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## **Stakeholder and end-user involvement in the formulation and evaluation of terminology for a comprehensive soil health framework**

EJP SOIL Annual Science Days 12<sup>th</sup> – 16<sup>th</sup> June 2023  
Riga, Latvia



**EJP SOIL**  
European Joint Programme

EJP SOIL has received  
funding from the European  
Union's Horizon 2020  
research and innovation  
programme: Grant  
agreement No 862695

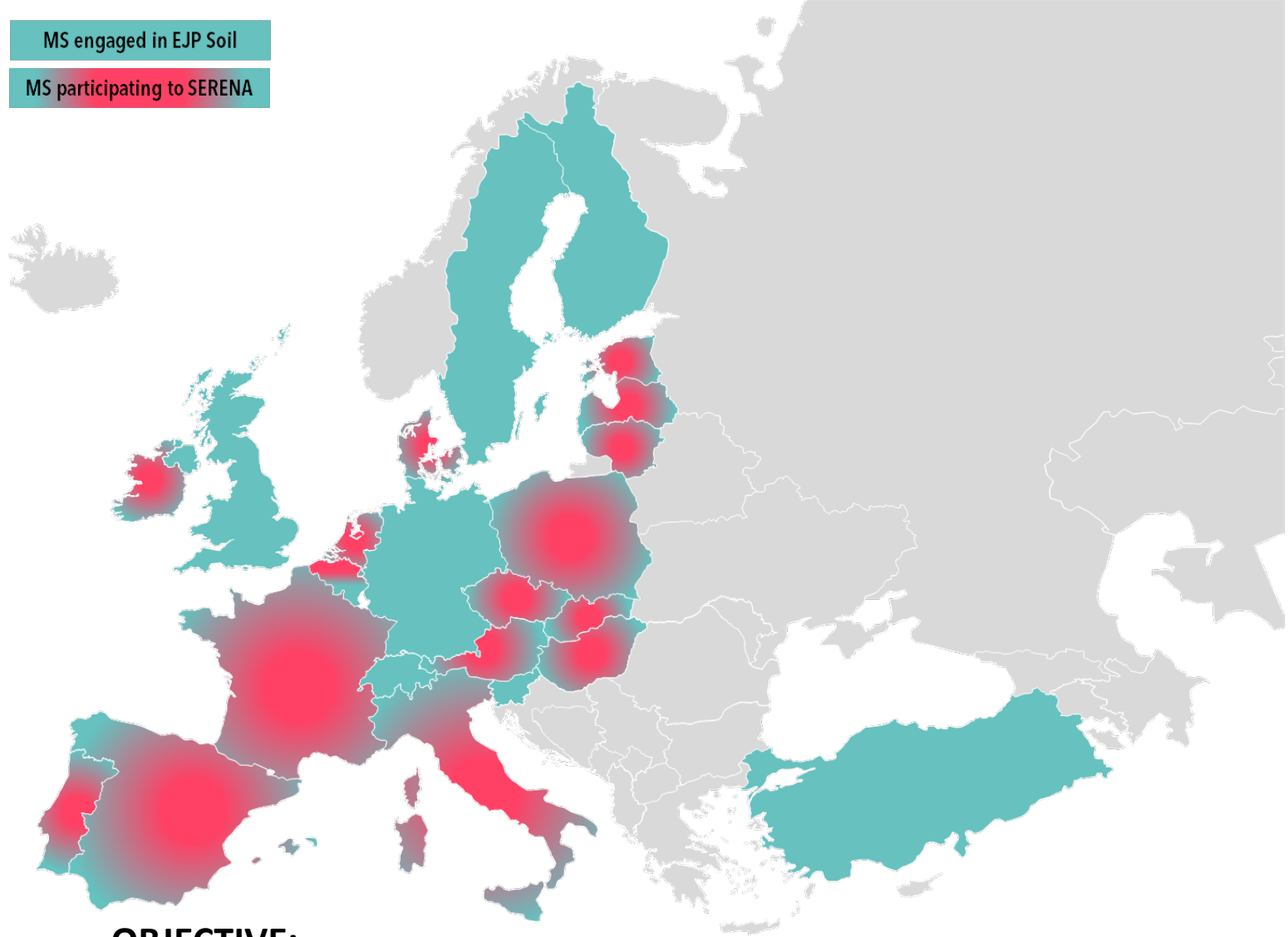


MS engaged in EJP Soil

MS participating to SERENA

## SERENA: Soil Ecosystem services and soil threats modElling aNd mApping

- 16 EU countries
