

ACTOR ENGAGEMENT GUIDE – GUIDANCE FOR ENGAGING ACTORS IN LAND AND SOIL MANAGEMENT

Grant Agreement 101000258

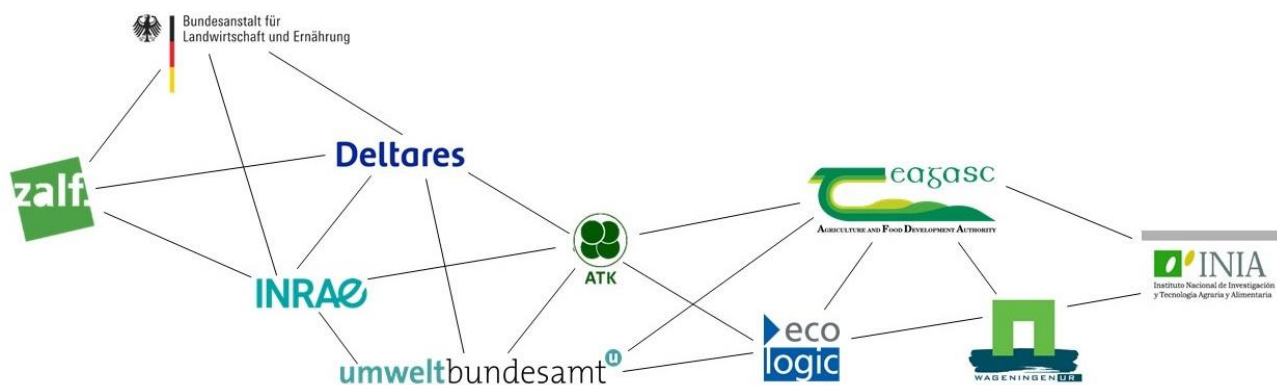
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Author(s):

Jos Brils, Gerald-Jan Ellen, Linda Maring, Jasper Koopman,
Merlijn Anderiesse, Menno van Dongen (all Deltares)
Sophie Ittner, Sandra Naumann (all Ecologic)
Gundula Prokop (Federal Environment Agency Austria)
Antonio Bispo (INRAE)
Saskia Keesstra (WUR)
Katharina Helming (ZALF)



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This document is intended as a guidance document and not as cooking book. As this document is delivered in the first half of the project the assumptions regarding 'what is in for specific stakeholder groups' if they engage in land and soil management including related research and innovation activities (see Annex 7.2) could not been tested yet.

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Author(s)	Brils J, Ellen GJ, Maring L, Koopman J, Anderiesse M, van Dongen M, Ittner S, Naumann S, Prokop G, Bispo A, Keesstra S, Helming K
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1 ABBREVIATIONS

D	Deliverable
EC	European Commission
EU	European Union
MS	Member States (of the European Union)
NGO	Non-Governmental Organization
R&I	Research & Innovation
SDG	Sustainable Development Goal
SMART	Specific Measurable Achievable Realistic Timebound
SMS	Soil Mission Support
WP	Work Package

2 EXECUTIVE SUMMARY

It is assumed that the Soil Mission and its related objectives and specific targets can only be achieved through healthy soils and for that it is needed to engage stakeholders. This is needed because stakeholders: bring in knowledge; have the power to make or to block decisions (policy) and measures (management); and can ensure the relevance and acceptance of outcomes. Stakeholders are defined as those who are affected in their interest or concern by changes in land and soil management. When stakeholders effectively engage in the achievement of the Soil Mission objectives, they become active and thus actors in soil and land management. The guidance to effectively engage actors in land and soil management involves the taking of 6 key-steps:

1. Realize why it is needed to engage them;
2. Select the actors;
3. Decide upon the appropriate level of engagement;
4. Apply the key-principles of actor engagement;
5. Select and apply the appropriate engagement tools and formats; and finally
6. Reflect on previous steps and make adjustment as needed, lessons are learnt.

These steps are further elaborated in this document. Furthermore, there are examples included of actual engagement of actors in natural resources management related cases and tools and formats are suggested that support the engagement of actors. It is assumed that actors will only engage in land and soil management if they recognize benefits in engagement, or, in other words: see 'what's in for them'. Therefore, also first drafts for tailored value propositions to different groups of actors are provided in this document. These drafts can serve as a starting point in further engagement of actors from these groups. Through engagement with them the drafts can be further refined.

3 INTRODUCTION

3.1 The Soil Mission Support (SMS) project

Soil health is vital for the delivery of food, energy, and biomaterials, as well as climate change adaptation and mitigation, biodiversity below and above ground and wide range of further ecosystem services. Pressure on land and soil is growing due to competing demands for land and bio-based products. A sustainable soil management that satisfies the increasing demand and avoids soil degradation requires coordinated research and innovation (R&I). SMS employs a multi-actor approach to create an effective framework for action in the wider area of soil health and land management by coordinating efforts and pooling resources, by developing a coherent portfolio of R&I activities and by identifying criteria for Living Labs and Lighthouses to demonstrate solutions. SMS brings together the main players in soil health and management in a transdisciplinary approach. Activities include the analysis of the needs for R&I on soil and land management as expressed through stakeholder/citizen consultation and research projects, the identification of gaps, priority areas and types of action for intervention including Living Labs and Lighthouses. The action fields range from agriculture and forestry to spatial planning, land remediation, climate action, and disaster control. SMS outcomes and results will include:

- A stakeholder-based, co-created roadmap for R&I on soil and land management;
- Improved coordination with existing activities in Europe and globally, thereby raising visibility and effectiveness of R&I funding. Identification of and learning from existing and potential Living Labs and Lighthouses for testing and demonstrating solutions in order to simultaneously satisfy competing demands of soil use.

With its activities, SMS supports the European Commission (EC) and the Mission Board of the Horizon Europe Mission in the area of Soil Health and Food in delivering its objectives and related targets.

3.2 Purpose and target group of this deliverable

This deliverable 3.3 relates to task 3.2 'Engaging with soil and land management actors' and forms part of the output from SMS WP3 'R&I Roadmap co-creation'. The key objective of this deliverable is to provide guidance on how to involve and engage actors (including young professionals as well as citizens) in sustainable land and soil management. This document is intended as a guide and not as a cooking book.

3.3 Assumptions as basis for this guidance document

The key-assumption is that the Soil Mission and its related objectives can only be achieved through healthy soils and for that it is needed to engage stakeholders. The sub-assumptions related to healthy soils are:

- Sustainable land and soil management enables soil health;
- Soil system understanding enables sustainable land and soil management.
Hence, the better we understand the functioning of soil systems – and how they respond to human (miss) use and climate change – the better we will be able to manage them sustainably.

The sub-assumptions related to stakeholder engagement are:

- Stakeholders will only engage, if they recognize benefits in engagement;
- Several of them do not yet recognize these benefits. Benefits encompass the wide range from incentives and increasing of profit (carrot/gains) to avoiding fuzz and penalties by respecting or relieving of the fuzz to deal with legal obligations and restrictions such as permits and bans (stick/pains).

These assumptions form the basis for the guidance provided in this document on how to engage relevant actors in land and soil management.

3.4 Definitions

Actor	stakeholder who actively engages in land and soil management so who really acts
Citizens	the general public (i.e. non-scientists) (Buytaert <i>et al.</i> , 2014)
Citizen groups	non-profit, citizen-initiated, voluntary association, which attempts to influence decision-makers (Durrance, 1979)
Citizen science	the participation of citizens in the generation of new knowledge (Buytaert <i>et al.</i> , 2014) and/or data
Co-creation / co-production / joint-fact finding	a process in which stakeholders with differing viewpoints and interests work together to develop data and information, analyse facts and forecasts, develop common assumptions and informed opinion, finally, use the information they have developed to reach decisions together (Ehrmann and Stinson, 1999)
Ecosystem services	the services provided and the benefits people derive from these services, both at the ecosystem and at the landscape scale, including public goods related to the wider ecosystem functioning and society well-being" (Haines-Young and Potschin 2018)
Healthy (soils)	soils that have the continued capacity to support ecosystem services in line with the Sustainable Development Goals and the Green Deal (EC, 2020)
Key-actors	those stakeholders who engage in SMS in the co-creation of the SMS roadmap for R&I on land and soil management
Stakeholders	those who are affected in their interest or concern by changes in land and soil management.
Sustainable (management)	management that enables soil health

4 ENGAGING ACTORS IN LAND AND SOIL MANAGEMENT (THE GUIDANCE)

4.1 Key-steps to take

The key-steps to take in order to effectively engage actors in land and soil management are:

1. Realize why it is needed to engage them;
2. Select the actors;
3. Decide upon the appropriate level of engagement;
4. Apply the key-principles of actor engagement;
5. Select an apply the appropriate engagement tools and formats;
6. Reflect on previous steps and make adjustment as needed, lessons are learnt.

Steps 1 – 5 are further elaborated in the next sections. Step 6 is self-evident and needs no further explanation.

4.2 Step 1: Realize why it is needed to engage actors

It is assumed that stakeholder engagement is a prerequisite for achieving of the Soil Mission and its related objectives as they:

- Bring in knowledge;
- Have the power to make or to block decisions (policy) and measures (management), that is why their action is crucial;
- Can ensure relevance and acceptance of outcomes.

When stakeholders effectively engage in the achievement of the Soil Mission objectives and its related targets, they become active and thus actors in soil and land management.

4.3 Step 2: Select the actors to be engaged

4.3.1 Engaging of actors in land and soil management

A key question is also 'Who should engage in the issues to be managed and how'? Some decisions are legitimately made by regulatory bodies and governmental agencies or departments in a top-down governmental approach. Such as legislation/regulations to limit soil degradation, or monetary incentives to induce changes in industrial or agricultural practice. However, decisions fraught by uncertainties, by the complexity of a larger natural system and by interests of various groups and stakeholders, are best made through a bottom-up governance approach which encourages participation (Brils et al., 2014).

Thus, the characteristics of the land or soil management issues at stake, guide which actors to engage. The basic rule here is: the more complex the issue at stake, the broader the set of actors to engage. When replacing 'risk' by 'issue at stake' the actor engagement logic as developed by the International Risk

Governance Center (IRGC, 2017) can be applied. The thus adapted engagement logic is presented in Fig 4-1. Ambiguous means that the issue at stake is open to more than one interpretation, i.e. not having one obvious meaning.

				civil society
			affected stakeholders	affected stakeholders
		external scientists / researchers	external scientists / researchers	external scientists / researchers
actors	regulatory bodies & experts	regulatory bodies & experts	regulatory bodies & experts	regulatory bodies & experts
type of participation	using existing routines to assess the issue and possible ways to address them	maximise the scientific knowledge of the issue and of the ways to address them	engage all affected stakeholders to collectively decide best way forward and learn-by-doing	societal debate about the issue, its underlying implications and best way forward
dominant characteristic of the issue	simple	complex	uncertain	ambiguous

Figure 4-1 Actors to engage in the management of different types of land or soil management issues (based on/inspired by IRGC, 2017): If the dominant characteristic of the issue changes, the type of actor engagement needs to change.

Further characterization of the ‘simple > complex > uncertain > ambiguous’ escalator (based on/inspired by IRGC, 2017):

- **Simple:** issues can be managed using a routine-based strategy, such as introducing a law or regulation or execution of a measure to resolve the issue. Traditional decision-making or management frameworks implemented by regulatory agencies and/or land or soil managers may be suitable to effectively address simple issues.
Example: remediation of a contaminated soil site simply by ‘dig-and-dump’ of the contaminated soil and replacing it by clean soil.
- **Complex:** issues should be dealt with by involving internal or external experts and relying on scientific models. Complex issues can be addressed by acting on the best available scientific expertise and knowledge, aiming for an informed and robustness-focused strategy. Robustness refers to the degree of reliability of the issue resolving measures to withstand threatening events or processes even when those have not been fully understood or anticipated. A system is robust to uncertainty if specified goals are achieved despite information gaps.
Example: monitored natural attenuation of a large, contaminated ground water plume at an industrial area.
- **Uncertain:** issues should be managed using an adaptive management (learning-by-doing) strategy. Such an approach must be considered when it is uncertain what, and how effective management measures may be. An adaptive management approach acknowledges the different kinds of uncertainty: that there is (and will always be) lack of knowledge on how different parts of the soil system work and interact, and how it will change in time. Adaptive management calls for learning

cycles through small steps (accompanied by well-designed and targeted monitoring) and avoiding irreversible decisions. A central part of this approach is to take informed decisions, but it is equally important to improve the capacity of the actors to process this information and draw meaningful conclusions from it (Brils et al., 2014).

Example: changes in land-use to achieve several of the Soil Mission targets, which may need no public debate, such as the area of managed peatlands losing carbon is reduced by 30-50%.

- **Ambiguous**: issues require maybe societal debate but at least discourse-based decision-making involving all actor groups that have special interests or value commitments with respect to the issues at stake or the costs and benefits (and for whom) from resolving of the issues (who has the 'gains' and who faces the 'pains'). Discourse-based strategies seek to create mutual understanding and negotiation of trade-offs and tolerance for conflicting views and values with a view to eventually reconciling them.

Example: changes in land-use to achieve some of the Soil Mission targets, such as 50% of degraded land is restored moving beyond land degradation neutrality.

The classification of land and soil management issues in the categories of simple, complex, uncertain and ambiguous is not a trivial task. Some issues look simple in the beginning of an analysis and turn out to be more sophisticated, uncertain, and often ambiguous than originally thought (Renn et al., 2011). It may especially be hard to draw the borders between 'uncertain' and 'ambiguous'.

