REWRITE

D1.3 Handbook of Stakeholder Engagement Plan

Project acronym: **REWRITE**
Project title: **Rewilding and Restoration of Intertidal Sediment Ecosystems for Carbon Sequestration, Climate Adaptation and Biodiversity Support**
Call: **HORIZON-CL-2022-D1-02-05**

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Executive Summary

This deliverable presents the Handbook of Stakeholder Engagement Plan (SEP) required to interact with all REWRITE stakeholders, i.e. the broad ensemble of academic and non-academic organizations that will support and complement the REWRITE Consortium for the achievement of the project results.

The overarching goal of REWRITE is to expand innovative approaches of nature-based solutions for rewilding intertidal soft-sediment seascapes (ISS), bridging environmental needs (carbon sequestration, climate adaptation and biodiversity support) to societal expectations and uses. To reach this goal REWRITE is structured in interdisciplinary research combining expertise on natural sciences, humanities, and socioeconomics and engaging relevant stakeholders from beginning to the end. Such an engagement adopts a social innovation dynamic based on a multi-actor and multi-sector approaches, to consider stakeholder knowledge, perception, and valuation of ISS seascapes in order to create acceptable innovative solutions for environmental stewardship that deliver the highest co-benefits while minimizing trade-offs.

More specifically, REWRITE is based on scenarios generated through co-designing approaches which require active participation of stakeholders. The purpose is multifold: 1) to collect insights on inspirations, success stories and narratives of change; 2) to increase engagement, sense of ownership and acceptance of ISS approaches; 3) to map cost-benefits of ISS rewilding as well as opportunities, and challenges; 4) to address trade-offs on governance, technological, environmental, and societal; 5) to map tangible and intangible values of ecosystem services (ES) provided by ISS.

The SEP will explain why to involve stakeholders, who when and how to involve, which principles should guide an effective stakeholder engagement process across all work packages (WPs).

This deliverable is therefore meant to be used as a practical guide for: i) managing stakeholder interactions in REWRITE, providing a coherent basis for comparisons, data collection, and results; ii) facilitating the stakeholder engagement process, enhancing synergies across WPs and tasks. Moreover, D1.3 can contribute to strengthen the effectiveness of REWRITE communication and dissemination activities considering the potential contribution of stakeholders for generating, increasing and spreading awareness of the project results.

Finally, several versions of the Stakeholder Engagement Plan are expected to be released during the implementation of REWRITE.

Glossary

Back-casting: according to Durham et al. (2014), project groups determine a desired future situation, and the group works backwards from this point to identify steps needed to reach the desired future position.

Co-design: a method also known as co-creation is a collaborative process that involves the consortium and stakeholders in the design and implementation of intertidal soft sediments' rewilding.

Demonstration (DM) leaders: responsible person representing a demonstration site in the project, typically an intertidal area with varying levels of rewilding, biodiversity, carbon sequestration, and stakeholder engagement.

Ecosystem services (ES): according to Constanza et al. (1997) ecosystems services are the ecological characteristics, functions, or processes that directly or indirectly contribute to human well-being – the benefits people derive from functioning ecosystems.

Engagement: a process of involving a person or a group with the project with information, collaboration or involvement in various levels depending on the stakeholder plan.

Intertidal soft sediments seascapes (ISS): transitional coastal areas between land and sea composed of various habitats including mudflats, coastal lagoons, seagrasses, and salt marshes.

Multi-actor labs (MALs): workshops engaging actors (stakeholders) across multiple sectors with focused discussion points, also known as world cafés and living labs.

Multi-criteria analysis (MCA): a type of analysis used to identify and compare different policy options by assessing their effects, performance, impacts, and trade-offs. MCA provides a systematic approach for supporting complex decisions according to pre-determined criteria and objectives.

Metaplan: a technique for collecting and processing ideas and opinions when a group of people is working together, frequently used in clinical practices, research, and business contexts.

Nature-based solutions (NbS): according to IUCN definition, NbS are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously benefiting people and nature.

Rewilding: It is a science-based, place-based, interdisciplinary, and collaborative approach to enhance natural capital, and build landscape/seascape scale resilience. It uses passive management of ecological succession with the goal of restoring natural ecosystem processes and reducing human control.

Scenario: a visualization exercise with a group of people aimed at simulating and understanding what could possibly happen with intertidal rewilding activities. Scenarios are used as a tool to explore potential future developments, understand the possible consequences of different decisions or actions, and to aid in strategic thinking.

Social innovation: new solutions (products, services, models, markets, processes etc.) that simultaneously meet a social need and lead to new or improved capabilities and relationships and better use of assets and resources. In other words, social innovations are both good for society and enhance society's capacity to act (Caulier-Grice et al., 2012).

Stakeholders (SH): any person or group representing an academic or non-academic organization and that is directly or indirectly affected by the project.

SWOT analysis: a study undertaken by an organization to identify its internal strengths and weaknesses, as well as its external opportunities and threats.

Venn diagram: a diagram representing mathematical or logical sets pictorially as circles or closed curves within an enclosing rectangle (the universal set), common elements of the sets being represented by intersections of the circles.

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List of abbreviations

AB - Advisory Board

DL - Demonstrator Leaders

DM - Demonstrator Sites

DMP - Data Management Plan

ES - Ecosystem Services

EU - European Union

GIS - Geographic Information System

G-MAL - Global Multi-actor Lab

ISS - Intertidal Soft Sediment

L-MAL - Local Multi-actor Lab

LS - Local Stakeholders

MALs - Multi-actor Labs

MCA - Multi-criteria Analysis

NBS - Nature-based Solutions

SC - Scientific Cluster

SH - Stakeholders

SO - Specific Objectives

SSC - Stakeholder Steering Committee

WP - Work Package

WPL - Work Package Leaders

1 How to use this handbook

The handbook of stakeholder engagement plan, deliverable D5 (D1.3), is designed with comprehensive methods and tools for stakeholder engagement in REWRITE. It defines the strategy (including steps, processes, approach, and methods) for stakeholder engagement in the project to address REWRITE objectives and deliver expected results.

1.1 Purpose of the handbook

Climate change is complex and affects nature and society in several ways, thus it is important to consider views and experiences of a broad range of experts, authorities and practitioners in stakeholder engaging activities. Therefore, REWRITE is structured in interdisciplinary research embedded throughout all work packages (WPs) of the project combining expertise on natural sciences, humanities, and socioeconomics and more importantly, engaging relevant stakeholders.

REWRITE interacts actively with stakeholders which are involved individually or through their organizations from ten project Demonstration Sites (DM), eight in Europe and two in North America. Stakeholder interactions are planned throughout five WPs and related tasks according to a stakeholder engagement strategy that identifies and maps stakeholders, plan their engagement according to a specific roadmap, and establishes methods for engagement.

The handbook is therefore meant to be used as a practical guide for: i) managing stakeholder interactions in REWRITE, providing a coherent basis for comparisons, data collection, and results; ii) facilitating the stakeholder engagement process, enhancing synergies across WPs and tasks. Moreover, D1.3 can support REWRITE's communication and dissemination activities where the role of stakeholders for increasing awareness of the project result is considered beneficial. For communication and dissemination activities please consult T5.1.

1.2 How to read this handbook

A stakeholder engagement plan (SEP) is presented, inspired by the Biodiversa Handbook of Stakeholder Engagement (Durham et al. 2014), following the main aspects:

- **why** to involve stakeholders, specifying the objectives and expected results of REWRITE that motivate stakeholders' engagement, introducing the co-designing process for scenarios within the organizational setting and activities defined by REWRITE (section 2);
- **who** to involve, identifying, analyzing and prioritizing stakeholders to be involved, considering the specific context of each DMs but also working across DMs (section 3);
- **how** and **when** to involve, through which activities for engagement, considering different levels of engagement, practical methods for engagement at the various stages of the project implementation (section 4);
- **which** principles should guide stakeholder engagement to deal with potential risks and conflicts, guarantee inclusion and consider stakeholder fatigue (section 6).

2 Why do we need to engage?

This section explains why stakeholders should be engaged considering the REWRITE goals and role of REWRITE groups specifically created to supervise and coordinate stakeholder engagement. It describes the geographical scale and the scope for stakeholder engagement.

