from Nexus Thinking to Nexus Doing

REXUS

MANAGING RESILIENT NEXUS SYSTEMS THROUGH PARTICIPATORY SYSTEMS DYNAMICS MODELLING

Deliverable 2.1 – Guidelines for Stakeholder Engagement

WP2 – LAAs (Learning and Action Alliances)

www.rexusproject.eu

Edited by Bárbara Willaarts, Belén Cerrada and Manuel Bea (ICA)

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Lead Author	Bárbara Willaarts	**Email**	bwillaarts@icatalist.eu
Contributors	Belén Cerrada, Manuel Bea		
Internal Reviewers	Giorgia Bottaro, Caterina Righetti and Mauro Masiero, UNIPD		
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Executive Summary

These guidelines are intended to describe the stakeholder engagement strategy designed for the REXUS project from a conceptual and practical implementation point of view. The conceptual approach describes the overall strategy for stakeholder engagement, including the framing and contextualization of what stakeholder engagement and co-production means in the context of REXUS. The implementation strategy describes the process for stakeholder mapping and the draft plan of participatory activities foreseen in the five REXUS pilots. The participatory activities are clustered as “core”, which refer to those sets of activities that will be conducted in all five pilots, and “additional” activities which are case specific i.e., will be only applied in a reduced number of pilots. The guidelines also describe the main purpose, method and expected outcomes and outputs foreseen from each of the planned core activities. Lastly, practical indications on how to plan and organise stakeholder workshops are also provided to support the design and running of face-to-face engagements.

1. Background

This document is part of the REXUS project (Managing Resilient Nexus Systems Through Participatory Systems Dynamics Modelling) and is intended to describe the stakeholder engagement approach designed for the project from a conceptual and practical implementation point of view. Overall, the stakeholder engagement plan unfolds in the following steps:

1. Conceptual and sound basis for stakeholder engagement and participation in REXUS, i.e., WHY and for WHAT do we engage.
2. Implementation approach, including:
    a. Stakeholder Mapping, i.e., WHOM to engage.
    b. Proposal of participatory activities within and across pilots, i.e., WHAT will be done.
    c. Methods and approaches for stakeholder implementation i.e., HOW to engage.

2. Conceptual Basis

2.1 Complex problems require multidisciplinary and transdisciplinary solutions

There is an increasing recognition that global environmental challenges cannot be tackled in isolation due to the complex interactions that exist between physical and socio-economic processes and actors, and the many effects that changes in one part of the system might have for the overall. Climate change or global biodiversity loss are perfect examples of the complexity that lays behind these challenges in terms of causes, drivers, impacts, and potential solutions across scales.

Complex and dynamic challenges require, therefore, a system thinking and the use of integrated approaches, that combine best available knowledge and tools (Wada et al., 2019). Science can support this endeavour by bringing in scientific knowledge and tools, but importantly also by means of developing innovative approaches that can help to connect different types of knowledge and stakeholders, which often have different values and perceptions, but are overall connected to the problems at stake (Hagemann et al., 2020; Magnuszewski et al., 2020). For instance, addressing water scarcity relies on a good understanding from a technical point of view but also from a social standpoint. Models can provide insights about the underlying causes and offer a wide range of solutions. However, the course of action will only change if water actors are being listened to and their priorities and perceptions understood. It is through this knowledge sharing and exchange that actors might be able to better understand the water system and the different perspectives from other stakeholders, and ultimately explore joint pathways to overcome this complex problem.

Water-Energy-Food Nexus (WEF Nexus) problems are very context-dependent (i.e., different regions experience WEF problems in different ways depending on a number of physical, economic, governance factors, among others), but overall, no matter where they display, they are extremely complex because they entail many different sectors and actors. These sectors and actors often have different priorities, frame decisions based on their backgrounds, experiences, mandates, and societal positions, which can and will normally be very diverse (Brugnach and Ingram, 2012). Likewise, there is often limited knowledge exchange and communication among all these different actors.

In the literature, Nexus problems are often framed in different ways, including WEF Nexus, but sometimes they also include other sectors such as Water-Food-Energy-Climate Nexus (WEFC Nexus), or even Water-Food-Biodiversity Nexus (WFB Nexus). Regardless of the sectors that are prioritised, all "Nexus" challenges are multi-sector and multi-actor, and therefore require transdisciplinary and multidisciplinary approaches and knowledge.

2.2 Why is stakeholder engagement important?

The focus of REXUS on Water-Energy-Food-Climate (WEFC) Nexus is due to the close interlinkage that exists among these sectors and the unintended consequences that sectoral policies might have on the other sectors (Kemp et al, 2022). For instance, ongoing policy efforts to decrease point source pollution and promote greater wastewater treatment, need to come along with a good energy planning, due to the high energy demands these water objectives will have as well as the associated carbon footprint of energy sources that are not renewable. It is currently the case that water planners often do not communicate to energy planners, and thus decisions are adopted without a careful assessment of most coherent and aligned solutions (Willaarts and Mayor, 2017). Nexus science has progressed a lot in the understanding of these interlinkages, but much of this knowledge is not shared or appropriately communicated (Markantonis et al, 2019; Schinko et al, 2022). Likewise, Nexus research is sometimes done without considering the operating space of decision makers, largely constrained by regulations and limited resources.

From the above, it is clear that other ways of (scientific) knowledge transfer to decision-making are needed (Horlings et al., 2020), and incorporating stakeholders' knowledge into research projects can help bridging the so-called "science-policy gap" and generating a number of benefits and opportunities, among others:

1. the cooperation and integration of different types of knowledge from multiple sources and perspectives improves people's ability, including scientists, to understand and manage complex, rapidly changing social-ecological systems;
2. the exchange facilitates negotiation and mutual learning among stakeholders, reduces conflicts and increases support and actor buy-in for decisions made;
3. the inclusion of stakeholders enhances the quality of the research by considering more comprehensive information inputs, and the impact of the research by helping to frame questions that are not just scientifically but also socially relevant. This becomes a great opportunity to land powerful scientific-technical tools in the different socioeconomic and political contexts in which problems are described;
4. participatory processes have shown to have significant improvements in lifting institutional and technical capacities for WFEC Nexus management;
5. they contribute to raise awareness, increase the social impact of project results and/or to foster the establishment of collaborative communities in the territory among many others.

2.3 Why is stakeholder engagement sometimes not effective?

Despite the benefits of enhancing and incorporating stakeholder engagement into research projects, there are also many challenges to overcome the science-policy gap. As Choi et al. (2005) outlined,

scientists and decision-makers often have different goals (e.g. advance science versus obtaining popular support), they search for different things (e.g. the truth using a rational model versus a compromise, using an intuitive model), they speak different languages (e.g. scientific language requires translation to be understood by non-scientist, versus decision-makers who speak their own language full of acronyms), and importantly, they operate in different timescales (i.e. research can take very long and end up suggesting more research is needed, versus decision-makers which require instantly answers).

From the research perspective, there are specific problems that need to be overcome. Due to the popularity and "must have" request in many scientific calls to have participatory processes, the actual practice has translated into many scientists embarking in the development of participatory processes without having much experience. This is causing several emerging issues which can prevent addressing the science-policy gap. An extended problem is stakeholders being considered as data providers and engagement processes as data extraction initiatives. While stakeholders in some cases might be also experts and have access to relevant data, they are not always experts, nor their interest in engaging in a participatory process is to only provide, but also to obtain something useful in exchange. A second frequent problem is that engagement is sometimes understood as a one-way communication e.g. scientists presenting their ideas and findings, instead of having a two-way communication. Finally, limited efforts are made to translate the resulting scientific findings (papers), into meaningful information and knowledge for project beneficiaries (stakeholders). These and other issues pose a big risk of running into the so-called "stakeholder fatigue", where outcomes do not match the expectations of users, and drive demotivation to join future initiatives.

2.4 How stakeholder engagement is understood by REXUS?

From the above it is crucial for REXUS to have a good understanding of: i) what is/what is not a stakeholder and a participatory process; ii) clearly define and manage the expectations and efforts required from all the participants, and iii) have a clear understanding on what co-production implies in the design and implementation of a participatory process.

To bear in mind before starting any engagement activity:

- ➢ *Data providers and stakeholders are DIFFERENT actors. An expert and data provider could be also a stakeholder, but a stakeholder is not necessarily a data provider and should not be treated as such.*
- ➢ *INFORMING stakeholders about research outcomes, goals, tools, is NOT equivalent to ENGAGING. The motivation to engage has to steam from the desire of the scientist to answer meaningful questions for stakeholders or support the development of a knowledge base that can increase the social impact of the project in addition to any scientific goal.*
- ➢ *The success of the overall strategy will largely rely upon the definition of a good engagement strategy: WHY we want to engage, for WHAT purpose, WHOM we need to engage, and HOW much will be required from stakeholders and WHAT will they get in return.*

Based on the above, the REXUS stakeholder engagement proposal builds on three core ideas: **co-production, cross-fertilisation, and capacity building.**

Co-production is at the core of REXUS project. It intends to identify Nexus challenges in a collaborative manner, as well as the exploration of potential solutions. It builds upon the integration of the many types of knowledge that stakeholders and project partners bring to the table, including technical and practical knowledge, to frame a wide and inclusive picture of existing challenges. As described by Brugnach and Ingram (2012), knowledge co-production differs substantially from conventional knowledge production approaches (Table 1). Main differences stem from the way problems and solutions are identified as well as the types of knowledge and frames accepted.