4.3.2 Engaging of actors in the SMS project

The actors who engage in the SMS project are called key-actors. The specific role of key-actors in SMS is to co-create the roadmap for R&I to support the Horizon Europe Mission in the area of Soil Health and Food. Ultimately, the success of SMS will depend on the extent to which the project manages to engage them. SMS relevant actors come from practice, policy, planning, civil society, research and research funding organizations. A special group of actors to be engaged in SMS are the young professionals from different soil and land related fields in order to reinforce their role as ambassadors for the use of the SMS platform and the implementation of SMS results.

The analysis and selection of specific key-actors is described in deliverable D3.2 'Detailed actor analysis'. The guidance in the following deliverable (D3.3) can also be used to engage these key-actors in SMS. However, as D3.3 was delivered in the first part of the SMS project, it was not clear yet which specific tools and formats to be used best to support the engagement of these actors in SMS. That information is provided in deliverable D3.4 "Report on prioritization in actor needs and criteria for Living Lab/Lighthouse identification".

4.4 Step 3: Decide upon the appropriate level of engagement of each actor

The level of engagement in achieving the objectives of the SMS Project and the Soil Mission depends on the issue and objective as well as the specific stakeholder group. Basically, four levels of engagement can be distinguished, increasing in level of intensity:

1. Non engagement (see Fig. 4-1);
2. Informing stakeholders on land or soil management issues;
3. Activate and changing the perspectives of stakeholders regarding land or soil management issues;
4. Collaboration of stakeholders in addressing land or soil management issues, and thus these stakeholders become actors.

From deliverable 3.2 “Detailed actor analysis” the stakeholder groups were extracted which are considered relevant for achievement of the Soil Mission and its specific objectives. These groups are listed in table 4-1 and a first draft/estimate is indicated to which level they should engage in order to enable the achieving of a specific objective.

Table 4-1 Proposed level of involvement of stakeholder groups related to Soil Mission targets.

Soil Mission objectives and related targets			Characterisation of the issue (target)	Stakeholder groups and their proposed level of engagement (0 = non, 1 = inform, 2 = activate/change perspectives, 3 = collaborate)							
Objective	Target	Policy-makers and government		Research community	Research funders	Land user / manager / owner and related associations	Private sectors and industries	Service providers	NGOs	Citizens / general public	
1	Reduce land degradation, including desertification and salinization										
	1	50% of degraded land is restored moving beyond land degradation neutrality	ambiguous	3	3	3	3	3	3	2	1
2	Conserve (e.g. in forests, permanent pastures, wetlands) and increase soil organic carbon stocks										
	1	Current carbon concentration losses on cultivated land (0.5% per year) are reversed to an increase by 0.1-0.4% per year	uncertain	3	3	3	3	3	3	1	0
	2	The area of managed peatlands losing carbon is reduced by 30-50%.	uncertain	3	3	3	3	1	3	1	0
3	No net soil sealing and increase the re-use of urban soils for urban development										
	1	Switch from 2.4% to no net soil sealing	ambiguous	3	3	3	3	3	3	3	2
	2	The current rate of soil re-use is increased from current 13% to 50% to help meet the EU target of no net land take by 2050	uncertain	3	3	3	3	3	3	3	1
4	Reduce soil pollution and enhance restoration										
	1	At least 25% area of EU farmland under organic agriculture	uncertain	3	3	3	3	2	3	2	1
	2	A further 5-25% of land with reduced risk from eutrophication, pesticides, anti-microbials and other agrochemicals and contaminants	uncertain	3	3	3	3	2	3	3	0
	3	A doubling of the rate of restoration of polluted sites	uncertain	3	3	3	1	3	3	0	0
5	Prevent erosion										
	1	Stop erosion on 30-50% of land with unsustainable erosion rates.	uncertain	3	3	3	3	0	3	3	0
6	Improve soil structure to enhance habitat quality for soil biota and crops.										
	1	Soils with high-density subsoils are reduced by 30 to 50%	uncertain	3	3	3	3	3	3	3	0
7	Reduce the EU global footprint on soils.										
	1	The impact of EU's food, timber and biomass imports on land degradation are reduced by 20-40 %	ambiguous	3	3	3	0	3	1	3	1
8	Increase soil literacy in society across Member States										
	1	Soil health is firmly embedded in schools and educational curricula	complex	3	3	3	3	2	2	3	2
	2	Uptake of soil health training by land managers and advisors is increased	complex	3	3	3	3	1	3	1	0
	3	Understanding	complex	3	3	3	3	2	2	3	3

In proposing these levels of engagement, it was imagined and based on that estimated whether achieving of a specific Soil Mission target is simple, complex, uncertain or ambiguous (see section 4.3.1). And then it was imagined which stakeholder groups need to engage, and to what level, in order the help to achieve

these targets. All these estimates are just a first shot and aimed to trigger further consideration/discussion on who and to what level should engage.

4.5 Step 4: Apply the key-principles of actor engagement

The 10 key principles in effective engagement of stakeholders/actors as identified by the UK Association for Project Management (APM) are:

1. **Communicate:** Before aiming to engage and influence stakeholders, it's crucial to seek to understand the people you will be working with and relying on throughout the phases of the engagement lifecycle. Sharing information with stakeholders is important, but it is equally important to first gather information about your stakeholders;
More info: [Communicate | First Principle Of Stakeholder Engagement \(apm.org.uk\)](https://apm.org.uk/Communicate-First-Principle-Of-Stakeholder-Engagement)

As stated in section 3.3 it is assumed that: 1) actors will only engage in land and soil management if they recognize benefits in engagement, or, in other words: see 'what's in for them' and 2) several of them do not yet recognize these benefits.

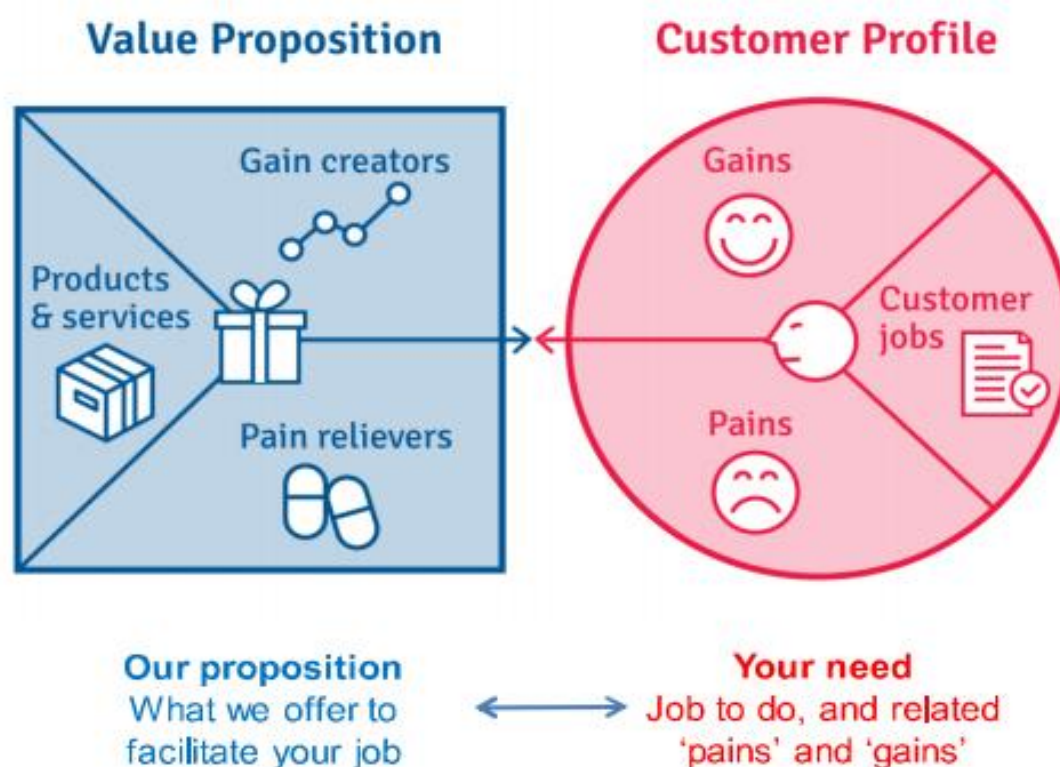


Figure 4-2 Value proposition for actors (source: B2B International)

In order to answer the question "What is in for them" and thus engage actors, the needs of the actor group need to be clarified. The resulting tailored value propositions should address their 'job to do' and their related 'pains' and 'gains' (Figure 4-2). These propositions follow the 'needs > promise > proof' model: what is your need as actor (job to do, and related 'pains' and 'gains'), how will engagement in land or soil management benefit you (our promise), and what proofs that you may believe us.

In Annex 7.2, first drafts are provided of the customer profiles and value propositions for the different actor groups in field of land and soil management. These drafts can serve as first starting

point in further engagement of actors from these groups.

2. Consult, early and often. The reasons for engagement, particularly in the early stages, may be unclear to stakeholders for example, in terms of purpose, scope, risks and approach. Early and then regular consultation is essential to ensure that requirements are agreed and a solution is negotiated that is acceptable to the majority of stakeholders.
More info: [Consult early and often | 2nd principle of stakeholder engagement \(apm.org.uk\)](#)
3. Remember, they're only human: Accept that humans do not always behave in a rational, reasonable, consistent or predictable way and operate with an awareness of human feelings and potential personal agendas. By understanding the root cause of stakeholder behavior, you can assess if there is a better way to work together to maintain a productive relationship.
More info: [Remember, They're Only Human - Stakeholder Engagement \(apm.org.uk\)](#)
4. Plan it! A more conscientious and measured approach to stakeholder engagement is essential and therefore encouraged. Investment in careful planning before engaging stakeholders can bring significant benefits.
More info: [Plan it | 4th principle of stakeholder engagement \(apm.org.uk\)](#)
5. Relationships are key: Developing relationships results in increased trust. Where there is trust, people work together more easily and effectively. Investing effort in identifying and building stakeholder relationships can increase confidence across the engagement lifecycle, minimize uncertainty, and speed problem solving and decision-making.
More info: [Relationships are key | 5th principle of stakeholder engagement \(apm.org.uk\)](#)
6. Simple, but not easy: Over and above conventional planning, using foresight to anticipate hazards, and taking simple and timely actions with stakeholders can significantly improve engagement delivery. Although this principle is self-evident, in practice is still only rarely done very well.
More info: [Simple But Not Easy | 6th Principle Of Stakeholder Engagement \(apm.org.uk\)](#)
7. Just part of managing risk: Stakeholders are important influential resources and should be treated as potential sources of risk and opportunity within the engagement lifecycle.
More info: [Just part of managing risk | 7th principle of stakeholder engagement \(apm.org.uk\)](#)
8. Compromise: The initial step is to establish the most acceptable baseline across a set of stakeholders' diverging expectations and priorities. Assess the relative importance of all stakeholders to establish a weighted hierarchy against the engagement requirements.
More info: [Compromise | 8th Principle Of Stakeholder Engagement \(apm.org.uk\)](#)
9. Understand what success is: Successful engagement means different things to different people and you need to establish what your stakeholder community perceives success to be for them in the context of engagement lifecycle.
More info: [Understand What Success Is \(apm.org.uk\)](#)
10. Take responsibility: Stakeholder engagement is not the job of one member of the engagement team. It's the responsibility of everyone to understand their role and to follow the right approach to communication and engagement. Good engagement governance requires providing clarity about stakeholder engagement roles and responsibilities and what is expected of people involved during the engagement lifecycle.
More info: [Take Responsibility | 10th principle of stakeholder engagement \(apm.org.uk\)](#)

It is also recommendable to keep in mind some key-factors for successful engagement of actors in natural resources management (Brils et al., 2018): It is not the use of the right terminology (definitions, semantics), but the application of common sense that is the prerequisite for successful engagement of actors in such management. See further details in section 5.2.7.

4.6 Step 5: Select and apply the tools to support the engagement of actors

Tools to support the engagement of actors enable them to exchange views and opinions on a certain land or soil management related issue, bring their knowledge to the table and to 'learn together' to understand the land-soil system in a better way in order to find the best fitted solutions. This is a process of social learning in which new capacities between social agents are developed in the form of learning how to collaborate and understand each other's' roles and capacities (Brils et al., 2014).

A wide variety of tools can be applied. This broad spectrum of tools consists of media sources, social gatherings and serious games. The tools can serve various purposes and are individually linked to the levels of engagement. Some tools can best be used to inform the public about certain goals, while others can best be used as collaboration mechanisms. In Annex 7.3.1 a table is provided with an overview of the variety of tools that can be deployed to realize stakeholder engagement, together with the suggested level of engagement. The table also provides keywords about the potential use of the tools and provides additional links to further information sources.

Complementary, a very practical approach to designing the mechanism on how to engage citizens (and other stakeholders) in a Citizen Science project is by using a canvas (much like the business model canvas). This 'Participatory Monitoring Canvas', developed by Ellen and Breman (2018), is provided in Annex 7.3.2 and provides a way to discuss the different choices that must be made together with the stakeholders/citizens.