- 25 partners



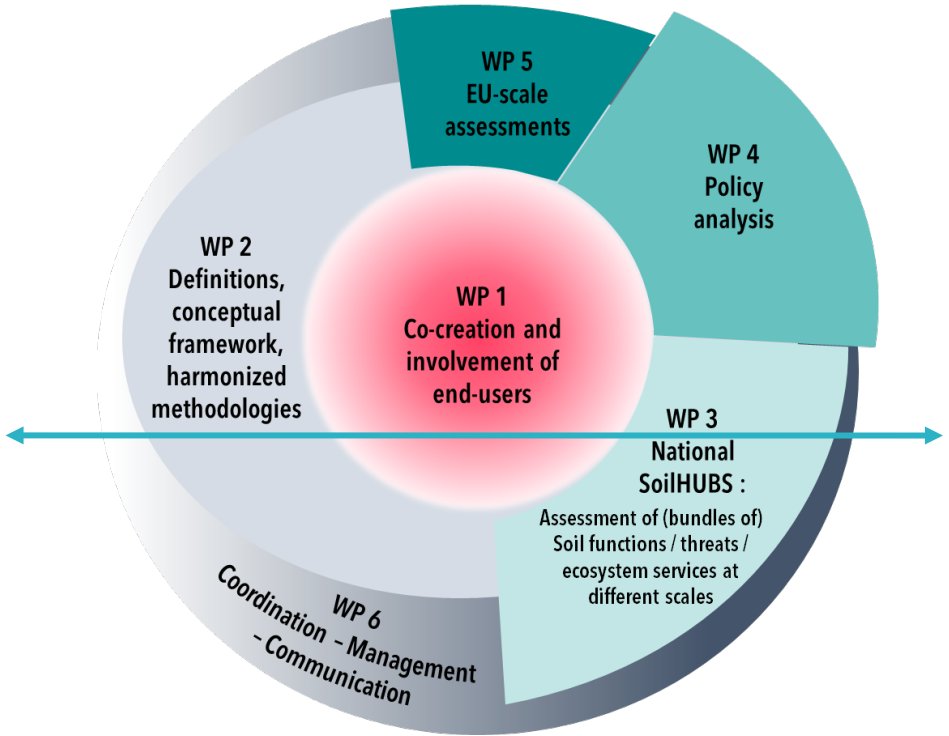
### OBJECTIVE:

SERENA intends to enhance policy effectiveness through the analysis of Soil Ecosystem Services bundles across European agricultural landscapes. Furthermore, SERENA aims to highlight how Soil Threats impact the supply of services bundles



# The 3 Pillars for SERENA

**THREATS**  
*Soil threats and SES may be the 2 sides of a same coin*



**SOIL-BASED ECOSYSTEM SERVICES**  
*We do want to deal with threats and SES bundles*

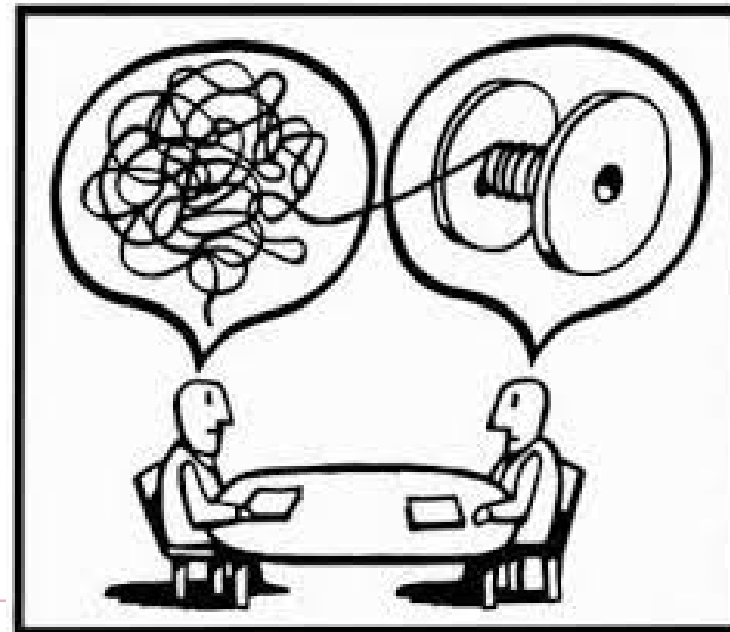
**STAKEHOLDERS**  
*Stakeholders are at the core of the project*

