



**Co-design Framework:
Engaging with the stakeholders on NBS for Water Treatment**
Deliverable 6.1

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Abbreviation List

ENTS	Enhanced Natural Treatment Solutions
IAB	International Advisory Board
IUCN	International Union for the Conservation of Nature
NBS	Nature Based Solutions
NBS ^{WT}	Nature-Based Solutions for Water Treatment
TNC	The Nature Conservancy

Executive Summary

The overall concept of MULTISOURCE focusses on the intersection of Nature Based Solutions for Water Treatment (NBS^{WT}) with the four key areas of environment, circular economy, society and policy. Stakeholder engagement is an essential element of MULTISOURCE. In the context of this framework, stakeholders are considered individuals or groups who i) are impacted (negatively or positively), ii) have information that can usefully support an informed decision, iii) are interested in the outcomes, and/or iv) have influence over the outcomes. Effective and inclusive stakeholder engagement processes and methods will be used in many aspects of the Pilot development, with a focus on the monitoring and evaluation process, the development of business models and planning tools (referred as ENTS Tools) and at a later stage to evaluate the 'primary' benefits of them. The Enhanced Natural Treatment Solution (ENTS) are, in the context of MULTISOURCE, defined as a subgroup of NBS^{WT} that have an increased treatment capacity, lower cost, and/or smaller environmental footprint in comparison to conventional NBS^{WT}.

The MULTISOURCE Co-design Framework is the umbrella document that guides the MULTISOURCE project partners in a systematic approach to participatory, trans-disciplinary and multi-stakeholder interaction for the Co-design, co-development, co-implementation and co-evaluation of the Pilots and the ENTS Tools. The systematic interaction with of all relevant stakeholders in the definition of co-benefits for each Pilot, as well as for the development of business models and planning tools aims to the achievement of mutually valued outcomes.

In the first two parts, the Co-design Framework (Figure 1) outlines the principles to be considered for the effective multi-stakeholder engagement and the mainstreaming of the gender and equity aspects throughout this framework. Further down, the Co-design framework is structured in **three sections**, providing a **step-by-step process** for the multi-stakeholder engagement and a **set of methods** for the collaborative interaction with them. The three sections focus on addressing the following main questions I) why to engage, II) who to engage, and III) how to engage. The stakeholder engagement process is structured in **three stages**, Stage 1: Identify, Stage 2: Assess, Analyse, and Prioritise, Stage 3: Understand and Engage. The methods for engaging with the stakeholders outlined in Section III support the implementation of the stakeholder engagement strategy. This is a non-exhaustive list that will be continuously updated in collaboration with the project partners.

Section I, aims to support the project partners in understanding the purpose of engaging with the relevant stakeholders in the context of their research. This section outlines four main categories why to collaborate with the stakeholders, namely a) the documentation of lessons learned, b) the sharing experience and knowledge, c) the integration of expert's views, and d) the evaluation of the MULTISOURCE scientific and technological outputs.

Section II, supports the mapping and assessment of the relevant stakeholders. In the context of MULTISOURCE there are three main stakeholder categories, a) the local stakeholders related to the Pilots and the supporting mechanisms, b) the International Partners of the project (Brazil, USA, and Vietnam), and c) the International Advisory Board experts. The process for mapping and analyzing the stakeholders focuses mainly on the first category, as the stakeholders who belong to the other two categories have already been identified in the proposal writing phase of the project. The final group of stakeholders to be involved may consist of stakeholders from either one or more of the above-mentioned categories.

Section III, of this framework supports the project partners to develop the engagement strategy. This strategy aims to provide a structured roadmap for the interaction with the selected group of stakeholders. It outlines the group of stakeholders to engage with, the objectives and methods for engaging with them and the timeline for this interaction.

The development and implementation of the stakeholder engagement strategy under this Co-design framework will also facilitate a close collaboration between the project partners involved in the Pilots and developing the supporting ENTS Tools. This collaboration will strengthen the relationship between these two strands of activities and lead to the generation of mutually valued outcomes. Moreover, the implementation of this framework will provide lessons learned and insights on the stakeholder engagement process and methods that will be documented in the upcoming interim and final report for the stakeholder engagement in the field of NBS^{WT}.

Introduction

In the context of MULTISOURCE, stakeholder engagement is defined as the process by which any person or group who has an interest or stake in the scientific and technological outputs or processes of the project will be engaged to provide their inputs. A stakeholder can be considered a person or group that i) is impacted (negatively or positively), ii) has information that can usefully support an informed decision, iii) is interested in the outcomes, and/or iv) has influence over the outcomes. The stakeholder engagement process will enable feedback loops between stakeholders and the project partners to ensure the MULTISOURCE outcomes meet the needs and expectations of the intended end-users, and allows inputs from a range of geographical, socio-economic, and cultural perspectives to be accounted for in the co-monitoring of ENTS Pilots as well as ENTS Tools.

The engagement of the different stakeholders in the process of the co-monitoring and co-evaluation of the ENTS Pilots and the co-development of the ENTS Tools need to be based on effective and inclusive processes and methods. To this end, a Co-design framework has been defined that serves as an umbrella documents for the stakeholder interactions during the MULTISOURCE project. Furthermore, this document aims to guide the MULTISOURCE project partners in the development of a strategy for the engagement of stakeholders. A set of principles guides project partners in the realisation of this Co-design framework. The framework is developed in a three-section structure (i.e. I). why to engage, II) who to engage, and III) how to engage.) (see Figure 1). The three main Sections and the respective processes (i.e. the stages and steps) have been organised alongside these sections as follows:

Section I: Understand the purpose of engagement

Section II: Analyse the categories of stakeholders

Stage 1: Identify

Step 1: Stakeholders Map

Stage 2: Assess, Analyse, and Prioritise

Step 1: Stakeholders assessment matrix

Step 2: Define the type of Impact

Step3: Stakeholders Assessment Table

Section III: Develop the strategy and methods for engaging with stakeholders.

Stage 3: Understand and Engage

Step 1: Influence Circle

Step 2: Stakeholder's Profile

Step 3: Stakeholder's Engagement Strategy

The completion of each section of the framework leads to the achievement of specific outcomes for an effective and inclusive stakeholder engagement process. The expected outcomes for this Co-design framework are as follows:

Outcome I: The purpose for engaging stakeholders in the case of an activity is defined.