5 EXAMPLES OF ACTOR ENGAGEMENT IN NATURAL RESOURCES MANAGEMENT


5.1 What examples?

In this chapter examples are presented of actual engagement of actors in natural resources management related cases, including soil but some also water, sediment and/or air. This chapter does not aim to be all inclusive but highlights very diverse examples at different scales: from EU-wide to local/regional. They also address different social and environmental problems. Each of the examples is described following the same format:

- Title
- Case description (management issue(s) at stake)
- Whom engaged
- How engaged
- What worked (or not)
- Reference(s)


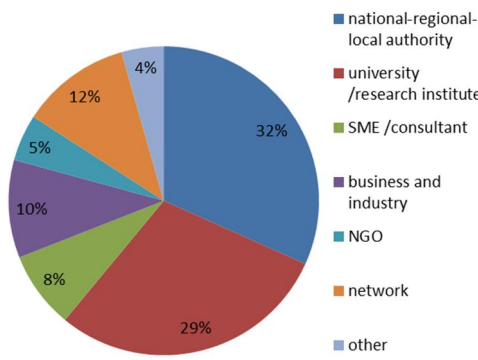
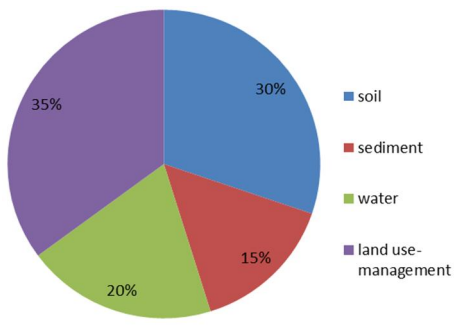
5.2 The examples

5.2.1 EU wide engagement of actors in EJP SOIL National Hubs

<p>Case description (management issue(s) at stake)</p>	<div data-bbox="411 1041 893 1160">  </div> <p>EJP SOIL is a European Joint Programme (EJP) Cofund on Agricultural Soil Management contributing to key societal challenges including climate change, water and future food security. The main expected impacts are:</p> <ol style="list-style-type: none"> 1. Fostering understanding of soil management and its influence on climate change mitigation and adaptation, sustainable agricultural production and environment. 2. Understanding how soil-carbon sequestration can contribute to climate change mitigation at the regional level and accounting for carbon. 3. Strengthening scientific capacities and cooperation across Europe including training young soil scientists. 4. Supporting harmonized European soil information, including for international reporting. 5. Fostering the uptake of soil management practices conducive to climate change adaptation and mitigation. 6. Develop and demonstrate region- and context-specific fertilization practices (soil, water and pedoclimatic conditions). <p>To engage with all agricultural soil stakeholders across Europe in the EJP SOIL we have the engagement organized through so-called National Hubs (NHs). Five broad groups of stakeholders with specific interests and influence on agricultural soil management in Europe are invited. In each country that is a partner in EJP SOIL (24 countries). The purpose of the NHs is to:</p> <ul style="list-style-type: none"> • Identify and address knowledge needs and support harmonised soil information.
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	<ul style="list-style-type: none"> • Develop and deploy strategic research agenda (a roadmap) on climate-smart sustainable agricultural soil management. • Develop best-practice knowledge exchange processes adapted to the needs of farmers, scientists, and policymakers. • Generate practical evidence-based recommendations that enhance adoption among agricultural stakeholders and contribute to policy formulation.
Whom engaged	The NHs have representatives of the 5 stakeholder groups of EJP SOIL: Scientists, Policy makers, Farmers and advisors, Agro-industry and business, Civil society and general public.
How engaged	The NHs are asked for their feedback and input during meetings that are held on average twice per year in each country.
What worked (or not)	It is a success because we managed to get feedback from the 24 countries across Europe on the Roadmap of EJP SOIL. The feedback was given per chapter of the document to be able to incorporate the feedback into the next version and the prioritization of the topics of the internal calls for projects within the programme. However, the NHs are not constructed in each country in the same way, this may result in differences in representability and comparability.
Reference(s)	https://ejpsoil.eu/stakeholder-portal and https://ejpsoil.eu/european-roadmap

5.2.2 EU wide engagement of actors in EU project INSPIRATION

Case description (management issue(s) at stake)	 <p>INSPIRATION was an EU Horizon 2020 funded project that delivered a strategic research agenda on soil, land-use and land management in Europe. Actors were engaged EU-wide through a bottom-up approach (see below) to provide their suggestions and wishes for the agenda.</p>																										
Whom engaged	<p>Funders, end-users, scientists, policy makers, public administrators, NGOs and consultants engaged from 17 European countries (in alphabetical order): 1. Austria, 2. Belgium (including some information for Denmark and Luxemburg), 3. Czech Republic, 4. Finland, 5. France, 6. Germany, 7. Italy, 8. Poland, 9. Portugal, 10. Romania, 11. Slovakia, 12. Slovenia, 13. Spain, 14. Sweden, 15. Switzerland, 16. The Netherlands, 17. The United Kingdom (including some information on the Republic of Ireland). In total more than 500 individuals actively engaged during the project's lifespan. In the figures below the distribution of the interviewed (see next box) individuals over actor groups (left) and over topics they felt most associated to (right) is presented.</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <table border="1"> <caption>Distribution of interviewed individuals over actor groups</caption> <thead> <tr> <th>Actor Group</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>national-regional-local authority</td> <td>32%</td> </tr> <tr> <td>university /research institute</td> <td>29%</td> </tr> <tr> <td>SME /consultant</td> <td>8%</td> </tr> <tr> <td>business and industry</td> <td>10%</td> </tr> <tr> <td>NGO</td> <td>5%</td> </tr> <tr> <td>network</td> <td>12%</td> </tr> <tr> <td>other</td> <td>4%</td> </tr> </tbody> </table> </div> <div style="text-align: center;">  <table border="1"> <caption>Distribution of interviewed individuals over topics</caption> <thead> <tr> <th>Topic</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>soil</td> <td>30%</td> </tr> <tr> <td>sediment</td> <td>15%</td> </tr> <tr> <td>water</td> <td>20%</td> </tr> <tr> <td>land use-management</td> <td>35%</td> </tr> </tbody> </table> </div> </div>	Actor Group	Percentage	national-regional-local authority	32%	university /research institute	29%	SME /consultant	8%	business and industry	10%	NGO	5%	network	12%	other	4%	Topic	Percentage	soil	30%	sediment	15%	water	20%	land use-management	35%
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How engaged	The vehicle to engage with relevant stakeholders across the 17 European countries																										

	<p>was a National Focal Point (NFP) in each of these 17 countries. These NFPs identified in their country, national key stakeholders (NKS) in a way to ensure broad representation of soil and land-use/management topics and affiliations in research funding / end-use / science or policy making. Thereafter the NFPs conducted interviews with these NKS (approximately 20 per country) in order to collect national research needs as well as information on science-policy-interface and financing options. For the interviews a common approach and questionnaire was developed (see annex 7.4.2). Before the NFPs conducted the interviews with the NKS all 17 NFPs participated in a joint training exercise thus to increase the likeliness that all would follow the same approach. In each country the information from the interviews was synthesized and presented in a national workshop with all NKS. The workshop aimed to check, verify and enrich, and in some cases also already prioritize the suggestions provided by the NKS.</p>
What worked (or not)	<p>The bottom-up approach worked nicely and so did the training exercise. Consistent output was obtained and the NKS were motivated and thus actively engaged and shared a wealth of information (see Brils et al., 2016). A plus was the involvement through the NFPs, who know the national networks, and which allowed the NKS to give inputs and discuss in their own language. Even after the lifetime of the project NFPs and also several NKS expressed willingness to continue cooperation. This 'loose actor network' thus also provided a nice starting basis for the SMS project. Several of the NKS and NFPs contribute to the SMS project.</p>
Reference(s)	<p>Bartke S, Boekhold AE, Brils J, Grimski D, Ferber U, Gorgon J, Guérin V, Makeschin F, Maring L, Nathanail CP, Villeneuve J, Zeyer J, Schröter-Schlaack C, Soil and land use research in Europe: Lessons learned from INSPIRATION bottom-up strategic research agenda setting, Science of The Total Environment https://doi.org/10.1016/j.scitotenv.2017.11.335 (622–623):1408-1416</p> <p>Brils J, Maring L, Minixhofer P, Zechmeister-Boltenstern S, Stangl R, Andreas Baumgarten A, Martin Weigl M, Tramberend T, Bal N, Peeters B, Klusáček P, Martinát S, Frantál B, Rehunen A, Haavisto T, Britschgi R, Pyy O, Rintala J, Shemeikka P, Dictor MC, Samuel Coussy S, Guerin V, Merly C, Ferber U, Grimski D, Tabasso M, Chiodi S, Melis G, Starzewska-Sikorska A, Panagopoulos T, Ferreira V, Antunes D, Dumitru M, Stefanescu SL, Vrinceanu A, Voicu V, Vrinceanu N, Maros Finka M, Maria Kozova M, Zita Izakovicova Z, Lubomir Jamecny L, Ondrejicka V, Cotič B, Mušič B, Erjavec IS, Nikšič M, Pierre Menger P, Gemma Garcia-Blanco G, Efren Feliu E, Ohlsson Y, Lisa van Well L van, Konitzer K, Brassel R, Pütz M, Nathanail P, Ashmore M, Bartke S (2016) National reports with a review and synthesis of the collated information. Final version. Deliverable D2.5 of the H2020 INSPIRATION project, 966 pages. Publicly available via: http://h2020.inspiration-agenda.eu/sites/default/files/upload/documents/20160301_inspiration_d2.5_0.pdf http://h2020.inspiration-agenda.eu/</p>

5.2.3 EU wide engagement of actors in the European Sediment Network SedNet

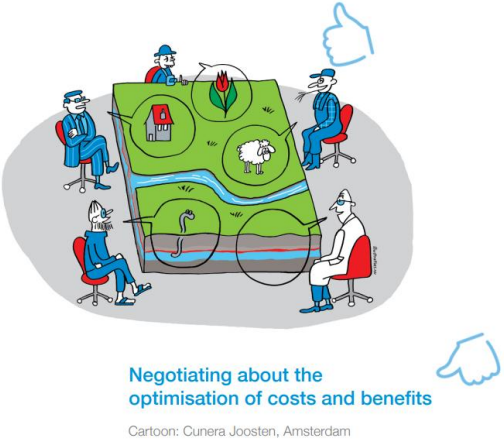
Case description (management issue(s) at stake)	 <p>SedNet is since 2002 the European, multi-stakeholder Sediment Network aimed at incorporating sediment issues and knowledge into European strategies to support the achievement of a good environmental status and to develop new tools for sediment management. SedNet focusses on all sediment quality and quantity issues on a river to sea system scale, ranging from freshwater to estuarine and marine sediments.</p>
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	<p>SedNet started as a 3-year, EU FP5 funded project 1st of January 2002. Between 2002 and 2004 more than 130 members subscribed to the network. In that same period scientific, policy and management aspects of contaminated sediments and dredged material were addressed in 17 workshops and 3 conferences. Europe's leading scientists and major sediment managers contributed to these activities. SedNet continued after 2004 as fully independent and self-supporting network. SedNet is registered as an NGO in the European Union (EU) Transparency Register and as NGO became member of the Water Framework Directive (WFD) Common Implementation Strategy (CIS) Strategic Coordination (SCG) group and of EC DG Environment's Zero Pollution Stakeholder Platform. SedNet grew into a very well-respected network and it can probably be said that SedNet become 'the voice for sediment' in Europe.</p>
Whom engaged	<p>SedNet brings together actors from science, administration and industry. It interacts with the various networks in Europe that operate at a national or international level or that focus on specific fields (such as science, policy making, sediment management, industry, education).</p>
How engaged	<div data-bbox="411 748 970 1391" data-label="Image"> </div> <p>SedNet produced and makes publicly available several publications – including the policy brief on the left – on how to manage sediments. Furthermore, the state-of-the-art news, insights and developments regarding sediment and its management are shared in the regular Enewsletters, in the bi-annual international SedNet conference which engage the global key sediment experts (from all sediment management related actor groups) as well as in workshops/sessions organised by the different SedNet working groups among one focused on science-policy interfacing. A nice example of actor engagement is the active participation of SedNet members from universities, knowledge institutes, port authorities and public administration in the drafting of the WFD CIS document "Integrated sediment management guidelines and good practices in the context of the Water Framework Directive".</p>
What worked (or not)	<p>What made and still makes SedNet work is that all engaged actors feel attracted to, and thus endorse the SedNet mission: from the start of the network in 2002 until Today. What also works very well is that it is a loose (so not formal) network where all actors are approached and treated equal and where a friendly atmosphere is maintained where all feel welcome to openly discuss any issue regarding sediment and its management. The bi-annual SedNet conferences are seen by the actors as a welcome momentum to meet each other live and network. Several of the actors who engaged in 2002, still engage today. And many new, and young actors engaged over the years. This brings a nice mix of 'old' and 'new' in the network and thus the network knows where it came from (and can pass that knowledge to new comers), where it is today and where it wants to go in the future. SedNet simply 'knows about sediment'.</p>

Reference(s)	Brils J (2020) Including sediment in European River Basin Management Plans: twenty years of work by SedNet, Journal of Soils and Sediments https://doi.org/10.1007/s11368-020-02782-1 20:4229–4237 https://sednet.org/
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5.2.4 EU wide engagement of actors in air quality targeted Citizens Science

Case description (management issue(s) at stake)	<p>Although emissions of air pollutants have decreased substantially in Europe over recent decades, air quality problems in Europe persist. Air pollution harms human health and the environment (EEA, 2019), with exposure to air pollution accounting for an estimated 400 000 premature deaths in Europe every year. A significant proportion of Europe's population lives in areas where air pollution poses risks to health. This is especially true for cities, where exposure to particulate matter (PM) and nitrogen dioxide (NO₂) pollution poses health risks. Around 77% of city dwellers in Europe are exposed to fine particulate matter at levels deemed harmful to health, according to the latest EEA Air Quality in Europe report (EEA, 2019).</p> <p>People's awareness of air pollution and the associated risks to their health and that of their children has grown significantly over recent years, often informed by local or national campaigns led by non-governmental organisations (NGOs) as well as by media coverage. In some countries, groups of concerned citizens, often supported by NGOs, have taken authorities to court over air quality issues, and the courts have ruled in favour of the right to clean air in several instances. To inform themselves about their local air quality, increasing numbers of people are taking the initiative to measure the level of pollutants in the air themselves. This is particularly common in cities with highly polluted air. This approach is often labelled as Citizen Science. This allows people without professional scientific training to use technical tools to explore questions that concern them. People learn through their engagement, develop ownership of the issue and can then make an informed contribution to public debate (EEA, 2020).</p> <p>The citizen science concept is not new and includes such past and current activities as bird counting or observing the sky at night. However, nowadays digital technologies and social media mean that citizens can connect, join initiatives and communicate their results in easier and more varied ways than ever before. Irwin (2018) defines Citizen Science both as 'science which assists the needs and concerns of citizens' and as 'a form of science developed and enacted by the citizens themselves'.</p>
Whom engaged	Within Europe there are numerous successful examples of air quality targeted Citizen Science. These involve both citizens, NGO's, Governmental Organisations (Local, Regional and National), companies and research institutes/universities.
How engaged	<p>Measuring air quality:</p> <ul style="list-style-type: none"> • Producing information on local air quality and the exposure of the population to air pollution; • Raising awareness of a local air quality problem to attract the attention of local or national authorities; • Complementing measurements taken by official air quality monitoring networks and helping improve air quality models; • Generating experience of the use of low-cost measuring devices and networks of such devices.