All SERENA's outputs needs to be co-constructed and/or evaluated with relevant stakeholders:  
**engagement across EJP SOIL countries and at European level**

In a Soil Health Framework, stakeholders are **individuals or groups with an interest, potential impact, implementation role, or relevant expertise** in the topic

Soil health has gained priority at EU scale with a **Broad definition of Soil Health**

→ It is still needed to develop a comprehensive terminology to ensure a **shared common understanding**



# Co-creation and involvement of end-user: Are we Speaking the same language?

Different stakeholders within and between member states use **the same terminology to describe different things, or different terminology to mean that same thing.**

## 1. Stakeholder type

- For farmer soil carbon loss is fertility driven while for policy makers it relates to climate change mitigation

## 2. Scales

- Soil threats at national level or catchment level, different perception

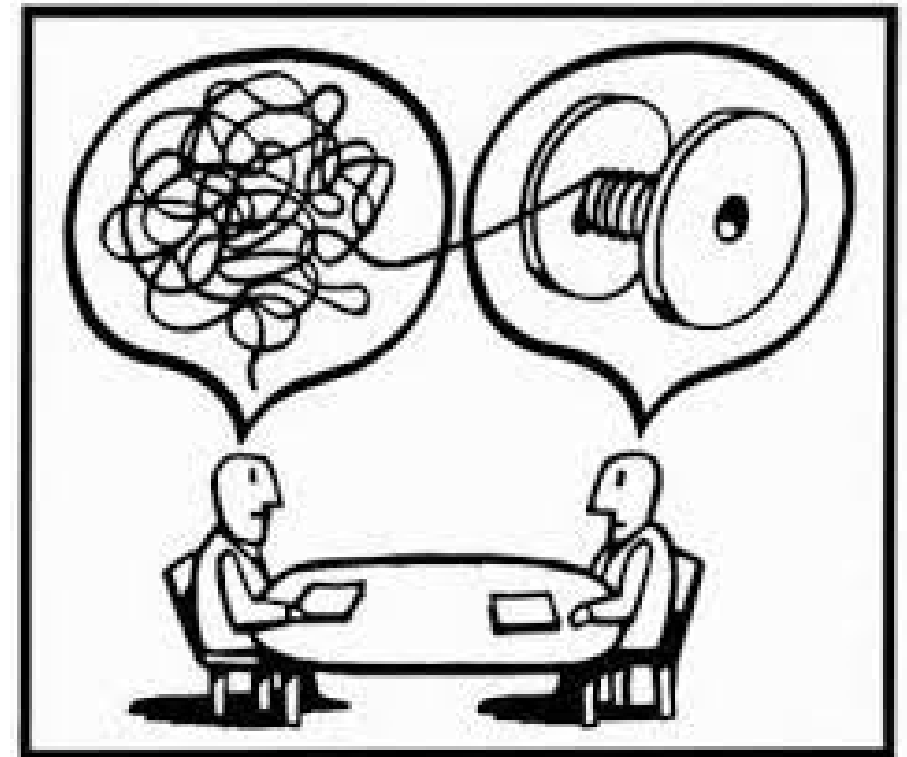
## 3. Geography

- A heavy soil/C loss in southern countries have a different meaning with respect to northern countries

## 4. Background

- NGOs representatives vs Scientists

**Cultural ↔ Linguistical**  
Are we Speaking the same language?



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**Cultural ↔ Linguistical**  
Are we Speaking the same language?



