from disclosure due to database server theft, unscrupulous administrators, and insecure networks. Data security measures are implemented, including provisions for data recovery and the secure storage and transfer of sensitive information.

Partners are informed to consult with their organisation's IT professionals to set up and manage data security and make sure the right safeguards are in place.

Full description of the data security and confidentiality measures in place and/or required for handling any dataset, including confirmation of plan for recovery, secure storage and protection over the transfer of sensitive data will be detailed and updates on the course of the project, with the development of the data protection plan.

## 7. Ethical aspects and GDPR compliance

Any ethical or legal issues that can have an impact on data sharing can also be discussed in the context of the ethics review.

Due to the fact that during the project stakeholders' perceptions on climate change, forest ecosystem services and forest management practices, several questionnaires will be developed to gather all these data and create an overview of their expectations and needs. Therefore, misuse of the data should be avoided, and confidentiality procedures should be respected to ensure the privacy of respondents and organisation as well as the protection against possible identification of respondents during the project lifetime. In this respect, to cover ethical requirements and data protection according to GDPR, an informed consent letter was conceived to ensure the confidentiality degree of engaged stakeholders. It is required that all project partners obtain the informed consent of engaged stakeholders for collecting and processing their personal data. All information provided (name, email, IP address, phone, etc.) is kept confidential by encryption that turns all data into an unreadable format and only authorized persons from the project can decrypt the data and read it. Besides, all qualitative and quantitative data collected through surveys will not be assigned at the level of the interviewed person. Therefore, all project partners will use the information gathered from stakeholders without revealing the source of the information or other personal data.

For face-to-face interviews conducted in CSAs, data collected will adhere to the GDPR and ethical approval procedures from relevant partners. Prior to the interview, interviewees will be provided with information sheets on data protection and consent forms for informed consent. Interviewees will be assured confidentiality throughout the project and will be informed about the possibility of withdrawing their participation in the project at any time. In some Case Studies, interviewees will also have the option to indicate whether their interview data and contact information can be used for follow-up research after the project concludes.

The CROSSEU project places significant emphasis on utilising Social Media Networks as a part of its communication strategy. The project actively maintains a presence on two platforms: LinkedIn and Twitter (@CROSSEU). The primary objective of engaging with Social Media is to inform the audience about project activities, attract new participants, and disseminate project results.

While posting content on the project's website and Social Media, ethical considerations are crucial, including transparency adoption and safeguarding the privacy of followers and project participants. During the process of data collection and analysis for other project activities, certain



information may be suitable for sharing on Social Media. However, to adhere to ethical standards, no personal or confidential data will ever be shared on CROSSEU's social media accounts. Only general conclusions or aggregated statistics that can benefit the wider community or contribute to a better understanding of CROSSEU's results will be considered for sharing.

The project partners will follow their internal data protection and European GDPR regulations during the CROSSEU project implementation period (all WPs). In line with GDPR, individual beneficiaries are responsible for their own data processing and will ensure the implementation and compliance of the procedures and protocols in line with internal processes and national regulations. The collection and processing of any personal data (non-sensitive) focusing on stakeholder engagement activities (e.g., for co-designing the CROSSEU methodology, the CROSSEU DSS) will respect the General Data Protection Regulation (2016/679)<sup>1</sup>The relevance of all data collected within the CROSSEU tasks will be considered in line with EU Principles of the GDPR<sup>2</sup>.

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<sup>1</sup> General Data Protection Regulation (GDPR, EU 2016/679)

<sup>2</sup> EU, Principles of the GDPR: What data can we process and under which conditions? [https://ec.europa.eu/info/law/law-topic/data-protection/reform/rules-business-and-organisations/principles-gdpr/what-data-can-we-process-and-under-which-conditions\\_en](https://ec.europa.eu/info/law/law-topic/data-protection/reform/rules-business-and-organisations/principles-gdpr/what-data-can-we-process-and-under-which-conditions_en)



## 8. Other issues

No further issues are foreseen at this stage.



### CROSSEU Partners

 <p><b>Meteo Romania</b></p>	 <p>WORLD METEOROLOGICAL ORGANIZATION</p>	 <p>UNIVERSITÀ DEGLI STUDI DI PADOVA</p> 
 <p>Conoscenza e Innovazione</p>	 <p>hereon Helmholtz-Zentrum</p>	 <p>sustainable innovation</p>
		
 <p>UNIVERSITY OF BUCHAREST — VIRTUTE ET SAPIENTIA —</p>		 <p>University of East Anglia</p> 
	 <p>WEMC World Energy &amp; Meteorology Council</p>	 <p>UK Research and Innovation</p>