



Deliverable D7.2

Mid-term Data Management Plan (DMP)

Document Control & History

Document Control

Project	Small4Good
Project Title	Sustainable multifunctional management by small forest owners in support of bioeconomy, biodiversity and climate Grant agreement ID number: 101135517
Date	19.12.2025
Author/s	Rasmus Astrup, Stephan Hoffmann
Reviewer/s	internal
Activity	WP7, Task7.5 Data management and GDPR conformance monitoring
Dissemination Level	PU
File name	Small4Good_D7.2_mt_DMP_v1.0.pdf

Dissemination level

PU	Public, fully open access
RE	Restricted to a group specified by the Small4Good consortium (including the Commission Services)
SEN	Sensitive, only for members of the Small4Good Consortium (including the Commission Services)

Document History

Version	Date	Author	Change
1.0	19.12.2025	RA, SH	

Abbreviations

AI	Artificial Intelligence
D	Deliverable
DEC	Dissemination, Exploitation, and Communication
EC	European Commission
EU	European Union
GA	Grant Agreement
GDPR	General Data Protection Regulation
LL	Living Labs
PES	Payment for Ecosystem Services
S4G	Small4Good
WP	Work Package



Executive Summary

The Small4Good project aims to enable and activate small-forest owners to safeguard biodiversity and enhance the provision of ecosystem services from Europe's forests through multifunctional and locally adapted management models that are financially supported by PES and implemented with support by of digital- and AI-based solutions. To achieve this aim, large amounts of data must be collected and analysed throughout the multiple tasks in the project and are subject to a data management plan (DMP).

The data generated in this project will be useful for the scientific community in this field, and for forest management planners and policy makers.



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1. Introduction

The purpose of this document is to enhance understanding of data collection, handling, analysis, and its prospective use beyond the project's lifespan, thereby augmenting the innovation prowess of partners and the entire sector. The DMP is a pivotal tool for ensuring the post-project utilization of datasets, identifying data accrued during the project, its storage methods and locations, and the standards applied. Additionally, it specifies datasets that can be accessed openly and offers comprehensive information on these datasets. The plan will be updated at least once a year, or more frequently if significant project alterations or grant agreement requirements necessitate it.

2. FAIR Principles

Data collected and created within the Small4Good project will be handled following the FAIR Data principles (Wilkinson et al. 2016¹), to ensure that the project's data is permanently findable, accessible, interoperable, and reusable.

To guarantee the enduring preservation, discoverability, and accessibility of all data generated by the project, we will implement the following steps:

- All project-derived data will be uploaded to a server such as ZENODO. This ensures that the data remains unaltered and permanently stored, with a consistent identifier in the form of a DOI
- For the stored data sets, metadata will be assigned through the use of tools such as “Frictionless Data” (<https://frictionlessdata.io/>) or “Metatab”(<https://www.metatab.org/>)
- To enhance discoverability and potential reusability, we will include search keywords in the metadata wherever feasible

3. Handling of personal data

The project involves the collection and processing of personal data through qualitative interviews and quantitative online surveys. To ensure a high level of data protection, all personal data will be anonymized and encrypted. Direct identifiers will be separated from the collected data and replaced with pseudonyms to prevent the identification of individuals. Only authorized researchers will have access to the data and only for the duration required for analysis. Furthermore, all respondents will be explicitly informed about the purpose of data collection, their rights under GDPR including the right to access, correct, and delete their data, and their right to withdraw from the study at any time. We

¹ [The FAIR Guiding Principles for scientific data management and stewardship | Scientific Data \(nature.com\)](https://www.nature.com/articles/d41586-016-0058-1)



will also assure them that their participation is entirely voluntary, and their data will be stored securely and disposed of after the project completion in line with GDPR guidelines.

4. Data Managers

Every partner involved in data handling will assign at least one data manager (Table 1) who will oversee data documentation and the development of metadata. The associated costs will be accommodated within the budget of the relevant work packages and tasks, in which the data sets will be established (Table 2).