- We need to understand who we are talking to in order to properly address our requests
- We need to make sure that our requests is clearly received



**Development of a comprehensive terminology for soil health**

**EJP SOIL is an example of breaking these linguistical barriers**

# Building a Stakeholder database

This would be the basis for the co-construction and validation of all the SERENA's products including the **Harmonisation of Soil Health Definitions and Terminology**

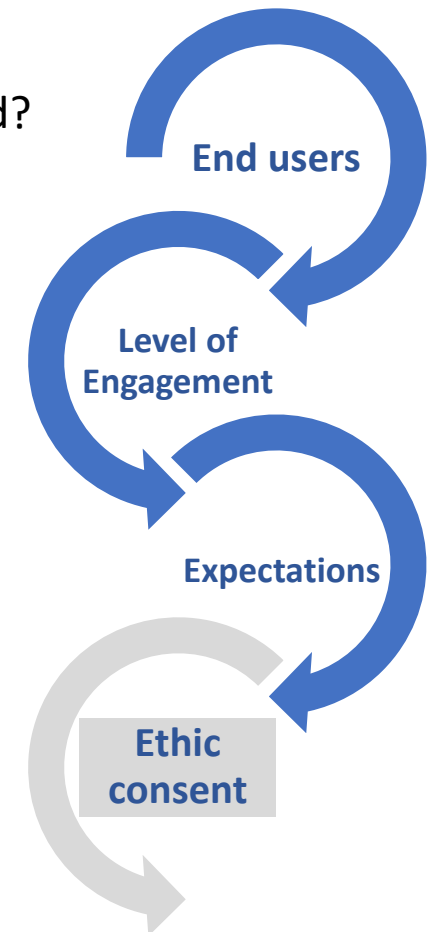
## → Definition of a Protocol for Stakeholders Engagement

utilise the NCR (National Communication Representative)  
<https://ejpsoil.eu/about-ejp-soil/contact/national-communication-representative/>

**1. Which end-users** need to be engaged?

**2. What is the level of engagement** throughout the project (frequency)?

**3. What do we expect?**



# Building a Stakeholder database



## Action 1:

- Living Template: **Stakeholder Requirements Template.**



# Building a Stakeholder database: Requirements Template

The idea is to identify when exactly the intervention of the stakeholder group/s is requested and align it to the relative project milestone.

Aim to comprise different backgrounds re **education, demography, age, gender**, and many more characteristics which influence the stakeholders opinions  
**High Variety!**

WP	Task	Task Leader	Do you plan an activity associated to this Task?	Milestones	Deliverables	Months of engagement	Frequency	Activity Leader	Purpose of activity	Stakeholder input required	Number of activities	Number of attendants	Type of activity	Scale explored	Stakeholder group (Please check all that apply)					Potential constraints	Comments/ notes	NCR (Representative)	
			Provide a Yes or No answer. If yes please fill the rest of the document	Outputs associated to the Task	Provide precise dates (M6, M12, etc.) or a time slot on which the activity will be required	How frequently you need to engage with this group (once per year, twice etc.) Select from	Fill the name of the responsible person for this activity	Brief description of the activity proposed	Fill the input required (i.e., co-construction, validation, etc.) Select from dropdown list	Provide a cumulative number for the length of the project	Provide an indicative number of attendants	Provide the type of activity (workshop, survey, etc.). Select from	Provide the scale explored. Select from dropdown list	Lighthouse farms	Farmers groups	National policy stakeholder	Eu policy maker	Scientist	Other	i.e. language constraints		Please specify country/region/communi	
1	T1.1 Engaging of End-users	Giulia Bondi	No																				
1	T1.2 Aligning concepts		Yes	M12.1		M8 (or M1-8)	once per year		definitions and indicators related to soil threats and ecosystem services.	Co-construction	1	20	Workshop	Eu Scale								none	
1	T1.2 Aligning concepts																						
1	T1.2 Aligning concepts																						
1	T1.3 Validating products																						
1	T1.3 Validating products																						
1	T1.3 Validating products																						
1	T1.4 Defining scenarios																						
1	T1.4 Defining scenarios																						
1	T1.4 Defining scenarios																						
2	T2.1 Defining concepts and framework																						
2	T2.1 Defining concepts and framework																						
2	T2.1 Defining concepts and framework																						
2	T2.2 Selecting threats, SES, indicators																						
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2	T2.2 Selecting threats, SES, indicators																						
2	T2.3 Harmonising methodologies																						
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2	T2.3 Harmonising methodologies																						
3	3.1 National multi-scale assessment																						
3	3.1 National multi-scale assessment																						
3	3.1 National multi-scale assessment																						
3	3.2 Evaluating bundles at MS scale																						
3	3.2 Evaluating bundles at MS scale																						
3	3.2 Evaluating bundles at MS scale																						
3	3.3 Forecasting bundles at MS scale																						
3	3.3 Forecasting bundles at MS scale																						
3	3.3 Forecasting bundles at MS scale																						
4	4.1 Analysing existing policies																						
4	4.1 Analysing existing policies																						
4	4.1 Analysing existing policies																						
4	4.2 Ex-ante evaluating soil-based policies																						
4	4.2 Ex-ante evaluating soil-based policies																						
4	4.2 Ex-ante evaluating soil-based policies																						
5	5.1 Testing methods at EU scale																						
5	5.1 Testing methods at EU scale																						
5	5.1 Testing methods at EU scale																						
5	5.2 Forecasting bundles at EU scale																						
5	5.2 Forecasting bundles at EU scale																						
5	5.2 Forecasting bundles at EU scale																						
6	6.1 Managing																						
6	6.1 Managing																						