Table 1 Comparative assessment of conventional knowledge production processes within academia versus co-production processes. Source: Brugnach and Ingram (2012)

Contemporary knowledge production	Knowledge co-production
• Knowledge is an abstract body of statements	• Knowledge constructed through relational practices
• Problem solved by processing information	• Knowledge actively co-produced to solve a joint defined problem
• Problem and solution independent	• Solution situational, derived from shared problem definition
• Solution imposed	• Solution developed collectively
• Only one valid frame accepted	• Multiple frames accepted as valid
• Ambiguity (i.e. discrepancies in meaning and interpretation that exists in relation to a particular issue) are resolved by imposing the valid frame (generally technical)	• Ambiguity resolved by creating a connected frame that represents a shared view on the problem

In REXUS co-production will be the basis of the participatory scenario planning exercise underpinning the visioning and transformation pathways, It will be essential also for the development of the participatory system dynamic modelling.

By **cross-fertilization**, we refer to the exchange of knowledge to favour mutual learning between different actors. This knowledge exchange might include technical and practical experiences (e.g. good and bad practices) and supports the co-creation process. It is foreseen to promote this exchange at three levels: within each of the five pilots (through the so-called Learning and Action Alliances -LAAs), across the different LAAs, and at trans-project level i.e. with LAAs (or equivalent forms) from other Nexus projects like LENSES[1].

[1] the LEarning and action alliances for NexuS EnvironmentS in an uncertain future (LENSES) project [https://www.lenses-prima.eu/]

Different **capacity building** activities are foreseen in the scope of the project with the intention to lift technical and institutional capacities for Nexus management. These activities will take place at the project-LAAs level (e.g. simulation games, dedicated webinars, 'train the trainers' exercises, etc).

3. Implementation Approach

In order to carry out a successful participatory process in the different REXUS pilot cases (Figure 1) it is essential to carefully design the overall approach following a series of steps: 1) set up of the LAAs; 2) identify key stakeholders to be involved; 3) elaborate a detailed plan of participatory activities to be implemented; and 4) identify the most suitable methods and means of implementing the proposed activities.

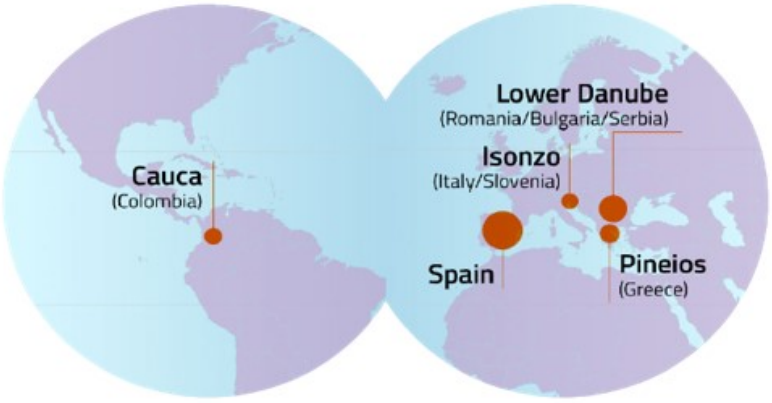

Figure 1 Location of REXUS pilots

3.1 Set up of the Learning and Action Alliances

The REXUS LAAs are knowledge exchange and co-creation platforms intended to support the communication, coordination, innovation, and dialogue between WEFC Nexus stakeholders at multiple levels and overcoming the prevailing silo thinking and acting. Each of the five REXUS pilots will have its own LAA but exchange is foreseen across all of them to build bridges and share experiences. The fundamental mission of the LAAs is to act as platforms to support the three core participatory principles of REXUS: co-production, cross-fertilization and capacity building.

The LAAs will be implemented in two ways: 1) through physical engagement in various project activities (e.g. workshops, training, webinars, etc.) and 2) through an online platform that will be used as a forum space and a repository of the information exchange happening in the pilot regions.

A careful design and management of the LAAs, which considers stakeholders' needs, together with the establishment of an active governance mode of the platform, will contribute to enhance institutional capacities for Nexus management pilots. Moreover, LAAs can also be an important legacy of the project and be used as platforms to support the institutionalisation of the Nexus thinking and doing in the different pilot regions.

3.2 Stakeholder Mapping

As explained by Varvasovszky and Brugha (2000), stakeholders can be defined as "*actors who have an interest in the issue under consideration, who are affected by it, or who could have an active or passive influence on the decision-making and implementation processes*". In practice, this implies actors that are affected by a problem at stake and/or have the capacity to change the course of action in a given territory.

In these guidelines we provide pilot leaders with a systematic (yet flexible) methodology to map key stakeholders in each pilot.

STEP 1: Drafting an initial list of stakeholders

Each pilot team should develop a preliminary list of potential stakeholder groups. For instance, by listing all relevant actors in the different Nexus domains that project partners know are connected to the problems at stake. Similarly, project partners can informally approach their contacts and apply the so-called snowball technique, i.e., ask already identified stakeholders who else should be approached and invited. Finally, a complementary approach is to investigate the existence of already established stakeholder networks (e.g., from previous projects or community of practices within the region, etc.)[2] by asking stakeholders about existing social structures.

Box 1 reports on the work conducted by SWRI (leader of the Pinios pilot) to elaborate the initial list of stakeholders and contact these stakeholders to invite them to participate in REXUS.

Box 1. Practical experiences from Soil & Water Resources Institute (SWRI, Greece) working in REXUS Pinios at the time of identifying and contacting stakeholders

The SWRI team has been working on the region of Thessaly for over a decade, so this experience was really helpful in the creation of the initial list of potential stakeholders. The first contacts were done by telephone calls and by visits in person, since the members of SWRI have developed personal relations with many actors who either have worked in the region of Pinios basin or have a connection with it due to their working position (e.g. governance agencies, local authorities).

The telephone communication and contact in person were done in the cases of the prospective stakeholders and were considered important with a high expected level of commitment with the SWRI team. Furthermore, it was easier to briefly describe to them and elaborate the Nexus concept and to highlight the advantage of a holistic approach over other ones that have been implemented in Thessaly. The search for additional stakeholders was done through internet search, in order to have a long and complete list of all relevant actors (public and non-public actors), scales (local, regional, national), and sectors (water, food, energy, environment). Overall, the team managed to create a long list of over 150 stakeholder contacts, all knowledgeable about Pinios basin, from which 26 have expressed willingness and capacity to commit in REXUS.

STEP 2: Ensure diversity and well-balanced representation of all types of actors and sectors

Once STEP 1 has been completed, it must be assessed whether there is an adequate representation from all relevant sectors and correct any important bias. In this regard, pilot partners need to ensure:

[2] *The assumption to start from early on with the mapping, is that scientists have a minimum degree of understanding on some of the key nexus challenges, which allow them to start the mapping exercise. Otherwise, it is advisable to do some literature review, including also grey literature.*

- ❖ A balanced representation of different sectors (i.e., water, food, energy, climate).
- ❖ A balanced representation of the number of actors belonging to different sectors.
- ❖ A balanced representation of the type of actors (e.g., policymakers, public and private decision-makers, citizen organisations, academia, etc.).
- ❖ A balanced representation of all institutional and governance levels that are relevant to the issues at stake (e.g., national, regional, local).

For additional support, we provide a tentative list of types of actors, often connected to Nexus problems.

- Decision-makers and Policymakers:
  - Ministries of agriculture, the environment, regional development, finance, energy, etc.
  - Regional authorities, including regional governments and basin committees, etc.
  - Mayors and technical staff from city councils.
  - Politicians and/or advisors.
- Economic actors:
  - Water utilities.
  - Tourism sector (hotels, recreation activities).
  - Agricultural insurance companies.
  - Irrigation organisations.
  - Energy companies.
  - Farmers and farmers 'cooperatives.
- Environmental guards.
- Researchers and policy think tanks.
- NGOs, local citizens, and associations.

STEP 3: Suitability assessment of identified stakeholders

Once the list has been created and validated, it is recommended to map actors against two criteria: influence and importance. Influence is defined here as the capacity/power of an actor to solve or exacerbate the Nexus challenges at stake. Interest relates to how the Nexus challenges matter to the actor (i.e. it is in their interest to solve it?; is this problem a major issue for their business?). Practical tips:

- ❖ Add a short and brief description of **how each actor is connected to the Nexus problem** at stake (e.g. causing the problem, advocating for a solution, impacted by the problem caused by third parties, with capacity to manage/solve the problem, etc.).
- ❖ **Assess qualitatively the influence and interest** of each stakeholder (-, 0, +).
- ❖ **Create a plot** like the one below (Figure 2) and place the stakeholders in the different quadrants.
- ❖ **Categorise each stakeholder into one of the four levels of engagement** represented in Figure 2. Ideally, stakeholders invited to join the LAAs will be those having a high interest and/or influence (i.e. promoters, latent, and defenders). Apathetic, although they might gain interest through the project, should be the less representative group. Nevertheless, it is worth noting that clusters do not remain static over time, and it should be expect that for a stakeholder is possible to initially be apathetic and through the process become at least defender. The clustering should

be used by the project partners to make sure to have overall engaged with actors that have the interest and the capacity to influence a change.