Outcome II: The group of stakeholders fit for the purpose is identified.

Outcome III: The strategy and method(s) to engage with the group of stakeholders are developed.

Section I, of this framework is based on a literature review and provides an overview on the purposes for engaging with stakeholders at local and international levels. The purpose of engagement is aligned with the activities of the ENTS Pilots and the development of the ENTS Tools. The main objectives for engaging with stakeholders in MULTISOURCE are a) knowledge and experience sharing, b) integration of experts' feedback, and c) the evaluation of the Pilot outputs with stakeholders.

Section II, of this framework focuses on selecting the relevant stakeholders fit for the selected purpose of engagement as defined in Section I. Therefore, a short description of these categories is provided

in this section to support the project partners in structuring the different stakeholders into groups. The process for identifying and analysing these stakeholders consists of a mapping and assessment approach that is based on the stakeholders' interest/ influence in the Pilots/ Tools. This process provides a clear overview of the stakeholder landscape and a deep understanding of their capacity to get engaged for the defined purpose. The project partners of MULTISOURCE will engage with stakeholders clustered along the following main categories:

1. Local Stakeholders in relation to the ENTS Pilots, and the Tools for NBS^{WT}
2. International Project Partners
3. Advisory Board (External Experts)

Section III, builds on the outcomes from the previous sections and aims to support the project partners in developing a strategy for an engagement with the selected stakeholders. Moreover, an initial set of methods is provided (e.g. workshop, webinar, etc.) to put this engagement into practice. The list of the engagement methods is non-exhaustive and will be enriched and validated with the project partners in the implementation phase of the Co-design framework in the coming years of the MULTISOURCE project.

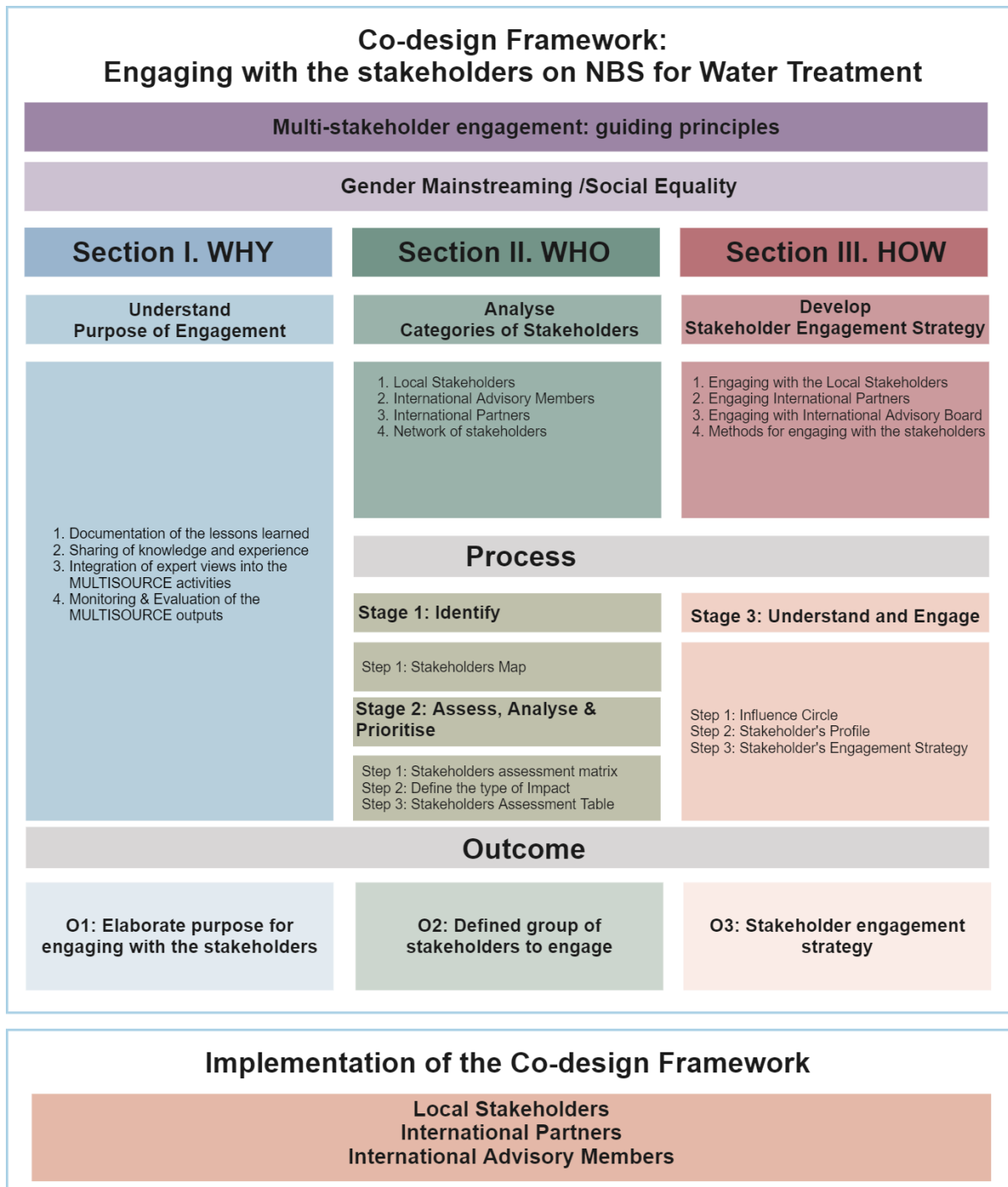


Figure 1. Co-design framework overview

Multi-stakeholder engagement: guiding principles

This part presents a number of principles that should guide the implementation of the Co-design framework. The project partners should consider these principles when engaging with the stakeholders. These should be reflected, for example, in the engagement strategy and the related work plans. The actual stakeholder engagement activities and outcomes will be documented by the project partners and, eventually, the guiding principles will be reviewed and revised, if required. Finally, an interim and final assessment of the stakeholder engagement in the project will be carried out and integrated into an interim report on lessons learned, in M30 (Nov 2023), and a final report in M48 (May 2025).

