symbiorem

D2.2 CITIZEN CO-DESIGN AND ENGAGEMENT FRAMEWORK

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PROJECT INFORMATION

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[1] PU = Public
PP = Restricted to other programme participants (including the Commission Services)
RE = Restricted to a group specified by the consortium (including the Commission Services)
CO = Confidential, only for members of the consortium (including the Commission Services)

DOCUMENT HISTORY

V	Date	Beneficiary	Author/Reviewer
1	18/08/2023	Thames21	Tiziana Centofanti, Alchemia-Nova
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EXECUTIVE SUMMARY

The framework provides a comprehensive view of citizen engagement and co-design, presenting both a strategic path and a practical toolkit. It establishes a foundational understanding of these concepts, aligning with the grant agreement's objectives. Furthermore, it delves into the collaborative efforts undertaken by the partners in Work Package 2, which played a pivotal role in shaping the toolkit.

Two primary processes are explored: firstly, capturing the initial perspectives, objectives, and sentiments of the Work Package partners regarding citizen engagement and co-design; and secondly, crafting site profiles for each bioremediation location, thus contextualizing the toolkit's application.

The framework sets out Thames21's theory of engagement before setting out the toolkit: detailed, step-by-step instructions, acting as a guide for executing citizen engagement at bioremediation sites. The framework addresses challenges faced by partners during the toolkit's initial implementation, providing practical solutions.

Finally, the document provides insights into how bioremediation partners can effectively monitor and evaluate the toolkit's impact, ensuring a methodical approach to gauging its success and driving continual improvement.

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1 INTRODUCTION

1.1 Glossary of Terms

Table 1 Glossary of Terms that are referenced in the document.

TERM	FRAMEWORK DEFINITON
Framework	This document which sets out the purpose, process, and practical toolkit for citizen engagement and co-design
Toolkit	The practical step by step guide on how to deliver citizen engagement and co-design for the SymBioRem project set out in Section 4.3 of the framework.
Citizen engagement	The active involvement, participation, and collaboration of individuals within local communities or society at large in the efforts and initiatives aimed at addressing environmental issues and promoting sustainable practices. It entails empowering citizens to become informed, responsible, and proactive stakeholders who contribute to decision-making processes, raise awareness about environmental challenges, and advocate for positive change.
Co-design	"Co-design means developing processes for understanding, developing and supporting mutual learning between multiple participants in collective decision making and collective design." (CO-CREATE, 2019) Co-design is a framework that goes beyond traditional forms of community consultation where local people are seen as sources of data and instead offers people a seat at the table, enabling them to participate in the design process. The framework encourages mutual learning between 'users' and 'designers' and enables strong relationships and networks to be built, leading to long term involvement and a strong sense of ownership.
Co-production	"Co-production is an equal relationship between people who use [environmental spaces] and the people responsible for [environmental spaces]. They work together, from design to delivery, sharing strategic decision-making about policies as well as decisions about the best way to deliver services" ((NCAG), 2021)
Consultation	"People who use [environmental spaces] may be asked to fill in surveys or attend meetings; however, this step may be considered tokenistic if they do not have the power to influence or affect change" ((NCAG), 2021)
Stakeholder	A stakeholder is any group or individual who could have an influence on or be impacted by the project

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Questionnaire	Questions directed at multiple individuals to gather information about a specific subject
Door-knocking	The process of reaching people by approaching them at their home and inviting them to answer questions.
Poster	A large, printed advert attached to a surface in a public place in order to advertise a project or event.
Flyer	A small, printed advert given or posted to people in order to advertise a project or event.
Contractor	A company hired to install the bioremediation solution

1.2 Aims of the Framework

This Citizen co-design and engagement framework is Deliverable 2.2 of the SymBioRem project. This framework sits within Task 2, which develops and mainstreams a harmonised, inclusive, and safe data collection and citizen engagement approach throughout the project.

- The objectives of the Framework are:

  I. to develop a collaborative approach to enable bioremediation site leaders to effectively engage stakeholders and volunteers in a co-creation process to deliver project aims.

  II. to develop a process of evaluation and co-monitoring to verify the co-benefits.

  III. to develop strategies for creating and sustaining resilient partnerships with local volunteers beyond the lifetime of the project.

- The outcomes of applying this framework, in combination with other tools developed by WP2 including the monitoring plan developed in D2.1 and lesson plans and training materials that will be presented in D2.4, will support project partners to:
  I. Engage citizens in research, co-design, implementation, and operation of bioremediation sites.
  II. Activate, educate, and thus empower key stakeholders and citizens, equipping them with the knowledge and confidence to participate fully in the co-design elements of this project.
  III. Create a local legacy of greater reciprocal trust between scientists and citizens as well as greater community awareness of the benefits of bioremediation and the aims of this project.

Who is the framework aimed at?

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The framework is designed for all bioremediation site partners who are delivering activities for the project, in order to develop a common understanding of the role of bioremediation in pollution control with communities. Even if the bioremediation sites are not accessible or there are no plans for involving communities in co-design of bioremediation or in collection of scientific data, partners will benefit from having to hand the tools to successfully engage local communities to some degree. If citizens are living with pollution or contamination in their local area, then this project will impact and therefore they will likely be interested, even if there are no specific engagement activities. It provides a valuable chance for academics to gain trust with local citizens and key stakeholders in their work and its wider environmental aims. The framework will intentionally distinguish between work package (WP) partners, consortium partners and bioremediation site partners.

How the Framework impacts and overlaps with other areas of the SymBioRem project

Citizen engagement and co-design impacts are key to all project deliverables therefore Work Package 2 (WP2) supports other deliverables and parallel and subsequent Work Packages. Examples of overlap include:

D2.5 Collaborative approaches developed for water and catchment management – increased community understanding of pollution and bioremediation will enable participation in catchment management.

WP3 Development of bioremediation and recovery strategies for contaminated soils – partners will be applying this framework to support project activities at demonstration sites.

WP4 Development of bioremediation and recovery strategies for marine and freshwater environments; the partners who will be applying the framework with their local communities.

WP5 Integration and circular bioremediation systems – business model co-creation, stakeholder needs, opportunities, constraints and acceptance of bioremediation.

WP6 Social impact and stakeholder-led conclusions from the workshops that will be run later in the project as part of the social and environmental impact assessments, understanding who is impacted and can impact the project and its outcomes.

WP7 Communication, dissemination, and exploitation of bioremediation results.

D7.1 Communication activities such as results communication to raise awareness and recruit citizens in bioremediation sites. Public support for a pollution intervention - such as bioremediation techniques developed by this project - is critical to their successful implementation in public spaces. Raising awareness can be everything from public understanding of pollution issues to potential bioremediation solutions to create impact - i.e., increasing the likelihood of public acceptance of bioremediation being delivered in their local area.

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2 METHOD AND PROCESSES

This section outlines the methods and processes used to develop the toolkit.