# Building a Stakeholder database



### Action 1:

- Living Template: **Stakeholder Requirements Template.**

### Action 2

- draft letter for NCR-s including a
  - i. short summary of SERENA; ii. timing of engagement; iii. ethics consent

Date XXX

Dear [insert NCR representative],

I am writing to you on behalf of the SERENA (Soil ecosystem services and soil threats modelling and mapping) project which is an internally co-funded European Joint Programme on Soil (EJP Soil) funded project. As the concept of soils is undergoing a shift towards an integrative vision that encompasses soil quality for multifunctionality, there is a need for new assessment tools. The SERENA project aims to build and evaluate information on soil quality and soil health, in particular bundles of soil-based ecosystem services across multiple scales, from local to region, for national to European. To ensure that project outputs are relevant and fit for purpose, the project has highlighted the importance of stakeholders in the co-development of indicators, related interpretation values and validation of outputs.

Already, the project has identified the types of relevant stakeholders who should be included. To ensure that we include the right stakeholders, including those who may be hard to reach, we have developed a protocol to engage stakeholders in the SERENA project.

At this time, we would like to seek your support in the facilitation of reaching out to stakeholders at sub-national level within your country. To do this, and to ensure a standard protocol across member states, we have developed a harmonised objective stakeholder snowball sampling protocol to be completed by partners at member states. We attach the related guidance documents but we will set up an online meeting to explain this process in detail and to answer any questions that you might have at that time.

We hope we can rely on your support. The outputs are relevant and important for the stakeholders that we intend to engage with. The purpose at this point is however, to build that database of stakeholder who we may reach out during the life of the SERENA project.

We will contact you in due course to set up a meeting with NCRs to explain the stakeholder identification process.

We thank you in advance for your co-operation.