Indicative guiding principles for the implementation of the Co-design framework are provided:

- **Plurality:** While there is no 'right' or 'wrong' in the different perspectives from the stakeholders, some convergence level of consensus will be necessary in order to build jointly a fair stakeholder engagement strategy (Albrechts, 2015).
- **Multidisciplinarity:** Combining understandings and perspectives of different disciplines related to NBS^{WT}.
- **Encouraging innovation, creativity & learning:** Encouraging stakeholders to be open for dialogue and new ideas when dealing with complex issues of water treatment in urban areas.
- **Inviting and captivating:** Making sure that there are no barriers to participatory engagement in all stages of the project, and the level of engagement expected is fitting the stakeholders involved. Creating and sustaining stakeholder's interest throughout the entire process is key for a successful stakeholder engagement.
- **Contextual and fitting within available resources:** Balancing the input of resources with the desired outputs
- **Dealing with uncertainty and complexity:** Considering there is never one possible solution but a broad range of options, which can be evaluated at any time along the process of water treatment. Therefore, embracing uncertainty and addressing the complexity of the NBS^{WT} provides solid ground to build interaction with the stakeholders, focusing on advising rather than mandating.
- **Action orientation:** Dealing with the different aspects of the NBS^{WT}, gaining and maintaining stakeholders support and simply getting things done and seeing results.

Compliance with fairness and equity principles

For the compliance with fairness and equity, it is important to include a broad range of stakeholders in the processes of planning, implementing, monitoring and evaluating the impacts of innovative solutions. Their assessment should include aspects of efficiency and sustainability, including an analysis of the societal benefits for those affected by them. It is nevertheless important to note that stakeholder engagement on its own does not automatically lead to equitable solutions. This can cause power imbalances at community level, resulting into social inequality, meaning that some of the individuals of a given social group experience limited access to the same opportunities, or sometimes even rights. To maximize the benefits and minimize the potential costs of the NBS, marginalized individuals or groups should be included in all processes.

It is thus important to first recognise the existing power imbalances within the group of the stakeholders. Existing obstacles that hinder the inclusion of marginalized individuals or groups must then be addressed. While in the short run simple solutions can be applied, which will contribute to higher participation, such as changing the time and/or place of venue, or providing translation and intercultural mediators. In the long run it is also important to dismantle the norms, values and stereotypes that cause the power imbalances.

Once all stakeholders take part in the process, it is important that they contribute to the process and that their positions are heard, understood and included in the MULTISOURCE outcomes. To achieve this, knowledge-sharing and discussion spaces have to be facilitated to promote communication, collaboration and negotiation of all actors, regardless of the amount of power they have within society. Furthermore, understanding the positions and values of individuals or groups is part of ensuring a fair and equitable division of costs and benefits delivered by the proposed NBS^{WT}.

1. Why to collaborate with stakeholders in MULTISOURCE?

There are a number of reasons for engaging stakeholder in the different aspects of the for the ENTS Pilots with a focus on the monitoring and evaluation, as well as in the development of ENTS Tools. These include the creation of links between the ENTS Pilots and the relevant target audiences. These interactions lead to access to additional information or resources, improving the relevance or utility of the NBS^{WT} for future users and beneficiaries and replicating the ENTS Pilots in full scale. By engaging with the relevant stakeholders, the MULTISOURCE project partners can ensure that the scientific outputs of the ENTS Pilot and the Tools can be effectively tailored to the local context, increasing the likelihood that solutions are adopted and applied, leading to beneficial impacts for all. The main outcome of the first stage of the framework is therefore the definition of the purpose of engaging with stakeholders in the implementation of the MULTISOURCE project. Pilot.

1.1. Purpose of engagement with the local stakeholder

Defining clearly the purpose of engaging with the stakeholders in the monitoring of the ENTS Pilots from the outset is an important step. Once the purpose is defined, there is a clear direction for the selection of the relevant stakeholders as outlined in Stage II. Defining the purpose of engagement is also closely connected to the expected outcomes of this process, as it informs the choice and development of the engagement activities in the third stage of this framework. Finally, the purpose determines what kind of knowledge, experience and/or resources each stakeholder is expected to bring when being engaged.

This stage is built on four main dimensions addressing the purpose of the engagement of MULTISOURCE partners with the different categories of the stakeholders identified in Section III of this document. These dimensions can be expanded or reshaped based on the context of each Pilot or supporting mechanism. In this document they are defined as follows:

- Documentation of the lessons learned
- Sharing of knowledge and experience
- Integration of experts' views
- Evaluation of outcomes and outputs

1.1.1. Documentation of lessons learned

Taking note of the lessons learned helps to map successes and failures and identify good practices to be replicated or scaled up. This knowledge will be built on the positive and negative experiences derived from the implementation and monitoring of the ENTS Pilots, and will also support ENTS Tools developed in tandem with the ENTS Pilots. Thus, the lessons learned in the MULTISOURCE project can be exploited to strengthen future NBS^{WT} programmes, projects and services.

In order to ensure the exploitation of the documented lessons learnt beyond the project, they should have these three characteristics:

- be **significant**; i.e. have impact / value on operations,
- be **valid**; i.e. be technically and factually correct,
- be **applicable**; i.e. identify a specific action to be taken, replicated, avoided or adjusted.

It is important to ensure the relevance and usefulness of the knowledge generated. To this end, it is necessary:

- to determine the stakeholder groups that are the target audience(s) of the lessons learned;
- to articulate what is critical knowledge in collaboration with these stakeholders;
- to document all the experiences (positive and negative) in a structure that is usable for the target audience;

- to apply the lessons learned and add value into other initiatives and applications of NBS^{WT} of stakeholders' interest.

The engagement of stakeholders in the documentation of lesson learnt delivers knowledge produced by the MULTISOURCE project, feeding into different water treatment pathways. These pathways are not only related to the technical definition of the water treatment solutions, but also in terms of building knowledge for every phase of the development of a NBS^{WT} project.

In the early planning stage of a NBS^{WT} project, the lessons learnt should contribute to establishing stakeholder relations, understanding the scope and needs as part of the process for the conceptualization of the NBS^{WT}, identifying possible resources, and managing efficiently the available budgets.

As part of the implementation and monitoring, the lessons learnt will support the approaches for the understanding of the performance of a given system and assessing its risks. In this context, experiences from MULTISOURCE partners in the monitoring stages can help to build consistent criteria for this and enhance the technical improvement of ENTS that can be proposed in other contexts. For example, lessons can derive from the knowledge produced in monitoring the concentrations of different contaminants and the removal efficiency of each technology for a specific kind of wastewater, in combination to the knowledge produced on the identification of potential risks to human health posed by the contaminants identified in the monitoring stage. The experiences reported such as the aforementioned, in addition to other relevant MULTISOURCE activities, will all feed into the documentation of lessons learnt for the development of criteria or specific guidelines in similar NBS^{WT} projects.