2.1 Method

The framework is rooted in Thames21's expertise and experience in citizen engagement and co-design, an example of which is the impact of the Thames River Watch project (Thames21 & Tideway, 2022) It was developed through processes of consultation and co-design with the SymBioRem partners assigned to Task 2.2, a process described in Sections 2 and 3. The ultimate formation of the toolkit in Section 4 amalgamates insights from these processes with the addition of specialist input and experience from Thames21.

2.2 Why was it important to co-design the framework?

- To improve confidence and understanding in the processes of consultation and co-design through direct experience and involvement with the processes itself.
- To provide practical examples of the process that partners could use with their communities.
- To ensure that partners have influence, through listening and consultation, over the toolkit that will impact the delivery of their work.
- To ensure the toolkit is fit for the variety of SymBioRem bioremediation sites.
- To demonstrate the advantages of the co-design in order to secure support from those who will be utilising it.

2.3 Collaborative Processes

This section outlines the steps involved in the collaborative processes undertaken by Thames21 and consortium partners to develop the framework so far. These steps align, contribute to, and mirror the trajectory of the proposed pathway for citizen engagement outlined in Section 4.

Table 2 Collaborative Processes that informed the Framework.

WHAT	WHY	WHO	WHEN
Initial Questionnaire See Appendix 1 for full survey questions.	• Get a baseline idea of the confidence and experience of consortium partners in delivering engagement and co-design (see Table 1) • To understand the objectives, aims and challenges of individual partners as well as their bioremediation sites. • Activate interest in the process through asking thought provoking questions from an engagement	Work Package 2 partners: Thames21 BIZUP, Brunel, Achemia-Nova, CNR, Esterhazy, Gaiker, EHU, IRAGAZ, Greenovate, KTH &	March 2023 [Month 6]

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	perspective that may be new to people. • Identify stakeholders (see Section 4.3 Step 1B) • Collate information to identify universal themes to design a broad framework and basis for a toolkit of strategies.	Wrocław University of Environmental and Life Sciences (UPWr)	
Introductory site meeting	• Introduce and initiate relationships between Thames21 and bioremediation site partners. • Introduce the framework and its aims for bioremediation site partners. • Introduce the bioremediation sites to Thames21.	Bioremediation site partners: *London site* Thames21 *Austrian site* Alchemia-Nova Esterhazy *Basque site* Gaiker EHU IRAGAZ Ekologistak Martxan *Polish site* UPWr *Swedish site* KTH Alchemia - Nova Initiativ Utö	April - May 2023 [Months 6 – 7]
Scope and capacity meeting	To gain a better understanding of the bioremediation sites: • Timeline for installation of bioremediation solutions • Opportunities & concerns for engagement To understand which steps of the toolkit can be applied: • To determine the local capacity and time available for delivering engagement • To determine the scope for co-design of the implementation of bioremediation • To explore local contexts that could influence the success or challenges of citizen engagement.		June 2023 [Month 8]
Action Plan Meeting	• To outline a public programme of events for each bioremediation site. • To use Thames21's Action Plan for the London site as an example to give ideas and options. • To address any problems that had arisen		July 2023 [Month 9]
UK strategy	Development of a strategy for community engagement in the project demonstration site of Thamesmead, UK in collaboration with local landowner, Peabody.	Thames21 & Peabody	July 2023

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UPWr Team Site Visit to London	• Explore UPWr engagement and engagement challenges. • To meet a representative of local landowner Peabody and other stakeholders and discuss how we work with them to co-deliver projects. • To discuss how aspects of Thames21's local engagement plan may have potential application to the Polish site. • To hear from a past project leader on the site • Follow up meeting to discuss reflections	Thames21 & UPWr	July 2023
Submission of Framework	Submission of Deliverable 2.2: Engagement Framework for Citizen Engagement and Co-design	Thames21	August 2023 [Month 11]

3 RESULTS

The following section presents the outcomes from an initial questionnaire distributed to partners, followed by the results gathered from subsequent meetings with bioremediation site partners.

3.1 Initial Questionnaire

The initial questionnaire was sent out to consortium partners working on Work Package 2 to get an initial idea of partners perceptions and experience of citizen engagement and co-design as well as to gather introductory details about the site, stakeholders and plans for delivery. There were 9 responses, including some collaborative responses from bioremediation site partners. The rest of section 3. goes through the answers from the Initial Questionnaire which can be found in Appendix 1.

3.1.1 Engagement Skills

Questions 12 and 13 of the survey asked partners "On a scale of 1-10 (10 being very experienced/confident) how experienced/confident are you in community engagement?" Experience meaning the extent to which partners have done similar work in the past and confidence as how comfortable and trusting they are of their ability to engage citizens with the project. Figure 1 presents partner experience and confidence in citizen engagement and co-design at the start of the project. Partners were then asked to expand on areas of expertise, as the below examples show. The partners have been anonymised to ensure trust and transparency.

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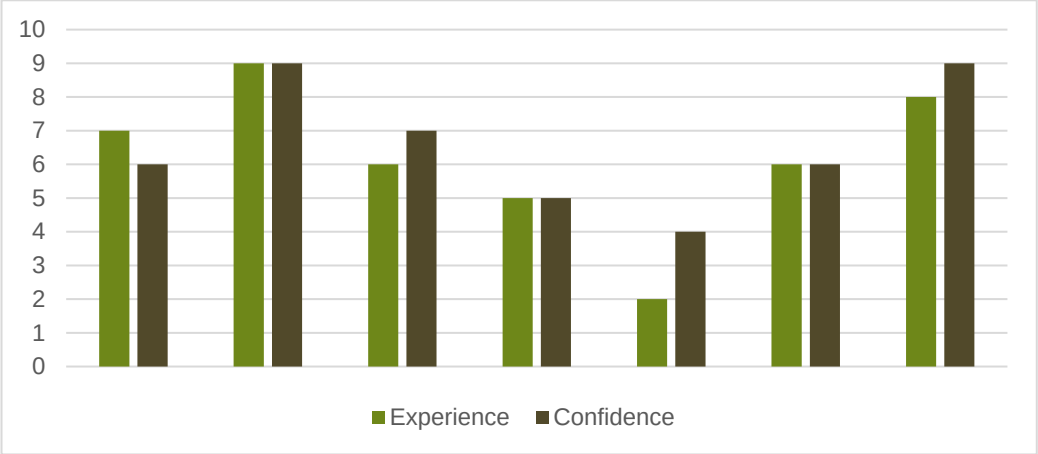

Figure 1 Partner experience and confidence in community engagement (10 means very confident/experienced)

When asked (Appendix 1, Question 15) to detail any areas of confidence or activities that have been delivered particularly successfully in past the total following responses were given:

- Involvement in events
- Cooperation with local schools
- Resident management
- High level stakeholder engagement
- Knowledge transfer

The answers to questions 12 and 13 indicate that partners on average display a competent level of confidence and proficiency in citizen engagement and co-design. The examples given in response to question 15 show some previous experience in community engagement that has given them a degree of confidence but notably none of these examples pertain to co-design. This indicated that this document needed to demonstrate the concepts of the citizen engagement and co-design in order to discuss their viability at the different sites.