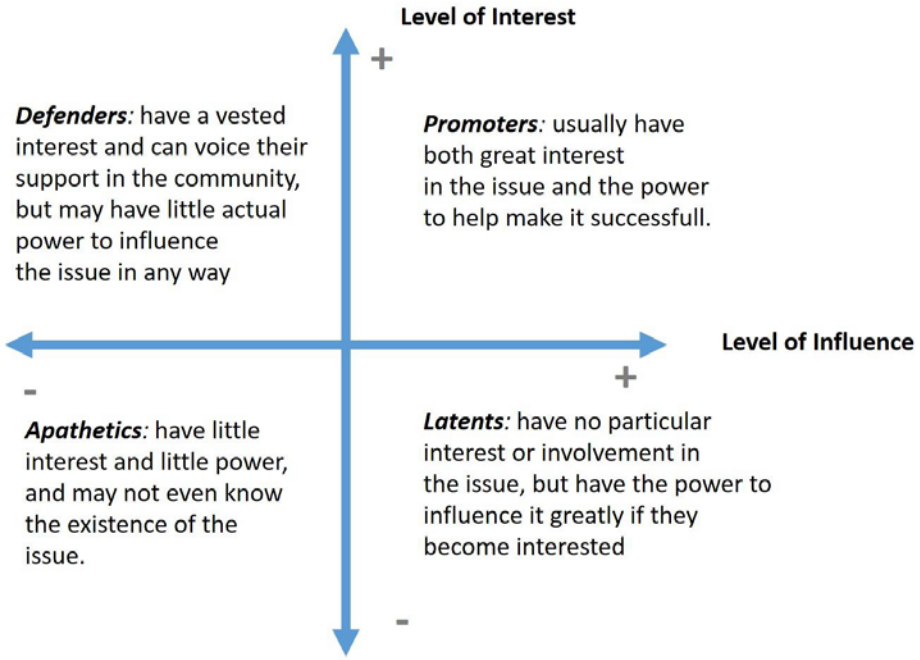

Figure 2: Stakeholder classification matrix regarding influence and interest criteria

Figure 3 presents the results of the stakeholder analysis in the Pinios, Nima, Isonzo and Lower Danube regions based on the interest/influence criteria. Most of the stakeholders in the pilots LAAs are clustered as promoters (37 out of 68), which largely guarantees that the resulting participatory process has the potential to deliver high impacts.

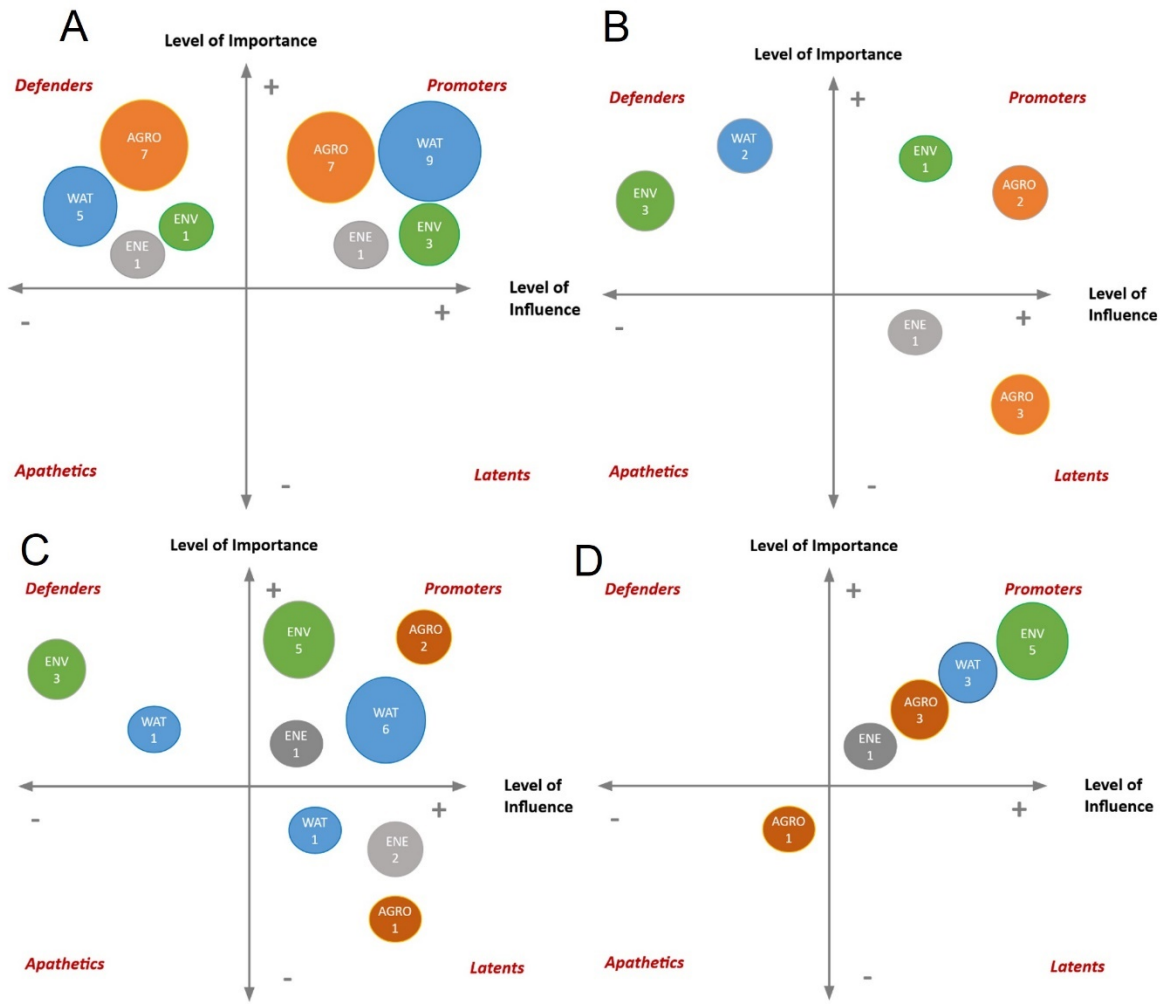

Figure 3. Influence/interest of stakeholders participating in A) the Pinios LAA, B) the Nima LAA, C) the Isonzo LAA, D) the Lower Danube LAA. Note: AGRO stands for stakeholders connected to food and land, WAT for stakeholders involved in water related aspects, ENV related to stakeholders dealing with environmental aspects, and ENE refers to stakeholders connected to energy. The number of stakeholders is represented within circles.

In terms of **number of stakeholders**, it should be noted that there is no optimum number. It is important to prioritise the quality and commitment of stakeholders over the number. We should engage actors from the different quadrants mentioned above, who also adequately represent the diversity of WEF. It is important to emphasise that a balance must be maintained in terms of sectoral representation in order to avoid sectors having an excessive predominance over others.

Depending on the level of commitment and availability, pilot teams could decide to have a **core and extended group** of stakeholders. Core members are those with a high interest in the problems at stake and enough time availability to engage in numerous activities. Differently, the extended group can embrace a longer list and participate at different points in time but also constitute important recipients of the project outcomes and outputs.

This is useful to start outlining the relative power of each stakeholder in relation to the others before starting the participatory process. It is worth noting that poor **management of power dynamics** is one of the major reasons for engagement failing to deliver outcomes. The methodological design followed should ensure that power dynamics are appropriately managed. In the coming sections, we will provide some guidelines to ensure that the value of every participant's contribution is recognized, and everyone is given an equal opportunity to contribute.

3.3. Design of the participatory plan

The plan of participatory activities in REXUS has been developed following a sequential process involving pilot leaders and partners, and implementing different methods, tools, and models. This plan is the backbone of the participatory activities that will be carried out in the pilot LAAs.

As a first step, WP and Tasks leaders have been asked to list all planned activities for which any type of stakeholder engagement is needed. In addition, they have been asked to provide a brief summary of the main goal, expected outcomes, and proposed means of implementation (e.g. interview, workshop, survey, etc) for these participatory activities.

Based on the information provided, project activities have been clustered according to the purpose, correspondence of the proposed methods, and foreseen timeline for implementation. This grouping facilitates pilot leaders to get a clear overview of the types of participatory activities foreseen in the different pilots during the project, possible formats and timing, thus facilitating the planning for their design and implementation.

Due to the different characteristics of the REXUS pilots, not all participatory activities will be undertaken in all five pilots and/or with the same level of effort. Therefore, a final crosscheck of the preliminary plan was done with pilot leaders to i) identify a "CORE" set of activities to be implemented in all pilots, and a set of "ADDITIONAL" activities, which will be only implemented in specific pilots, and ii) customise a roadmap of participatory activities for the different pilots.