2.1 Stakeholder engagement and REWRITE goals

The overarching goal of REWRITE is to expand innovative approaches of nature-based solutions (NBS) for rewilding intertidal soft-sediment seascapes (ISS), bridging environmental needs (e.g. carbon sequestration, climate adaptation and biodiversity support) to societal expectations and uses. REWRITE paves the way to upscale NBS for ISS rewilding through the implementation of co-designed scenarios that effectively engage project partners and stakeholders according to multi-actor and multi-sector approaches.

REWRITE explores how rewilding scenarios can address societal challenges in relation to coastal rewilding, restoration, governance strategies, landscape management, and human well-being. REWRITE adopts a strong social innovation approach to assess the perception and acceptability of stakeholders on ISS rewilding scenarios, identifying possible conflicts and trade-offs in governance and decision-making, encouraging the integration between environmental and socio-economic perspectives/purposes.

More specifically, REWRITE addresses:

1. Key emerging issues that can have a relevant impact in the short and long term (i.e. 2030, 2050 and 2100) to which ISS rewilding scenario could offer an effective response (e.g. impact of climate change on ecosystem services, biodiversity, losses of natural resources, disconnection between people and nature, loss of social cohesion, social inequity, fragmented governance models, etc.).

2. Identify opportunities to effectively implement and upscale ISS rewilding in various levels including low-cost “do nothing” to geoengineering methods that effectively respond to climate change threats and include bottom-up societal challenges from large scale to local communities using participatory approaches of engagement.

2.2 Role of REWRITE groups

To ensure that the SEP and the proposed activities are well functioning, it is important that REWRITE partners are aligned and committed to their role.

The SEP defines the terms of the commitment and engagement, following specific REWRITE groups. The SEP is supervised by:

- the **Scientific Cluster (SC)**, represented by Scientists in REWRITE in different research fields, biology, geology, geography, anthropology, etc. More specifically the SC is composed by the Coordinator, the WP and the DM leaders.
- the **Stakeholder Steering Committee (SSC)**, represented by environmental and coastal authorities, municipalities, NGOs, Think-tank networks, companies, private foundations. More specifically, the SSC is composed by the SC and experts internationally recognized for their engagement and representatives of stakeholder categories at the European and/or national scale.

In addition, the following groups play a role in SEP:

- **Advisory Board (AB)**: represented by scientists, practitioners, decision and policy makers outside of the project and willing to give advice during MALs and project coordination meetings when relevant. More specifically the AB is composed by the SC and external experts internationally recognized for their research activities directly connected to REWRITE's objectives.
- **Demonstrator' Leaders (DL)**: scientists responsible for the 10 demonstrators. DLs of demonstrators (DM) are responsible to identify and map local stakeholders, organize local interactions with stakeholders and logistics, translate any material necessary to the meetings, facilitate workshops and collect the results following the goals of WPs. All DL are part of the SC.
- **Work Package Leaders (WPL)**: partners responsible for leading the work packages and coordinating activities in tasks and subtasks. WPL are responsible to support DLs on stakeholder interactions, providing files and all material needed to conduct focused workshops, meetings, interviews, facilitating the workshops on a global scale and providing support to local scale when relevant. All WPL are part of the SC, but not necessary are DL.
- **Local Stakeholders (LS)**: local communities' representative, citizens in the area expected to rewilded, landowners, farmers, schools, amateur fisherman, diving clubs, bird-watching organizations, voluntaries, nature guides, etc.

The active participation of all the above-listed groups is essential to guarantee an effective management of stakeholder engagement and to obtain the information and data required to the project.

2.3 Geographic scale and definition of demonstrators

REWRITE geographical scale is particularly broad, covering 10 DMs and countries with a wide range of languages and cultures, including Europe, Canada, and USA (Table). Each country participates with a demonstrator (DM), which is led by a partner, who is also the contact point and responsible for the DM. A variety of coastal and marine intertidal habitats are present in throughout DMs with different levels of shoreline modification, restoration, resilience plans and community engagement.

The DMs provides a comprehensive framework for REWRITE to address the ISS with the main aim to follow and pave the way for rewilding, benefiting from the experiences and best practices of DM where rewilding was already established. Shoreline modification has been realized in most DM, using managed realignment and/or natural breaching of coastal defenses (Table 1). These modifications were implemented using consultation with stakeholders to comply with regulations and/or caused by natural extreme events.

After the shoreline modification, various stakeholder groups benefit from or are affected by the DMs, which provide coastal protection and a range of ecosystem services. Other DMs, such as Loire Estuary, Ria de Aveiro or Bay of Cádiz comprise areas historically claimed for salt work or agriculture but are currently abandoned. These DMs provide the opportunity to "*demonstrate the potential contribution of European abandoned land and protected areas systems for carbon sequestration, adaptation to and/or mitigation of climate change*" following the call topic, but also the "do nothing" scenario approach.

TABLE 1: DEMONSTRATORS OF REWRITE AND ASSOCIATED SOCIO-ECOLOGICAL ASPECTS.

Country/ Demonstrator leaders	**Shoreline modification**			**Restoration of habitats**				**Resilience plans**		**Community engagement**		
	MR	NB	NN	ISS	SM	SG	OY	CC	BI	H	M	L
1. Gyldensteen Coastal Lagoon (DK, SDU)	■			■	■	■		■	■	■	■	
2. Wadden Sea (NL, NIOZ)			■	■	■	■	■		■	■		
3. Essex Estuaries and Humber (UK, UEssex)	■				■	■	■		■	■		
4. Dublin Bay (IR, TDC)		■		■	■				■		■	
5. Scheldt estuary (BE, Uguent; NL, UT)	■			■	■			■	■	■		
6. Loire Estuary (FR, UNantes)			■	■	■			■	■	■	■	
7. Ria de Aveiro (PT, UA)			■	■		■		■	■	■	■	
8. Cadiz Bay (ES, Ucadiz)			■	■	■			■			■	■
9. Fundy Bay (CA, MSA)	■			■	■			■		■		
10. San Franscisco Bay (USA, CSU)	■			■	■			■		■	■	

Legend:
Shoreline modification: MR: managed realignment, NB: natural breach, NN: not modified.
Restoration of habitats: ISS: Intertidal soft-sediment, SM: salt marshes, SG: seagrasses, OY: oysters.
Resilience plans: CC: climate change and carbon sequestration, BI: biodiversity.
Community engagement: H: high-level engagement by active participation, M: mid-level interested by no active participation (only visiting, recreation), and L, L: low-level engagement, no interest in the area.

2.4 Co-designing scenarios with social innovation

In the context of REWRITE, **scenarios** are used as tools to facilitate stakeholder's visions of future climate change impacts, uncertainties, and needs for building up resilience, for instance, to sea-level rise, storms, etc., addressing nature, governance, technology, and societal complexities. Scenarios can be used to develop models, to explore opportunities and trade-offs in ISS (Tompkins et al. 2008).

Essentially, scenarios combine stakeholder visions in a determined space and time with deliberate alternative management options and decision-making strategies, unfolding the screening of potential solutions across different actors allowing for innovation. **Co-designing** will be used to co-develop scenarios following a social innovation approach and combining both natural sciences and societal context-based results, gathering stakeholders needs and priorities and therefore bringing more relevant and useful innovative solutions on ISS rewilding.

Two scenario approaches are planned to be applied in REWRITE: (1) back-casting scenario, where a desired scenario is co-designed with active stakeholders participation and then the project works backwards to fulfill what is missing (*e.g.* decision-supporting tools, data projection in time and space, policy, social innovation) for achieving a new rewilded state of DMs in early stage of rewilding, and (2) cognitive-based scenarios by the collection and mapping of knowledge, experiences and perceptions of communities and local stakeholders (system-thinking) (Tiller et al. 2013, Durham et al. 2014).

The back-casting scenario will assure that co-designed variables and tools across three dimensions, i.e., climate, biodiversity and society are addressed to move ISS from the present state to a new state (Figure 1). Cognitive-based scenarios will provide coherent descriptions of alternative hypothetical futures that reflect different perspectives on past, present, and future developments, which will later serve as a basis for action.