3.1.2 Benefits of citizen engagement

Table 3 shows the partners' answers to *"how community engagement will benefit your project/space/the local communities (*Appendix 1, Question 7*)?"* The table is in the order of how many times each response was mentioned.

Table 3 Benefits of Citizen Engagement according to partners.

BENEFITS OF CITIZEN ENGAGEMENT	MENTIONS
Inform and educate community	●●●●●
Increase awareness about bioremediation sites and environmental degradation.	●●●
Enable project partners to better understand community needs and priorities	●●

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Partners can gain local knowledge about the region, site and society	●●
Build trust between partners and communities	●●
Citizen Science to monitoring the bioremediation solutions	●●
Pressure on landowners and governments for remediate brownfields and polluted waterways	●
Increased interaction between nature and citizens	●
Business model development with engagement of stakeholders	●

Example quotes from questionnaire responses:

"By engaging the community, it is possible to inform and educate them about issues that affect their lives."

"It is important to understand what the community's needs and expectations are for the project, as the project outcomes will have an impact on them."

These answers indicated that in most areas the WP partners aims are aligned with those of the grant agreement. The importance of informing and educating citizens is evident along with increased awareness. Notably 'scientists engaged in the project gaining local knowledge', not outlined in grant agreement, got two mentions so this was added to the main aims of the toolkit.

3.1.3 Project Legacy for Local Communities

Table 4 shows the partners' answers to Question 8 (Appendix 1) from the initial questionnaire: **"***What do you want to be the project's legacy for the local communities?* "The table is in the order of how many times each benefit was mentioned.

Table 4 Legacy of SymBioRem for local communities

LEGACY OF SYMBIOREM FOR LOCAL COMMUNITIES	MENTIONS
New and increased application of remediation methods	●●●●
Reduction of pollution, improvement of blue/green spaces	●●●
Greater environmental awareness	●●
Citizen interest in monitoring pollution and maintaining sites long term	●●
Equitable treatment of polluted regions, avoiding undue burden on specific social classes.	●
More bottom-up approach that builds a bridge between governmental leaders and citizenry	●
Increased citizen trust and knowledge in scientific research	●
New business models using bioremediated materials	●

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Example quote from a questionnaire response:

" Until now, we have been devoted to science, but we strongly believe that a community engagement could be very beneficial both for the project success and future application of the developed technology in the region."

The results show that the success of remediation methods in reducing pollution is the priority for partners followed by raising awareness and long-term site maintenance.

3.1.4 Anticipated Challenges

Table 5 shows the answers to the question *"Outline any challenges you initially foresee with these [community engagement] plans?* (Appendix 1, Question 10). The toolkit seeks to directly respond to these challenges by giving partners the tools to address these challenges.

Table 5 Partner-Anticipated Community Engagement Challenges

INITIALLY FORESEEN CHALLENGES	MENTIONS
Identifying, building, and organising a motivated community	●●●●●●●
Reluctance of authorities and production companies to publish negative water quality results	●●●
Lack of scientific understanding from citizens	●●
Collaborative work "In the organised workshops initial efforts to break the ice and motivate everyone to participate"	●●
Public consultation	●●
Time and money as a barrier	●●
Lack of interest	●
To recruit people for consultation without any bias	●
Conflict of interests with other space users	●
Cooperation and legal permissions of land owners, local authorities	●
Language barrier	●

Example quotes from questionnaire responses:

"Citizens may question what we do and how we do it, whether it is harmful and what is the reason for this study".

"It might take time to approach and build an engaged community."

"Citizens may require tangible returns. "

"It will be a challenge to find a strong community willing to engage".

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These results were extremely helpful to understand that the main challenges foreseen by partners was in delivering the engagement work. This reiterated the need for a detailed, clear toolkit that was informed by and could be applied to different sites.

3.2 Site meetings

Tables 6 – 10 summarise the site profiles created through consulting D2.1 and from meetings with partners from each of the bioremediation sites in the SymBioRem project that will deliver citizen engagement and co-design.

It was essential for the development of the toolkit to incorporate the contextual details of the site profiles in order to:

- Understand the geographical, social and scientific / environmental contexts the toolkit is being designed for, and how they differ from the Thames21 site.
- Understand the local challenges at each site.
- Identify site specific opportunities for engagement.
- Understand the local scope and capacity for citizen engagement and co-design.
- Recognise common themes across the sites.
- Provide context for the creation of training resources in deliverable D2.4

Table 6 Site summary of Lake Neusiedl, Austria

LAKE NEUSIEDL			
Area	Burgenland	Country	Austria
Pollution	Contaminated soils and surface water bodies		
Bioremediation method	Floating islands enhanced with mussels		
Partners	BIZUP, Alchemia-nova, Esterhazy		
Site Specific Aims	• To develop more restoration plans for the lake that build on the work of SymBioRem. • Long term solutions for management and conservation of the lake and reed		
Site context	• Huge agricultural industry and tourism area • Due to issues with the lake (i.e., low lake water level) the floating reed-beds will be installed in a tank in the river next to the lake		

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Opportunities for engagement	• Lake is used by fisheries and is a popular vacation/tourism spot. • Lots of public discussion around the lake because people are worried about its poor environmental water quality and the decreasing water level. • Site partner and main landowner, Esterhazy, run activities in the summer holidays and an annual Farming Fair
Site specific challenges	• Timeline pushback due to technical challenges • Farmers lack interest in the project unless there is an output that directly benefits them e.g., sediments can be used for fields. • Most grounds around the lake (that are not owned by EsterHazy) are private property

Table 7 Site summary of Lake Tolpa, Poland

LAKE TOLPA			
Area	Wrocław	Country	Poland
Pollution	Nutrients, heavy metals, microplastics		
Bioremediation method	Floating island with microorganisms		
Partners	Wrocław University of Environmental and Life Sciences (UPWr)		
Site Specific Aims	To create a scalable solution for all urban parks		
Context & Existing Engagement	• Involvement of students at UPWr • The Olbin neighbourhood, where the floating islands will be installed, has a high proportion of older people and few young people and students. • Good feedback from public so far from conversations when water sampling		
Site specific challenges	• Legal regulations of Polish authorities mean that citizens can't be directly involved in science monitoring and measurements and that there is no flexibility of design for co-design. • Lack of insurance meaning citizens cannot be given tools for citizen science. • Scepticism about the response to canvassing people at their homes (as is advocated in the toolkit) which is attributed.		