The plan of participatory activities has been structured into four phases, namely:

- 1. Preparation.
- 2. Problem identification and framing.
- 3. Assessment of Nexus solutions and pathways.
- 4. Validation and action planning.

The participatory plan foresees different types of interactions with stakeholders in each of the LAAs. In general, the interaction with the stakeholders is suggested to be articulated around a minimum of three workshops, although, depending on the availability of time and the interest of the stakeholders in the pilots, the number of workshops can be extended to four. A number of additional participatory activities will be organised in between the workshops, e.g., interviews and surveys as well as the stakeholders' participation in cross-fertilization meetings and webinars. Table 2 provides a summary of activities, objectives, and proposed engagement format. A brief description of each phase is provided below.

The first phase, i.e., "***preparation phase*"**, is planned to take place between July 2021 and March 2022. The first activity within this phase is the "**stakeholder mapping"** exercise which is aimed at identifying those stakeholders who will be invited to join the pilot LAAs. For this purpose, a systematic (yet flexible)

methodology has been designed for the REXUS project (see section 3.2 of these guidelines for further details). The second activity includes the organisation of a **kick-off meeting** for each pilot LAA. The goal of this kick-off is to introduce the REXUS project to stakeholders, identify the main Nexus challenges from the stakeholders' perspective, and leverage points in which REXUS could support in addressing some of these challenges. The possible formats for carrying out this kick-off include a virtual or face-to-face meeting or a series of bi-lateral interviews. A detailed agenda of the event and recommended topics to be addressed are described in section 4 and Annex 1 of these guidelines. The preparatory phase should also help to define the mission of the LAA (i.e., what do we want to get out of this collectively, including scientists and stakeholders) and the set of activities that will be carried out and agreed with the stakeholders to manage expectations from all parts.

The second phase, i.e., ***"problem identification and framing"***, is intended to gain a deeper understanding of what are the key Nexus challenges the project will focus on in each LAA, i.e., what challenges are the most pressing ones, what are the underlying drivers, how sectoral problems are connected to each other and generating what type of interactions (trade-offs and synergies). The definition of the system boundaries of the Nexus assessment will be done in the first workshop combined with some scoping interviews and desktop review ahead of the workshop. The conclusions drawn from these interviews and the desktop review will serve as the main inputs to produce the first draft of the so-called causal loop diagrams (CLDs), which will be refined and improved with stakeholders during **Workshop 1**. The CLDs, other than helping stakeholders and project partners to conceptualise the system and set the basis for the later development of the system dynamic modelling, will also help building the so-called "narrative of the present". This narrative will describe the most pressing Nexus challenges, identifying where are the hotspots (i.e., where in space do these challenges occur), identification of indicators to monitor these Nexus challenges, and importantly, what are the underlying drivers, involved actors, risks, and opportunities. Additional activities foreseen during this phase and connected to Workshop 1 include the selection of climate risk indicators. This phase will take place between February and July 2022.

The third phase of the participatory plan includes the so-called ***"assessment of Nexus solutions and pathways"***. This phase will be mostly addressed in the **Workshop 2** as well as some bi-lateral exchanges with key stakeholders. This phase builds on the results of the previous workshop (narrative of the current challenges and conceptualised CLD) and focus the dialogue on the identification of alternative visions, i.e. desired futures differing from the "Business as usual" scenario, and what pathways (sets of actions) have the potential to take us towards those visions. The result of this participatory scenario exercise will be several stakeholders driven narratives describing plausible and desirable futures for the pilot (at minimum a BAU and a Sustainable Nexus vision and pathway). With the aid of the participatory system dynamic modelling, narratives will be modelled, and stakeholders will experience the opportunity to explore the synergies and trade-offs of the resulting scenarios. This will be the basis for the identification of priority actions and solutions, including (but not limited) to Nature-based-Solutions (NbS). Depending on the stakeholders' preferences, a participatory activity will be carried out to link how the development of WEFC goals and targets described in the narratives link to the 2030 SDG Agenda[3].

[3] The 2030 Agenda is often a debate that resonates at national levels and less at sub-national level. Depending on the interest of the LAAs, a number of activities can be developed to support the localization of the SDG Agenda within the pilots, lifting institutional capacities about SDGs, and importantly how stakeholder visions and pathways connect with the SDG agenda.

Lastly, the ***"validation of results and action planning"*** phase, where the main goal is to validate with the pilot stakeholders the draft action plan compiling the selected measures to address the Nexus challenges of the pilots. This exercise will take place in **Workshop 3** in the basic version of the participatory plan. This is scheduled to take place in mid-2023 and could be complemented by an additional fourth **workshop** to disseminate project outcomes in early 2024.

Table 2: Overview of the participatory activities foreseen in REXUS. CORE activities (i.e., to be implemented in all pilots) are marked in light blue, ADDITIONAL (i.e. limited to certain pilots) are marked in white. For more details about CORE activities please see chapter 4

Phase	Type of Activity	Objective	Implementation format
Preparatory	Stakeholder mapping	Identification of stakeholders to be joining the LAAs	Desktop + Interviews
	Kick-off of the LAAs	Introduce the project and identify stakeholders' expectations and needs from the participatory process	Webinar or face-to-face meeting
Problem framing	Scoping study of WEFC sectoral and Nexus challenges	Collect available knowledge (scientific and expert-based) on sectoral and Nexus challenges	Desktop review + Interviews
	Systems mapping of Nexus challenges (co-development of pilot "Causal Loop Diagram, CLD" and + "Social mapping exercise, SNA")	Develop a WEFC system understanding of the pilot + Eliciting and structuring stakeholders' Nexus perceptions and interactions identification of measurable objectives (indicators)	Desktop review + Interviews + Workshop 1
	Governance mapping	Mapping of governance structure of WEFC sectors in each pilot	Interviews + Workshop 1
	Participatory Climate risks Assessment (CRA) I	Selection of climate risk indicators and critical thresholds	Workshop 1
Assessment of Nexus solutions	Development of visions and pathways	Elicit stakeholders' visions about Nexus sustainability and transformation pathways (sets of priority actions)	Workshop 2
	Individual and collective participatory system dynamic model building (PSDM)	Testing and refinement of the PSDM and co-development of future scenarios (based on proposed visions and pathways)	Workshop 2
	Explicitly integrating SDGs in the PSDM	Integrate the SDG targets into the modelling approach to make explicit the implications to different scenarios	Workshop 2
	Participatory Climate risks Assessment (CRA) II	Weighting climate risk indicators and Institutional readiness	Workshop 2
	Identification of NBS	Identify feasible NBS to address Nexus challenges	Workshop 2

Phase	Type of Activity	Objective	Implementation format
Validation and Action Planning	Design the action plan	Validate the selected priority actions and draft the action plan (what, whom, and by when) to materialise the Nexus pathways and vision	Workshop 3
	Validation of project results	Validating additional project outcomes	Workshop 4
Capacity building, & knowledge exchange	Cross-fertilization meetings between pilots	Sharing knowledge, experiences, solutions, difficulties, etc.	Online and face-to-face meetings

4. Description of core participatory activities

As reported in Section 3.3 the participatory plan distinguishes between CORE and ADDITIONAL activities. This section provides a short overview of the CORE sets of activities, since these are common to all five REXUS pilots. Please consider that in many cases, specific support from REXUS technical partner or from a professional facilitator may be required to ensure the successful development of these participatory activities.

4.1 Preparatory phase

4.1.1 Kick-off of the Learning Action Alliances

Purpose: The goal of this meeting is to introduce the REXUS project to stakeholders (wider group), identify the main Nexus challenges from the stakeholders' perspective and collect expectations about how REXUS can help address some of them.

Method: Virtual or face-to-face meeting. Both options are suitable for this first meeting. To ensure stakeholder engagement, it is worth approaching each stakeholder beforehand, via email or phone and personalise the invitation to the kick off meeting. One of the members of the Pilot team will act as a session moderator.

Tentative agenda and participatory methods: Based on the list of topics identified in previous meetings with pilot leaders and some Work Package leaders, the following tentative agenda is suggested for a 2-hour meeting[4]:

[4] This is only a suggestion and pilot leaders are free to deviate from the proposed plan based on local needs and format (online versus face-to-face).

Presentations	Content	Extent
Presentation 1 (P1): Welcome from pilot team	Welcome and Opening remarks from pilot team leader about REXUS	(10-15 min)
P2: Presentation by the session moderator	Agenda and main aims for the meeting	(5 min)
P3: Overview of the pilot: aims, challenges and timeline.	Explanation of the general goals and action plan for the pilot activities.	(10-15 min)
P4 Overview of REXUS concepts	Introduction to the LAAs and key REXUS concepts (water security, Nexus, energy security, food security, etc.)	(10 min)
ROUNDTABLE	**Short description[5]**	**Extent**
Topic 1 (T1): 'Tour de table'	Short presentation of all participants, including main expectations for REXUS.	(10-15 min) *depending on the number of stakeholders*
T2: Setting objectives	Why was I invited to REXUS? What can REXUS do for me? What can I do for REXUS?	(30 min)
T3: Stakeholder mapping	Mapping key stakeholders (Who do you miss in this room?).	(15 min)
T4: Conclusion and Next steps	Debrief key messages from the meeting in terms of challenges and stakeholder expectations, and outline the next steps	(5-10 min)

For more details on the suggested Kick-Off Meeting activities, see Annex 1.