Sincerely

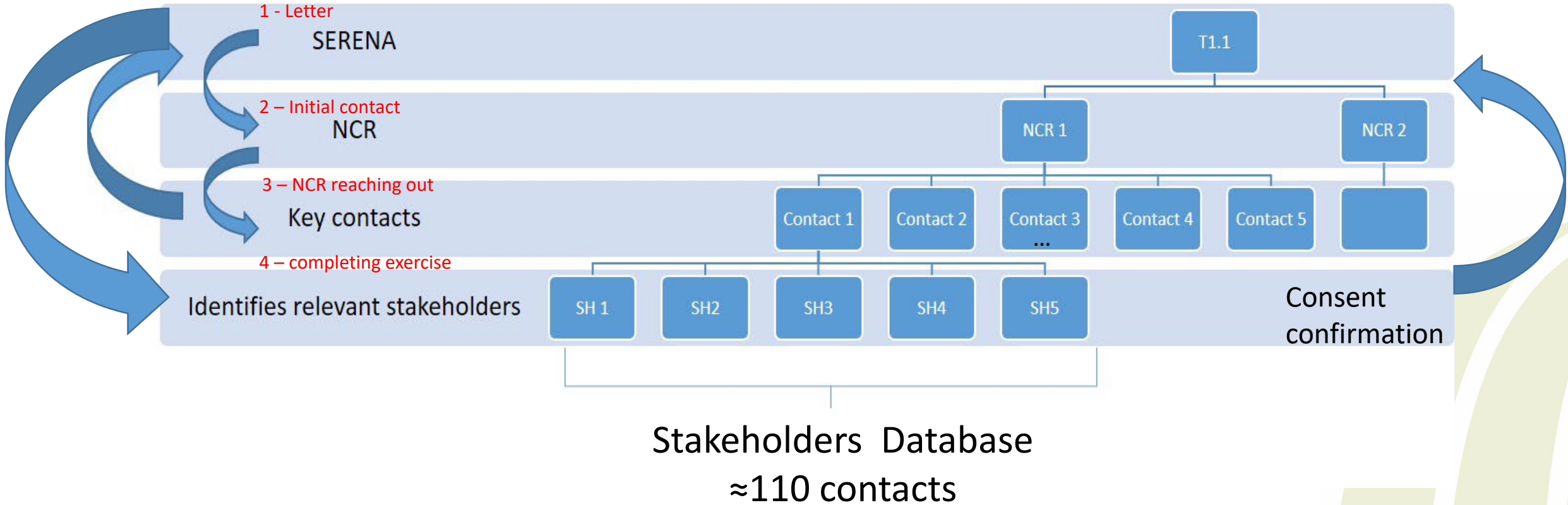
Sabina Adins & Lillian O'Sullivan  
WP1 Lead and Co-Lead  
SERENA Project