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	• Lack of engagement from a community centre adjacent to the lake, who would be an ideal stakeholder to partner with to deliver engagement

Table 8 Site summary of Barako Brownfields, Spain

BARAKALDO BROWNFIELDS			
Area	Pais Vasco	Country	Spain
Pollution	Contaminated soil in brownfield sites as a result of industrial activities.		
Bioremediation method	Bioremediation and phytoremediation		
Partners	EHU, GAIKER, IRAGAZ, Ekologistak Martxan		
Site Specific Aims	Basque Country was a highly industrial region in Spain, due to the change in the production and the globalisation the industries have changed or disappeared. This change has left behind many polluted brownfield sites. Their recovery could be very beneficial to create new green areas of the community and/or, due to the limited extension of the region, use them to construct new buildings or facilities.		
Context & Existing Engagement	• This is one of three sites across Pais Vasco for this group of partners. Citizen engagement will be tested on this site. • If the soil is decontaminated the site is to be used as community garden • These project partners are working with NGO Ekologistak Martxan who will deliver the engagement who are a very active NGO that look for the soil and water recovery in the region and control and push the Government to remediate the environmental issues. Unfortunately, they were not reachable before submission of the framework, but they will collaborate with in future meetings.		
Site specific challenges	• Some concern from site partners about the idea of community engagement however the NGO will be delivering the engagement in which case this may not be challenge		
Opportunities for engagement	• Community garden as an end product		

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Table 9 Site summary of Gallions Lake, London

GALLIONS LAKE			
Area	Thamesmead, London	Country	United Kingdom
Pollution	Road runoff pollution and raw sewage from misconnected plumbing which empties untreated into the waterways. Pollution has resulted in fill kills in the past.		
Bioremediation method	Floating wetland bed enhanced with mussels for road runoff pollutant removal.		
Partners	Thames21 and Peabody		
Site Specific Aims	To improve water quality in a fishing lake with known pollution issues to prevent further fish kills and enhance it for the enjoyment of local residents		
Context & Existing Engagement	• Thames21 are working in partnership with landowner and housing association, Peabody. • Thamesmead is a deprived area with various socio-economic issues and currently undergoing a massive, multi-million-pound program of redevelopment and new house building. • There are a number of well-established community groups with interest in the lake. including an influential angling group and a volunteer group who carry out maintenance for a fee reward.		
Site specific challenges	• Initial conversations have demonstrated that local people have a positive connection with the lake but mistakenly think it's "clean because it's green" when the reality is quite the opposite. This poses a delicate challenge for us in educating citizens about the pollution issues affecting the lake without compromising the positive connection that local people have with the lake. • Peabody have an extensive reach and connections to existing communities which is helpful however they also have detailed processes which means that extra time must be timetabled for processes for events and communications. • Thamesmead as an area has a history of being "Over-consulted and under delivered" so the project must take extra precaution to be clear, open and deliver on its claims.		

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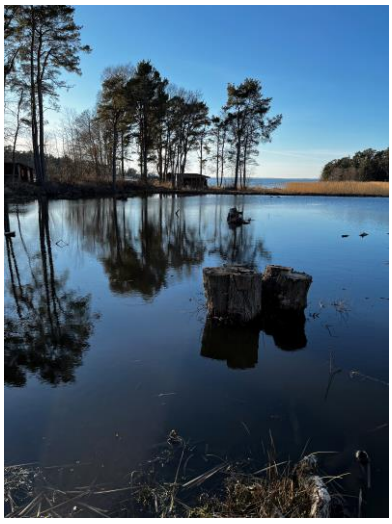
Opportunities for engagement	• Citizens are wanted for water sampling of the lake before, during and after the implementation of the wetlands and the bioremediation solutions. • Wetland installation provides opportunity for community involvement with implementation as well as planting and monitoring. • Existing volunteer groups such as 'West Thamesmead Community Association' and the volunteer forum for all volunteering events in the catchment • Encouraging peer to peer education in the community – for example, one of the local angling clubs has expressed interest in collaborating with Thames21 to co-deliver an event focused on fishing in the lake. This is an opportunity to discuss the pollution issues, bioremediation and the aims of the Symbiorem project in a less top-down approach

Table 10 Site summary of Utö, Sweden

UTÖ			
Area	Baltic Sea	Country	Sweden
Pollution	Recovery of PAH, phosphate, and nitrate from sea water		
Bioremediation method	Bioremediation, bioaugmentation, biostimulation		
Partners	KTH, Initiativ Utö, Alchemia Nova		
Site Specific Aims	• Increase awareness of the island of Utö • Local people are aware of pollution in the sea but not that we can recover valuable materials from the water systems. • Clean water and bringing back fish to the Baltic Sea		
Context & Existing Engagement	• Site partners are collaborating with local foundation Initiativ Utö • Bioremediation solutions are not being implemented directly on the site over the project lifetime. • Initiativ Utö foundation have installed three wetlands on the island. • People living on this island love the project because it's a beautiful place. • 100,000 tourists visit the Island in the summer. • Initiativ Utö foundation previously held a series of talks called: Baltic Sea Water Talks		

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	• local citizens were consulted at the beginning of Initiativ Utö foundation in 2017 and they are now ambassadors.
Site specific challenges	• Samples can only be taken by those in the Initiativ Utö foundation due to health and safety risks of the wetland area. Volunteers can't work in the area because of insurance and machinery. • Permissions and funding are the main challenges according to for Initiativ Utö
Opportunities for Engagement	Plans to make a small-scale model for public showroom

4 THE TOOLKIT FOR CITIZEN ENGAGEMENT AND CO-DESIGN

4.1 Theory

Citizen engagement is the process of deepening involvement in a site or project. The full spectrum of this is represented in Figure 2 which imagines the journey of a citizen who has no awareness or interest in the project through to a group of citizens eager to advocate for future funding. The diagram depicts the different stages of this process. The toolkit sets out practical steps to facilitate this journey. This theory is an adaptation of a larger piece of work that Thames21 is currently undertaking which aims to contribute to wider conversations on citizen engagement.