4.2 Problem framing

4.2.1 Scoping study on sectoral and Nexus challenges

Purpose: This step is intended to map the knowledge available on the WEFC Nexus in the pilots, including a pre-identification of relevant Nexus challenges, relevant actors, and the main sectoral and

[5] In case these activities are included in the meeting, further description and guidance needs to be provided.

regional development objectives. This activity combines the integration of scientific knowledge with stakeholder inputs.

Method: A two-step process is envisioned. In the first step several scoping interviews will be prepared and conducted with stakeholders with the objective of building a comprehensive view of the main challenges related to the Nexus system in each pilot. The interviews will be specifically dedicated to identifying the key pressures on ecological resources and processes affecting the production and benefit of ecosystem services for Nexus security dimensions.

The draft outline interviews are being developed by the scientific team in collaboration with the pilot leaders to customise them to the specific needs of the pilots and their stakeholders. Interviews should be preferably carried out in the local language, if possible, with a (remote or physical) presence of IRSA Team to support the interviewer. This phase of activities should be completed before the 1st workshop. The format of interviews will be modified according to the specificities of the pilots.

As a second step, this local knowledge will be integrated with a "Factual analysis" that has been performed by the pilot leaders (in cooperation with key stakeholders of the area) on: i) the current state of energy, food, water and environmental security; ii) the availability of natural resources (i.e. in terms of quantity, quality and accessibility aspects); iii) the main pressures in the area; iv) the linkages between the regional strategic goals and main sectoral policies, and Nexus challenges.

Outcome/Output:

- Knowledge base on resource flows (sectoral perspective) and on inter-sectoral interdependencies.
- Preliminary mapping of the key actors interacting for the access/use of the same resource/ecosystem.
- Identification of potential ambiguities in problem perception and sources of conflicts due to lack of cooperation in Nexus management.
- A preliminary list of sectoral and strategic objectives for the pilot, and the identification of potential conflicting interests.
- Preliminary information for developing behavioural models describing the human activities that create pressures on the Nexus.

4.2.2 Systems mapping of Nexus challenges and identification of key actors and variables

Purpose: Build the conceptual map of the system under investigation. For stakeholders, this exercise will support the development of a system´s thinking and start realising the interconnections that exist across WEFC sectors. Likewise, through this system mapping, stakeholders will discern what are the key WEFC challenges and actors. For scientists, this step is required to develop the conceptual model of the system dynamic modelling.

Method: The information collected from interviews and factual analysis will be used to support the participatory development of the Causal Loop Diagrams (CLDs). The CLDs will be developed at the first workshop (i.e. workshop 1) and will help to identify interconnections and mutual dependencies between different sectors in a participatory way, ultimately highlighting the main causal chains and the feedback

loops that characterise the system state and its potential evolutions. To build the CLD, stakeholders will be provided with several visual elements, including detailed maps of the pilots, as well as a set of cards representing the key variables of the system. These variables have been pre-identified during the interviews and refer to resources, actors, pressures, solutions, indicators to measure proposed targets, among others. A number of blank cards will also be made available to stakeholders if new variables are identified throughout the discussions. The resulting CLDs will shed light on the main interconnections and dependencies (including hidden ones) among sectors, stakeholders, and scales. They will also help to envision the linkages and potential synergies and trade-offs of policies and actions.

To specifically assess the interconnections among stakeholders and help build the complex system understanding, the REXUS team will also develop a social mapping exercise, using Social Network Analysis-SNA techniques. Such an approach will help to build and analyse the network of formal and informal interactions among the actors involved in Nexus management. The preliminary information collected during the first round of interviews will be validated and integrated during the workshop 1 to produce such social mapping exercises.

On the other hand, the activity will also be oriented to the bottom-up identification and selection of key variables of the system that will be then associated with relevant indicators. Such indicators will be then used to describe more quantitatively the system state and potential evolution, also through PSDM. For this purpose, a desktop review of existing indicators will be performed. Next, indicators will be classified according to the main 'sector' they refer to, explicitly highlighting those that can be used to describe interconnections between variables (Nexus indicators). The information provided by the stakeholders in the interview will be used to 'filter' the list of indicators, limiting the analysis to the most relevant indicators, which will be refined and validated by stakeholders during workshop 1.

Outcome/Output:

- A validated CLD of the system under investigation that describes the main linkages across sectors, actors and scales, and can be used as a basis for developing the participatory system dynamic model**.**
- Social learning among stakeholders acquired through the exchange and mapping of different types of knowledge provided by stakeholders.
- Increased understanding by the scientific REXUS team on the critical Nexus aspects and stakeholder perceptions.

4.2.3 Participatory Climate Risk Assessment I

Purpose: A Climate Risks Assessment (CRA) is designed to convey valuable information on the expected future climate and risks for the pilot areas. The very first step in a CRA is the identification of climate risk indicators of the three main sectors within the scope of the Nexus: water, food and energy. These indicators will be identified in a participatory manner, by combining an expert-based approach and stakeholder consultation for each pilot.

Method: A table with a list of potential indicators will be shared with pilot leaders. Based on their expertise and the views of the stakeholders, a selection of climate risk indicators and related thresholds will be made to better describe the climate risks for the Nexus sectors. As a second step, a participatory approach will be used to weight climate risk indicators.

Outcome/Output:

- Selection of sectoral indicators that will be used as a basis for conducting the CRA.
- Stakeholder-based thresholds for the selected indicators.
- Development of composite indicators and assessing the overall impacts across sectors.

4.3 Assessment of Nexus problems, and identification of potential solutions phase

4.3.1 Development of future visions and pathways

Purpose: Co-develop with stakeholders a number of (desirable) future visions for their pilots and elicit the sets of actions that are needed to materialise such visions. The exploration of the different sets of actions including the potential trade-offs and synergies among them, comprises the sets of pathways that are required to reach the different visions. While there is flexibility in the number of visions to be co-develop in each pilot, the REXUS team proposes the exploration of at least 2 contrasting visions and associated pathways, including a Business as Usual (BAU) and a Desired Future scenario (vision).

Method: The proposed method is a participatory scenario exercise. The conceptual approach is described in Wada et al. (2020), but the main steps and underlying objectives are the following.

This participatory exercise builds on a multi-scale approach. The main premise is that achieving a WEFC security in a given region/pilot is largely determined by decisions made by a wide range of state and non-state actors across many scales, ranging from local to national, regional and even global decision makers. For this reason, the participatory scenario process distinguishes two main "spheres" as described in Wada et al. (2020). The "sphere of influence", which refers to those sets of actions and policy solutions (i.e. pathways) that local, regional, and national actors can agree to and have the capacity to influence to materialise the proposed vision within a given pilot. However, it is important to realise that countries, basins and regions are also affected by the so-called global drivers, such as climate change, global prices, political instability, crisis, etc. This so-called "sphere of uncertainty", which adds significant challenges to any local and/or national planning process and requires local to national decision makers to take them into account, and ensure that their proposed plans, solutions, and overall pathways proposed, are robust in the light of these global drivers. In practice this means that the exploration of desirable futures and associated pathways for a given pilot needs to take into account a number of plausible global climate and socio-economic futures, and resulting pathways and solutions need to be robust to the potential and uncertain changing conditions. The participatory scenario process consists of 4-steps and builds largely on Shinko et al. (2022) and Magnuszewski et al. (2020).

STEP 1: Build a collective understanding of the current situation and the main sectoral challenges. The process starts with characterising the current situation of a basin, represented in a simplified visual format. To this end, a predefined set of materials such as maps and cards with descriptions of infrastructures, economic activities and resources used will be provided to facilitate discussions. Such visual representation provides an opportunity for better understanding and a deeper discussion of key issues among stakeholders within and across sectors and countries. While this step is largely going to be implemented during workshop 1, it will be presented during workshop 2 as a departure point for stakeholders to engage in the exercise, and specially in case that new stakeholders join workshop 2.

STEP 2: Developing BAU pathways: Based on this joint assessment of the current situation in step 1, participants develop BAU pathways – i.e., a series of changes of the existing situations that is likely to happen if current policies continue. The time frame can vary but it makes sense to define visions and pathways for a mid-term horizon e.g. by 2050. Changes are represented visually by adding or changing existing elements on the map. Next to the foreseen changes, stakeholders will also list along a timeline what actions are expected to take place and by when. This exercise will help build the pathway, including the different sets of actions, from "now" to the 2050 future.

STEP 3: Developing visions and pathways to desired futures. Different visions of "desirable futures" are developed together with their corresponding pathways. Unlike the BAU that continues existing policies and directions, any desired future starts from clear, ambitious but realistic visions of what wants to be achieved. The rationale for exploring different desirable visions is that stakeholders have a wide range of preferences, values, and world views which make it difficult for everyone to agree on one single desired future. Typically, these divergent values and preferences manifest in difficult trade-offs that need to be weighted. Such trade-offs create critical branching points, where a choice of a particular option results in alternative pathways. For example, developing large scale water infrastructure vs. small scale nature-based solutions may lead to alternative pathways.