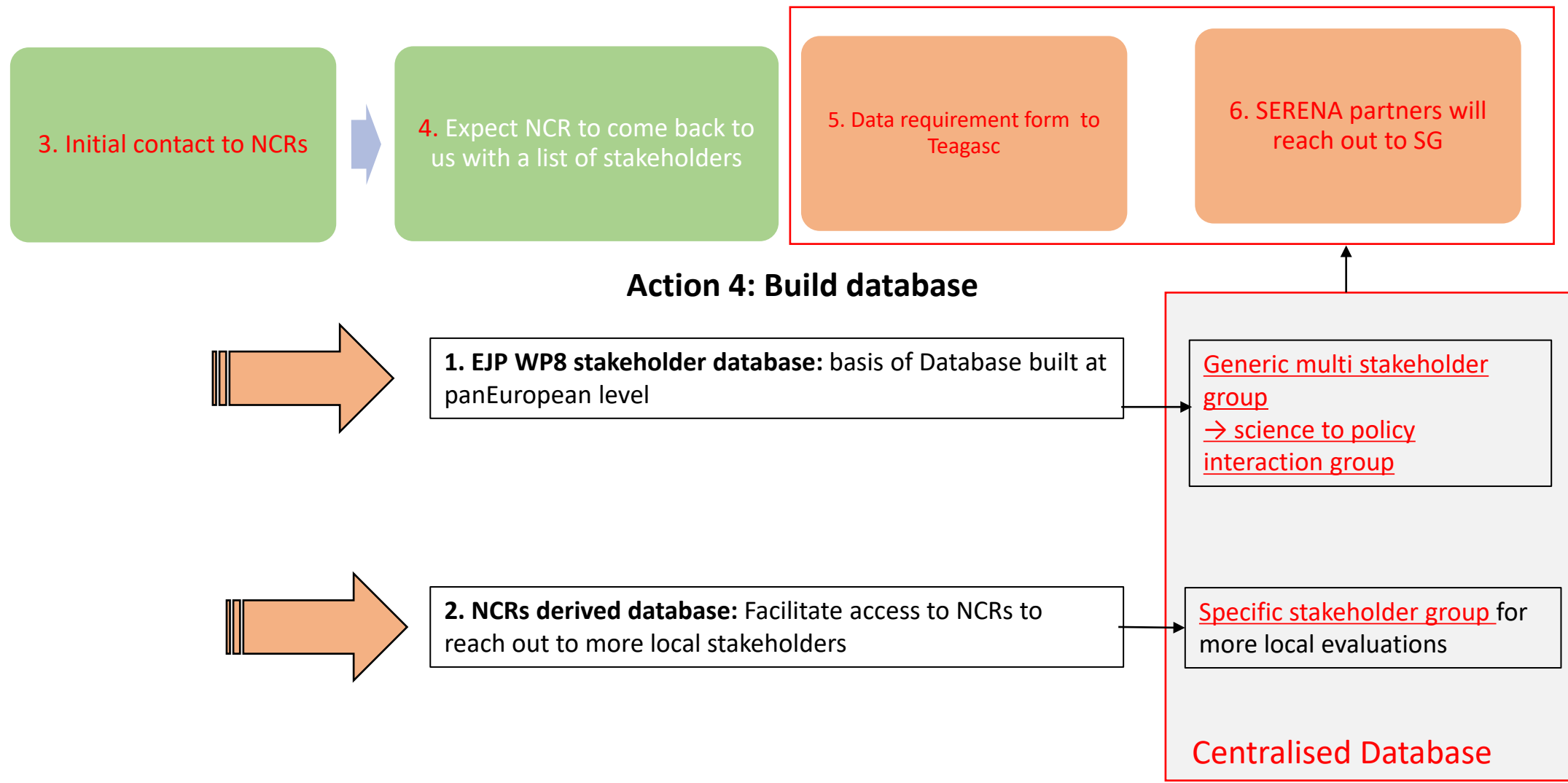
# Building a Stakeholder database

## Objective– Snowball sampling technique

Consent request

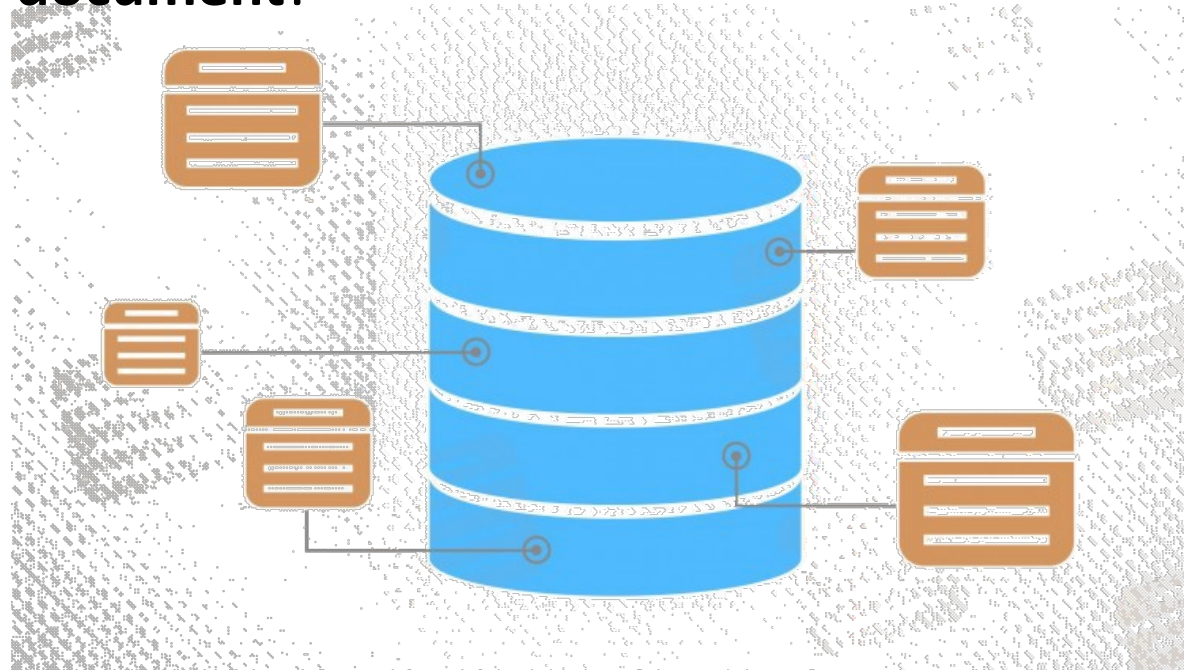


# Building a Stakeholder database: Accessing DB and reaching out to SG



# Building a Stakeholder database: Accessing DB and reaching out to SG

Database built and securely stored with over **160 stakeholders contacts** available.  
The database is a **live document!**