In addition, the documentation of lessons learned with the stakeholder enhances the effective communication and the establishment of networking mechanisms to exchange outcomes within these networks. This will help to reach audiences and stakeholder groups that are part of the processes for delivering these kinds of treatment technologies.

The engagement of the different groups of stakeholders ensures a multidisciplinary perspective in the documentation of the relevant lessons learned. Furthermore, it is important to explore trends and patterns from similar NBS^{WT} experiences with the stakeholders engaged. This provides complementary perspectives in the field of NBS^{WT} and helps distil key lessons learned Pilot that can address current gaps in research and practice.

On the one hand the documentation of the lessons learned guides the project partners involved in the development of the ENTS Tools for the prioritisation of the information to be integrated into their work. Building strong linkages between the ENTS Pilots and the supporting mechanisms ensure their relevance and increase their usability for the stakeholders. On the other hand, it supports the external stakeholders to apply this knowledge in other relevant contexts and add value to future projects and initiatives in the area of NBS^{WT}.

The engagement of the relevant stakeholders in the process of documenting the lessons learned from the ENTS Pilots, will lead to

- a multidisciplinary perspective in the articulation of the lessons learned
- a bigger impact in integrating the lesson learnt into future projects by contributing to breaking up silo thinking
- stronger relations with the external to the project team experts (e.g. IAB)
- the strategic positioning of the MULTISOURCE scientific outputs in different areas of research and technology development
- the improvement of the efficiency and effectiveness of NBS^{WT}, build on the accumulated experience

1.1.2. Sharing of knowledge and experience

The sharing of the knowledge and experiences with the relevant stakeholder groups in the MULTISOURCE project is based on two aspects. The first aspect aims at sharing the scientific outputs from the implementation and monitoring of the ENTS Pilots. The second aspect aims at sharing insights from the development of the ENTS Tools. In both cases; this process also strengthens the dissemination of the innovative scientific outputs from MULTISOURCE to a wide range of stakeholders.

On the one hand, such exchanges will contribute to the dissemination of MULTISOURCE results and insights. On the other hand, stakeholders can consider using what they have learnt to contribute to their own professional or personal context. Building on the accumulated experience from a number of NBS^{WT} projects completed in the past, will gradually increase the efficiency and effectiveness of ENTS.

The sharing of new knowledge (skills, experience and understanding) among the different groups of stakeholders and networks can advance further evidence-based practices. As the number of documented case studies increases, the knowledge generated from them will gradually increase trust and confidence in NBS^{WT} systems. Moreover, this exchange of knowledge and experience will, provide a stronger basis for informing policies, governance arrangements and regulation frameworks for the implementation of NBS^{WT}.

1.1.3. Integration of expert views into the MULTISOURCE activities

In this part of the Co-design framework the focus is on integrating the views of experts – i.e. experts that are not project partners - into the co-monitoring and the co-development of the ENTS Pilots and Tools. Under the perspective of varying conditions, the expert views will feed into the outcomes of the assessment and future design of innovative NBS^{WT}. The distinction between experts and other groups of stakeholders is not a clear cut. However, it can be argued that all experts are stakeholders in the sense that they contribute to, and shape the outcomes of, research and demonstration, and thus, they affect the use of new solutions in the future. Finally, experts, just like any other stakeholder, might be affected by new knowledge, technologies, solutions, etc., in their own professional context (Krueger et al., 2012). Therefore, this framework considers experts as a relevant category of stakeholders whose engagement raises similar issues to be addressed as part of the engagement with other stakeholders.

Experts are distinguished from other groups of identified stakeholders by their level of knowledge in NBS^{WT}, acquired through education, training, practice and/or experience. The MULTISOURCE project has included six further experts with an international reputation in integrated water management. They that are not involved in the immediate execution of the project but accompany it with additional perspectives on top of what the experts in the project partnership already cover. For their interaction with the project, MULTISOURCE has chosen to bring them together and for the International Advisory Board (IAB). The IAB is considered as a category of stakeholders for the reasons previously outlined.

A growing body in literature is arguing that a combination of local ('place-based') knowledge and scientifically validated knowledge provided by experts can support local stakeholders in addressing environmental issues more accurately (Akhmouch, A., et.al., 2016). Scientific knowledge, defined as the 'know-why', partly attempts to develop an understanding of the underlying principles and theory behind the observable phenomena. On the other hand, the local knowledge, defined as 'know-how', is deriving from observation, practice, while being primarily tacit, implicit and informal. More specifically, integrating the scientific knowledge, into the local experience can contribute to a better understanding of complex and dynamic natural systems. The combination of local knowledge with expert knowledge will be instrumental for the uncertainties and assumptions, leading to more relevant and effective approaches for the ENTS.

Engaging with the group of experts to receive their views on the scientific and technical outputs of the MULTISOURCE project requires space for a dialogue between the two parties. Indicative discussion areas with the expert group are:

- the integration of project outputs into practical applications of NBS^{WT}
- the reinforcement of the NBS^{WT} field with innovative approaches (i.e. the 7 ENTS Pilots, and the supporting mechanisms)
- knowledge gaps in NBS^{WT} that could be further explored by the MULTISOURCE project.

1.1.4. Monitoring & Evaluation of the MULTISOURCE outputs

A key role for the stakeholders that will be engaged in MULTISOURCE will be the evaluation of the outcomes of the Pilots. Hence, the stakeholders engaged in the monitoring and evaluation of the scientific and technological outputs should be considered of having a more active role rather than just observers, as they have the capacity to incorporate their perspective into the project. To make stakeholder engagement more impactful, the process of the engagement, if possible, should be initiated and sustained throughout the entire ENTS Pilots lifecycle, including the development, implementation, monitoring and evaluation of the Pilot outcomes. To this end, the implementation of the stakeholder engagement Co-design framework in the MULTISOURCE project will target the three categories of stakeholders identified in Section II. The stakeholders can provide valuable insights on operational results targeted at a specific type of ENTS. an important aspect for sharpening lessons learnt and research outcomes.