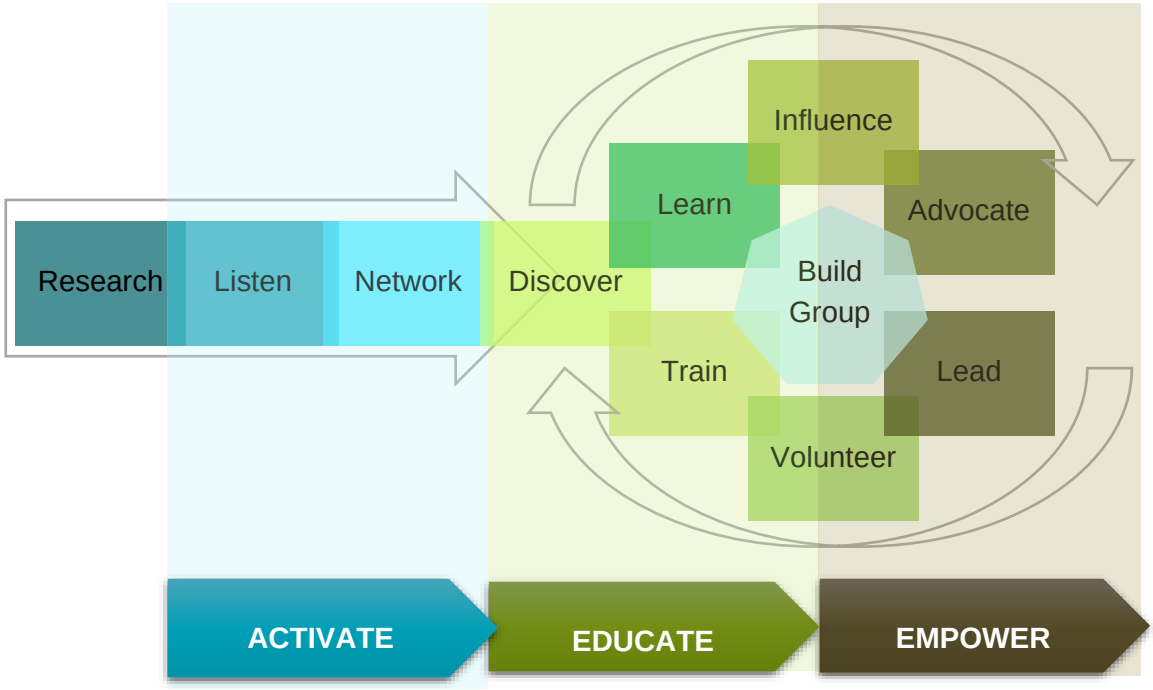

Figure 2 A Visual Diagram Showing the Pathway of Citizen Engagement

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4.2 Summary of the Toolkit

Below in Figure 3 is the summary of the sequence of steps set out in the toolkit. As is further clarified in Step 0 – there are different variations of the sequence that can be taken to fit the context and partners of the specific sites.

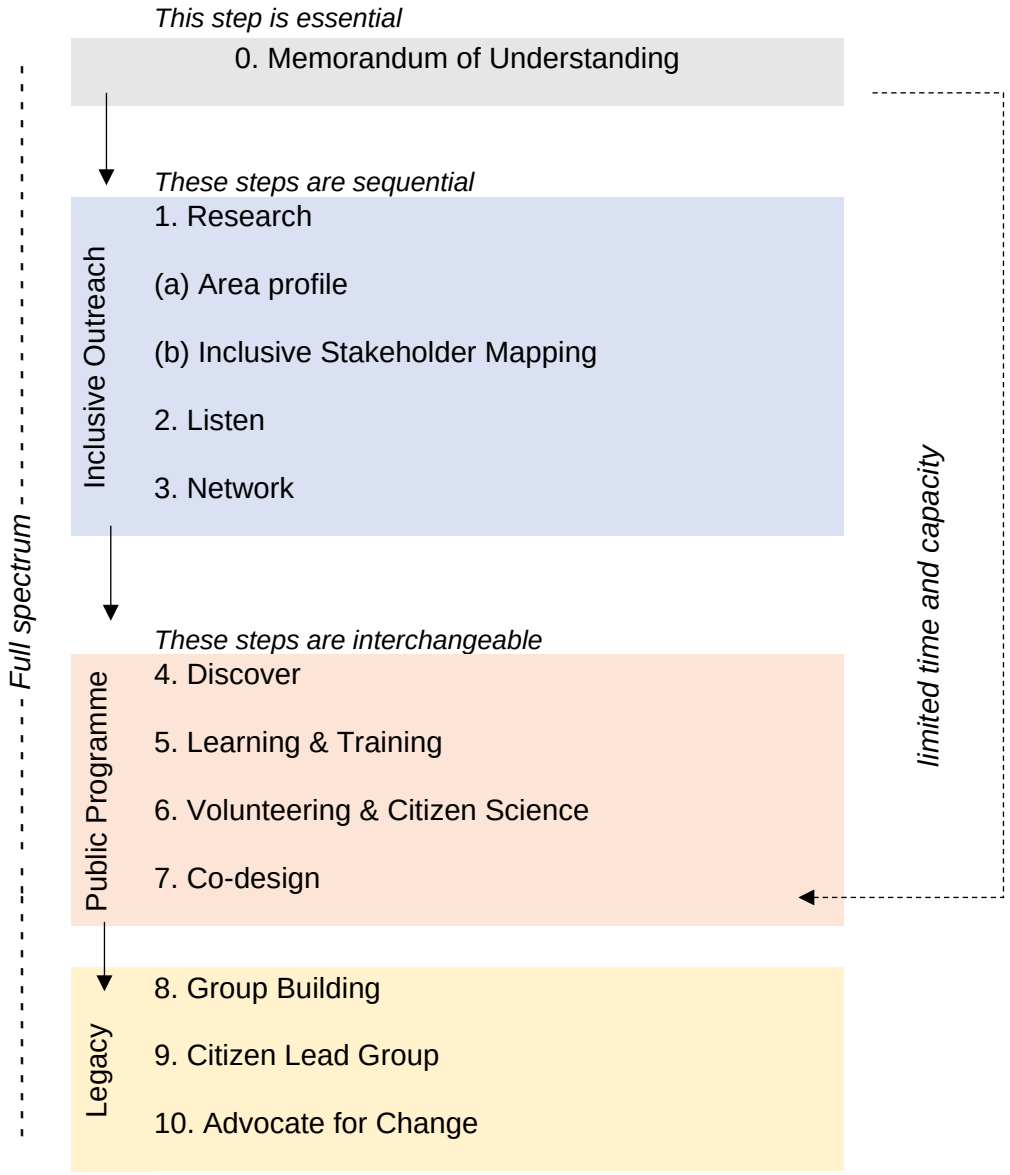

Figure 3 Summary of Toolkit Steps

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4.3 A Practical Step-By-Step Guide to Citizen Engagement and Co-Design

The following section addresses how to facilitate the process of deepening of engagement outlined in Figure 2. These steps are practical guidelines for how bioremediation site partners can engage citizens. These steps are based on the theory outlined in Section 4.1 of how to engage citizens in co-design then formed by the collaborative work between Thames21 and bioremediation site partners documented in Sections 2 and 3.

STEP 0: MEMORANDUM OF UNDERSTANDING **[!]** This is an essential foundation step **[!]**	
Who	All demo-site leaders, designers, and delivery staff
Why	It is essential to draw up a clear, mutually agreed 'memorandum of understanding' (MOU) with demo-site leaders, designers and delivery staff. This will enable you to determine from the offset how much of the toolkit you can deliver at your site and to be transparent, clear and consistent with citizens from the beginning. This can be a formal or informal document depending on the nature of the relationships.
What	• Site specific contexts, aims, challenges such as outlined in Section 3.2 • Timeline for physical works and engagement • Staff & capacity: Who will be delivering this engagement, what time capacity they have and how confident they are. • What are your priorities: Who you engage? Depth or breadth of engagement? • Any existing engagement Co-design? • What is the scope for collaborative working and co-design
How	Hold a meeting to address the above questions and obtain answers agreed on by all site-partners. There may be different interpretations between those involved in which case you will need compromise until a consensus is found.
Output	Site-specific MOU

Time/capacity of staff vs Inclusive Outreach

The more inclusive and embedded in the community you want your engagement to be, the more time you need. For Thames21 in London our Engagement Officer has 0.4 FTE (2 days per week) on this project over the space of a year to deliver the full toolkit. There are 'time-saver' options at each stage for partners with less time and 'legacy steps' for those with more time. Experience, confidence, and wider site context also impact capacity, so this toolkit is a guideline to adapt to your site. If it is decided in the process of drawing up the MOU that there is a severe lack of capacity and time, then the 'Inclusive Outreach' section can be skimmed. **If this is the case skip to the Programme of Events just before Step 5.**

This will, however, rely on there being a number of environmentally activated citizens already existing in your site area. Additionally, you will likely not reach underrepresented and underserved communities (see Step 2b) and potentially find it hard to sustain action and advocate for further action.