Changes in the employment of partners has been accounted for, and Martin Fox from the IDMP been replaced by Pierre Le Maitre as the data manager at ELO.

Partner	Name
NIBIO	Stephan Hoffmann
	Maciej Wielgosz
WSL	Janine Schweier
University of Goettingen	Carola Paul
University of Brasov	Stelian Borz
Forest Design	Bogdan Candrea
University of Valladolid	Felipe Bravo
University of Freiburg	Sabeth Häublein
ELO	Pierre Le Maitre
Menon	Henrik Lindhjem
Forstkammer	Jerg Hilt
FAFCYLE	Olga Gonzalez
Romsilva	Robert Pache
NSF	Ingeborg Nordraak
WBB	Raphael Haener
APPR	Mihai Ionescu

Table 1: Small4Good data managers

5. Details of created data sets

Data set name and identifier	Description of data set	Owner	Source	Format	Storage location/ Access constraints	FAIR principles
Work Package 1						
Data sets of WP1 are associated to activities in the various tasks of the WPs as stated in below						
Work Package 2						
Interviews with small-forest owners, forest owner association, forest administration, forest rangers/managers... (mainly small-forest owners)	Interview records, notes and transcripts, for qualitative analysis on motivations and barriers for multifunctionality in small-scale forestry	UFR	Interviews by UFR, UGÖ, LL Coordinators	mp3 records, transcription with noscribe / F4, docx as transcription, analysis with MAXQDA	UFR server BWSFS; access only for WP2 members, if shared with other partners via bwsync&share	Data will get pseudonymized (separate Excel Sheet at another drive to save the original names) and the meta data (e.g. pseudonym, length of interview, LL) will be shared across the S4G Team in a Sheet. 2 versions of the interviews will exist: The original language transcript if applicable (e.g. Spanish) and an English transcript.
Survey data (Task 2.3, Motivations and Barriers)	All survey responses stored in a file, subsets of which are created and used for analysis	UFR	online survey	Excel and csv for storage and SPSS for analysis	UFR server BWSFS; access only for WP2 members, if shared with other partners via bwsync&share	Data is already anonymized, will be stored securely
Survey (Task 2.4, ABM)	All survey responses stored in a file, subsets of which are created and used for analysis	WSL	online survey	csv for storage and R for analysis	Local server at WSL. Access available through request	Data will be anonymized, will be stored securely


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Work Package 3						
Interviews with small-forest owners, forest owner association, forest administration, forest rangers/managers... (mainly small-forest owners)	Qualitative data on institutions (eg rules, norms, values), networks, desirable futures of the forest, temporality perspective, (current and future) business models	UGÖ	Interviews by UGÖ/ LL Coordinators	.docx for raw data REFI-QDA for analysed data	Network drive of UGÖ Access via Carola Paul	Data will get pseudonymized (separate Excel Sheet at another drive to save the original names) and the meta data (eg pseudonym, length of interview, LL) will be shared across the S4G Team in a Sheet. 2 versions of the interviews will exist: The original language transcript if applicable (e.g. Spanish) and an English transcript.
Focus groups with small-forest owners (SFO), forest owner association, forest administration, forest rangers/managers... (mainly small-forest owners)	Qualitative data based on workshop on business models. Business Models and Business Modelling in the form of e.g. Business Model Canvas	UGÖ	Workshops by UGÖ/ LL Coordinators	.docx for raw data REFI-QDA for analyzed data .svg/.pdf/ .jpg for Business Model Canvas	Network drive of UGÖ Access via Carola Paul	Data will get pseudonymized (separate Excel Sheet at another drive to save the original names) and the meta data (e.g. pseudonym, length of workshop, LL) will be shared across the S4G Team in a Sheet. 2 versions of the workshops will exist: The original language transcript if applicable (e.g. Spanish) and an English transcript.
Interviews with SFOs and SFO organisations who have implemented PES as part of their business model	Qualitative data based on interviews and literature/web screening	UGÖ	joint desk research with ELO	audio files (mp4), .docx and .csv for raw data, .xlsx for aggregated and analysed data	Partly published in D3.1, and network drive of UGÖ Access via Carola Paul	Data will be saved in the original language transcript and in a translated version, data will only be used after explicit agreement with SFO organisation and/or restricted to data publicly available