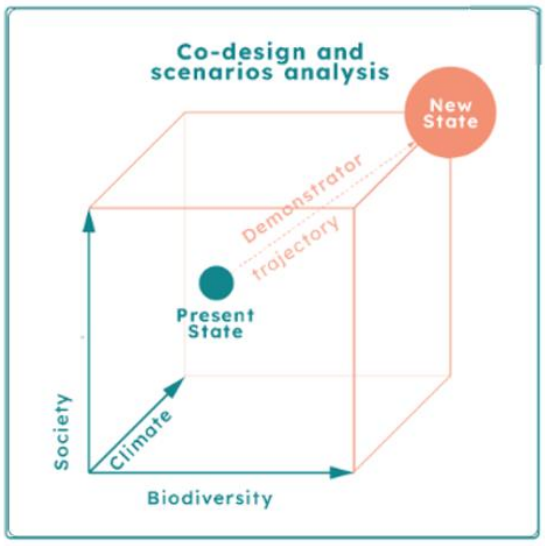

FIGURE 1 – CO-DESIGN AND SCENARIOS ANALYSIS TO MOVE FROM PRESENT TO A NEW REWILDED STATE.

REWRITE will boost **social innovation** for ISS rewilding by contributing to behavioral change among stakeholders, across institutional and economical settings, following the positive relation

between Blue Growth and social innovation (Soma et al., 2017). The project will enhance social innovation towards integration of social, economic, and environmental objectives, overcoming the mistaken notion that rewilding actions are planned without considering societal acceptability and benefits (Perino et al, 2019). Co-designing scenarios adopting social innovation allow to identify not only the economic benefits which can arise from rewilding options but also any positive relationship between humans and nature for local livelihoods and wellbeing.

The combination of co-designed scenarios and social innovation is undertaken with the engagement of stakeholders in Multi-Actor Laboratories (MALs). MALs are conducted in the form of workshops and planned at a global scale and local scale throughout EU (10 Demonstrators), USA, and Canada. The purpose of MALs is to identify key drivers for ISS at a global scale, which will then be tested and addressed in DMs at early stage of rewilding and validated at local scale using visual tools such as GIS maps and 3D images. To achieve such a goal, MALs allows the investigation of possible conflicts and trade-offs in governance and decision-making and encourage the integration between environmental and socio-economic perspectives.

2.5 Scope of stakeholder engagement within REWRITE

Stakeholder engagement occurs throughout the whole project, across WPs, empowering synergies between tasks to effectively contribute to the achievement of the four specific objectives (SO) and results of REWRITE as indicated in Figure 2.

Project objectives	Results
SO1: Analyse the changes in ISS functioning within their past and current trajectories to identify environmental, social and cultural drivers or barrier parameters for the implementation of rewilding approaches in the context of climate change	all - 3D visualizations animation of co-designed ISS rewilding scenarios at DM scale
	SO1-SO2-SO3 - Governance maps from DM to EU scale driving ISS rewilding efforts
SO2: Strongly engage stakeholders to achieve a step-change in their appreciation of the natural coastal function of ISS seascapes and integrate their interests .	SO1-SO2 - Best practice guidelines and handbook for coastal rewilding and environmental and socio-political framework
	SO1-SO2 - Documentation of natural and cultural heritage in all DMs for developing place-specific rewilding narratives
SO3: Estimate and upscale trajectories of ISS seascape changes from local to European shoreline, within the context of climate change following rewilding, restoring, “business as usual” or “do nothing” options.	SO1-SO3 - Shared FAIR database inventorying and mapping past, current and future (by 2050) natural capital and ES from DM
SO4: Establish protocols (i.e. tools and methods) for successful ISS seascape rewilding to ensure a high ecological and societal co-benefit / low-cost ratio.	SO4 - Guidelines for operational tools and protocols to implement, monitor and evaluate rewilding efforts, including DSS
	SO4 - Quantification cost/co-benefit ratio of ISS rewilding, restoring, “BAU” vs “do nothing”

FIGURE 2 – REWRITE OBJECTIVES AND RESULTS

More specifically, the SEP, implemented since the beginning of REWRITE, plays an important role in the achievement of the specific objectives of the technical WPs (i.e. WP2, WP3 and WP4). For example, engaging stakeholders firstly in the development of innovative tools and protocols for ISS seascapes rewilding (WP2), and secondly to the implementation of co-designed protocols (WP3) will

allow both the development of a decision-support tool for ISS rewilding and the assessment of future scenarios of ISS rewilding (WP4), as shown in Figure .

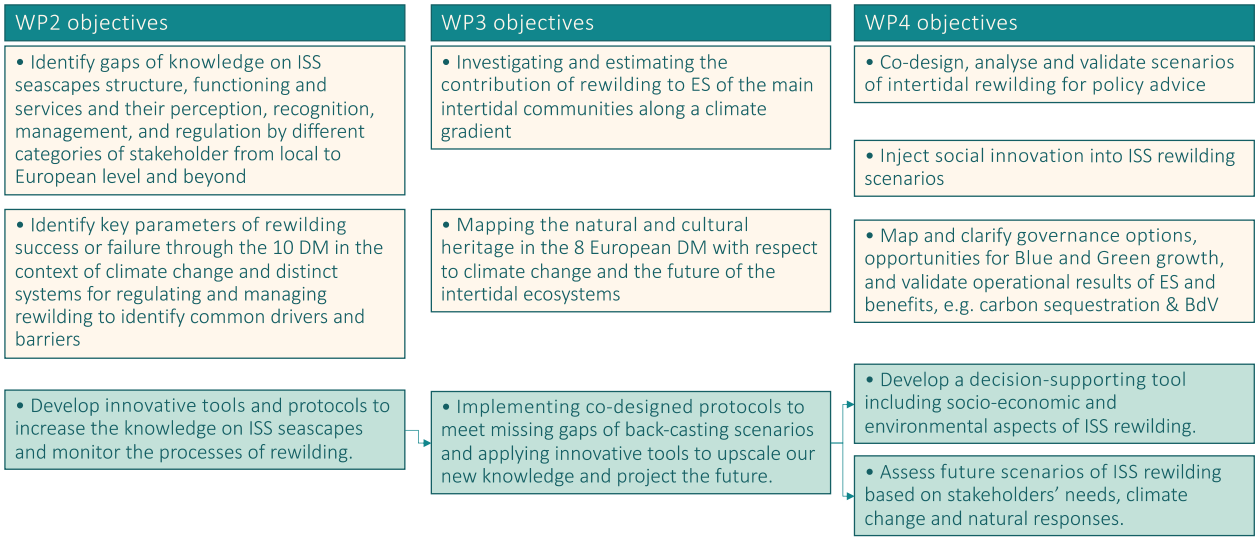

FIGURE 3 – INTERACTION BETWEEN WP2-3-4 OBJECTIVES.

The above-listed objectives will allow to deliver the following expected results benefiting of the contribution from stakeholders:

- 3D visualizations animation of the co-designed ISS scenarios (rewilding (passive), restoration (active), "business as usual" or "do nothing") at the scale of the demonstrators.
- Shared FAIR database inventorying and mapping amount of the past, current and future (by 2050) natural capital and ecosystem services from the demonstrators to the European scale.
- Governance maps from the demonstrators to the European scale driving ISS rewilding efforts.
- Best practice guidelines and handbook capturing success stories for coastal rewilding and environmental and socio-political framework associated with positive outcomes, including best stakeholders' engagement practices.
- Documentation of natural and cultural heritage in all demonstrators for the development of place- specific rewilding narratives shared by scientists and stakeholders including local populations.
- Guidelines for operational evidence-informed tools and protocols to implement, survey, monitor and evaluate rewilding efforts, including decision-support tool for policy and decision makers.
- Quantification of the ratio cost/co-benefit of ISS rewilding, restoring, "business as usual" and "do nothing" option at the scale of the demonstrators.

Focusing specifically on WP4 objectives and tasks, the SEP will have to consider all possible interdependencies with other project tasks. An initial indication of these interdependencies is illustrated in Figure 4.