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INCLUSIVE OUTREACH

Inclusive outreach Steps 1 – 3 are sequential as the output from each informs the next.

1. RESEARCH	(A) AREA PROFILE
What	I. Wider geography in which the area sits. II. Geographical remits of the work: boundaries and focus points. III. Demographics: income, deprivation, ethnicity, language, religion, nationality, disability, age – what are the existing 'communities' of the area? IV. Points of interest about the area V. Wider contextual points of interest that will help understand how to best engage with community, help identify opportunities for engagement and pre-empt challenges (see site profiles) See corresponding examples below.
Why	• To understand the context you are working in, from a non-biased perspective. • To define the perimeter of the area you work in and any focus points. • To provide a baseline to measure how representative your engagement of the community is, by collecting demographic statistics for the area (income, ethnicity, nationality, language etc.).
Who	Bioremediation site partners
How	Data collection (e.g., census data, GIS data, etc.). In the UK census and council data and mapping tools are available.
Output	Area profile summarising key characteristics and demographics of the area.
Time-saver	Find a pre-existing description of the area and skip this section

See Appendix 2 for examples of an area profiles from Poland and London

1. RESEARCH	(B) STAKEHOLDER MAPPING
What	Stakeholder is any group or individual who could have an influence on or be impacted by the project. Inclusive stakeholder mapping is the process of identifying individuals and groups who possess both influences over and are impacted by a project.
Why	To use the information learnt in 1A identify the priority organisations and citizens to focus on building relationships with.

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To distinguish who is at risk being underserved and underrepresented due to their lack of influence. In order for this group to constructively engage in co-design they need to be activated, educated & empowered, through steps 2 – 5, to have influence.

To distinguish who has influence over decisions and designs made in the co-design and is therefore vital to include in the collaborative process.

Who	Bioremediation site partners
How	Use the information gained from the area profile in Step 1A to conduct a smart internet search to identify a list of relevant stakeholders. Distinguish from the list: those that have influence over the project and those that are impacted by it. Map stakeholders on to the influence-impact axis (Figure 4) using the criteria below. This can be done visually or for a more thorough but time-consuming method each stakeholder can be marked according to criteria below and placed accordingly.

Criteria for influence (Figure 4, y axis)	Score /20	Criteria for impacted (Figure 4, x axis)	Score /20
Decision making power.	/4	Magnitude of impact	/4
Expertise	/4	Extent of impact	/4
Resources and ownership	/4	Financial impact	/4
Network and connections	/4	Social impact	/4
Position and role		Health/wellbeing impact	/4

Output	Inclusive stakeholder map**, List of key stakeholders split into** group A (influential stakeholders) and those in group B (impacted not influential stakeholders) both groups are key stakeholders however they will require different engagement approaches.
Time-saver	Only identify stakeholders of influence (Group A). Utilise work produced in Work Package 6.

Please note that this is a prioritisation exercise to inform subsequent steps based on educated guesses from research 1a, past experience and general themes. The inclusive stakeholder map will not directly reflect reality but should be a useful tool in prioritising the stakeholders to target

These are the main stakeholders identified by Work Package 2 partners in the initial questionnaire:

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(a) Stakeholders who will <u>influence</u> the project:

- Municipal water services, water companies & catchment managers,
- Farmers associations and cooperatives.
- Public authorities and policy makers, regulators
- Industries and businesses
- Scientific community, academia
- NGOs

(b) Stakeholders who will <u>be impacted</u> by the project:

- Entrepreneurs, Businesses & Landowners
- Local residents
- Citizens groups and local stakeholders
- Civil society: environmental NGOs, citizens NGOs, think tanks, media, general public.
- Local companies,
- Farmers
- Users of the site – e.g., Fishermen, sailors
- Tourists

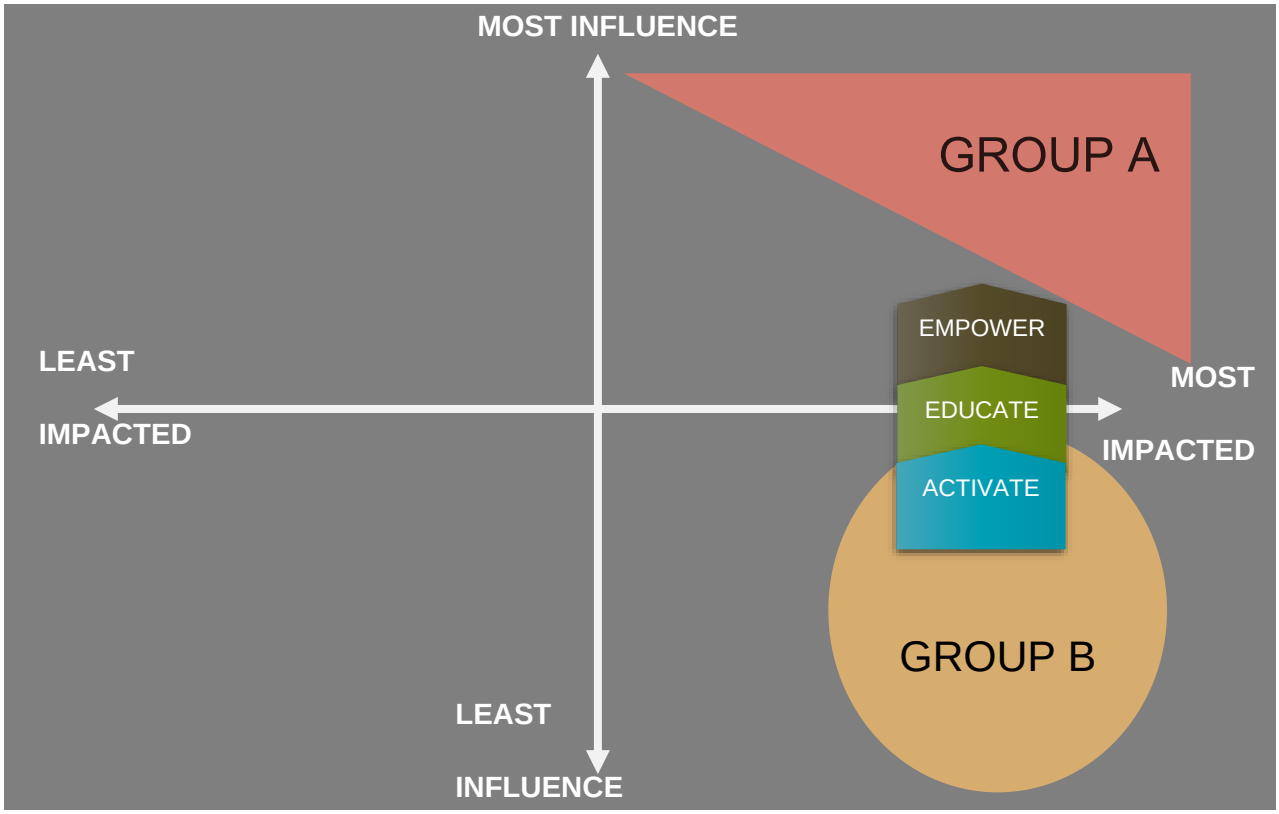

Figure 4 Template for an Inclusive Stakeholder Map

See Appendix 3 for an example inclusive stakeholder map from the London bioremediation site.