The timing and the method of engagement with the relevant stakeholders depends on the specific context of each Pilot or ENTS tool. The engagement with stakeholders may initiate discussions about critical issues that the project partners might not have discovered otherwise. Such process would encourage the MULTISOURCE project partners to reflect on the relationship between the project context, activities, the short-term goals, and the long-term ambitions. This will allow all the interested parties to explore new approaches, and to overcome lock-ins and their associated unwanted effects. The stakeholder engagement in the monitoring and evaluation phase provides the impetus for building strong relationships and trust between the MULTISOURCE project and the interested parties.

2. Who to engage?

This section provides the description of the stakeholders' categories, as far as relevant in the context of the MULTISOURCE project, and the process to identify the relevant stakeholders. Four categories have been defined for the clustering of the stakeholders in different groups. These groups represent the actors involved in each ENTS Pilot and Tools. Stakeholders can be identified and clustered through the following two stages 1) Stakeholder Mapping and 2) Stakeholder Analysis and Assessment.

In the context of the MULTISOURCE project, the two first stages of the stakeholder engagement process focus on the mapping and analysis of the local stakeholders in the ENTS Pilot locations, and the relevant stakeholders for the development of the supporting mechanisms for the planning of the NBS^{WT}. The other stakeholders' categories (i.e. International Partners and International Advisory Board) have already been identified during the writing phase of the proposal.

2.1. Categories of stakeholders

2.1.1. Local Stakeholders in ENTS Pilot locations

A diverse range of stakeholders can enable the cross-fertilisation of knowledge and the discussion on good practices, and what the Pilot team can improve in terms of implementing the relevant ENTS. The engagement of multiple stakeholders located where the ENTS Pilots are developed, is instrumental to enrich the evaluation the MULTISOURCE Pilots and Tools. Therefore, it is important that the process is inclusive and supports the engagement with groups that are difficult to reach, as this will ensure the integration of a broader number of different perspectives, insights and experiences to be taken into consideration. Finally, it is important to consider possible benefits for stakeholders that ensure a successful interaction and the delivery of fruitful outcomes from the engagement process.

The outcomes of the Stakeholder Mapping process from the seven monitored Pilots in the framework of the MULTISOURCE project will enable a sound understanding of the ENTS impacts for a range of stakeholders belonging to academia, public departments and public agencies as well as between various levels of government bodies. Furthermore, private actors, product developers, suppliers and consulting companies in the field of water treatment, end users, service providers will also be targeted. Also, it will be important to consider the engagement with independent experts, or the representatives from the civil society and community that have an important role in the monitoring of the Pilots, as they will have a stake in the outcomes, too.

2.1.2. International Partners

The International Partners of the MULTISOURCE Project bring a unique approach, as they are coming from differing contexts, and are facing different specific constraints in developing their own NBS^{WT} projects. Their experience in building new local knowledge and overcoming such challenges enriches global insights for inclusive, effective, tailored approaches to ENTS and more broadly NBS^{WT}.

The engagement of stakeholders who bring an international perspective into the monitoring and evaluation of the ENTS Pilots and the development of the Tools, aims to support the development of synergies and the engagement with institutions represented by these stakeholders. Such contributions will be particularly important when the views and experience from a broad range of international stakeholders can help to better shape guidance for implementing NBS^{WT}. Additionally, such interactions would lead to the sharing of the latest updates on water treatment solutions (i.e. project meetings, working meetings, workshops, events, etc.), and provide new knowledge on the topic.

In the framework of the MULTISOURCE project, International Partners from universities in Brazil, United States and Vietnam are involved in the project activities. They contribute to - and in turn benefit from - the MULTISOURCE project, interacting with the ENTS Pilots. Their expertise adds value in the development of ENTS targeting a range of polluted waters under differing climatological, socio-

economic, and environmental conditions. Moreover, they provide insights on the needs, functionalities and requirements for the ENTS Tools.

2.1.3. External Experts - International Advisory Board

Another important consideration is the engagement with diverse experts in NBS^{WT}. Some indicative areas of expertise relevant to the MULTISOURCE ENTS Pilots are sustainable water management, alternative strategies for treatment and reuse of water resources, and decentralized wastewater treatment, water resource management from local to global scale, water governance and policy, restoration of impaired watersheds and urbanized fluvial ecosystems, green and blue infrastructure, and NBS for the improvement of urban well-being nature in urban environments. The level of engagement with these stakeholders varies and it is considered a result – oriented engagement process. Therefore, by establishing a timely and steady exchange of information, the experts can provide their feedback during the co-creation processes for the various models and tools and observe the coherence, effectiveness and impact of the project across all activities, while ensuring that the knowledge produced by other already existing initiatives, new ideas and emerging initiatives are duly considered.

In the case of MULTISOURCE, six renowned international experts have been invited to become members of an International Advisory Board (IAB). The experts are affiliated to organizations such as the International Union for the Conservation of Nature (IUCN), the Australian Water Partnership and The Nature Conservancy (TNC), and also include national experts from industry, research, and public agencies. Cooperation with these stakeholders is an essential aspect of MULTISOURCE. The involvement of the IAB will: 1) ensure a co-design process is carried out at all stages of the project, 2) provide external points of view on the work plan of the project, 3) act as a key dissemination channel for project outcomes.

2.1.4. Stakeholders Network

First and foremost, the Stakeholders Network will act as a means of disseminating the project outputs and outcomes at the local, national, international, and European levels and raising awareness of the MULTISOURCE business models, tools, and other scientific outputs from the ENTS Pilots. Further options for interaction and mutual learning will be identified along project implementation.

The synergies created with the Stakeholders Network will evolve in tandem with the project. Starting point to create this network are the 26 individuals from organizations such as cultural societies, local water administrations, national ministries, cities and municipalities, non-profit organizations, private companies, public agencies and bodies, regional authorities, a publishing association, and universities that have provided the consortium with a letter of support when the project proposal was submitted.

In the context of the MULTISOURCE, this group of stakeholders will not be actively involved but rather accounted as a channel of communicating new learning outcomes for stimulating a stronger interest in and uptake of the MULTISOURCE ENTS among the wider NBS^{WT}.