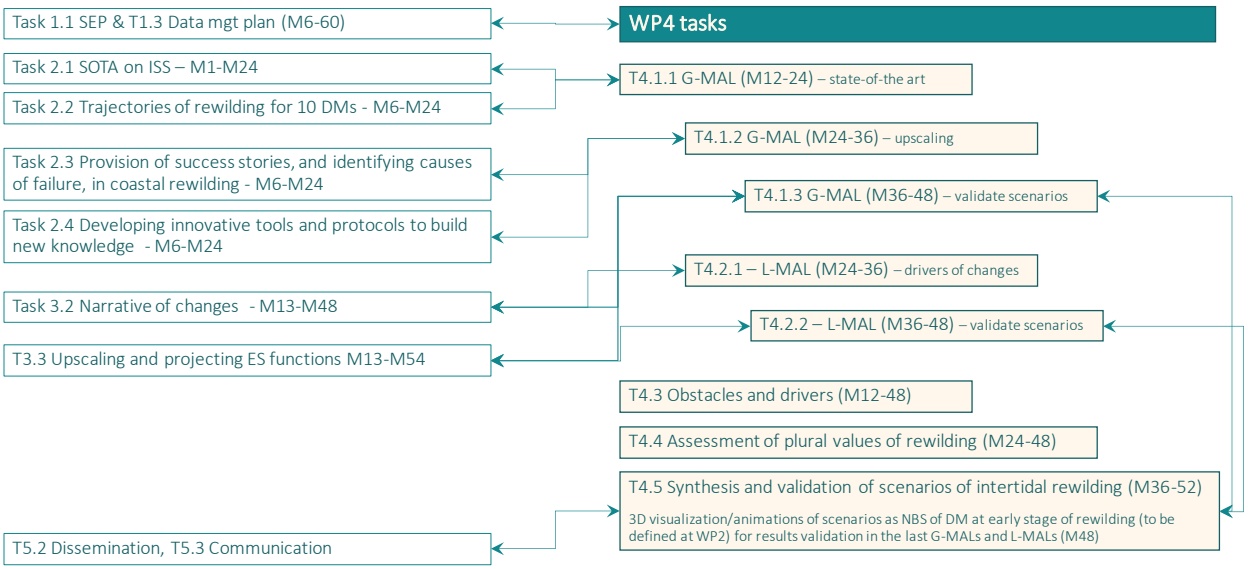

FIGURE 4 – INTERDEPENDENCIES BETWEEN WP4 TASKS WITH OTHER TASKS.

The flow above-illustrated is bidirectional: from one side each task in WP2 and WP3 provides with fundamental input WP4 for the execution of G-MAL (T4.1) and L-MAL (T4.2) that consequentially allows to synthetize and validate scenarios of intertidal rewilding (T4.5). From the other side, the process of planning and implementing scenarios at global (T4.1) and local (T4.2) level can provide useful feedback to the consolidation of state-of-the-art (SOTA or state of the knowledge) on ISS (T2.1), trajectories of rewilding for 10n DMs (T2.2), success stories in coastal rewilding (T2.3), innovative tools and protocols to inform coastal management approaches (T2.4). Stakeholders engaged in G-MALs and L-MALs will then also contribute to designing decision-support systems for future ISS rewilding (T4.4) and to validate seascape 3D visualization/animations of scenarios as NBS required for the synthesis analysis of intertidal rewilding (T4.5). The scheme (Figure 4) will be updated and further detailed throughout the next versions of D.1.3 foreseen during the development of REWRITE.

3 Who to engage?

REWRITE engages a broad range of stakeholders who can have different role and interest in the project outcomes being themselves potential users or benefiting from the outcomes for their activities. For such a reason the identification of stakeholders should follow **three main steps**:

1. Identification and categorization of stakeholders according to pre-defined categories;
2. Assessment and prioritization of stakeholders based on their role, interest and influence in coastal rewilding;
3. Understanding stakeholder motivations, interests, expertise, and capacity to engage.

The results from these two steps build the bases for stakeholder mapping later in the process (see section 4).

3.1 Stakeholder identification and categorization

The SEP foresees that the stakeholder list will be open and adjustable throughout the project, by identifying and inviting new stakeholders who express interest in the project outcomes, especially stakeholders at local level who can be aware of the project progresses in the occasion of the MALs. Stakeholder identification also embraces their role in coastal rewilding and potential benefit achieved from the project outcomes.

Table 2 provides an early overview of the main stakeholder categories by sector and briefly describes the role and potential benefit by contributing with the REWRITE consortium to the achievement of the project results.

TABLE 2: STAKEHOLDER CATEGORIES, ROLES, AND BENEFITS ACHIEVED IN REWRITE.

Cat #	Stakeholder (SH) category	Role in coastal rewilding	Benefit from REWRITE (early indication)
I	Institutional/Policymakers/Governments at different levels (European to local)	In charge of regulation and public policy making on coastal management, nature conservation (e.g. Birds and Habitats EU Directives), natural risks management and climate adaptation	Evidenced-based knowledge on the success of intertidal rewilding to change policy. Evidenced-based knowledge on ecosystem services such as carbon sequestration and biodiversity
II	Decision makers at different levels (European to local)	In charge of managing territories and responsible for land use planning, urbanization, natural risks management, nature conservation… (municipalities or other authorities)	Best solutions through simulation of scenarios including effects of climate change.
III	Experts, key scientists and international organizations (IPCC, IPBES, IUCN, UNEP…)	Advancing Expertise on ISS functions	Advancing knowledge and expertise on ISS functions

IV	Civil society organizations (NGOs, Associations) at different levels (European to local)	Lobbying and leading actions for nature conservation, rewilding, heritage or education…	Biodiversity conservation and contribution to achieve EU biodiversity 2030' target.
V	Businesses and private Companies and foundations	Affected positively or negatively by rewilding scenarios; challenged in their activities by ecosystems and landscapes changes or new opportunities (recreational activities…)	From corporate social responsibility to business model innovation for green economy and positive nature. Roadmap of NbS and their potential application as compensatory actions.
VI	Landowners	Private and public owners of land affected by rewilding	Increase value of their land (value capture mechanisms)
VII	Local communities and citizens	Affected positively or negatively by ES delivered by rewilding because they are living nearby or because of their uses (visitors, tourists, hunters, nature-based sports…)	Recreational activities, education, welfare, health, nature appreciation, more birds and fish, improved water quality. Increased tourism and economy, property value, coastal protection, options of NbS, biodiversity.

Stakeholder categories and their engagement will differ depending on the type of MALs. In particular:

- For G-MALs stakeholders will be targeted from SSC and AB (see section 2.1).
- For L-MAL two stakeholder focus groups will be targeted from various age groups, gender, and socio-professional categories: (1) policymakers, municipalities, private foundations, among other categories, and (2) local communities and citizens.

3.2 Stakeholder prioritization and mapping

This step foresees an assessment and prioritization of stakeholders based on their influence (i.e. and interest on the project objectives and outcomes. The step is conducted by each DL on each DM, using a ranking scale (1-5 = Min-Max; 0 = NA).

The outcome is the production of a stakeholder map on each DM plots stakeholders in relation to their relative influence and interest in REWRITE outcomes. The map will position stakeholders into four quadrants, suggesting different type of engagement, i.e. high influence/high interest (collaborate), high influence/low interest (involve), low influence/high interest (consult), and low influence/low interest (inform) as shown in Figure 5.