Whom engaged	Water managers from the Vechtstromen water board, Vechteverband and Landkreis Grafschaft Bentheim, working together with regional DE and NL actors from different sectors (agriculture, tourism sector, local municipalities, nature conservation)																																																		
How engaged	 <p>Negotiating about the optimisation of costs and benefits</p> <p>Cartoon: Gunera Joosten, Amsterdam</p> <p>In parallel with the usual regional planning process for a floodplain restoration measure, the actors made a joint assessment of the costs and benefits, using the draft design of the measure as a basis for discussion. The assessment consisted of individual stakeholder interviews, workshops with these stakeholders and additional research by experts. The stakeholders also engaged in simulated negotiations to determine which of them would be – hypothetically – willing to contribute to the implementation of the measure by providing funds. To enable a realistic assessment of costs and benefits, the water managers decided to share the preliminary design for the floodplain restoration measures with the stakeholders.</p>																																																		
What worked (or not)	<table border="1"> <thead> <tr> <th>Question to the workshop participants: Do you agree with the following statement?</th><th>Yes</th><th>No</th><th>Un-clear</th></tr> </thead> <tbody> <tr> <td>The interaction (workshops, interviews) was very helpful in improving my understanding of the measure and the planning process.</td><td>15</td><td>0</td><td>1</td></tr> <tr> <td>More stakeholders should have been involved.</td><td>8</td><td>4</td><td>4</td></tr> <tr> <td>A very comprehensive overview was developed of the impact of floodplain restoration.</td><td>9</td><td>6</td><td>1</td></tr> <tr> <td>Too much time was needed from the stakeholders.</td><td>0</td><td>11</td><td>5</td></tr> <tr> <td>This approach should be followed in similar planning processes</td><td>14</td><td>2</td><td>0</td></tr> <tr> <td>The diagram on costs and benefits could be helpful, for example in identifying the need for dialogue.</td><td>12</td><td>1</td><td>3</td></tr> <tr> <td>It would have been important to put "more numbers" to the costs and benefits. A more detailed specification of value and importance would have been necessary to use the project results.</td><td>13</td><td>2</td><td>1</td></tr> <tr> <td>Interesting information was identified about how to optimise costs and benefits.</td><td>12</td><td>1</td><td>3</td></tr> <tr> <td>Nothing new came out of the project.</td><td>0</td><td>13</td><td>3</td></tr> <tr> <td>The costs of floodplain restoration should be shared between all stakeholders, not only covered by water management.</td><td>7</td><td>6</td><td>3</td></tr> <tr> <td>Balancing costs and benefits with a payment arrangement looks like an appropriate approach in our case study.</td><td>11</td><td>2</td><td>3</td></tr> </tbody> </table> <p>The actors in this case greatly appreciated the possibility of getting involved and exerting influence on the ongoing planning process. They also very much appreciated being informed about the draft design early in the planning process. The use of the Ecosystem Services approach facilitated their participation. In this case, the pace of the experiment was dictated by the pace of the ongoing policy process.</p>			Question to the workshop participants: Do you agree with the following statement?	Yes	No	Un-clear	The interaction (workshops, interviews) was very helpful in improving my understanding of the measure and the planning process.	15	0	1	More stakeholders should have been involved.	8	4	4	A very comprehensive overview was developed of the impact of floodplain restoration.	9	6	1	Too much time was needed from the stakeholders.	0	11	5	This approach should be followed in similar planning processes	14	2	0	The diagram on costs and benefits could be helpful, for example in identifying the need for dialogue.	12	1	3	It would have been important to put "more numbers" to the costs and benefits. A more detailed specification of value and importance would have been necessary to use the project results.	13	2	1	Interesting information was identified about how to optimise costs and benefits.	12	1	3	Nothing new came out of the project.	0	13	3	The costs of floodplain restoration should be shared between all stakeholders, not only covered by water management.	7	6	3	Balancing costs and benefits with a payment arrangement looks like an appropriate approach in our case study.	11	2	3
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	This was also very much appreciated by, and facilitated, the participation of the actors. Furthermore, the actors provided the evaluation as presented in the table above.
Reference(s)	<p>Borowski-Maaser I, Brils J, van der Meulen S, Sauer U (2015) Improved regional cooperation in design and financing of river restoration measures by using the Ecosystem Services Approach Practical insights for regional water managers. Brochure, publicly available via: https://www.inbo-news.org/sites/default/files/IMG/pdf/Brochure_VechtPES_english.pdf</p> <p>Van der Meulen S, Borowski-Maaser I, Sauer U, Brils J (2017) The Vecht case continued: Simulated (Payment for Ecosystem Services) negotiation for joint investment in regional river restoration. <i>Water Governance</i>, 2:58-62</p> <p>Van der Meulen S, Brils J, Borowski-Maaser I, Sauer U (2013) Payment for Ecosystem Services (PES) in support of river restoration. <i>Water Governance</i>, 4:40-44</p> <p>Van der Meulen S, Neubauer L, Brils J, Borowski-Maaser I (2012) Towards practical implementation of the ecosystem services (ES) concept in trans-boundary water management, Deltares report 1204644-000-BGS-0004</p>

5.2.6 Engagement of German actors in BonaRes to develop scenarios for future soil management

Case description (management issue(s) at stake)	 <p>BONARES Centre for Soil Research</p> <p>"BonaRes" is short for "Soil as a sustainable resource for the bioeconomy". In this funding initiative of the German Federal Ministry for Education and Research (BMBF) the focus is on the sustainable use of soils as a limited resource. The ultimate goal of BonaRes is to extend the scientific understanding of soil ecosystems and to improve the productivity of soils and other soil functions while developing new strategies for a sustainable use and management of soils. The BonaRes Portal provides information about the BonaRes projects, access to data, knowledge and models, as well as to decision support options for a sustainable soil management. Solutions for sustainable soil management combine technological and nature-based innovations. They need to be applicable in practice also under future conditions of climate, prices, policies and demand patterns. A common understanding of drivers and future conditions for agricultural soil management is therefore paramount. BonaRes took a stakeholder inclusive approach to a co-development of shared socio-economic pathways for future agricultural soil management in Germany.</p>
Whom engaged	Farmers, advisory services, policy makers, administration at national and regional state level, NGO representatives, consumer representatives, scientists from multiple disciplines (soil science, agronomy, technology, foresight, socio-economics).
How engaged	Because of the Corona Pandemic workshops were organized in an online mode facilitated by carefully prepared mural boards. Based on Shared Socio-economic Pathways for European Agricultural (EurAgri-SSPs) a specification for German agricultural soil management conditions was elaborated in breakout groups. To be eligible for participation in the workshops, participants had to agree to prepare themselves with making them familiar with comprehensive background material prior to the workshop. This way, informed and active discussions among all participants was guaranteed. After the workshop all participants were asked to validate and if necessary, further specify the results.
What worked	The binding nature of the registration and the intensive preparation as a

(or not)	<p>prerequisite for participation were important prerequisites for the success of the workshops. In this way, only those stakeholders took part who had a profound interest in the subject matter and were able to contribute in depth. The topic of future scenarios is quite complex and an everyday activity of many stakeholders, intensive preparation was therefore paramount.</p> <p>The online mode of the workshop made it possible that stakeholders from all over the country could participate likewise and farmers, who (a) have very little time and (b) live on the countryside could participate.</p> <p>The work on the scenarios motivated participants to widen the scope and think out of box. This enables to identify new opportunities also in times of crisis.</p>
Reference(s)	<p>https://www.bonares.de/</p> <p>https://www.bonares.de/socioeconomics/foresight-scenarios</p> <p>Mitter H, Techen AK, Sinabell F, Helming K, Kok, K, Priess JA, Schmid E, Bodirsky BL, Holman I, Lehtonen H, Leip A, Le Mouél C, Mathijs E, Mehdi B, Michetti M, Mittenzwei K, Mora O, Øygarden L, Reidsma P, Schaldach R, Schönhart M (2020) Shared Socio-economic Pathways for European agriculture: the Eur-Agri-SSPs. Global environmental Change 65:102159. doi: 10.1016/j.gloenvcha.2020.102159</p>

5.2.7 Comparison of three regional (USA, UK, NL), agricultural land management related cases

Case description (management issue(s) at stake)	<p>Catskill-NYC: up-downstream partnership (USA)</p>  <p>The Catskill watershed protection programme was a response by the city of New York to one of its most prized infrastructure assets, the pure, unfiltered water of the Catskill Mountains that flows to New York City through a long series of aqueducts (see figure), representing the engineering vision of generations of water managers.</p> <p>This system gave New York City (NYC) pure drinking water of such high quality that it has often been referred to as 'the champagne of drinking waters'. NYC had this enormous asset because it had chosen to gather its drinking water from distant rural sources that it assumed would be perpetually free of the kinds of pollution that have forced most other urban areas to filter their source water.</p>
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	<p>However, in the 1980s that reality began to change, as altered economic conditions in North American farming forced the Catskill farming community - largely an area of dairy farms - to adopt the highly polluting practices of industrial agriculture to remain economically viable. As this trend became apparent, numerous water regulators began to foresee a time when NYC would be forced to build filtration works for its Catskill source waters, at a cost of many billions of dollars.</p> <p>River Tamar (UK)</p> <p>The Westcountry Rivers Trust (WRT) was founded in 1994 because the local private fisheries and river associations wanted to do something about declining salmon numbers in Westcountry rivers. WRT quickly realized that salmon declines were a symptom of a wider problem, and that modern intensive agriculture was, to some degree, responsible, leading to the conclusion that a solution would require working across the entire landscape, with all land managers and those benefiting from, and impacted by, land use. Meanwhile, government had failed to deliver either an integrated or a spatially planned view of the environment, contributing to the decline of many ecosystem services. Additionally, declines are currently often dealt with in isolation, using end-of-pipe solutions on small, fragmented pockets of land, often without the involvement of local communities. This is commonly referred to as 'fortress conservation' and represents an old-fashioned view that perpetuates the modern problem of an increasing disconnect between society and the environment that nurtures it. WRT recognized the propensity of our centralized environmental protection organizations to enact their duties in sector-specific groups; wildlife and biodiversity treated separately from water resource protection, for example. If conservation was delivered pro-actively in the wider landscape at all, it was delivered by sectioning-off protected areas using legislation and then managing those areas for the provision of one ecosystem service only. The rest of the land, representing most of the landscape, was managed in order to achieve profit, using the only market mechanisms available at the time: the provision of food and fuel. WRT took the view that this approach, while necessary in its time, was no longer the way forward.</p> <p>Farmers around Amsterdam as water managers (NL)</p> <p>Regional water resources management in the Netherlands is mostly the concern of water boards. Water boards oversee the selection and execution of the measures needed to achieve Water Framework Directive (WFD) objectives. The countryside around the city of Amsterdam can be characterized mostly as polders, i.e. agricultural areas that lie below or just at sea level. Water quantity and quality in these polders is managed by the water board Amstel, Gooi en Vecht. The challenge in achieving WFD objectives relates mainly to poor water quality at agricultural sites. At these sites the groundwater quality standard for nitrates is exceeded. Solving this problem needs more than reducing the amount of manure used to fertilise farmland. Besides groundwater, the surface water quality (chemically and ecologically) in this area is rather poor. To solve all these problems Amstel, Gooi en Vecht realized that they had to involve and cooperate with individual, local farmers. Hence, to reach the top-down WFD goals, Amstel, Gooi en Vecht realized that they had to work bottom-up. On their part, farmers feel the continuous pressure of the 'big city' (Amsterdam), and know they must earn 'their license to produce' every day. Thus, the request of the water board for farmers' cooperation was answered by a wide array of very useful ideas. Since 2009, several farmers around the city of Amsterdam have helped Amstel, Gooi en Vecht to reach WFD goals in the project 'Farmers as Water Managers'.</p>
Whom engaged	Farmers, policy makers, water managers, drinking water company, regulators, NGOs