2.2. Process for the mapping and analysis of the stakeholders

The process for mapping the stakeholders to engage with is supported by the first two Stages (Stage 1: Identify and Stage 2: Assess, Analyse and Prioritise) of the stakeholder engagement process. Each Stage is articulated in such a structure that outlines the objectives, the step by step process to achieve these objectives and the template of the several tools used in each Stage.

2.2.1. Stage 1: Identify

Stage Description

The first stage aims at the systematic organisation of the stakeholders identified from each ENTS Pilot and the respective teams for the development of the supportive mechanisms for the planning of NBS^{WT}. This stage is structured in the form of a stakeholder map (see Figure 2) for each Pilot/

Supporting mechanism. Furthermore, the map includes some initial information for the identified stakeholders, such as contact information, capacity and interest to participate in engagement activities. This information serves as the basis for setting the scene for the next stage that focus on further analysing the stakeholders' interests and influence.

Objectives

- Systematic organisation of the stakeholder landscape
- Create stakeholder's map.

Steps

- 1.1 Fill out the information on the categories/ subcategories as follows:
 - Stakeholder Contact Information
 - Stakeholder's Capacity
 - Connect the Sector/ Group to the stakeholders they belong to it.
- 1.2 Add stakeholders that you believe should be involved in the monitoring, quantifying and evaluation of the benefits and co-benefits of the Pilots and in the co-design of the business models, the Technology Selection Tool, and the Planning Platform. Add them in the relevant sectors or create new ones.
- 1.3 Add new categories (in the second level of the diagram) that are relevant to the stakeholders involved in your Pilots

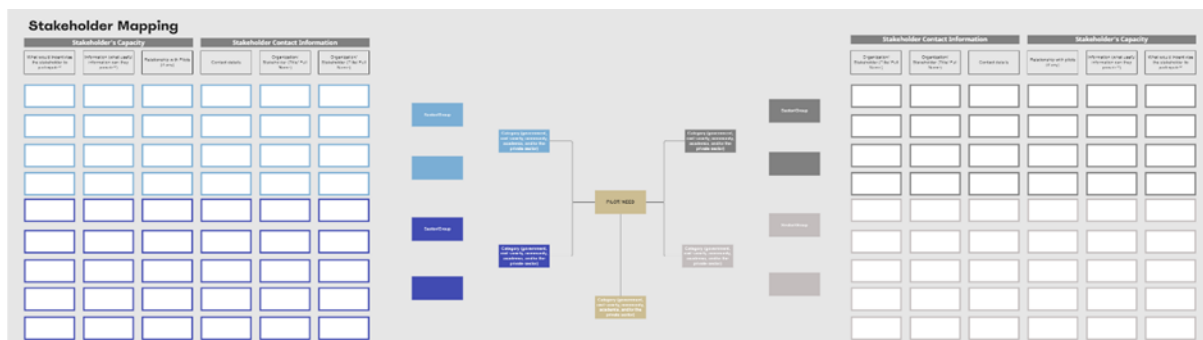


Figure 2. Stage1, Step1, Stakeholders Map, [Template Available](#)

Outcomes

Done via brainstorming with respective teams, the expected outcome is the stakeholders' map that provides the landscape the main groups and sectors or departments the identified stakeholders belong.

2.2.2. Stage 2: Assess, Analyse and Prioritise

Stage Description

In the second stage, the main objective is to assess the level of the stakeholder engagement based on four categories (i.e. Collaborate, Consult, Inform, and Involve), develop a comprehensive understanding of the listed stakeholders and reflect on the impact the project has on their activities or agendas. The level of engagement is based on the interest and influence each stakeholder has on the relevant ENTS Pilot or supporting mechanism for planning NBS^{WT}. The assessment of the interest/influence of stakeholders is organised in a form of an evaluation matrix (see Figure 3). This stage includes an assessment table (see Figure 4) to support the project partners for the Pilots/ Supporting Mechanisms to further analyse the stakeholder's interest/influence/impact in relation to their activities.

Objectives

- Assess the level of engagement for the listed stakeholders in Stage 1
- Elaborate further on the level of interest / influence/ impact for each stakeholder
- Reflect on the impact the MULTISOURCE outcomes for the stakeholders

Steps

- 2.1 Fill out the Stakeholder's Assessment Matrix with the stakeholders identified from the Stage 1, based on their Influence /Interest on the Pilots.
- 2.2 Discuss and define the type of Interest & Impact of the stakeholders
- 2.3 Fill out the Stakeholders assessment table. More specifically, elaborate further on the Interest, Influence & Impact of **all** the listed stakeholders in Step 2.1.

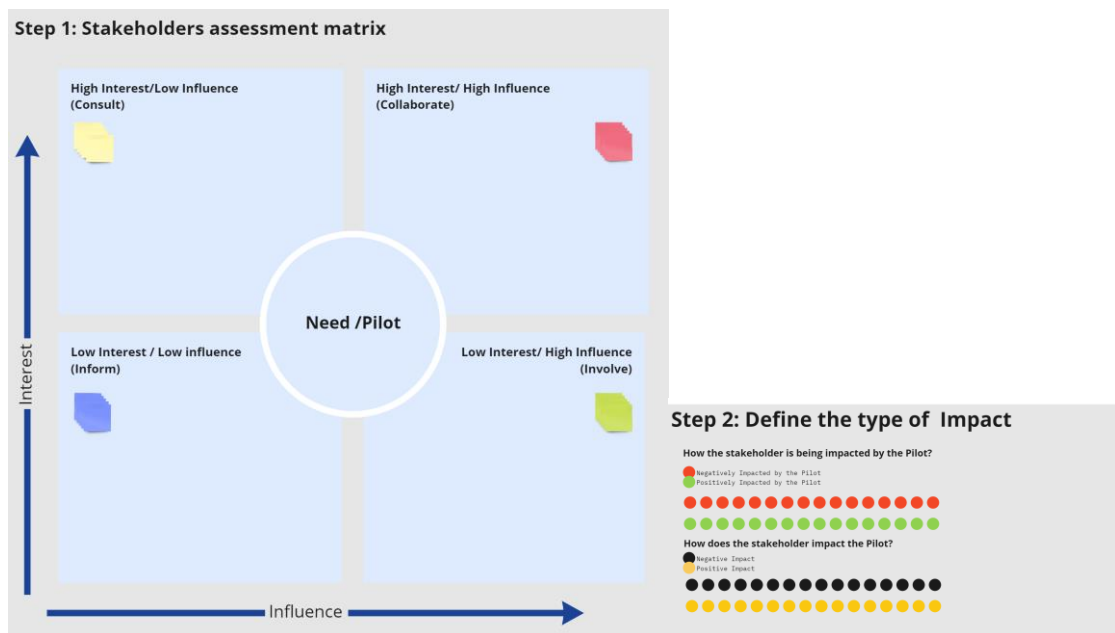


Figure 3. Stage 2, Step 1, Assesment Matrix (left), Step 2, Type of Impact (right), [Template available](#)