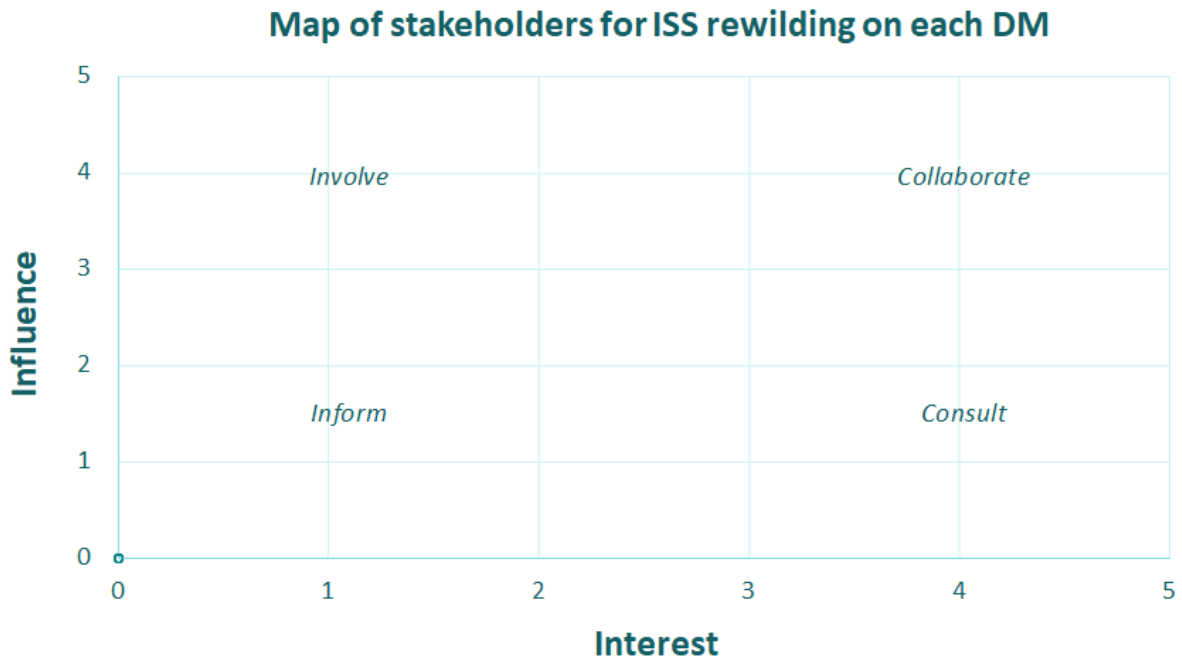

FIGURE 5 - REWRITE STAKEHOLDER MAPPING TOOL.

More in detail, the four levels of stakeholder engagement with increasing level of engagement in REWRITE, starting from the highest to the lowest:

1. **Collaborate**: these stakeholders are essential to REWRITE and must be fully engaged and kept satisfied. They will be largely involved with the project partners, bringing their perspectives in the research direction and results.
2. **Involve**: stakeholders are more fully engaged, and may also provide data.
3. **Consult**: these stakeholders although very interested, have less influence; they will be asked for opinions but not overwhelmed with too much information.
4. **Inform**: it implies communication with more-passive stakeholders for sharing information about the project outcomes.

The increasing level of engagement, correlated to the position of the stakeholders in the map, will be used for planning specific approaches and methods (section 4). REWRITE strategy is to engage all groups represented on the four quadrants, such as inform, involve, consult, and collaborate. Particularly, REWRITE aims to motivate groups from involvement and consultation levels to collaboration, as part of the socio-innovation approach.

3.3 Understanding stakeholder motivations

The SEP finds crucial to well understand stakeholder motivations, interests, expertise, and capacity to engage in REWRITE in order to tailor engagement approaches and fulfill principles of

engagement (section 5). This will be accomplished by the exploration of the following information before any planned stakeholder interaction:

- Existing relationship between stakeholders?
- What expertise do the different stakeholders possess that may be relevant to the project?
- What views are the stakeholders likely to hold about the project outcomes? Will these views be positive or negative? Is there the potential for any conflict arising amongst stakeholders or between stakeholders and the project?
- What are the appropriate means of communication (e.g. Website, social media, Lectures, Multi-stakeholder forums, One-to-one meetings, Town Hall meeting, Workshops, Surveys, Practical demonstrations, Steering group, etc.) to reach certain groups or individuals?
- Is there a willingness to engage? If not, why not, and how could this be overcome? Are there any barriers to participation and/or engagement (e.g. technical, physical, linguistic, geographical, political, time, information, or knowledge)?

TABLE 3 - UNDERSTANDING STAKEHOLDERS MOTIVATIONS

Level of engagement	SH category	Existing relations between SHs	Expertise of the project	Views on the project	Best means of communication	Willingness to engage
	I					
	II					
	III					
	IV					
	V					
	VI					
	VII					

4 How and when to engage?

This section explains common methods of engagement and methods tailored to REWRITE project activities involving stakeholders. It also highlights the stakeholder engagement at task level and timelines.

4.1 Facilitation tools and methods for engagement

Practical methods for stakeholder engagement in REWRITE will combine service design techniques with a strong social innovation approach that aims at co-defining rewilding solutions that address social needs.

4.1.1 Opening out and exploring stakeholders' perspective

Opening out and exploring stakeholder perspectives are methods used to collect information and early stakeholder expectations as described below:

- **OPENING OUT** techniques (brainstorming, facilitation/visualization tools such as metaplan method, Venn diagrams, etc.) for opening up dialogue and gathering information with stakeholders about ISS rewilding, particularly useful during the initial phase (WP2);
- **EXPLORING** (e.g. mind mapping, SWOT, etc.), and DECIDING (e.g. voting, prioritization, MCA, etc.) techniques respectively for analyzing preliminary findings with stakeholders, and for deciding upon actions based on research findings. These techniques will allow to keep stakeholders interested in the process and inject a sense of ownership over the research progress and outcomes (WP2, WP3).

4.1.2 Narratives of change and Storytelling

Narratives of change are concerned with the environmental history of the respective demonstrators (Woebse 2017, Krauß and Bremer 2020). Knowledge about past uses and perceptions helps situating adequately the current transformation towards carbon sequestration and biodiversity in time and space. The identification of the natural and cultural heritage, of systems of knowledge, of changes in land use and practices are gained through literature review, desktop and archival research, landscape studies, political ecology and through semi-structured in-depth interviews with stakeholders, experts, residents or tourists on site.

Storytelling involves gathering stories, experiences, memories of the land-/seascape, opinions, and perspectives from individuals or groups who have a common interest in or who are affected by ISS rewilding, change of seascapes, at regional and/or local level. These qualitative methods provide a framework and real-world setting for the data gained from ecological research and remote sensing. They provide a sense of place, a collection of best-practices and experiences, which

serve as the basis for “rewriting” the ISS in terms of rewilding, nature-based solutions and climate resilience.

Multi-sited ethnography (Marcus, 2012) in different ISS areas enable comparability and to identify similarities and differences in the process of rewilding. As such, narratives of change help to situate future scenarios for each demonstrator, provided by representative local stakeholders, and will serve as a basis for the scenarios designed collectively in the two focus groups of the L-MALs. Furthermore, storytelling enables to gauge awareness evolution among individuals during the project and the effects of negotiations and trade-offs on final scenarios. Analyzing and comparing narratives of change within the network of DM will enable us to point out the pathways and possibilities for rewilding options and the needed trade-offs and negotiations at the local scale.

4.1.3 Surveys

A survey is a methodological observation tool comprising a series of questions that follow on from each other in a structured and logical manner. The aim of this type of survey is to obtain quantifiable and comparable statistical data on a specific population. To achieve this, the questionnaire is administered to a representative sample of a target population, i.e. a group of sufficient size, in terms of number of individuals, for the answers given to be representative of the overall opinion of this population.

Among the many advantages of this research method, the three main ones are as follows:

- It is simple to set up and generally inexpensive, especially due to the democratization of online questionnaires.
- The results are easy to obtain and measure, as the use of software simplify the inputting of responses.
- It enables research to be carried out in many strategic areas.

The aim of questionnaire surveys is to observe, analyze and understand trends, global behavior and phenomena using the data collected. These surveys are submitted collectively in order to be representative and obtain usable figures. This tool is therefore one of the quantitative research methods. These so-called quantitative methods use mathematical and statistical tools to describe, explain and understand phenomena based on data.

For instance, a survey can be carried out to answer the following questions in the context of REWRITE:

- What is the perceived utility of intertidal ecosystems and how does this influence the acceptability of adaptation measures?
- Do beliefs about climate change and the perception of coastal risks modify the perceived usefulness of intertidal ecosystems and therefore influence the choice of adaptation solutions?
- Also, do beliefs about nature and representations of wetlands play a role in assessing the perceived usefulness of these areas and therefore in the choice of adaptation measures?

The results of this survey will provide a baseline of knowledge regarding acceptance or attitude towards intertidal systems and their protection. This attitude/acceptance will be explained by people's acceptance of the effects of climate change, their relationship with nature and their perception of coastal risks.