2. LISTEN	
What	Inviting key stakeholders from Group B to answer a questionnaire that seeks to understand their perceptions, use, barriers, and ideas for the site in question. (See Appendix 4 for Questionnaire used in Thamesmead) Knocking on people's doors is the most effective method as you are directly targeting key stakeholders. Other options include a stall in a public place such as a shopping

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	centre or park or online surveys. These will be more time effective but will exclude people who don't access that space or are not digitally capable.
Why	• To reach citizens who would likely be missed by online communication due to digital divide, exclusive algorithms or on-site promotion due to not accessing the site. • Ignite interest and curiosity in the space and its environmental issues. As an introduction, asking questions is a much more effective engagement tool than telling people what they should care about and do about it. • Learn things from the local residents that will help ensure the project is successful. • Understand the starting knowledge level of the community to inform the process of educating and upskilling (learning and training (step 4b) modules will be developed in D2.4 to assist with this process).
Who	Delivery: bioremediation site partners Reach: Stakeholder Group B (see Step 1B, above)
How Time-savers	Be open and accessible and inviting (literally) to people who wouldn't usually get involved in scientific research. I. Produce a simple questionnaire. II. (a) Approach residences highlighted as focus areas – sometimes this is simply the immediate area – systematically knock on doors inviting people to answer the questions. Or (b) Choose a public space with high footfall of locals and set up a stall with information posters about the proposed bioremediation activities in the local area and ask questionnaire to those who pass by Or (c) Upload the survey to an online platform and use physical and online promotion to gather answers. Site 'walk overs' can be a less formal method to engage people's curiosity and also ask the questionnaire. You will likely not reach many group B stakeholders but will still obtain interesting information. Top Tip: Promote a public event (see step 4) at the same time – this way you have an offer as well as an ask for people.
Output	Questionnaire results

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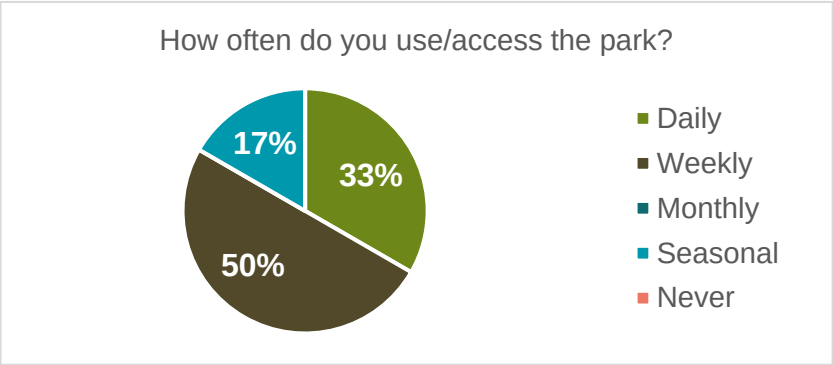

Figure 5 Citizen access to London Bioremediation site

Example: Thamesmead Questionnaire results; Summary so far:

- Local residents feel very positively about the site (Gallion's Lake), access it frequently (83% of respondents visit the park at least weekly, Figure 5) and are interested to learn more.
- There is a common misconception that the lake is healthy: 84% rate it's health 'good' and 16% 'excellent'.
- Reasons for perceiving the lake to be healthy include presence of wildlife, that it is green, no obvious litter pollution.
- Pollution is understood to mean litter pollution, not water pollution.
- Despite these common misconceptions, most people stated they feel confident when talking about environmental issues: when asked to place themselves on a scale of 1 – 5 of how confident they feel, the average rating was 4.67/5

In reality, Gallions Lake is known by water industry professionals to be heavily impacted by road runoff pollution, suspected pollution inputs from a local bus depot and raw sewage from misconnected and ageing sewer infrastructure. These issues have resulted in fish kills in the past (see Section 3.2 above for the Gallions Lake site summary).

These questionnaire responses enable baselining of the current state of knowledge of the local population who will be directly impacted by the installation of bioremediation in Gallion's Lake (floating wetland bed hosting mussel mesocosms) as part of project activities. They also indicate the level of knowledge upskilling required in order for the local community to be able to meaningfully engage in the process of co-designing and co-monitoring the floating islands. As mentioned in the site profile in Section 3.2 this will require a delicate approach to keep the positive feeling about the lake. Key to this will be layperson language and not alienating with heavy scientific concepts from the start.

3. NETWORK	
What	Relational one to one meeting of approximately 45 minutes
Why	• Build a network of key stakeholders to support, influence and advocate for the project. • Further listen to, and learn from, the local communities.
Who	Delivery: bioremediation site partners Reach: Key contacts from stakeholder groups A&B. e.g., group leaders, influential citizens
How	• Use internet searches, referral networks, and face-to-face visits to obtain contact details of stakeholders from groups A & B • Contact via email, phone or even social media if this seems appropriate.

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	• Arrange a 45-minute meeting. • Use the meeting to understand their objectives and identify how they overlap with those of the project and site. • If available and appropriate discuss options for a collaborative event • Optional: Decide on set questions to ask to all (see Appendix 5 for example)
Output	• Network of interested key stakeholders. • If set questions have been asked this will create a further data set on local perceptions • Collaborative events ideas as will be covered in the next section.
Time-saver	• Send users the same text content when reaching out to all stakeholders. • Only target the top priority actors • Work with established groups with existing links (e.g., a local authority or NGO) who is trusted by the local stakeholders.

PUBLIC PROGRAMME OF EVENTS

This section will detail the curation, promotion & delivery of a public programme of events. Steps 4 – 7 categorise event options for the programme by their engagement purpose. The programme curation will select a combination of these events depending on the context of each bioremediation site. **These steps are non-sequential and interchangeable.**

The public programme will be most successful when informed by the findings and contacts from the inclusive outreach steps 1 – 3. However, it is possible to jump here from Step 0 if the MOU determines the site has a lack of capacity to undertake steps 1- 3. As set out in Step 3, events delivered in collaboration with partners will multiply the beneficial outcomes with limited additional work.

See Appendices 6 and 7 for an example programme of events planned for Lake Tolpa Poland and Gallions Lake, London.

4. DISCOVERY	**EVENTS & ACTIVITIES**
What	Events and activities that engage people with the environment but don't necessarily have a direct environmental output. They are wide in their appeal and have inciting offers such as fun, children's activities and free refreshments. See Appendix 8 for a poster for an example event.
Why	• To introduce and encourage new audiences to the space/project without alienating them with complex scientific ideas and language. • Ignite and channel interest into subsequent stages through delivering events and activities
Who	Delivery: bioremediation site partners Event attendees: Open to all, target Group B
How	• Create a plan for the promotion, equipment, staff and day.