STEP 4: Improving the robustness of pathways. To test robustness of the chosen pathways, it is beneficial to contrast them against contrasting external circumstances (e.g. extreme versus moderate climate change scenarios). The differences between alternative global scenarios are represented with a set of externally imposed challenges along the analysed regional pathways. This can be done for instance using combinations of the IPCC Shared Socioeconomic Pathways (SSPs) and Representative Concentration Pathways (RCPs) to provide a global context and delimit the sphere of uncertainty in the pilot.

Outcome/Output:

- Qualitative narrative about future visions and associated transformation pathways.
- Enhanced understanding by stakeholders and scientific team on the synergies and trade-offs among ongoing sectoral development plans and their robustness in the light of global scenarios.
- Having stakeholders to agree on a sense of direction and facilitating the mutual learning and exchange.
- Defined WEF targets and input information required to model the co-developed visions and pathways and produce a number of scenarios.

4.3.2 Identify stakeholder priorities for actions and co-benefits from NbS implementation

Purpose: The aim of this activity is to elicit incentives for stakeholders to change their perceptions about action priorities and the role of Nature-based Solutions (NbS). Building from broader project exploration of Nexus desirable/sustainability visions and associated pathways in each pilot, identify benefits that could be delivered through NbS and assess priority attached to each benefit; and identify implementation challenges.

Method: This participatory exercise will be carried out during workshop 2. The activity will begin with an initial presentation on NbS followed by facilitated discussion and brainstorming. Alternatively, it can also be developed by producing introductory materials and surveys. The following structure is proposed:

- Introduction to NbS – what it is and what it isn't, why would they be used; benefits and co-benefits (and risks).
- Brainstorm with stakeholders to identify co-benefits from the implementation of NbS and discuss interest/incentives.
- Validation of challenges.
- Ranking co-benefits.
- Wrap up and follow up actions.

Outcome/Output:

- Prioritisation of Nexus challenges in each pilot.
- Identification of incentives and disincentives for stakeholders to address the different challenges through NbS implementation.

4.3.3 Participatory System Dynamic Modelling

Purpose: Co-production of quantitative scenarios based on the different development pathways and visions developed by stakeholders and overall discussion of the synergies and trade-offs emerging from different development pathways.

Method: The CLDs will provide a comprehensive view of the Nexus system. Once validated with stakeholders at Workshop 1, a PSDM approach will be used to co-develop a model useful to describe potential system evolution (with focus on key variables and indicators) in the future, under different actions. The models considered for the PSDM include stock and flow system dynamic models and/or agent-based models. The specific approach will be selected according to the specificities of the pilot. The future scenarios largely build on the qualitative exercise carried out with the visioning. Resulting scenarios will then be discussed during workshop 2. An additional activity can be carried out to link output indicators for the different scenarios with the Sustainability Development Goals (SDGs).

The PSDM will be used to consolidate individual/sectoral and cross-sectoral views of Nexus systems. The main biophysical processes and the behaviours of actors will be explicitly introduced in the models and used to understand and describe the social processes behind the production and use of ecosystem services. Targeted interviews (with a limited number of stakeholders) will be potentially used to clarify specific dynamics and connections.

Outcomes:

- Quantitative scenarios describing the synergies and trade-offs of alternative development pathways (BAU versus desirable/sustainable WEFC Nexus scenarios).
- Participatory Nexus model for each pilot.

4.3.4 Identification of NbS

Purpose: This activity aims to verify the feasibility and constraints for specific NbS that can be applied to address Nexus challenges in each pilot context as a basis for refining criteria for the options selection framework.

Method: Discussing criteria for evaluating NbS in each pilot. Here we propose using the concept of ecosystem services as a conducting thread with the WEFC Nexus challenges. Afterwards, we will share

the list of NbS to potentially address those challenges, to understand stakeholder priorities, and identify potential barriers and opportunities.

The points to be addressed in workshop 2 are as follows:

- Presentation about ecosystem services and their link to Nexus challenges and NbS.
- Review of list of NbS options to discuss feasibility (list provided for participants to rank in advance as basis for the discussion).
- Apply/prioritise/refine draft criteria (again pre-review and ranking by preference and/or applicability as a starting point) for evaluating options and developing new ones as needed.

4.3.5 Participatory Climate Risks Assessment II

Purpose: Present the composite indicators and associated impacts for validation purposes and explore the institutional adaptive capacity of the different domains at the pilot areas/regions.

Method: Participatory exercise to identify and weigh adaptive capacity components.

Outcomes/Outputs:

- Overall assessment of adaptive capacity of the pilot and its sectors to climate change.
- Increased understanding of the sectoral and cross-sectoral impacts and risks associated with climate change.

4.4 Validation and Action Planning

4.4.1 Designing the action plan

Purpose: Identify with stakeholders the priority actions that will need to be taken to reach the desirable visions. This prioritisation should come along a detailed plan describing the actions, stakeholders in charge, and tentative timeline for action.

Method: The departure point for the development of the action plan is the validation of the scenarios developed with the PSDM. The scenarios developed with the PSDM and on the basis of the visioning exercise carried out in Workshop 2, will provide quantitative insights of the synergies and trade-offs that could emerge when trying to materialise the different desirable/sustainable visions, and importantly, the collection of the many actions (e.g. policy measures) required. In order to facilitate the potential implementation of such actions, it is important to prioritise which ones are more critical. Criteria for the prioritisation will have to be developed with stakeholders (e.g. costs, effectiveness, etc.) during workshop 3. Once the criteria and the list of actions have been identified, a multi-criteria analysis can be applied to support the prioritisation. The last step involves the description of the prioritised measures, which stakeholders are responsible for them, resources required (e.g. specific investments, capacity development, etc.) and the implementation timeline.

Outcomes/Output:

- Action plan endorsed by stakeholders and describing the priority actions that are required to reach the sustainability vision in each pilot.

4.5 Cross-fertilization meetings and trainings

Purpose: The intra-project LAA focuses on promoting mutual learning and cross-fertilisation between the leaders and key actors of the pilot LAAs. Furthermore, REXUS will organise a trans-project LAA dealing with supporting networking and clustering activities with other communities of practice involved in other Nexus-related projects. The action of both LAAs is articulated through cross-fertilization meetings and training.

Method: The intra-project LAA engages pilot leaders and potentially other local stakeholders and a group of other REXUS partners to exchange on diverse topics: i) progress in the local LAAs (e.g. tips about organising workshops; debriefing workshops; sharing information about progress status in the local LAAs; sharing participatory activities…); ii) implementation of the REXUS methods (e.g. exchanges with other REXUS partners to better understand REXUS methods (what is needed, what can be achieved,…); iii) sharing common challenges and solutions and commenting on the usability of the Nexus approach into practice (e.g. sharing technical information on field experiments); iv) upscaling Nexus optimization from local to a broader scale; and v) exchanges on potential solutions to similar challenges. As part of these LAA activities, some trainings organised by WP2 (e.g. participatory activities to gain a systemic view of Nexus challenges, visioning exercise) are planned to be undertaken with the group of pilot leaders.

Outcomes:

- Knowledge exchange between the REXUS pilots and cross-fertilisation between different actors.
- Better coordination of project activities and increased impact of REXUS.

5. Practical guidelines for designing and implementing REXUS workshops

This section provides some general recommendations and tips to be taken into account when organising workshops in the REXUS pilots. Workshops are the central elements in our participatory approach, i.e. interactions between the broader group of stakeholders representing the different Nexus domains will take place here. The organisation of these events is very time and resource intensive, and opportunities to engage with the full group of stakeholders are limited. Thus, it is key to carefully design and prepare these workshops to ensure these activities are effective and strongly contribute to the delivery of REXUS expected outcomes and impacts. REXUS suggest pilot leaders to go through a sequence of seven steps (see Figure 3) guided by a previous strategic reflection on the vision and goals for the pilot (Step 0).