4.1.4 Participatory methods

In REWRITE, the participatory approach was built since the beginning if the project. It represents an alternative to a prescriptive, 'top down' model of research allowing that bottom-up perceptions and values are involved in co-designing and validating scenarios of ISS rewilding. Accordingly, stakeholders can direct the research as well as influence the treatment of the data and the outputs. Different participatory methods approach will be used in REWRITE, as follows:

4.1.4.1 Participatory Mapping

Participatory mapping is a process that is used for the collection, analysis, and representation of spatial data (Lienert, 2019). In REWRITE it can empower local stakeholders and local communities to share their knowledge and needs, through spatial mapping and, by doing so, influence future decisions of rewilding. The collection, analysis, and representation of spatial data of areas of potential rewilding can also include socio-economic, cultural, and environmental information that is usually excluded from mainstream maps.

REWRITE will adopt participatory mapping through Participatory GIS (PPGIS), that is a map-based survey method that allows participants to provide both geographic and non-geographic information. This method can bridge "soft" subjective, place-based data (such as human experiences and everyday behavior) and "hard" objective GIS data.

It is an important process, and it should be co-created with SC, WPL, and DLs to fulfill the project needs and follow pre-defined stakeholder principles (see section 6). During the conduction the stakeholder list, two groups of stakeholders should be considered: (1) global level and (2) regional/local level at DM scale.

4.1.4.2 Multi-actor laboratories (MALs)

MALs is the primary method is REWRITE to co-design scenarios of ISS rewilding (Figure 6). The format and goals of MALs should be planned beforehand in a co-creation process with WPLs and DLs and coordinated by WP4. Usually, MALs follow the format of workshops, with one facilitator that has the role of asking questions and collecting knowledge from participants while paying attention that all the themes/discussions points were addressed. The facilitator can be supported by other REWRITE members according to the context (language, culture, etc.).

MALs will generate shared learning about ISS functioning and research processes (e.g. practical demonstrations, participatory events (training, games), field or laboratory visits and participative sciences). It is a participatory approach often used to co-design scenarios and identify

policy, technical barriers, and actions connected to ISS. Depending on the scale of the MALs, i.e., global (G-MALs) or regional/local (L-MALs), different stakeholder groups covering varying categories will be invited according to well pre-defined goals. The coordination and logistics of MALs follow the same approach of any public event in person with hybrid options, giving attendants the possibility to participate online.

Global MALs (G-MALs) have two goals: (1) to build up a **back-casting scenario** where a desirable approach of ISS is visualized at broad EU and International level. Given the interdisciplinary nature of the project, stakeholders are the pre-established groups in REWRITE: SC, SSC, AB, WPL, and DL. Fixed themes and questions are previously outlined to the project in a protocol (T2.4) to assess what is missing in order to achieve the desirable scenario, for instance, on governance and achievement of climate and biodiversity targets on 2030 and 2050, in co-creation with REWRITE pre-established groups; (2) Identify integrative and common **drivers of change, i.e. driver variables** to ISS and explain why (Tiller et al. 2016) (Figure 6). Driver variables are variables that affect the system but are not generally affected by the system itself. For instance, temperature, water level, shoreline modification. They should not be “high” or “low” such as “change in temperature”, “change in nutrients”, “change in sea level”. G-MALs provide the basis for system thinking exercise in Local MALs (L-MALs). While the first planned G-MAL is covering goals (1) and (2), the second G-MAL will explore upscaling of ISS rewilding by addressing what is required to fulfil the desirable state. The third G-MAL will validate scenarios using visualization of 3D images and GIS thematic maps of selected DMs. As such a list of participants on the three G-MALs might include:

- REWRITE members: SC, DLs, and AB
- The 10 DMs managers, or responsible: SSC
- Facilitators according to number of groups formed for each G-MAL
- One person taking notes (eventually the facilitator and/or another supporting person).

Note that the list above might be adjusted following interest of new organizations and availability of stakeholders.

Local-MALs (L-MALs) have the goal to explore in detail the driver variables within the context of DMs at early stage of ISS using a system-thinking approach in order to develop cognitive maps and validate scenarios using visualization softwares (Senge 1990, Forrester 1994, Sterman 2000). Before L-MALs, three and/or four DMs should be selected by WP2 (more details in next version). The selected DMs should be the same as ones where socio-economic and environmental variables are tested in WP3 during the process of implementation of ISS.

Driver variables decided in the G-MAL should be used as conversations starters in L-MALs where the development of conceptual models of different stakeholder groups would take place. The format used is variable, usually stakeholder groups should be up to 10, otherwise, they should be divided in sub-groups. Each group should have one facilitator. The facilitator uses a while board or a flip-board, or participants are divided in tables with post its and can build the conceptual model together with a facilitator. As participants start to discuss, they generate other variables, which should be linked to the driver variables under group discussion. It is advisable to involve stakeholders at early

stages of preparation of L-MALs preparation to align thoughts and enhance motivation, acceptance, and engagement. This can be done by sending information emails or making questions during registration to attend the event. An adaptative approach should be adopted to L-MALs. In case, key stakeholders cannot attend, interviews can be used as alternative to provide the results needed for conceptual maps and scenarios. As such a list of participants on the two L-MALs on each selected DM might include:

- REWRITE members: SC, WPLs, and relevant DL
- The DMs manager or responsible
- The stakeholder groups identified previously by the DL in collaboration with SC and WPLs
- Facilitators according to number of groups formed for each L-MAL (should speak the local language)
- One person taking notes (eventually the facilitator and/or another supporting person).

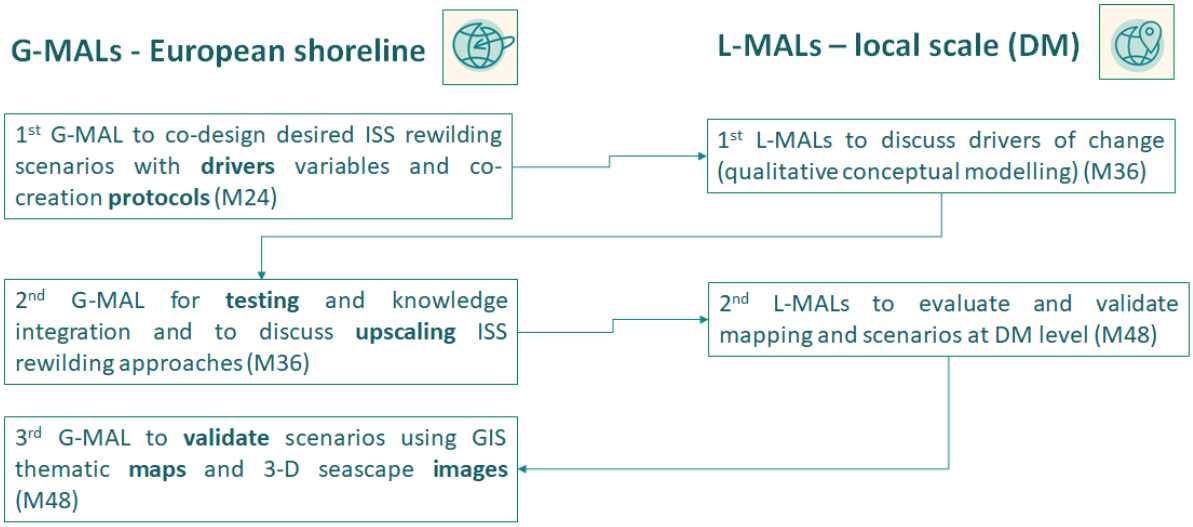

FIGURE 6: TIMEFRAME AND INTERACTIONS BETWEEN G-MALS AND L-MALS.

4.1.4.3 Scenarios analysis

Scenario analysis is used in REWRITE to visualize and map different options of ISS rewilding from the current to a new state, co-designing with stakeholder to include their views, needs and priorities. Back-casting scenarios are used on the EU/international stakeholder level while cognitive-based scenarios are used on local stakeholder level (Figure 7). Both approaches are mentioned briefly within REWRITE scope in section 2.4, but more details will be found in D4.1, D.4.5 and D4.6.

Visualization tools such as GIS maps, 3D images are used for scenarios building and testing on G-MALs and L-MALs, as well as other workshops and/or interviews to allow stakeholders reflect on

the discussing points. According to UKNEA (2011) “scenarios are neither predictions nor projections and sometimes may be based on a ‘narrative storyline’. Scenarios may include projections but are often based on additional information from other sources.”

In REWRITE, additional information required to build projections is planned through the interactions between G-MAL and L-MALs and interlinkages with WP2 and WP3 (Figure 6).