How engaged	Facilitative leadership provided, individual and joint meetings, mutual education and learning, joint fact finding, building of trust, incentives, language of stakeholders used
What worked (or not)	<p>It is not the use of the right terminology (definitions, semantics), but the application of common sense that appeared the prerequisite for successful engagement of actors in natural resources management. It is common sense to:</p> <ul style="list-style-type: none"> • Spend ample time in framing and thereafter communicating the need for natural resources management to those whose interests are affected by that management. Take the time to understand from stakeholders how they are affected. • Take an entrepreneurial approach: <ul style="list-style-type: none"> - leave comfort zones, take an adventurous road; - learn together to manage together; - regard the environment not as a cost but as a profit centre; and - consider other than only command-and-control solutions. • Spend ample time in defining SMART (Specific, measurable, attainable, realistic, and timely) targets that can be explained and thus understood by all stakeholders involved realizing that different stakeholders have different targets). • Make sure to stick to these targets. It should also be made clear what the consequences will be, and for whom, if targets are not met. • Provide facilitative leadership. Here, authorities can play a key role by acting less like a 'controller or regulator' and more as an 'enabler, persuader, motivator, or mediator'. • Above all, be aware of misunderstandings around the use of economics; the absolute need for ecosystem services-based spatial planning; and try to speak the language of the stakeholders.
Reference(s)	Brils J, Appleton A, Everdingen N van, Bright D (2018) Key factors for successful application of ecosystem services-based approaches to water resources management - The role of stakeholder participation. In: Martin-Ortega J, Ferrier RC, Gordon IJ, Khan S (eds.) Water Ecosystem Services A Global Perspective. UNESCO International Hydrology Series, Chapter 16, page 138-147

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7 ANNEXES

7.1 Developing value propositions for actors in field of land and soil management

The suggested steps to develop tailored actor value proposition are (Brils et al., 2019):

1. Start thinking from the 'actor's' perspective using Figure 3-1 as a starting bases: fill the boxes of this figure.

DISCLAIMER: this was done for the identified actor groups as well as for young professionals and citizen groups. However, the subsequent steps 2 to 8 have not yet been taken. Hence, the assumptions regarding the perspectives of the stakeholders have not yet been tested in practice.

2. Focus at actor groups:
 - a. Start with the (presumed) 'easiest' organization for that group first
 - b. Identify a representative individual for the prioritized organization, preferably someone qualifying as a 'knowledge broker' or at least open mind, willing to also think in direction of scientists
 - c. Ask him/her to fill out a tailored actor questionnaire drafted based upon step 1 (see for example Annex 7.4.1).
3. Develop a first, draft proposition (your need > our promise > our proof) to him/her:
 - a. Each actor, own, dedicated, tailored proposition
 - b. Use the answers as provided in the returned questionnaire
 - c. KISS: Keep It (i.e. the proposition) Short and Simple:
 - i. brief and to the point
 - ii. commons sense
 - iii. no 'scientific jargon'
4. Make an appointment with him/her for a face-2-face meeting
5. Test the draft proposition in that meeting
6. Improve/sharpen the proposition based on suggestions received
7. Repeat step 4-6 as much as needed, thus to allow/facilitate:
 - a. mutual education
 - b. common language development
 - c. joint SWOT (Strengths-Weakness-Opportunities-Threats) exploration
 - d. joint win-win exploration
8. When clear win-win became obvious from step 7 then conclude the process by negotiating a joint agreement that is mutually beneficial.

7.2 First, draft value propositions for actors in field of land and soil management

7.2.1 Value propositions for professionals

First drafts of the customer profiles and value propositions for the different actor groups in field of land and soil management are presented in the following. These drafts can serve as first starting point in further engagement of actors from these groups. In preparing these drafts the assumptions were kept in mind that sustainable land and soil management enables soil health and that soil system understanding enables sustainable land and soil management. Hence, the better we understand the functioning of soil systems – and how they respond to human (miss) use and climate change – the better we will be able to manage them sustainably (section 3.3).

Table a Policy-makers and government

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
<ul style="list-style-type: none"> - Develop new land and soil management policies - Implement existing policies (a.o. EU policies) - Achieve policy objectives (a.o. Soil Mission, Green Deal, SDGs) - Balancing of People-Profit-Planet (PPP) interests - Testing and evaluating relevant policies 	Gains: <ul style="list-style-type: none"> - Achieved objectives - At reduced costs - Short-term, direct applicability of scientific evidence - Soil health indicators - Better balanced PPP interests 	Gain creators: <ul style="list-style-type: none"> - More effective measures - Better achievement policy objectives - Healthy soil is good for people, profit and planet (win-win-win) - Science base for management practices 	<ul style="list-style-type: none"> - Living-labs and Lighthouses for testing of measures and delivery of scientific evidence for policy making, implementation and management: - Trends in soil health (systemic changes) - Operational indicators for soil health - Effectiveness of measures
	Pains: <ul style="list-style-type: none"> - Uncertainty about science informed decisions - Too costly measures (beyond reasonable costs) - Invest in science now, while only useable in practice in the long-term - Invest in long-term, continuous monitoring - Policy development and implementation is very difficult to achieve/hardly possible in a typical 5 year period - Land and soil management policies are extremely unpopular for real estate owners, who are a very powerful interest group. Most policy makers are either real estate owners themselves or do not want this group as opponents. 	Pain relievers: <ul style="list-style-type: none"> - Reduced uncertainty - Actionable knowledge (ready for application in practice) - Tested and improved, more cost-effective measures - Better connection of Min env, econ, agro & infra and Min science: monitoring (policy) versus observation (science) - Support from land owner community 	

Table b Research community

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
<ul style="list-style-type: none"> - Do fore-front land and soil research (in lab, in situ) - Produce papers, as high level (scientific impact) as possible - Connect with new teams involved in complementary research issues e.g. to respond to R&I project calls - Find budget for doing research 	Gains: <ul style="list-style-type: none"> - Higher scientific impact - Better soil system understanding - Better applicability of the scientific findings - More R&I budget (e.g. Horizon Europe, FACE JPI, etc.) - More effective in acquisition of such budget 	Gain creators: <ul style="list-style-type: none"> - Societal relevant R&I - Road-mapped R&I with higher likelihood that funding will become available for it - State-of-the-art actors needs and R&I facilities accessible at Living Labs 	<ul style="list-style-type: none"> - Provision of Living Labs and Lighthouses - State-of-art overview of actors and R&I facilities (observation sites and equipment, biological and physic/chemical analysis equipment, FAIR and long-term collated data, numerical and physical modelling equipment, training & e-learning facilities) - Fore front R&I topics - Prioritized R&I (road-mapped) likely to be funded more easily - Actor engagement tools in this document
	Pains: <ul style="list-style-type: none"> - Transfer of science to policy/practice (including co-construction, co-development, co-testing) - Acquisition of R&I budget - Accessibility of R&I facilities - New urban planning strategies are difficult to test in a research project (high resources required, political obstacles) 	Pain relievers: <ul style="list-style-type: none"> - R&I at Livings Labs is societal relevant, so easier to connect findings to policy/practice - Tools in this document to make better connection to actors - Soil R&I related Research Infrastructures teamed-up and making their facilities easier accessible 	

Table c Research funders

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
<ul style="list-style-type: none"> - Prepare or adopt a prioritized (road-mapped) Strategic Research and Innovation Agenda (SRIA) and update it regularly - Fund scientific and/or societal relevant land and soil management related R&I - Team up with other funders (common-pot of money, e.g. JPIs) - Sent our calls for proposals - Organize proposal evaluation process 	Gains: <ul style="list-style-type: none"> - The proper R&I - Sharing of experiences - Effective organization of the entire R&I funding process - proper KPIs 	Gain creators: <ul style="list-style-type: none"> - Road-mapped R&I - The proper R&I - Inspirational learning from other funders 	<ul style="list-style-type: none"> - A stakeholder co-created, and endorsed road map for soil and land use related R&I - Living-labs as high-quality sites/test-beds to execute R&I - Indicators (KPIs) for proper R&I - Exchange and mutual learning on the processes (from launching the calls to evaluation of the proposals)
	Pains: <ul style="list-style-type: none"> - Uncertainty if investing in the right R&I - Organization of a proper evaluation process - Uncertainty about effectiveness of the funding (value for money): setting of proper KPIs 	Pain relievers: <ul style="list-style-type: none"> - Decreased uncertainty: the road-mapped R&I is the right R&I to do - Identification of key actors/scientists for evaluation processes - Learning from experiences of other funders 	

Table d Land user / manager / owner and related associations

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
<ul style="list-style-type: none"> - Engage and collaborate in achieving and maintenance of healthy soils while maximizing the land or soil use for own benefits (enlarging the carrot), and minimizing the 'head wind': fuzz to deal with claims of others, including fulfilment of legal obligations etc. (stick) - Become Land Steward 	Gains: <ul style="list-style-type: none"> - Win-win scenarios: a healthy soil provides a suite (bundle) of ecosystem services to the benefit of many - Science-base for management practices 	Gain creators: <ul style="list-style-type: none"> - Revealing of win-win opportunities through ecosystem services bundles provided by healthy soils - Knowledge to comply with regulatory requirements and on how (indicators for) to behave as a proper Land Steward 	<ul style="list-style-type: none"> - Scientifically informed management practices that maintain/improve soil health - Living Labs and Lighthouses: - R&I provides system understanding that will inform what healthy soil is (i.e. the proper indicators) and how and which bundle of ecosystem services can be used sustainably - Testbed for the development, testing and validation of indicators for proper Land Stewardship
	Pains: <ul style="list-style-type: none"> - Compensation for loss - Bad publicity, fines and loss of market share if not compliant with regulatory requirements or not behaving as a Land Steward 	Pain relievers: <ul style="list-style-type: none"> - Revealed and underpinned trade-offs: Where a bundle of ecosystems services is beneficial for society at large, but comes at a cost for the land-user/owner, he/she may be compensated for that - A proper, underpinned idea (and clear indicators) for what a Land Steward is 	

Table e Private sectors and industries

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
See table d, plus: <ul style="list-style-type: none"> - Making profit - Differentiate my products - Become or be a Societal Responsible Entrepreneur - Collaborate in achieving healthy soils: be or become Industrial land stewards 	Gains: See table d, plus: <ul style="list-style-type: none"> - Develop a label based on soil health to differentiate my products (based on tested/validated new management practices) 	Gain creators: See table d, plus: <ul style="list-style-type: none"> - Testbed for improving etc. of commercial exploitable technology - Suggestions for new technologies with commercial potential 	See table d, plus: <ul style="list-style-type: none"> - Living Labs provide a testbed for e.g. testing and validation of R&I as well as routine land and soil monitoring facilities commercially exploited by industry - New, spin-off technology from R&I that can be transferred to entrepreneurs for e.g. start-ups - Make urban planning know-how and experience from all over Europe available
	Pains: See table d, plus: <ul style="list-style-type: none"> - Regarding urban land development: profit maximization not possible; i.e. recycling of developed land is more expensive than greenfield development 	Pain relievers: See table d plus: <ul style="list-style-type: none"> - This can only be triggered by SMS but not offered: incentives for land recycling; i.e. tax reductions or subsidies 	

Table f Service providers (laboratories, testing centers, certification entities, data centers, landscape planners tec.)

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
Making profit from enabling all other key-actors to do their job properly	Gains: - Enabling the right thing (providing the right service)	Gain creators: - Revealing the right thing to enable (services to provide)	Revealing the science bases and system understanding for how the other key-actors can do a proper job related to sustainable land and soil management an where they can be enabled with specific services
	Pains: - Competition with other service provides	Pain relievers: - Possibility at Living Labs to demonstrate service provision capabilities	

Table g NGO's (a.o. nature protection)

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
<ul style="list-style-type: none"> - Advocacy for adapting current or development of new policies tailored to achieve the Soil Mission and its objectives - Increase societal awareness about healthy soils and why they are needed - Promote Land Stewardship - Promote blue-ing & greening of economy 	Gains: - Increased credibility - Push/promote sustainable management practices	Gain creators: - Scientific underpinning for NGO's advocacy and promotional work - Developed, validated/tested sustainable management practices	- Consolidated scientific system understanding as bases for understanding the (planetary) boundaries of land and soil use and proper indicators (including information on tipping-points) for that
	Pains: - By some their role perceived as too much 'stick' ('thorn-in-the-flesh') and not enough 'carrot' and thus reduced willingness to engage with NGO's - Overcoming the traditional battle between long-term sustainability (good for the planet) and short-term, often unsustainable gain (good for profit): accelerating the transition towards a more blue-green economy	Pain relievers: - Scientific arguments that it is the 'right thing' what NGO's promote and advocate	

7.2.2 Value proposition for young professionals

They will be engaged as actors and made enthusiastic for this role by dissemination activities. To engage young professionals/entrepreneurs it is important to note that they get something out of it, thinking about political, personal or public goals. When a kind quality mark is manifested, it will be interesting to participate because the common good that comes with it, in forms like reputation.

Next to this there are young professionals/entrepreneurs who want to participate in projects like the Soil Mission but don't get the stage to say their saying. By offering participation in Living Labs a stage is automatically given. By engaging this group of actors' also citizens will more easily follow.