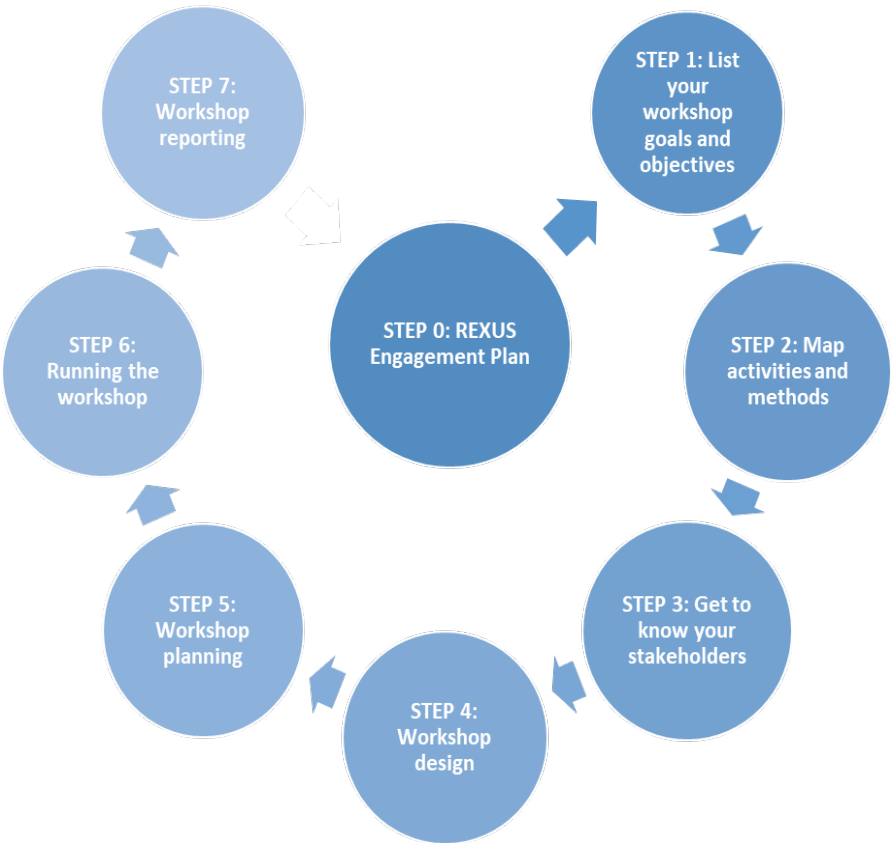

Figure 3: Roadmap for workshop design and implementation

A more detailed explanation for each of the recommended steps is hereafter provided:

STEP 0: REXUS Engagement Plan

As a first step, pilot leaders need to get a clear vision about where the pilot wants to go and what to get out of the REXUS engagement process.

In order to achieve this, pilot leaders should reflect on three relevant points:

1) A **vision** statement, which focuses on tomorrow and what are the advancements that would like to be achieved in the pilot area.
2) A **mission** statement, which focuses on today and what is intended to be done in the pilot area (towards delivering the vision).
3) A **strategy** consisting on a set of general actions that can lead the pilot area towards achieving the mission (and ultimately to approach to the vision).

The Box 2 provides a generic example of vision, mission and strategy for a REXUS pilot.

Box 2. Example of vision, mission and strategy for a REXUS pilot

Vision: (EXAMPLE) Nexus management is institutionalised in Rexus pilot X

Mission: (EXAMPLE) Support the development of scientific knowledge and institutional capacities to mainstream Nexus thinking in the pilot

Strategy/Goals: (EXAMPLE)

- Generation and sharing of evidence-based shared knowledge
- Co-creation of innovative solutions and actions (e.g., policy recommendations, plan to support the institutionalisation of REXUS LAAs beyond the lifetime of the project, knowledge exchange and breaking of silos, etc.)
- Capacity building: REXUS data and tools (models, but also soft tools such as games, etc.)

Once the vision/mission/strategy of the engagement plan is clear, pilot leaders can start drafting an overall planning of activities and associated timeline and start designing and planning each workshop (see steps 1-7).

STEP 1: List your workshop goals and objectives

As a first step, goals and specific objectives need to be defined and agreed upon for each of the REXUS workshops.

Key goals will be defined as part of the overall planning of participatory activities (e.g. build a common and systemic understanding of Nexus challenges, identification of desired futures, validating the model as a tool for the elaboration of strategic roadmaps). Moreover, for each of the workshops, pilot leaders will need to identify more specific objectives that should be achieved through the planned participatory activities.

The following questions can help identify these specific objectives:

- What do we need to get (outcomes) from the participation process: information (quantitative, qualitative), perceptions, awareness…?
- In which format do we need the information: numbers, causal relations, general knowledge, perceptions, spatial representations...?
- Are we seeking any additional effects besides our inputs: e.g. building sense of community, raising awareness, promoting networking and communication between the actors, foster/show transparency, educating on specific aspects, disseminating information…?

The Box 3 provides a generic example of goals and objectives for a REXUS workshop in a pilot.

Box 3. Example of goals and objectives for a REXUS workshop in a pilot

GOAL: (EXAMPLE) Build a common understanding about Nexus challenges

OBJECTIVES: (EXAMPLE))

- Identify Nexus priority needs from stakeholder perspective
- Develop a system´s mapping on Nexus challenges and opportunities
- Present, discuss and validate the Nexus baseline assessment

- Define the goals and aspirations of the LAAs

STEP 2: Map activities and methods

In this phase, workshop organisers need to start shaping the activities to be conducted, ensuring these are well aligned with the specific objectives. In order to achieve this, a number of points shall be adequately addressed, namely:

- Listing all project activities that will be included in the workshop (by matching the vision/mission/strategy for the pilot with the methodological approaches provided by REXUS).
- Identify the methods/tools that are required/suitable for each activity (in conjunction with other REXUS partners).
- Brainstorm on the best way to ensure a good and logical flow for the workshop.
- Define the workshop duration and format (also considering potential constraints, such as availability of key stakeholders).
- Define who will be participating from the project team and doing what.

STEP 3: Get to know your stakeholders

A key part in the design of a successful workshop is having a good knowledge of the actors engaged and the role of the different institutions they represent. The preliminary analysis of the stakeholders should consider two key points: i) understanding in which way they can contribute to each of the planned activities (based on their experience and role) and ii) what are the added-value and benefits they can get from their participation in the workshop.

Moreover, the pilot leaders should also be aware of existing dynamics between stakeholders. This is particularly relevant if there are ongoing tensions/conflicts between stakeholders that may limit or even impede a proper development of the planned activities. These conflictive dynamics need to be carefully considered as part of the design of the workshop.

Based on the results from the stakeholder mapping exercise, the organising team will produce a list of stakeholders to be invited to the workshop. It is important to make sure that all the relevant groups are well represented (i.e. all Nexus domains), and there is a good balance in type of actor and institutional and governance levels.

Our aspiration is to keep stakeholders engaged during the project and if possible beyond. Two main recommendations towards this aim are:

i) A well thought out identification of stakeholders' expectations and demands (both considering pre-workshop, workshop and post-workshop phases).

ii) Analysis the potential for establishing linkages between participatory processes (e.g. workshops) in the pilot and ongoing stakeholder or policy processes (e.g. participatory processes

included in the river basin management plans, or any other policy process where stakeholders participating in the workshop may be engaged).

STEP 4: Workshop design

This step directly builds on Step 2 by operationalising the initial design into more specific actions:

- Drafting an agenda, including timing, activities, and persons in charge. Allocate sufficient time to carry out the activities without overloading the participants. Some time for breaks and networking is necessary and helps creating connection and engagement between the participants.
- Making sure the agenda flows.
- Drafting a concept note (short document stating what is this workshop about, expected results, and target audience).
- Preparing a facilitation plan (internal document describing details of who does what, how and when).
- Organising a rehearsal schedule, bearing in mind that an internal rehearsal is often a key activity to ensure a proper development of the workshop. The team should carry out a full rehearsal of the workshop to make sure the exercises can be done within the allocated time, to foresee any possible unexpected situations (questions, polemics) and prepare responses, and make the organising team get hold of their tasks.

STEP 5: Workshop planning

This plan should consider preparatory activities at two stages:

a) Prior to the workshop: the organising team needs to take care of i) logistics (location of the workshop) and identification of required resources (e.g. catering and lunch, technical resources, accreditation tags, materials needed for the workshop); ii) sending out the invitations for the workshop, asking for confirmation and engaging, when needed, with those stakeholders that have not replied (e.g. by sending personal messages or making phone calls) to confirm their interest and participation; iii) send reminders when the event gets closer; iv) prepare informed consent forms (as required by Ethical mandatory requirements of REXUS), including explicit consent for the use of videos or pictures from the workshop as REXUS communication material; v) strongly consider the hiring of a professional facilitator to support the workshop in case the organising team is not very experiences in conducting this kind of events; and vi) organise and manage the reimbursement of travel costs, if applicable.

b) At the workshop: the organising team needs to take care of i) having all workshop materials ready for their use; ii) elaborate an attendance list; and iii) prepare an evaluation form. Undertaking some kind of process evaluation is important in order to assess: 1) the quality of the process, 2) the satisfaction of participants / suggestions for improvement, 3) to gather additional individual-based information or feedback, 4) assess the perception of usefulness, learning from the process. This can be done through forms or surveys at the end of the day, or through an evaluation email submitted one or two days after the workshop. Generally, any feedback gathering method onsite will gather more responses than ex-post via email.

STEP 6: Running the workshop

From the beginning, the main facilitator needs to make sure that there is a clear communication to all participants about:

- WHY the workshop is undertaken (outlining the objectives in the frame of REXUS and beyond).
- WHAT will be done (clear agenda of the participatory activities that are going to be carried out).
- WHAT are the expected outcomes (highlighting the expected benefits for all parties).

Then, during the workshop a key action is to appropriately monitor dynamics between the stakeholders, i.e., by making sure that:

- All stakeholders are actively participating in the workshop activities, i.e. everyone has a voice.
- Power dynamics are adequately managed and there is a good participatory environment where different types of knowledge can be integrated.
- All participants correctly understand at every time what is being done and why this is being done, i.e. nobody gets lost.