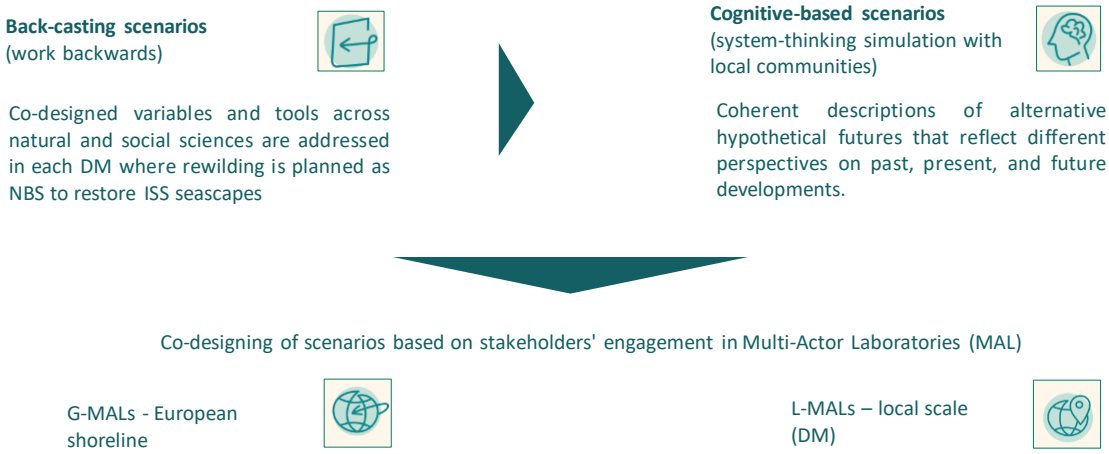

FIGURE 7: SCENARIOS ANALYSIS USED AT REWRITE AND CONNECTIONS TO EU AND LOCAL LEVELS.

Once a clear objective is set, participatory approaches are used for scenario development according to the main output:

1. Construction of scenarios: co-designing in collaborative workshops, data from interviews, cognitive mapping, qualitative conceptual modelling – addressed in REWRITE by L-MALs.
2. Selection and validation of scenarios: 3D visualization tools, GIS thematic maps – addressed in REWRITE by G-MALs and L-MALs.
3. Scenarios tailored to support decision-making: back-casting approach – addressed in REWRITE by G-MALs.

4.2 Overall structure of stakeholder engagement

Based on the four levels of stakeholder engagement previously described (section 3.1) and considering the role of REWRITE groups (section 2.4), this SEP identifies different methods and tools for engaging stakeholder groups, from local to European scale, contributing to co-develop the project outcomes as illustrated in Figure 8. Note that stakeholder groups are not fully defined at local level and at global level are represented by SC, SCC, AB, DL, LS and may be adjusted throughout the project. Similarly, the method and tools might be adapted according to the level of stakeholder engagement.

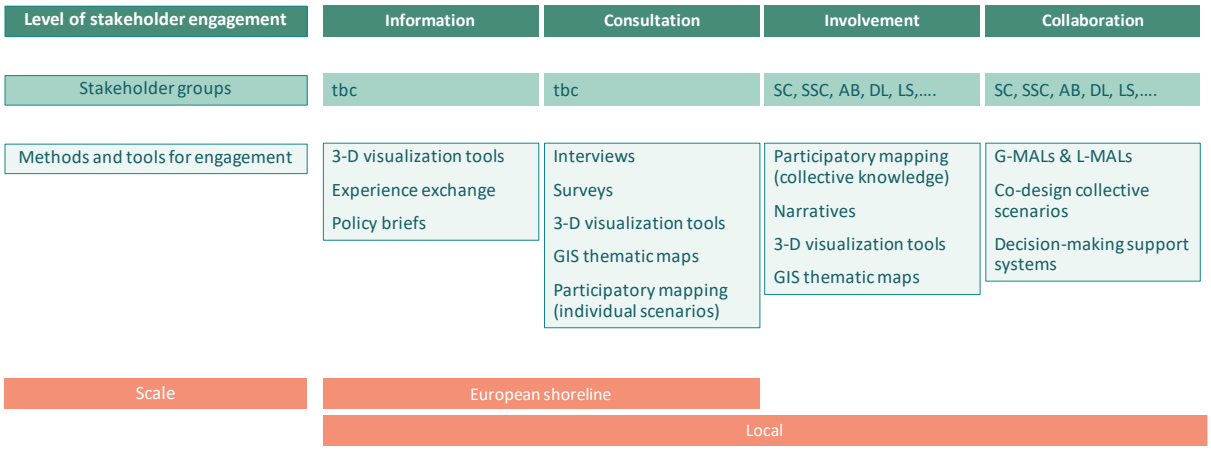

FIGURE 8 – METHODS AND TOOLS FOR STAKEHOLDER ENGAGEMENT. TBC: TO BE CONFIRMED AFTER G-MALS AND L-MALS PREPARATION.

4.3 When to engage at WP and task level

Stakeholder engagement will vary and will be adapted throughout the lifecycle of the project, depending on the possible and actual contributions of stakeholders at different times, considering the expected outcomes of WP2, WP3 and WP4. A timeline and an early list of required preparations, groups and possible methods that foresee stakeholder engagement is provided in Table 4 below:

TABLE 4: INITIAL TIMELINE OF STAKEHOLDER INTERACTIONS PLANNED DURING REWRITE.

Timeline	WP/Task	Responsible	Suggested preparation time	Groups involved	Suggested methods (non-exhaustive)
October 2023 - September 2025	WP2 T2.1	UEssex	October 2023 - February 2024	All REWRITE partners	Workshops eventually on annual meeting, lists
March 2024 - September 2025	WP2 T2.2	UEssex	February 2024 – April 2024	All REWRITE partners	Workshops eventually on annual meeting, lists, mapping
March 2024 - September 2025	WP2 T2.3	UM	February 2024 – April 2024	All REWRITE partners, DL, DM managers, G-MAL stakeholders, local stakeholders	Focused workshops, lists, surveys, interviews
March 2024 - September 2025	WP2 T2.3	UHull	February 2024 – April 2024	All REWRITE partners, DL, DM managers, local	Focused workshops, Visualization, GIS thematic maps

				stakeholders, G-MAL stakeholders	
October 2024 – September 2027	WP3 T3.2	UBremen	September 2024 – ongoing	All DL, local stakeholders	Semi-structured interviews (narratives and storytelling)
October 2024 – September 2027	WP3 T3.3	UTwente	September 2024 – ongoing	SC, WPL, G-MAL stakeholders and L-MAL stakeholders	Focused workshops, visualization tools, GIS thematic maps, 3D images when relevant
September 2024 – September 2027	WP4 T4.1	PER	August 2024 – December 2024	All DL, SC, AB, SSC, WPL, G-MAL stakeholders	Preliminary surveys, focused workshops, svisualization tools, GIS thematic maps, 3D images
September 2025 – September 2027	WP4 T4.2	PER	August 2025 - December 2025	Relevant DLs, SC, WPL, L-MAL stakeholders	Preliminary surveys, focused workshops, visualization tools, GIS thematic maps, 3D images when relevant
January 2026 – September 2027	WP4 T4.5	SDU	December 2025 – March 2026	All DL, SC, AB, SSC, WPL, G-MAL stakeholders, L-MAL stakeholders	Focused workshops, Visualization tools, GIS thematic maps, 3D images

Note that Table 4 would be adjusted during project period when relevant and after identification of stakeholder groups.