Table h Young professionals in the field of sustainable land & soil management

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
<ul style="list-style-type: none"> - Connectedness - Unity - Making the soil healthy again - Participate in innovation for the future 	Gains: <ul style="list-style-type: none"> - Bigger platform to communicate - Making the planet healthy again - More interest 	Gain creators: <ul style="list-style-type: none"> - Being able to reach more people - Direct way to participate in living labs - Reputation 	<ul style="list-style-type: none"> - Living labs around soil sustainability - Ambassadorship for those living labs
	Pains: <ul style="list-style-type: none"> - No chance representation in EU - Lack of playing field - Not being able to make a substantial change in climate change - Ignorance around climate change 	Pain relievers: <ul style="list-style-type: none"> - Give meaning to sayings - Way to spread the word - Creating way to make real change 	

7.2.3 Value proposition for citizen groups

Engaging citizens is probably best done by attracting interest, to do these citizens have to take notice of the Soil Mission at first. At a later stage this is possibly done via the settled Living Labs, but this isn't the case on beforehand. In the first stage's engagement is most logically practiced by focusing on climate change in general and further on include soil sustainability in the "new normal". Climate change in general is an upcoming topic increasing over the years, this attracts people's interest. By setting up easily accessible projects where citizens can have fun next to acquiring knowledge, citizens will participate earlier and take knowledge.

Table I Citizen groups with interest in sustainable land & soil management

Their needs		Our offer	
Job to do	Gains & pains	Creators & relievers	Products & services
<ul style="list-style-type: none"> - Awareness - Indirect participation in Living Labs 	Gains: <ul style="list-style-type: none"> - High quality of living - Going with the flow - Push/promote/ask for sustainable management practices 	Gain creators: <ul style="list-style-type: none"> - Create a new normal - Enabled to ensure high quality of living - Developed, validated/tested sustainable management practices 	<ul style="list-style-type: none"> - Living Labs around soil sustainability - A better planet for following generations
	Pains: <ul style="list-style-type: none"> - Lack of knowledge - Effort input 	Pain relievers: <ul style="list-style-type: none"> - Spreading knowledge - Making the case the new normal 	

To support the engagement of citizens use can also be made of the Participatory Monitoring Canvas as provided in annex 7.3.2.

7.3 Tools to support actor engagement

7.3.1 Table with actor engagement tools

** Most appropriate level of engagement for a particular tool; * Other levels for which the tool is also relevant. Related to the Soil Mission building blocks: the 'inform' and 'activate' tools link to: 1) "Education, Training, Communication and Citizen Engagement". The 'collaborate' tools link to: 2) "Living Labs and Lighthouses", 3) "Trans-Interdisciplinary Systemic R&I" and 4) "Monitoring framework and indicators"

Tool	on/offline		Level of engagement			Keywords	Example sources for more info on the tool and how it can be applied (not to meant as all inclusive)	Application examples (not to be meant as all inclusive)
	on	off	in-form	acti-vate	colla-borate			
Website	x		**			Web-based stakeholder communication/targeting	https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2189036	-
Blog	x		**	*		EurActiv: blogs for best practices of stakeholder engagement; blogs about participation in EU projects	https://engagementhub.com.au/stakeholder-engagement/engaging-with-the-stakeholders-through-blogs-news-updates/	http://blogs.ec.europa.eu/upolicylab/
Social media	x		**	*	*	Facebook, Twitter, LinkedIn: group communication and activation	https://www.biodiversa.org/719/download https://onlinelibrary.wiley.com/doi/abs/10.1002/csr.2094 https://www.bsr.org/en/our-insights/blog-view/five-tips-for-stakeholder-engagement-on-social-media	Facebook, Instagram, Pinterest, TikTok, Twitter, Flickr
Newsletters	x	x	**	*		ECESP Newsletter; informing stakeholders; online newsletters	https://knowledgequest.aasl.org/newsletters-for-communicating-with-	ECESP Newsletter https://circulareconomy.europa.eu/platform/en/ecesp-

							stakeholders/	newsletter
Magazines / journals	x	x	**	*		Magazines/journals on a certain topic	https://jmcstudyhub.com/what-is-magazine-a-brief-history-and-its-types/	https://environmentoutreach.com/
Articles	x	x	**	*		Scientific papers	https://www.elsevier.com/authors	-
Advertisement	x	x	**	*		Online and offline creation of awareness	https://blog.hubspot.com/marketing/advertising	https://act.wemove.eu/campaigns/people4soil
Videos	x		**			Youtube, Vimeo	https://www.biodiversa.org/716/download	https://ibroad-project.eu/results/videos/
Lectures / webinars	x	x	**			Webinars on project strategy; goals and developments in other commissions in the project; informing on strategies	https://contentgroup.com.au/2021/02/webinars-for-stakeholder-engagement/	https://europa.eu/newsroom/events/stakeholder-webinar-european-strategy-offshore-renewable-energy_en CIRCASA project - Home page (circasa-project.eu)
Attention seeker / elevator or salespitch	x	x	**	*		A 30-second memorable description of what you do and/or what you sell. The goal is to earn a second conversation	https://www.pipedrive.com/en/blog/sales-pitch	https://blog.hubspot.com/sales/elevator-pitch-examples
Policy brief	x	x	**	*		Advice from researchers to policy-makers; addressing specific policy goals	https://www.biodiversa.org/712/download https://epoc.cochrane.org/sites/epoc.cochrane.org/files/public/uploads/SURE-Guides-v2.1/Collectedfiles/source/01_getting_started/using_brief.html	https://ec.europa.eu/jrc/en/research/crosscutting-activities/fairness/fairness-policy-briefs-series
Training, including e-Learning	x	x	*	**		Training stakeholders' knowledge/skills, e-Learning	https://www.efrontlearning.com/blog/2019/11/key-	https://www.cencenelec.eu/societal/interests/Pages/def

						module about the problem context	stakeholders-in-online-training.html	ault.aspx
Participatory mapping	x	x	*	**		Developing maps together with stakeholders; mapping problem areas	https://www.biodiversa.org/711/download	https://core.ac.uk/download/pdf/217292551.pdf
Online mapping	x		*	**	*	Online mapping tool such as ClimateScan, where stakeholders can upload their own practices/ideas	https://www.esri.com/en-us/industries/land-administration/strategies/stakeholder-engagement	https://climatescan.nl/
Interview	x	x	*	**		Interviewing stakeholders directly about the problem, potential solutions and their role	https://www.biodiversa.org/709/download GECKO_D5.1_Stakeholder_Engagement_Plan.pdf (h2020-gecko.eu)	http://www.interregeurope.eu/successroad/news/news-article/10092/video-interview-series-with-lithuanian-stakeholders/
Focus groups	x	x	*	**		Brainstorm sessions on a certain subject	GECKO_D5.1_Stakeholder_Engagement_Plan.pdf (h2020-gecko.eu) http://stakeholderinsights.com/research-services/focus-groups/	https://ec.europa.eu/eip/agriculture/en/focus-groups
Scenario analysis	x	x	*	**	*	Analyzing multiple future scenarios and potential impact on stakeholders	https://www.biodiversa.org/712/download	https://ec.europa.eu/jrc/en/publication/scenario-analysis-accelerated-coal-phase-out-2030-study-european-power-system-based-euco27-scenario
Delphi method	x	x	*	**	*	Panel of experts in a particular field	https://www.biodiversa.org/717/download	https://www.researchgate.net/publication/222670695_EU_network_carriers_low_cost_carriers_and_consumer_behaviour_A_Delphi_study_of_future_trends

Multi criteria decision analysis	x	x	*	**	*	Objectives, evaluation, goals and attributes	https://www.biodiversa.org/720/download https://ec.europa.eu/info/sites/info/files/file_import/better-regulation-toolbox-63_en_0.pdf	https://fire-in.eu/de/herausforderungen-ressourcen/validated-solutions/25-years-of-mcda-in-nuclear-emergency-management
Role playing/serious games	x	x	*	**	*	Playing and testing policy alternatives and future scenarios in an open and risk-free environment	https://www.tandfonline.com/doi/abs/10.1080/01944369908976031	https://www.researchgate.net/publication/270758374_Serious_Games_in_a_European_Policy_Context
Online quiz	x		*	**		Testing the knowledge of people, while indirectly teaching them	https://www.ispringsolutions.com/blog/how-to-make-an-online-quiz http://www.clemson.edu/online/documents/best-practices/online_test	https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/soil-health-and-food_en#get-involved
Online games	x		*	**		Teaching younger people in a fun way on the importance of soil	https://preparecenter.org/wp-content/sites/default/files/engagement-game-guide.pdf	https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/soil-health-and-food_en#get-involved
One-to-one meetings and interviews	x	x		**	*	A meeting for the purpose of acquiring qualitative information on the respondent's views on a certain topic	https://www.small-improvements.com/resources/1-on-1-meetings/	https://ec.europa.eu/easme/en/news/one-eu-meetings-ecomondo-book-your-slot-today
Town hall meetings	x	x		**	*	A meeting within an organization or establishment for the purpose of sharing information and asking questions between people/employees	https://guideinc.org/wp-content/uploads/2015/07/Organizing-a-Town-Hall-Meeting.pdf	https://ec.europa.eu/health/non-communicable-diseases-other-events-cancer/townhall-meeting-europe%E2%80%99s-beating-cancer-plan_en

Workshops	x	x		**	**	Intensive discussion by a group on a particular subject	https://www.biodiversa.org/710/download https://www.biodiversa.org/721/download	https://ec.europa.eu/eip/agriculture/en/event-type/workshop-GECKO_D5.1_Stakeholder_Engagement_Plan.pdf (h2020-gecko.eu)
Master classes	x	x	**	**		Intensive courses on a certain subject taught by a professional	https://www.learningrevolution.net/how-to-host-an-online-masterclass/	https://sustainabilityknowledgegroup.com/training/stakeholder-management-masterclass/
Group Model Building	x	x		**	*	A participatory method which helps with acceptance and agreement in decision making	https://pure.uvt.nl/ws/portalfiles/portal/1004983/group_model.pdf	http://briswa.eu/the-model/group-model-building.html
Questionnaires / surveys	x	x	*	**	*	Tool to acquire quantitative data	https://www.civicus.org/documents/toolkits/PHX_H_Stakeholder%20Survey.pdf	https://ec.europa.eu/food/sites/food/files/plant/docs/gmo_mod-bio_stake-cons_sum-rep-joint-wg.pdf
Practical demonstrations / pilots		x		**	**	Living labs and Lighthouses	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/416155/Pilots_and_Trial_final_2012.pdf	https://ec.europa.eu/environment/eussd/smgp/ef_pilots.htm
Information/experimental hub	x			*	**	Eurostat (statistics), Information hub	https://www.oneplanetnetwork.org/consumer-information-scp/product-sustainability-information-hub https://publications.iom.int/books/information-hubs-migration-mesoamerica-and-caribbean	https://futurium.ec.europa.eu/en/node/10 https://ec.europa.eu/eurostat/web/experimental-statistics/overview/ess https://esdac.jrc.ec.europa.eu/content/european-soil-database-v20-vector-and

								attribute-data
Community of Practice	x	x		*	**	Community where ideas are exchanged on-line and in meetings	https://www.msfr.org/sites/default/files/Community_of_practice_guide.pdf https://wenger-trayner.com/introduction-to-communities-of-practice/	https://epale.ec.europa.eu/nl/communities-of-practice https://www.bind.nl/is-community-practice/
Steering group	x	x			**	A group which oversees a project	https://www.adapro.fi/en/blog/the_steering_group_creates_the_conditions_for_the_success_of_the_project.3307.blog	https://euagenda.eu/organisers/europe-2020-steering-committee https://ec.europa.eu/health/non_communicable_diseases/steeringgroup_promotionprevention_nl
Co-creation / co-development / co-production / joint-fact finding	x	x		*	**	Process in which stakeholders with differing viewpoints and interests work together to develop data and information, analyse facts and forecasts, develop common assumptions and informed opinion, finally, use the information they have developed to reach decisions together (Ehrmann and Stinson, 1999).	https://www.biodiversa.org/714/download	https://co-creating-europe.eu/ https://www.cocreated.eu/
Future search conference	x	x		*	**	Visioning future scenarios with relevant stakeholders; creating a clear and powerful image of the future together with stakeholders	https://www.researchgate.net/publication/318029411_Future_Search_Conferencing	https://projectsforchange.eu/a-future-search-conference/

7.3.2 Participatory Monitoring Canvas

Source : Ellen and Breman (2018)

		Participatory Monitoring CANVAS		SUBJECT:	
				FILLED OUT BY:	
				DATE:	
4) Whom wants/is allowed to observe what? <i>Which participants: citizens, enterprises, stakeholder organizations, NGOs, schools, managers, policy makers etc. An active role of these participants is expected</i>	5) How do the participants want to observe? <i>This concerns methods: manual, ICT application, apps, etc. Consider also if the parties from box 4 are capable to apply the methods. Furthermore, consider where to store the data and how to get the data there.</i>	STARTING POINT: <u>Why participatory monitoring?</u> For example: <ul style="list-style-type: none"> • Accountability? • Learning? • Support? • Trust? • More information? 		3) What do the participants want to observe? <i>Important to be creative here: what observable indicators relate to concerns or to the expected positive effects</i>	2) What are the participants concerned about? <i>This may come from a critical attitude (concerns about), but may also be viewed from a more positive perspective (e.g. insights desired in positive effect)</i>
6) Who wants/is allowed to analyze/interpret? <i>See box 4 + make choice whether experts or non-experts can do the interpretation</i>	7) How do the participants want to analyze/interpret? <i>It is important to always keep the level of interaction in mind. Do experts present the analysis or do all the parties do this together? Important to meet X times a year.</i>			10) What are the possible outcomes (scenarios)? <i>Through which channel, which message, to whom? Think also about box 4.</i>	11) Who has to act according to which outcome? <i>Through which channel, which message, to whom? Think also about box 4.</i>
8) Which way of communication is desired by the participants? <i>Through which channel, which message, to whom? Think also about box 4.</i>				12) What is necessary under each scenario (resources and capacity)? <i>Through which channel, which message, to whom? Think also about box 4.</i>	
9) Expected costs (resources and capacity) <i>Through which channel, which message, to whom? Think also about box 4.</i>					

7.4 Example formats to support actor engagement in SMS

DISCLAIMER: at the moment of delivery of this deliverable (D3.3) it was not yet clear what specific format is needed and for which actor engagement occasion. Therefore, in this annex some, hopefully inspiring examples from other, previously funded EC projects are provided. If deemed useful further on in the SMS project, the provided formats need to be adapted to make them fit for SMS purpose.