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Work Package 4						
Mini-crawler productivity data	The data set consists of time study data (work element observations) and related performance and conditions data (e.g. productivity, tree parameters, slope, etc.)	NIBIO	Data is collected during field experiments with the mini-crawler	.csv or .txt	To be kept on a networked drive at NIBIO. Access will be controlled by the data manager	Data can be made available as supplement via scientific publications/reports
Forest simulation data generated through ForClim of LL Central properties	Future forest development will be simulated under alternative management, generating stand characteristics as output (tree no., diameters, heights, etc.)	WSL	Data is generated by simulations	.csv or .txt	To be kept on a networked drive at WSL. Access will be controlled by the data manager	Data can be made available as supplement via scientific publications/reports
Forest simulation data generated through SIMANFOR of LL properties (all regions)	Future forest development will be simulated under alternative management, generating stand characteristics as output (tree no., diameters, heights, etc.)	UVA	Data is generated by simulations	.csv or .txt	To be kept on a networked drive at UVA. Access will be controlled by the data manager	Data can be made available as supplement via scientific publications/reports
Forest simulation data generated through SiTree and/or PixSim of LL North properties	Future forest development will be simulated under alternative management, generating stand characteristics as output (tree no., diameters, heights, etc.)	NIBIO	Data is generated by simulations	.csv or .txt	To be kept on a networked drive at NIBIO. Access will be controlled by the data manager	Data can be made available as supplement via scientific publications/reports
Work Package 5						
Media (video/image) data from representative plots of LLs	Samples (video files) taken with smartphones, having a given length (duration) and field of view to support	UTBV, LLs	Data is collected from representative plots of the LLs	various video formats	Kept on the networked drive at UTBV. Access will be	Data can be made available as supplement via scientific publications/reports




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	image extraction for annotation				controlled by the data manager	
Metadata for documenting video/image data from representative plots of LLs	Text describing the features seen in the videos such as the type of forest, understory, volume estimate, type of management	UTBV, LLs	Data is documented based on available statistics/meas urements	xls, csv or text	Kept on the networked drive at UTBV. Access will be controlled by the data manager	Data can be made available as supplement via scientific publications/reports
Annotated dataset	Images annotated to support deep learning	UTBV	Data is processed based on images and features	formats suitable for deep learning	Kept on the networked drive at UTBV, and Darwin V7 platform. Access will be controlled by the data manager	Data can be made available as supplement via scientific publications/reports
Forestry-assistant-datasetv0	Set of documents in multiple languages which contain description of forest features		Data collected from the the public websides	pdf which requires preprocessing to be used for the training	To be downloaded to the google drive	To be made available after preprocessing is done
360-degree videos from representative plots in LLs	Video files, captured with Insta360 Pro 2, of a given length to support forest visualization and the point cloud generation.	WSL	Data is collected in representative plots of the LLs.	Video formats (typically .mp4).	Kept on the networked drive at WSL. Access will be controlled by the data manager.	Data will be made available after the video capture in all LLs.

Table 2: Small4Good data sets



6. Conclusion

This is the mid-term data management plan, which after half of the project's life span did not include the details for all datasets until the end of the project, as these may not be entirely available. As we proceed with the project, we will ensure that the Data Management Plan (DMP) is regularly updated, at least annually. Each partner, who plays a significant role in data collection or providing already existing data, has appointed a data manager. This individual will serve as the primary contact for all matters concerning data in the forthcoming implementation of Small4Good.