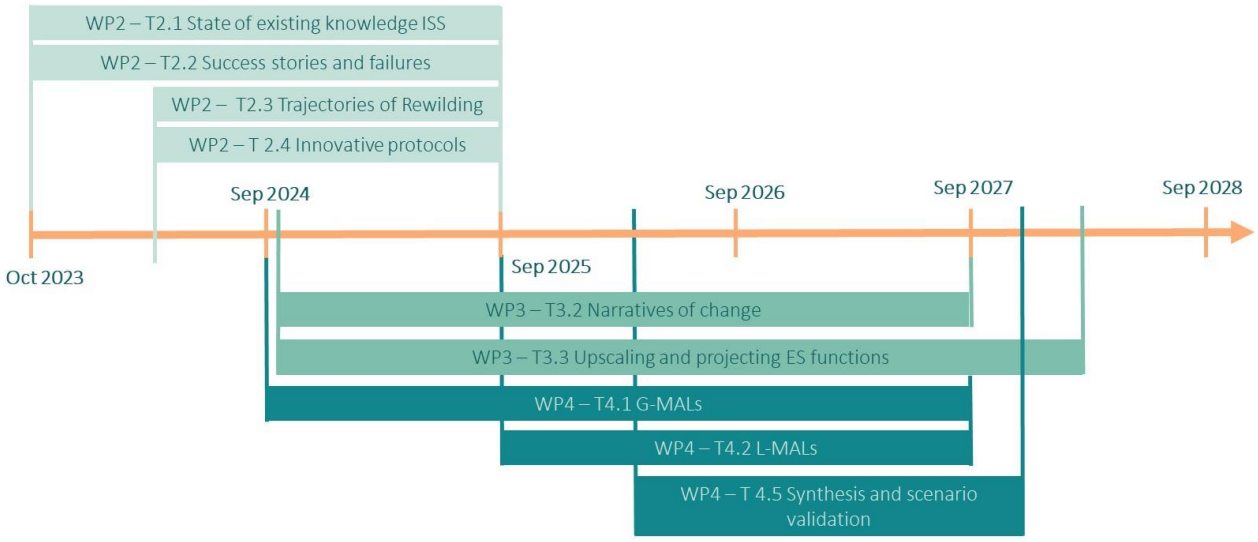

FIGURE 9: TIMELINE OF STAKEHOLDER ENGAGEMENT RELATED TASKS (EXCLUDING COMMUNICATION AND DISSEMINATION) WITHIN THE 5 YEARS PROJECT DURATION.

5 Principles guiding stakeholder engagement

In this section, we present **principles** that should be adopted when engaging with stakeholders.

5.1 Ensuring engagement and inclusion

Effective communication is critical to fulfill stakeholder expectations and the success of collaborative process throughout the project. Building relationships and establishing trust fosters a collaborative environment where stakeholders feel empowered to contribute. Clear communication channels are established in REWRITE, through the local contacts and networks of DM, and i.e. website, LinkedIn, and "X", to ensure that all stakeholders groups find project information can see the results of their engagement.

The broad range of stakeholder groups in REWRITE may have context-specific cultural norms, values, or different ways of communication, which can lead to miscommunication. Such differences are important to be accounted for to promote an inclusive and respectful environment. Stakeholder engagement efforts and expectations may unintentionally overlook or under-represent certain groups due to language barriers, socioeconomic disparities, or historical marginalization. This can result in incomplete or biased views and outputs.

In REWRITE, the groups SC, DL and WPL should ensure the inclusion and meaningful participation of all relevant stakeholder groups by thoroughly considering language when relevant by translating workshop materials and presentations, incorporate cultural aspects by the involvement of DL, providing accessibility at physical meetings and flexibility in creating hybrid online options when relevant, and addressing unconscious biases by relying on the diversity of the consortium and DL. Furthermore, the WP1 coordination and SC actively accommodates equal representation of gender, age groups and ethnicity.

5.2 Risks and conflict mitigation

Stakeholders may present different levels of trust or skepticism towards the engagement process, depending on past and/or current experiences in other projects, and/or power imbalances. Trust and credibility require transparent and consistent communication, demonstrating commitment to inclusive collaborative process, and delivering on promises made, for instance, on presenting partial results or recognizing their impact on the project. Stakeholder groups from different backgrounds may have varying levels of openness or resistance to change. Some groups may embrace new ideas and approaches, while others may be more cautious or reluctant. Understanding the concerns and motivations of each group can help address resistance and promote buy-in.

There are several risks when engaging with stakeholder groups of different backgrounds since they may have conflicting interests, priorities, or perspectives, which can lead to disagreements or challenges in finding consensus. When planning engagement, we should be aware of power dynamics, some groups may have more access to resources, influence, or decision-making power than others. Furthermore, we should be aware of potential disparities and strive for equitable and unbiased engagement processes to avoid further marginalization or exclusion (see Table 5).

During stakeholder engagement, and methods used for it, such as meetings, workshops, interviews, etc. we must be aware in avoiding unnecessary appointments, balancing the level of repetitive information, and meetings and action requests to avoid stakeholder fatigue. Stakeholder fatigue might also happen when interactions are poorly designed without a clear goal and/or method for continuous engagement. Therefore, to mitigate stakeholder fatigue an effective communication flow between work package leaders is necessary as well as an effective plan on stakeholder interactions and engagement should be planned in collaboration and in advance.

TABLE 5: SUMMARY OF RISKS AND CONFLICT MITIGATION OF WORKING WITH STAKEHOLDERS.

Risk	Mitigation
Miscommunication and different level of access to resources	REWRITE commits to translate any necessary material to local stakeholders' language for the engaging in workshops. Local stakeholders have close contact to DLs. REWRITE established several communication channels such as website, LinkedIn, "X".
Biased gender, age groups and ethnicity	REWRITE groups, SC, SSC, AB and DLs, were established following these aspects and will assure that all relevant measures are taken into consideration when interacting with stakeholders.
Conflicting interests of stakeholder groups	During the stakeholder prioritization, mapping and understanding of motivation (see section 2 and 3), possible conflicting stakeholder groups and/or topics will be identified. G-MALs, L-MALs and/or any other group collaborative activity will be planned in separate groups.
Power dynamics	During the stakeholder prioritization, mapping and understanding of motivation (see section 2 and 3), possible power dynamics will be identified. G-MALs, L-MALs and/or any other group collaborative activity will be planned in separate groups.
Stakeholder fatigue	Effective and clear communication flow between sister projects (using living labs), work package leaders, task leaders and DLs, to coordinate how many times stakeholders are contacted. Follow "Who to engage" and "How and when to engage", section 3 and 4, to plan interactions at global and local levels. Accordingly, 3 G-MALs and 2 L-MALs are planned, consider eventual overlap of stakeholders for these interactions, and allow opportunities for adjusting schedules and methods.
Assuring continuous stakeholder engagement throughout the project	Understand stakeholder motives and preferable ways of engaging (see section 2 and 3), offer flexibility on accommodating timeframes and identifying best ways of informing and collaborating. It is important to establish a strong stakeholder connection to increase project acceptance and ownership.

6 Ethics, data management and consent

6.1 Ethics and consent

As notified in the GA, all this work complies with ethical regulations. All methodological tools involving human subjects will be reviewed for ethics and legality by the partners organizations. Particular methodological tools (e.g. surveys, questionnaires, interviews, standardized tests, direct observation, ethnography, recordings, video, experiments with volunteers, workshops, incentives) will be carried out using volunteers. For each participant we will provide a clearly document informed consent in advance. This document will be written in a language and in terms they can fully understand, describe the aims, methods and implications of the project activity, the nature of the participation, explicitly state that participation is voluntary and that anyone has the right to refuse to participate and to withdraw their participation, samples or data at any time — without any consequences, state how personal data will be protected during and after the project. We will ensure that potential participants have fully understood the information and do not feel pressured or coerced into giving consent. Participants will give their consent in writing (e.g. by signing the informed consent form and information sheets). The documents of consent will be added as annex in the next version of this handbook.

To protect personal data of participant, we will used pseudonymized data, either anonymized when possible, to insure identifying a particular individual is impossible. For personal data from previous application of particular methodological tools in non-UE countries (UK, Canada and USA), we will comply with the laws of these countries in which the data was collected. All personal data collected within the project will conform to EU General Data Protection Regulation (GDPR) and processing of personal data will follow its 7 principles (lawfulness, fairness and transparency, purpose limitation, data minimization, accuracy, storage limitation, integrity and confidentiality and accountability).

6.2 Data management

As specified in the GA, and detailed in the Data Management Plan (DMP, first and updated versions), all data and metadata will be stored in the Rewrite Cloud (https://cloud.rewrite-project.eu/), available by internet access only for the members of the consortium to ensure data security. To ensure long-term impact, and to make the data findable, in respect to FAIR (Findable, Accessible, Interoperable and Re-usable) data management in Horizon Europe, the data will be accessible using appropriate database such as Huma-Num (https://www.humanum.fr/) or Dariah (https://www.dariah.eu/) for Social sciences and humanities data. For more details, see the DMP.

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