Step3: Stakeholders Assessment Table

Stakeholder (As indicated in Step 1)	Interest			Influence		Impact
	Aspects	If interest is L/M, how might we motivate engagement with the pilot /activities of your WP?	Key messages from your pilot /activities of your WP for this group.	What is their capacity to affect the pilot /activities of your WP? <small>Comments on influence (e.g. times or contexts in which they have more/less influence over the outcomes of your research)</small>	If the capacity to influence is L/M, how might you ensure their engagement is heard and included in the final outcome of the pilot /activities of your WP?	How, if at all, are they impacted by the pilot /activities of your WP?

Figure 4. Stage 2, Step 3, Stakeholder Assessment Table, [Template available](#)

Outcomes

The outcomes of this stage are a Stakeholders’ Assessment Matrix and Table that will provide the input for defining the core team and the other direct and indirect groups of the stakeholders in the next stage.

3. How to engage with the stakeholders in MULTISOURCE?

3.1. Development of the stakeholder engagement strategy

The third section of this framework focuses on the means for engaging with the stakeholders for both, the Pilot leads and the teams leading the development of the supportive mechanisms. The stakeholder engagement strategy aims to meet the objectives for the defined purpose of engagement and the specific group of stakeholders. Such a strategy aims to identify the means for the engagement and the timeline to implement the foreseen activities.

For the engagement of the first three categories of the stakeholders (i.e. Local Stakeholders, International Partners and International Advisory Board) the process suggested in this framework is outlined in Stage 3, as part of the development of the engagement strategy.

The structure for the engagement strategy with the **Local Stakeholders** in the context of the ENTS Pilots and the supportive mechanisms is developed by the respective involved project partners. The timing of engaging with the Local Stakeholders, besides the purpose of engagement, is also linked to the important milestones that are to be reached during the phases of developing the supportive mechanisms for the planning of NBS, and the monitoring of the co-benefits of the ENTS Pilots.

The structure for developing the engagement strategy with the **International Partners** will be developed in two aspects. The first aspect covers the Pilot leads and the teams leading the development of the supportive mechanisms to develop their strategy for engaging with the International Partners in the context of their specific activities, if this deems necessary and fits the engagement purpose. In regards to the second aspect, ICLEI Europe in consultation with the three international partners and based on the identified needs from this group, will build the strategy for ensuring a continuous and meaningful engagement of the International Partners in important activities of the project and related internal and external events.

The MULTISOURCE consortium has also invited six internationally recognized specialists in water and wastewater management, as well as climate resilience, from Europe, Africa, Asia, and North America to become members of the project's International Advisory Board. These experts will act as 'critical friends,' following on the relevant achieved milestones and outcomes of the project and maintaining a close relationship with the project consortium, while carrying out a limited set of roles or responsibilities. The strategy for engaging with the experts of the **International Advisory Board** is developed by ICLEI Europe in collaboration with all project partners.

The project's objectives for involving the IAB members are as follows:

- to ensure a co-design process is carried out at all stages of the project,
- to benefit from additional expertise and external points of view on the project's work plan and its implementation,
- to enlarge the dissemination channels for project outcomes.

The IAB members will give input, especially in the process of developing the supporting mechanisms for planning NBS^{WT}, assure quality control, and provide advice on how to match MULTISOURCE results to real-world urban water management and reuse scenarios. Finally, the Consortium engages with IAB members via email and online meetings; in addition, one in-person meeting is foreseen, connected with an annual meeting.

A Memorandum of Understanding (MoU) is created as a format of commitment between the experts, members of the IAB and the MULTISOURCE project.

3.2. Process for developing the stakeholder engagement strategy

The process for developing the stakeholders engagement strategy is supported by the third stage (Stage 3: Understand and Engage) of the stakeholder engagement process. The Stage 3 is articulated

in such a structure that outlines the objectives, the step by step process to achieve these objectives and the template of the several tools used in each Stage.

3.2.1. Stage 3: Understand and Engage

Stage Description

The **third stage** focuses on clustering the stakeholders based on the level of influence on the Pilot/ Supporting mechanisms' activities, improving the understanding of the stakeholder profile and the development of the Stakeholder Engagement Strategy. The clustering of the stakeholders in the first step is organised in the form of an influence cycle (see Figure 5), putting the core group of the stakeholders into the middle of it and adding the other groups in the respective cycles based on the level of influence (direct/ indirect) they have in the project activities. The groups of stakeholders can be formed with stakeholders who belong to the same or different category as indicated in Section II of this framework. Stage 3 also includes the format for the stakeholder's profile (see Figure 6) regarding some characteristics namely, Agenda, Field of Action, Alliances with other identified stakeholders.

The final step of this stage is the Stakeholder's Engagement Strategy. In this stage the Pilot/ Supporting Mechanisms teams build on the information from the previous stages on how to engage with the different groups of the stakeholders identified. The strategy development is outlined in a tabular form (see Figure 7). It provides an overview of the groups of stakeholders, the objective for engagement, the main messages to convey through this engagement, the method for engaging and the respective timeline for developing the engaging activities.

Objectives

- Define the core team to be responsible/knowledgeable for the process
- Create a better understanding of the stakeholder's profile.
- Develop possible strategic options/paths for engagement.

Steps

- 3.1 In the influence circle place the stakeholders based on their capacity to influence the Pilots.
 - To complete this step, define the stakeholders who are going to form the Core Team, the stakeholders who influence Directly and Indirectly the Pilots/ Supporting Mechanisms and the stakeholders that belong to the Wider Community (not necessarily the civil society).
- 3.2 Develop the profile of **all** the relevant stakeholders from the influence circle (Core Team, Direct, Indirect, Wider Community)
 - Further elaborate on the following three categories: **Agenda** (Mission / Objective), **Arena** (Field of Action / Influence) and **Alliances** (Relationships among the stakeholders).
- 3.3 Fill out the Stakeholder's Engagement Strategy table, for the stakeholders you have developed the profile in Step 2.
 - Cluster the stakeholders based on the category they belong according to the influence circle levels.
 - Fill out the purpose for engaging with these stakeholders, the method to engage with them and the approximate timing to carry out the activities. The final column is to be filled after the implementation of the co-creation activity.