Finally, at the end of the workshop the participants will be asked to fill in the evaluation form and next steps will be presented as means to keep all participants engaged in future activities.

STEP 7: Workshop reporting and follow-up

There are several post-workshop tasks to be implemented, namely:

- Send a thank you email to the attendees.
- Gather and digitalize the information co-produced with stakeholders during the workshop.
- Analyse the information and turn it into usable results for the project/process' aims. Draw out a few conclusions of the session.
- Prepare a summary note or a draft report of the workshop in due time, including the results and conclusions achieved, and disseminate it among participants.
- Make sure you comply with EU regulation on data protection, i.e. GDPR rules (as stated by the REXUS ethical requirements).
- Circulate an evaluation survey on stakeholders' satisfaction about the workshop organisation to identify lessons learnt, gaps and room for improvements.
- Proceed to the reimbursement of travel expenses if applicable.
- Make the report (or a version of it) publicly available, preferably by publishing relevant

information into the REXUS Learning Platform.

Beyond these steps, there are several guiding principles that need to be considered for a successful and impactful organisation of a workshop, which are summarised into Box 5.

Box 4. Final recommendations for the organisation of a successful and impactful workshop

- ➔ Have a clear vision of where you want to go, and how this workshop will help moving into there
- ➔ Know and think of your participants: what can they bring and what is there for them
- ➔ Manage and balance expectations (i.e., make sure to explain very well the objective of the workshop, how the inputs from the participants will be included, what the role of the participants is and what the full group can get from the planned exercises).
- ➔ Meeting should be fun and engaging
- ➔ Simplicity is appreciated
- ➔ Good planning and facilitation is key
- ➔ Make always sure that stakeholders end up with a feeling that their opinions have been listened to and taken into account.
- ➔ Ensure a good climate (being receptive, flexible, well prepared, good set up and facilities)

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Annex 1

Kick-off Meeting Activities Description

PRESENTATIONS

P1.- WELCOME FROM NATIONAL ORGANIZER

15 minutes. Presentation given by *********

- Appreciation for coming
- Introduce of the REXUS project
- Importance of REXUS and stakeholder involvement
- How we will be using the results
- Hopes for consultation

- *Appreciation for coming*

Welcome participants and thank them for taking part in this activity, part of the REXUS project. Present shortly the partner organisation and the institution you come from.
Optional: if the process is likely to support a real policy process, some opening remarks from decision makers or a relevant stakeholder will help

- *Introduction of the REXUS project*

Short overview of REXUS (brief description of the project key challenges and goals).
Explain that REXUS is conducted by a group of 17 partners, from six countries across Europe and Latin America with demo activities in five pilot areas.
For this section you may find useful the welcome package.

- *Importance of the REXUS project and stakeholder involvement*

Why is this project important for the European Commission? (short remark)
Explain the importance and benefits of stakeholder involvement. You may find some ideas in section 2 of the Stakeholder Engagement Guidelines.

- *Use of results*

The feedback collected from the meetings or activities conducted by the local LAA will exclusively be used to support the progress of the project.

This feedback may be communicated to:

i) Other project partners, i.e. partners leading activities in the technical work packages.
ii) The European Commission, as part of two internal documents that we are entitled to deliver by the middle of the project to report on the work done by the REXUS LAAs.

The feedback will be attributed to the organisations participating in the activities and not to individual persons. Specific permission will be asked for the external dissemination of any images or specific information related to REXUS meetings or activities.

- *Hopes for the local LAA*

"It is our sincere hope that you will have a very nice time at this meeting.
"We hope that this LAA contributes to expand the dialogue about how ***."

P2.- WELCOME FROM MODERATOR

5 minutes. Presentation given by Session moderator

- Agenda
- Ground rules for the meeting

- *Agenda*

Present agenda for the meeting

- *Ground rule for the meeting (rules for dialogue)*

We have a common understanding about:

- There are no right or wrong answers – there are many possible realities → all contributions and perspectives are appreciated.

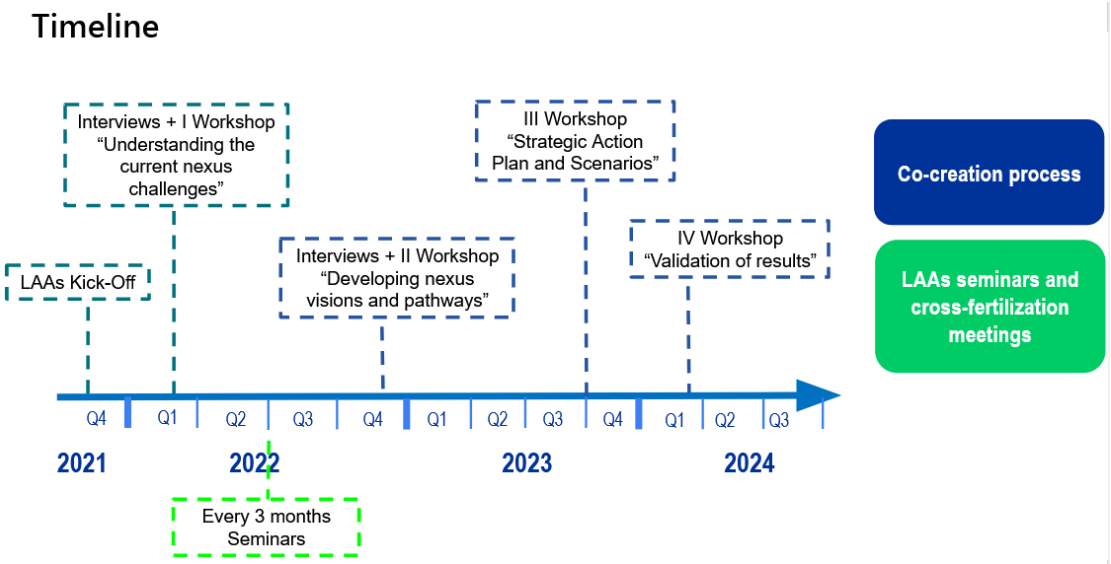
- Our goal is to build a "win-win" collaboration between research and practical knowledge. This implies a two-way collaboration.
Stakeholders are asked to:
i) Provide support to the development of REXUS methods
ii) Identify how REXUS can provide support to them

- We are ready to let go of our own determinations and find a broad consensus

P3.- OVERVIEW OF THE PILOT: AIMS, CHALLENGES and TIMELINE

15 minutes. Presentation given by ********

- Specification of the key objectives and identification of main challenges
- Description of activities planned in the pilot
- Presentation of REXUS digital platform



This is just a suggestion, please adapt this template to your pilot's particularities

- *Presentation of REXUS digital platform*

  Present in two slides the REXUS digital platform to which participants will have access. Its aim is to present the pilot's new developments and progress as well as to support participatory activities (e.g. including documentation, surveys, a feedback tool, …). There will also be a forum to encourage discussion, knowledge exchange and sharing of topics of interest.

P4.- OVERVIEW OF REXUS CONCEPTS

5 minutes. Presentation given by Session moderator

- LAAs in REXUS
- Overview of REXUS concepts

- *The concept of Communities of Practice in REXUS*

Definition of LAA.

The main aim of local LAAs is to provide a space for facilitating the …….

LAAs in REXUS

- Another 5 Local LAAs in …
- 1 Intra-project LAA: where pilots leaders are represented (transferability and transversal topics)
- 1 Trans-project LAA: represented by Project Coordinator will organise a limited number of networking activities with other projects and initiatives.

- *Overview of REXUS concepts*

  Explain in a simple way the concepts applied in the project, especially those mentioned in the interviews. We suggest the following, but feel free to add any others you wish. The definition of these concepts can be found in the interview template.

  - The Nexus concept
  - Water security
  - Energy security
  - Food security
  - Ecosystem security

ROUNDTABLE

Topic 1 (T1): 'Tour de table'	Short presentation of all participants, including main expectations for REXUS	(5-10 min)
T2: Setting objectives	What can REXUS do for me? What can I do for REXUS?	(15 min)
T3: Stakeholder mapping	Mapping key stakeholders (Who do you miss in this room?).	(15 min)

TOPIC 1 (T1) - 'TOUR DE TABLE'

5-10 minutes. All

Short presentation of all attendees, institution they represent and main aim for engaging into REXUS.

T2.- REVISITING THE GENERAL OBJECTIVES FOR THE PILOT

15-20 minutes. All

One idea is to hand out two papers to each participant for them to write as bullet points:

- How do I think REXUS can directly benefit my organisation?
- How do I think my organisation can support the development of pilot activities?

Then, we can collect the answers, read them in a loud voice and discuss with all the group. The answers will be later summarised, and the overall perception of the group shared with all participants.

T3.- STAKEHOLDER MAPPING

15-20 minutes. All

A preliminary stakeholder mapping will be prepared beforehand, as part of the preparatory work for the organisation of the meeting.

Our suggestion is that you prepare some slides with the following information:

- List of the stakeholders already identified (highlighting in a different colour those participating in the meeting).
- Potential role of each organisation.

Then all the participants can help to complete the list and identify roles for other participants, or indeed, extend their own potential role in REXUS.