Using the stakeholders DB to align definitions of soil threats, ES amongst end-user communities

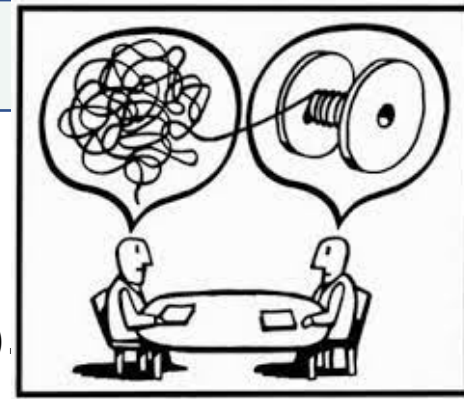
QUESTIONNAIRE



# Questionnaire

The questionnaire consists of **four parts**.

1. Introductory questions about **soil-related background** (A),
2. Definitions of **terms** which build the framework **for sustainable soil management** (B),
- 3. Terminology** for different **Soil Ecosystem Services** (C) and **Soil Threats** (D).
4. In addition, the parts B, C, and D include 33 terms.



Again: Are we speaking the same language?

How strongly do you agree with the following definition of SOIL HEALTH?

Soil health is the current ability of a soil to function as a vital living system, within natural or man-aged ecosystem boundaries and land-use boundaries, to sustain plant and animal productivity and health, maintain or enhance water and air quality and to further provide ecosystem services on the long-term without (increased) trade-offs between ecosystem services.

1     2     3     4     5     6     7

Ideas to improve the definitions (not obligatory).





# Questionnaire

- **Planned results** → Alignment

## How strong is the agreement with our definitions?

How strongly do you agree with the following definition of SOIL HEALTH?

Soil health is the current ability of a soil to function as a vital living system, within natural or managed ecosystem boundaries and land-use boundaries, to sustain plant and animal productivity and health, maintain or enhance water and air quality and to further provide ecosystem services on the long-term without (increased) trade-offs between ecosystem services.

**Rethink/Reformulate!?**

**Okay**

Ideas to improve the definitions (not obligatory).

The following indicators were chosen to be the most appropriate ones to characterize the Soil Ecosystem Service GREENHOUSE GAS AND CLIMATE REGULATION. How far do you agree with the selection?

	1	2	3	4	5	6	7
Organic carbon stock in living plant materials (tC/ha)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soil organic carbon sequestration potential (tC/ha)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soil organic carbon budget (tC/ha.yr)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Net ecosystem productivity (Carbon assimilation by living materials minus soil respiration; tC/ha.yr)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Net soil greenhouse gas fluxes (Integration of CO <sub>2</sub> sequestration and N <sub>2</sub> O emissions; tCO <sub>2</sub> eq / ha.yr)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Greenhouse gas emissions from agricultural soils (div.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Changes in soil organic carbon stocks (tC/ha.yr)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





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Definitions in **plain language**, that means definitions which should be comprehensible and intuitive for **non-soil-experts**.

## i.e. Hydrological control

### Plain language explanation

Water is needed for plant growth but may cause harm and damage in case of floods. Soil is the interface medium which controls the cycle of precipitation water between these two pathways. Among the most important services soils provide, the hydrological control refers to the capacity of soils of regulating the water cycle. This includes the capacity of infiltrating precipitation, storing and supplying water to plants and crops, and providing water for groundwater recharge.



1



2



3



4



5



6



7



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## Soil Threats and SES

How strongly do you agree with the following definitions for the Soil Threat SOIL COMPACTION?

Scientific definition

Soil compaction refers to the densification and distortion of soil by which total and air-filled porosity are significantly reduced, causing deterioration or loss of one or more soil functions.



1



2



3



4



5



6



7



# Questionnaire

**Aim: Alignment of actual definitions of soil threats, ES amongst end-user communities**

[https://www.soscisurvey.de/EJP\\_SERENA12/](https://www.soscisurvey.de/EJP_SERENA12/)

**Questionnaire translation**  
in 10 languages

**Dissemination to stakeholders**  
(stakeholders database and the general public)

**Gathering stakeholders responses**  
→ June/July 2023



# Thanks for the attention

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[thomas.weninger@baw.at](mailto:thomas.weninger@baw.at)



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