7.4.1 Questionnaire to reveal ‘what is in’ for a specific actor (DANUBIUS example)

Questionnaire format originally developed for, and successfully used in the DANUBIUS-PP project (Tyler et al., 2019):

This is a 10-minute questionnaire to help focus services and products from DANUBIUS-RI
DANUBIUS-RI

River-sea systems are central to societal wellbeing, yet they face multiple and confounding pressures from climate change, nutrient enrichment and other natural and man induced environmental impacts of varying intensities at local and global scales. The International Centre for Advanced Studies on River-Sea Systems (DANUBIUS-RI) is being set-up to bring together world leading expertise and provide access to a range of river-sea systems, facilities and expertise, to provide a ‘one-stop shop’ for knowledge exchange, access to harmonised data, a platform for interdisciplinary research, education and training and hence provide answers to questions regarding management, environmental protection and sustainable use of river-sea systems. More information: <http://www.danubius-ri.eu/> and/or <http://danubius-pp.eu/>

What is in for you?

Stakeholders, such as those from policymaking and management and industry sectors, can benefit from an improved understanding of the function of river-sea systems and we (DANUBIUS-RI) want to better understand how this can be facilitated. We would very much appreciate a few minutes of your time to complete the following questionnaire. Your answers will be used to draft tailored propositions on what DANUBIUS-RI can offer specific stakeholder sectors and will provide a sound basis to engage your sector.

User Engagement Questionnaire tailored to Business and Industry

Please fill out the light grey boxes. Fill out with either text, a tick (x) or a ranking number (as appropriate)

1. Are you?

River and/or sea related policy maker or manager (please indicate which and add name):

International Body:

Intergovernmental bodies, making recommendations for policy or change:

European Parliament:

European Commission, DG:

Ministry of:

Executive Agency:

Under the ministry of (and country):

Research Community

Sector:

Organisation name:

Based in country:

Business and Industry in the sector (please specify your sector):

Large Enterprise (≥ 250 employees)

☐

Small or Medium sized Enterprise (SME, i.e. < 250 employees)

☐

Business and Industry sector representing network (please specify your network)

☐

Network name:

Website:

Based in country:

Or Public or Other sector organisation (please specify):

2. Within your sector, which of the following is important in your operation?

Research and policy:

Scientific evidence for policy making, implementation and management

☐

Broader interdisciplinary perspective

☐

Catchment perspective

☐

Improved regulation operation (monitoring) including optimisation of options

☐

Support for implementation of Directives – pan European

☐

Reduction or assignment of uncertainty in decision making

☐

Options to promote economic and/or societal growth

☐

Access to scientific evidence to allow assessment and prediction of:

- Change
- Environmental stability and resilience
- Future scenarios
- Impact of pressures
- Effectiveness of measures (retrospective and predictive)
- Risks associated with management scenarios
- Planetary boundaries (efficiency of natural resources)
- State of the environment
- Other, please specify:

☐
☐
☐
☐
☐
☐
☐
☐

Business and industry:

Data, equipment & expertise for the development of new/improved products and services

☐

Data, equipment and expertise for the development of more efficient production processes

☐

Data, equipment and expertise to tackle operational difficulties

☐

Expertise and solutions for compliance in the regulatory context

☐

Expertise and solutions to evaluate and improve public opinion

☐

An independent, third party focal point to network:

Between companies and regulatory bodies, to provide scientific assessment

☐

Between companies and consumers to validate claims of the environmental credentials associated with services and/or production processes

☐

Between other categories of stakeholders, please specify:

3. Which are the most important topics in your operation related to River Sea systems? Keep in mind to all topics might be relevant, but we are interested in the most urgent (please rank, 1 being most urgent).

Climate change effects on river-sea- systems, especially in terms of:

☐

extreme events	<input type="checkbox"/>	
sea-level rise	<input type="checkbox"/>	
changed water variability	<input type="checkbox"/>	
Sufficient water availability for your needs, regarding:		<input type="checkbox"/>
quality issues (nutrients, pollution, micro plastics)	<input type="checkbox"/>	
quantity issues (changes in availability and use)	<input type="checkbox"/>	
Sediments, their quality, quantity and proper sediment management		<input type="checkbox"/>
Ways to ensure a high biodiverse and thus a healthy ecosystem status in river-sea-systems		<input type="checkbox"/>
Other, please specify:		
4. What are your main sources of scientific knowledge?		
scientific papers		<input type="checkbox"/>
direct correspondence from universities		<input type="checkbox"/>
reports		<input type="checkbox"/>
experiences /examples within my own country		<input type="checkbox"/>
newspapers		<input type="checkbox"/>

conferences	<input type="checkbox"/>
data	<input type="checkbox"/>
consultants	<input type="checkbox"/>
research institutes	<input type="checkbox"/>
involvement in research projects	<input type="checkbox"/>
research infrastructures	<input type="checkbox"/>
experiences /examples abroad	<input type="checkbox"/>
television	<input type="checkbox"/>

networks, such as:

websites, such as:

other, please specify:

4. Engagement between DANUBIUS-RI and the public and private sectors
Constructive engagement with both public and private sectors is critical in the development of DANUBIUS-RI to ensure that we support relevant research and innovation activities that are designed to deliver new knowledge and solutions to stimulate sustainable economic growth and societal wellbeing. From the perspective of your sector or organisation, what are the best

mechanisms for engagement (please rank according to your preference with the most preferred method ranked as 1)

Sectoral representation on an Advisory Board ☐

One-to-one / small group engagement in your organisation ☐

Monthly ☐

Annually ☐

As required ☐

At your organisation ☐

At a national DANUBIUS related centre ☐

At a European venue ☐

Meetings that coincide with other planned meetings, e.g. with professional/national bodies ☐

Annual meeting/conference associated with DANUBIUS-RI ☐

Newsletters ☐

Email ☐

Other, please specify:

5. What are your expectations of DANUBIUS-RI?

Thank You

We are very grateful for the time you have taken to complete this questionnaire. We may wish to follow up on specific aspects and would be grateful if you would leave contact details below. For the purposes of GDPR (General Data Protection and Regulation):

Have your responses been made on behalf of yourself and/or your organisation?

Self

☐

Organisation

☐

May we acknowledge you / your organisation (delete one if only one applies) as having been consulted in the subsequent reporting of this activity

Yes

☐

No

☐

Are there any specific responses you would like credited to you / your organisation. A general summary of the responses will be reported, but we can highlight any specific points if you would like.

Yes

☐

No

☐

If so, which question number:

Follow up: Are we able to contact you to follow up on any issues raised?

Yes

☐

No

☐

Please provide a name for a contact person and contact details?

Name:

Email:

Phone:

For further information, please do not hesitate to contact us at:

7.4.2 Interview to reveal actor's R&I priorities (INSPIRATION example)

Interview format originally developed for, and successfully used in the INSPIRATION project (Brils et al. 2016):

NKS questionnaire template

This is the updated version of the questionnaire - reflecting inputs from the IAB and discussions at the NFP training on 22nd – 23rd June 2015.

[Note: this questionnaire template is meant to help National Focal Points (NFPs) to facilitate the interview/conversation with the National Key Stakeholders (NKS). Some questions are relevant to one NKS, other questions to another NKS. Hence, not all questions are relevant to each single NKS. The NFPs are required to adapt the template accordingly – keeping in it as many as possible of the issues to be addressed. If needed, the NFPs also translate the questionnaire into their national language.]

The questionnaire (see next pages) has the following outline:

- A. Interview information:
To be filled out by the interviewer
- B. Introduction:
That the interviewer can use to start the NKS interview
- C. Background information of the NKS interviewed:
Mostly 'tick-boxes'
- D. Strategic Research Agenda (SRA):
NKS preferred topics, overarching themes and scope for the SRA and national state-of-the-art on research agendas that the NKS is aware of
- E. Science-Policy-Interface:
NKS experiences regarding the exploitation of scientific knowledge to: improve business opportunities; tackle other societal challenges; assist policy-implementation and/or policy revision
- F. Funding:
Predominantly used as well as promising alternative funding schemes / mechanisms / programs for knowledge production and dissemination that the NKS is aware of
- G. Other:
At the end there is some time advised to let the NKS give us their advice, some nice quotes (that we can use anonymously in our communications), examples etc.
- H. Ending the interview:
Explain follow up and if/how NKSs will be involved in the next steps of INSPIRATION

Questionnaire template

A. Interview information
Country:
Name of INSPIRATION Researcher:

<p>Date of Interview:</p> <p>How does the NKS wish to be referred to:</p> <p>[Anonymous, personal opinions, company's opinion. Choose when it is a good time to discuss this. In the beginning or later on.</p> <p>SHOW the interviewed NKS the ENGAGEMENT CONSENT FORM and ask him/her to fill it out. Please introduce the engagement consent form (available in 'D2.1 MoU' and editable by yourself) and hand a copy to the interviewee to read and fill in – make sure that you take this away with you and keep for your own records]</p>
<p>B. Introductions</p>
<p>[Please introduce your selves, the project and the purpose of the interview. You can use the handout as provided at the end of this template. This can also be sent beforehand to the NKS. Agree on a time span: approximately one and a half hour.]</p>
<p>C. Background information on the interviewee</p>
<p>1. Name of NKS interviewed:</p> <p>2. Institution:</p> <p>3. Role:</p>
<p>4. Are you a (multiple answers possible):</p> <ul style="list-style-type: none"> ○ National-regional-local authority ○ University/research institute ○ Small or Medium sized Enterprise (SME, i.e. < 500 employees) / consultant ○ Business and industry ○ Non-Governmental Organisation (NGO) ○ Network representative / leader ○ Other, specify: ...
<p>5. Fields of expertise (multiple answers possible):</p> <p>[Ask to specify background regarding the selected item(s) in order to understand expertise background of interviewee]</p> <ul style="list-style-type: none"> ○ Soil ○ Water ○ Sediment ○ Urban / spatial planning ○ Landscape design ○ Land management ○ Other, specify:
<p>6. Does your organisation provide external research funding?</p>

- Yes. Please specify: ...

[e.g. as programme holder, public, private, ...]

- No

D. SRA

7. Which societal challenges do you regard as important?

[If needed, you can use the European Commissions (EC) list of societal challenges here. These EC themes are:]

- Contribute to food security and food safety;
- Ensure secure supplies of safe drinking water;
- Secure energy supply and distribution;
- Reduce raw material and resource consumption, Ensure efficient use of natural resources;
- Contribute to climate change mitigation and societal adaptation;
- Contribute to a healthy living environment;
- Ensure secure infrastructure

[Explain that these challenges may be used as bases for defining of the overarching themes for aggregating the research topics of our SRA.]

- a. If applicable, what additional, other or alternative challenges would you suggest/prefer?

[When needed, you can mention challenges as nature conservation, sustainable use of ecosystem services, halting the loss of biodiversity]

8. Starting with your own experience: which specific topics (research needs) should be included in the SRA?

[For each single topic mentioned by the NKS, use the following follow-up questions. The a, b and c sub-questions are mandatory. The other sub-questions are optional]:

- a. Explain – elaborate the topic
 - Who will be affected?
 - Who is responsible?
 - Is it a topic of concern of your organisation / department
 - Is it only a national topic, or a shared topic by multiple countries?
 - Where are we now, where do we want to be in x years (point on the horizon)?
 - How can the newly gained knowledge be effectively used?
- b. Priority:
 1. High priority
 2. Some priority
 3. Neutral priority
 4. Low priority
 5. No priority

- What is the urgency, i.e. what goes wrong if we do nothing?
- c. Who wants to/should fund this kind of research?

[Optionally: check the following WP3 key-words for relevance, i.e. if they raise any additional topics by the NKS. The key-words can be used as support / check list

Be sensible as interviewer if this is needed.]

- o Assessment of land resources
- o Potential productivity of land and soils
- o Demand for soil/land resources, imports and exports
- o Competition between land uses (land-use conflicts)
- o Concepts to identify and quantify relevant impacts
- o Instruments to avoid / minimize impacts (feedback to decision-making process)
- o Opportunities of innovative land-use technologies
- o Resource-oriented land management systems]
- o Soil regeneration
- o Soil and groundwater remediation

9. Linked to topics mentioned by the NKS:

- a. What are the important / relevant documents, research agendas, research programmes underpinning these topics? (state-of-the-art)
- b. Related to these agendas and programmes: what are timelines of programming and windows-of-opportunities to influence agendas / programmes?