Method	General Information	
	Associated level of engagement	Objective of the format
Workshop	Involve, Collaborate	<p>The workshop aims to</p> <ul style="list-style-type: none"> gather a group of stakeholders with interests, expertise, or professions in a particular field, that are actively involved in intensive discussion and research on a specific discipline. provide insights, experience and new knowledge created from the ENTS Pilots; the business models, the modular tools and the planning platform. build a sense of unity, cooperation, and partnership provide the space to discuss and develop different initiatives for conveying the outputs of the MULTISOURCE project to other stakeholders.
Knowledge exchange groups (i.e. Steering group, Multi-stakeholder forums)	Involve, Consult	<p>The Knowledge Exchange Group aims to:</p> <ul style="list-style-type: none"> maintain close dialogue with relevant stakeholders from government, industry, academia, and civil society organisations. provide the space for stakeholder to voice opinion that is relevant to the ongoing activities of the ENTS Pilots, business models, tools and platforms and the communication of stakeholder interests (e.g. economical, societal, sectorial interests) provide upstream input on the relevance and applicability of proposed test methods in the ENTS Pilots from their discipline’s perspective communicate new activities, trends, scientific and technical issues, etc. discuss about strategic and practical aspects of test method development, optimisation, validation and use serve as a collaborative platform to support and participate in the MULTISOURCE project activities
Practical demonstrations	Inform, Involve	<p>The Field/ Practical Demonstration aim at</p> <ul style="list-style-type: none"> Hands-on/direct experience of innovative approach Potentially possibility for testing mechanisms/solutions Creating trust in technical feasibility (‘Seeing is believing’)
World Café	Collaborate, Involve	<p>The format of the World Café aims to</p> <ul style="list-style-type: none"> provide the space for participatory dialogue in groups in a friendly atmosphere as in a cafe. foster idea-creation and interactive discussion and knowledge sharing to shift people's conceptions and encourage collective action
Webinar	Inform	<p>The webinar aims to:</p> <ul style="list-style-type: none"> share the knowledge produced within ENTS Pilots and the relevant activities of the MULTISOURCE project with the relevant group of stakeholders demonstrate the various features of modular tools and planning platform and the benefits of using them. guide the target audience on how to put the new knowledge produced from the MULTISOURCE project into practice. offer a cost-effective means of sharing information with a large group of people.
One-to-one meetings and interviews	Involve, Consult	<p>The interview format aims to</p> <ul style="list-style-type: none"> engage the stakeholders effectively in a two-way dialogue provide an informal and conversational environment for the dialogue, collect qualitative data for the monitoring of the ENTS Pilot and the development of business models, and planning platform.

Table 1. Methods for stakeholder engagement

When assessing which of the following formats would be the most suitable for a particular stakeholder engagement activity, keep the following considerations in mind:

- Divergence vs. convergence - does the method allow for gathering as many ideas as possible vs. does it support the process of reaching consensus on an issue?
- Difficulty of using the method – How complex is the method to be used by the selected group of stakeholders.
- Type of expertise and competence needed by the facilitator.
- Type of expertise needed by the participating stakeholders
- Time needed to use the method during the engagement activity.

In the *“Progress and lessons learnt from the stakeholder engagement in MULTISOURCE Pilot locations (final report)” (M48-JAN 2025)* the final version of these methods will be publicly shared in tandem with lessons learned and case studies where these methods were implemented.

Glossary

Co-design

MULTISOURCE aims at involving a diverse group of stakeholders (e.g. public authorities, water companies, property developers) within the project consortium and from the greater local networks of consortium partners, as well as from an International Advisory Board and the International Partners. The engagement is implemented with participatory, trans-disciplinary and multi-stakeholder processes for the co-design, co-development, co-implementation and co-evaluation of nature-based solutions for water treatment. The systematic involvement of all relevant stakeholders in the definition of co-benefits for each Pilot, as well as for the development of business models and planning tools leads to mutually valued outcomes.

Nature-based Solutions

The European Commission defines “nature-based solutions to societal challenges as solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource efficient and systemic interventions. Hence, nature-based solutions must benefit biodiversity and support the delivery of a range of ecosystem services.”[Source](#)

Nature-Based Solutions for Water Treatment (NBS^{WT})

Nature-Based Solutions for Water Treatment are green infrastructure components that can complement existing grey infrastructure for water, stormwater, and wastewater management in urban environments. NBSWT provide improved water quality, reduced flood risks, and increased ecological connectivity, while serving as attractive components of the urban landscape, providing important ecosystem services⁴ and contributing to the creation of a circular water economy.

Enhanced Natural Treatment Solution

Enhanced Natural Treatment Solution (ENTS) are, for the purpose of this project, defined as a subgroup of NBS^{WT} that have an increased treatment capacity, lower cost, and/or smaller environmental footprint in comparison to conventional NBS^{WT}. ENTS provide primary benefits of increased water quality, water storage, reuse, but also contribute to the creation of valuable urban habitats and provide other important ecosystem services.

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The overall goal of MULTISOURCE is to, together with local, national, and international stakeholders, demonstrate a variety of about Enhanced Natural Treatment Solutions (ENTS) treating a wide range of urban waters and to develop innovative tools, methods, and business models that support citywide planning and long-term operations and maintenance of nature-based solutions for water treatment, storage, and reuse in urban areas worldwide. The project includes seven Pilots treating a wide range of urban waters. Two individual municipalities (Girona, Spain; Oslo, Norway), two metropolitan municipalities (Lyon, France; Milan, Italy), and international partners in Brazil, Vietnam, and the USA will contribute to each of the main project activities: ENTS Pilots, risk assessment, business models, technology selection, and the MULTISOURCE Planning Platform. The use of urban archetypes in the Planning Platform will enable users to quickly classify regions (in both developed or developing countries) suitable for the application of nature-based solutions for water treatment (NBS^{WT}) and compare scenarios both with and without NBS^{WT}.



MULTISOURCE
enhanced natural treatment solutions