[Note: question 9b is input for work package 5]

E. Science-Policy-Interfacing (SPI)

10. How would you define 'scientific knowledge'?

11. For what do you use scientific knowledge in your job?

12. Which sources of (scientific) knowledge do you use for doing your job?

[Open question and you can mention some of the sources underneath as examples]

- | | |
|---|--|
| o scientific paper | o newspapers |
| o consultants | o television |
| o reports | o conferences Involvement in research projects |
| o colleagues | o data (bases) |
| o experiences /examples within my own country | o websites, such as: |
| o experiences /examples abroad | o other, specify: |

13. To what extent do you use most recent/new scientific knowledge (i.e. state-of-the-art scientific insights/findings) for doing your job?

14. To what extent are you able to influence (and how) the setting of scientific research policies/agendas in our country?
15. To which extent do our national policies/agendas reflect your specific needs and priorities?
16. To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?
<p>[Questions only for NKS from the non-science sector (business and policy):]</p> <p>17. Have you ever been involved in:</p> <ol style="list-style-type: none"> the formulation of scientific research questions? doing scientific research (i.e. knowledge co-creation)? synthesizing/wrapping-up of scientific knowledge, e.g. to feed into policy making or to increase business opportunities? <p>[When yes: Follow-up questions]</p> <ul style="list-style-type: none"> - How successful/satisfying was this, on a scale of 1-5? <ol style="list-style-type: none"> Very successful/satisfying Successful /satisfying Neutral Unsuccessful/unsatisfying Very unsuccessful/unsatisfying - What went well - What could be improved? - What to avoid/not to do? - Additional remarks?
<p>[Question only to NKS who are likely to have insights here (e.g. research funders)]</p> <p>18. (How) is the societal impact of scientific research related to the scope of INSPIRATION being assessed in our country?</p> <p>[If they know: Follow-up questions:]</p> <ul style="list-style-type: none"> - How successful/satisfying is this, on a scale of 1-5? <ol style="list-style-type: none"> Very successful/satisfying Successful/satisfying Neutral Unsuccessful/unsatisfying Very unsuccessful/unsatisfying - What indicators are used? - What goes well? - What can be improved? - What to avoid/not to do? - Additional remarks?
19. Which national Science-Policy-Interface documents do you know of / can you recommend?

F. Funding
<p>20. Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems:</p> <ul style="list-style-type: none"> - Sub-nationally /regionally? - Nationally? - European? [e.g. H2020, Interreg, multi-lateral such as the Joint Programming Initiatives] - International? [e.g. Belmont Forum, Foundations.] <p>[For all R&I questions aiming at achieving policy targets in the Land & SSW related system (like e.g. Sustainable Development Goals on soils -to be adopted at UN level in September 2015-, existing EU directives such as the Environmental Liability Directive, etc.) Consider all Public and Private funding sources. Please ask to provide details and give most important references (documents, website) that could be relevant for explaining the answer]</p>
<p>21. How to increase the added value of different financial resources (i.e. achieve a multiplier) for doing research that contributes to EU and national demands, in particular to the R&I demands on Land and the SSW-system?</p> <p><i>[CONSTRUCTIONS that (could) work. PP, PPI, etc. Just ask for, as open as possible for suggestions, ideas, experiences, good examples]</i></p>
<p>22. Are there areas of research and innovation (R&I) that you are aware of that are not (yet) covered by current funding mechanisms and which would need new/different funding schemes / infrastructures?</p>
<p>23. Integrated approaches (necessary for addressing particular societal challenges related to the use and management of land and related impacts to SSW systems) are usually difficult to fund / get recognized by the research funding communities. What would be necessary to improve this?</p>
<p>24. Based on previous learning experiences that you are aware of: how to best set up / govern funding option(s), so that societal demands will be fulfilled, knowledge resulting from execution of the SRA will be taken up and used; and funders experience that their invested, national Euros are indeed multiplied?</p> <p>[if they know: Follow-up questions]</p> <ul style="list-style-type: none"> - How successful/satisfying was this, on a scale of 1-5? <ol style="list-style-type: none"> 1. Very successful/satisfying 2. Successful/satisfying 3. Neutral 4. Unsuccessful/unsatisfying 5. Very unsuccessful/unsatisfying - What went well - What could be improved?

<ul style="list-style-type: none"> - What to avoid/not to do? - Additional remarks?
G. Other (remarks, suggestions, examples):
H. Ending the interview
<p>Thank you for taking the time to participate in this interview:</p> <ul style="list-style-type: none"> • Would you like us to keep you updated about INSPIRATION progress? • Would you suggest anyone else who we should be interviewed by us? • Do you have further questions arising from this interview, or would you like to add anything else? • What information are you interested in, and willing to give feedback on? <p>[Discuss the feedback mechanism and if they have expressed their opinions as a person or as a representative of their organisation/network. Checklist:]</p> <ul style="list-style-type: none"> a. Information to exchange / willingness to give feedback on: <ul style="list-style-type: none"> ○ (complete interview, not recommended) ○ summary of main conclusions ○ national report, national contribution to D2.4 ○ complete D2.4, all countries b. Preferred level of feedback: <ul style="list-style-type: none"> ○ no feedback ○ informal feedback ○ formal feedback (e.g. on behalf of represented organisation) <p>[Check: have you discussed consent form / how to refer to interviewee]</p>

NKS hand-out: INSPIRATION interview at a glance

INSPIRATION interview at a glance

Aim of INSPIRATION:

The main purpose of the EC-funded INSPIRATION project is to formulate an end-user driven strategic research agenda (SRA) for land-use, land-use changes and the related, impacted compartments of the Soil-Sediment-Water (SSW) system in order to meet current and future societal challenges and needs. Next to that, the project aims to scope out models of implementing the SRA and to prepare a network of public and private funding institutions willing to commonly fund the execution of the SRA.

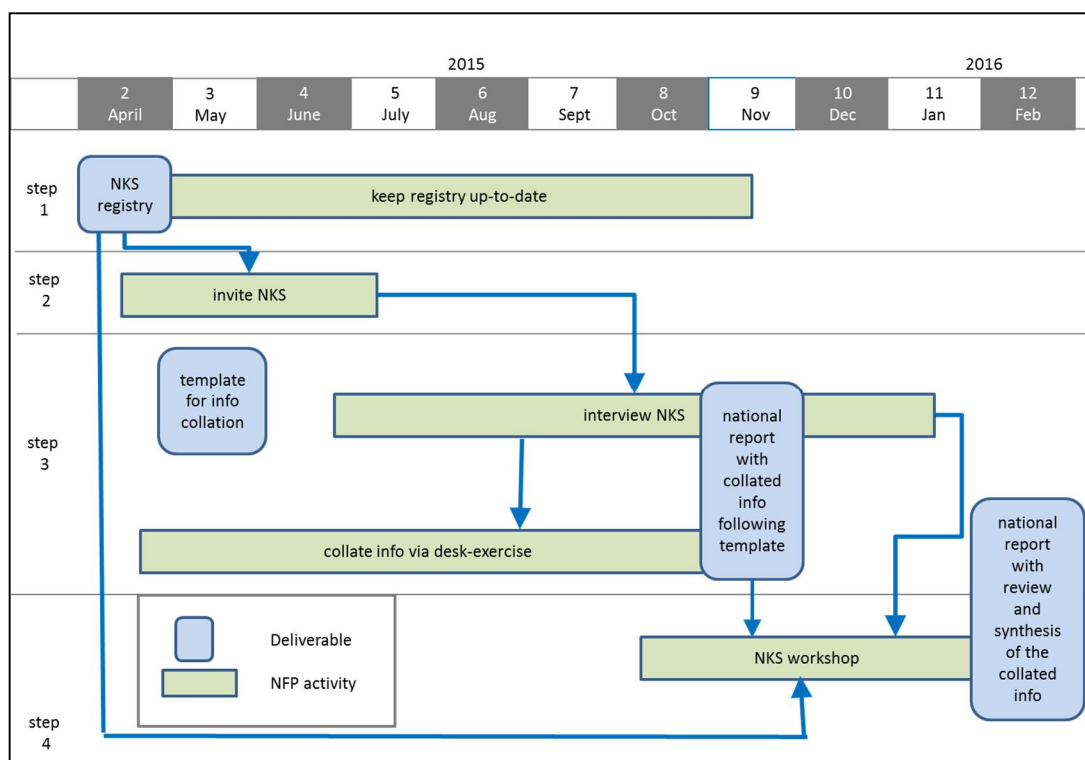


National Key Stakeholders (NKS):

In a series of NKS interviews across EU nations the “National Focal Points (NFP) gather for nations individually information related to the INSPIRATION scope (land and SSW-system use and management) on:

- Research and Innovation (R&I) needs
- Experiences regarding connecting science to policy/practice
- National and transnational funding schemes

In the interviews we focus at NKS – like you – positioned at a strategic level, i.e. leading persons in their field of profession; with a good overview on opportunities; a clear vision on, and insight in knowledge demands (short, middle and long-term). Furthermore, these NKS are well positioned and participate in relevant professional network(s) and may also have potential to become an ambassador for INSPIRATION. We selected NKS to represent different disciplines and institutional backgrounds including: land-use planners; managers; soil, sediment and water experts; researchers, funders and regulators/policy makers.



Workflow in the first year of INSPIRATION

This interview:

Collecting input from you – an expert in your field – is crucial for the project in order to help us describing the state-of-the-art in our country as input into the European research agenda. In the interview we will go through a series of topics and questions: The interviews of NKS (ca. 20 per nation), together with a desk

study on research needs and funding possibilities will be synthesized to a 'national report'. This synthesis will be reviewed in a national workshop, to prioritize the topics for the suggested Strategic Research Agenda (SRA) from our country's point of view. The national reports will finally be used as input for elaborating the European SRA and cross-nation matchmaking (matching research needs to possible funding).

Example questions:

Research and Innovation (R&I) needs

- Which societal challenges do you regard as important?
- Starting with your own experience: which specific topics (research needs) should be included in the SRA?

Experiences regarding connecting science to policy/practice

- How would you define 'scientific knowledge'?
- To what extent has been made use of the state-of-the art in scientific research for the formulation of existing policies in our country?

National and transnational funding schemes

- Does your organisation provide external research funding?
- Which experiences and expectations in funding schemes (public / private) do you have in your own field that could offer opportunities for future research on land-use and -management and related impacts to Soil-/Sediment-/Water-systems

Your benefits from participating:

- A chance to influence the European SRA on land and SSW management in the light of societal challenges and needs;
- Being able to make use of the results of the project: overview of research need and of existing and promising funding schemes on different levels (sub-national, national, European, international) and opportunities for a better connection between science and policy/practice;
- Use the matchmaking opportunity to get in contact with other networks in- and outside our country, and countries learn which shared challenges can be taken up jointly.

Contact and further information:

For general information on the INSPIRATION project visit our website: www.inspiration-h2020.eu

Contact the National Focal Point:	xxxx
See the INSPIRATION website	

7.4.3 Workshop engaging actors in the R&I prioritization (INSPIRATION example)

Workshop format originally developed for, and successfully used in the INSPIRATION project (Brils et al., 2016):

NFP = National Focal Point, NKS = National Key Stakeholder

DRAFT agenda INSPIRATION national NKS workshops

DAY 1 – AFTERNOON SESSION: BIG GROUP, ALL WHO WANT TO CONTRIBUTE WELCOME

Time	Activity	Speaker or moderator
12.30	Walk-in (lunch/sandwiches offered?)	
13.00	Welcome, goal Today, introduction to program	NFP
13.10	INSPIRATION: (re)introduction to the project	NFP, or NFP co-worker
13.30	Brief presentations (10 minutes per topic) summarizing the results of the interviews & complementary desktop work:	
	a. SRA	NFP, or NFP co-worker
	b. SPI	NFP, or NFP co-worker
	c. Funding options	NFP, or NFP co-worker
14.00	World Cafe, 3 tables, 30 minutes per table, enriching, completing and suggestion prioritization:	
	a. SRA	NFP, or NFP co-worker
	b. SPI	NFP, or NFP co-worker
	c. Funding options	NFP, or NFP co-worker
15.00	Coffee/tea	
15.30	Plenary presentation World Cafe outcome, followed by again possibility for enriching, completion and suggestions for prioritization:	
	a. SRA (30 minutes)	Reporter table a (volunteer NKS?)
	b. SPI (30 minutes)	Reporter table b (volunteer NKS?)
	c. Funding options (20 minutes)	Reporter table c (volunteer NKS?)
16.50	What next & closure	NFP

17.00	Drinks & snacks: networking	
19.00	Joint diner for those NKS who are invited for day 2	

DAY 2 – MORNING SESSION: SMALL GROUP, SELECTED/INVITED NKS ONLY

Time	Activity	Speaker or moderator
09.00	Welcome back, goal Today, introduction to program	NFP
09.15	Synthesizing & finalizing the input for the national report in three parallel groups, groups formed before workshop (selected NKS for each group)	
	a. SRA	NFP, or NFP co-worker
	b. SPI	NFP, or NFP co-worker
	c. Funding options	NFP, or NFP co-worker
10.15	Coffee/tea	
10.30	Continuation parallel groups	
11.30	Plenary presentation outcome synthesis, followed by final possibility by all for final comments	
	a. SRA (30 minutes)	Reporter table a (volunteer NKS?)
	b. SPI (30 minutes)	Reporter table b (volunteer NKS?)
	c. Funding options (20 minutes)	Reporter table c
12.50	Closure & farewell	NFP
13.00	End workshop day 2	