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	• Attain permission from relevant landowner and authorities. • Promote event to wide audience, keeping it positive and light touch (ideally when door-knocking with a questionnaire) • Deliver event. • Capture contacts by using email and phone platforms such as a mailing lists and WhatsApp groups.
Event ideas	• Open Day: introductory event with fun elements to introduce people to the space/initial concept of the project. • Art sessions • Fishing or Farming activities days • Nature watch: record information about local flora and fauna • Community Picnic • Guided walk of the site • Reminiscence sessions with older citizens who have pictures of the site from the past
Time-saver	Run events in partnership with established, trusted local groups. Deliver a site walk - this takes minimal planning and budget.

Example: Guided walks

Public talks and guided walks can be delivered to enthuse people about the wildlife and natural features on their doorstep. The events will be a useful way to showcase site features and communicate their benefits, discuss pollution/contamination issues and generate enthusiasm for bioremediation implementation. Walks and talks may also focus on the cultural or historical significance of the site, which also provides the bioremediation site partners more opportunities to learn from locals. These events may be publicly advertised or delivered for a specific group. This is a low-cost way to engage people, even if you are not recruiting for scientific tasks and has proved successful for Thames21 in the past.

See Appendix 8 for example poster for Open Day at the Gallions Lake site, London.

5 LEARNING & TRAINING	**WORKSHOPS, TALKS, COURSES**
What	Educational sessions adapted to knowledge blocks needed to understand the specific site and potentially drawing from what is learnt about the knowledge of the community in Step 2: Listening Questionnaire.
Why	• To identify the building blocks of knowledge and practical skills needed to engage with bioremediation. • To educate the public to upskill and equip them with the necessary knowledge to enable them to participate in scientific discussions about bioremediation • To create greater community awareness of the benefits of bioremediation
Who	Delivery: bioremediation site partners

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	Event attendees: Open to all, target Group B
How	Further detail will be presented in Deliverable 2.4 “Bioremediation educational materials and user guide” which will be available in 2024 in project month 20.
Output	Modular educational sessions with course accreditation (where possible) in order to tailor the learning based on the baseline knowledge of the participants
Time-saver	Reduce number of sessions Produce and display an educational display next to the site

Examples of knowledge modules in the context of the London bioremediation site:

1. What is a lake?
2. How is the lake polluted?
3. Why are wetlands/floating islands amazing?
4. How may bioremediation help to make the lake healthy?
5. What are the impacts of the pollution and of the bioremediation?

6. VOLUNTEERING & CITIZEN SCIENCE	**EVENTS, ACTIVITIES**
What	Events and activities that directly involve citizens in environmental outputs.
Why	To work with the public to directly achieve environmental and project aims
Who	Delivery of events: Bioremediation site partners Event attendees: Activated citizens
How	• Create a plan for the promotion, equipment, staff and day. • Attain site permissions from relevant landowner and authorities. • Promote event activated citizens clearly stating the environmental impact they will make. • Deliver events to achieve above ignite and channel interest in site and project. • Capture people using mailing lists and WhatsApp groups as explained above
Event ideas	Volunteering • environmental restoration e.g., assisting with wetland/mussel bed installation, planting a wildflower meadow at a contaminated brownfield site. • site maintenance e.g., litter pick • Clearing invasive species. • tree planting and vegetation management • planting, aquatic and terrestrial plants Citizen science • Soil or water sampling • Flora, fauna, pollution survey

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	• Feedback of data being collected by the volunteers and an opportunity for them to share their view
Time-saver	• Utilise these events to assist with key project tasks. • Collaborate with other projects in the space that also need volunteers

4. INFLUENCE: CO-DESIGN	**WORKSHOPS, FORUMS**
What	A forum or workshops where key stakeholders are invited to influence the designs, decisions and delivery of the project within the limits of the Grant Agreement. Such as: • **Design** of bioremediation technology such as floating islands and related wetland and plantings • **Decisions** about health & safety, timeline, implementation • **Delivery** of monitoring, evaluation of benefits and business models
Why	Co-designing environmental improvements methods for evaluation with the local community promotes a deeper understanding of local needs, fosters community engagement and ownership beyond the lifetime of the project, and results in solutions that are better suited to the unique context and aspirations of the area. It also democratises by enabling those who are going to be most impacted by the project to have influence over it.
Who	Delivery: Bioremediation site partners Workshop attendees: A. Key stakeholder from group A (see Step 1B and Figure 4) that hold influence over the designs, decisions, and delivery of the project. B. Key stakeholders from group B that have been activated, educated, and empowered to be able to constructively engage with the co-design process though participation in the previous steps of this framework/toolkit
How	**Determine Levels of Influence**: Create a table (such as Table 11 below) that categorises aspects of the project (decisions, delivery, designs) into fixed, open, and negotiable categories. This helps set expectations and clarify which aspects are non-negotiable and where citizens can have significant input. **Invite Key Stakeholder :** Effective co-design would include a representative sample of the wider community (key stakeholders from Group B) as well as actors influential in decisions, delivery and design (key stakeholders from Group A) to feedback the viability and benefits of different options. **Organise a facilitated workshop:** Organise a facilitated workshop, forum or public meeting, face-to-face or online, with all decision makers, designers and engagement delivery staff present as well as stakeholders of influence to bring these decisions to the key stakeholders. **Collaborative Design Process:**

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	• Co-creation workshops: Organise workshops where citizens, along with project experts, collaborate on designing different aspects of the project. Encourage brainstorming, sketching, and group discussions. • Scenario planning: Develop multiple project scenarios based on citizen input, allowing them to explore different design options and outcomes. • Visual aids: Use maps, diagrams, and visualisations to help citizens better understand the project's components and implications. **Decision-Making and Iteration:** • Consensus building: Use facilitated discussions to find common ground and build consensus among citizens and stakeholders on various project elements. • Feedback integration: Regularly update citizens on how their input is influencing project design and decisions. Show how their ideas are being considered and incorporated. **Transparency and Accountability** • Feedback loop: Establish a mechanism to provide feedback to citizens on how their input has shaped the project and its outcomes. • Document decisions: Keep detailed records of decisions, discussions, and design changes made based on citizen input. This promotes transparency and helps prevent misunderstandings. **Evaluation and Monitoring** • Feedback collection: Continuously gather feedback during the project's implementation to ensure it stays aligned with citizens' expectations. • Adaptability: If challenges arise, be open to revisiting certain aspects of the project based on new information or changing circumstances. • Effective co-design requires patience, flexibility, and genuine commitment to involving citizens in the decision-making process. • This will be covered in more detail during a co-design workshop planned for SymBioRem project partners attending the in-person consortium meeting in October 2023.
Events	• Public consultation meetings • Co-designs workshops • Monitoring process meetings
Time-saver	Target key stakeholders from group A who are already educated and empowered. This will risk limited citizen involvement and future and engagement as well as limiting the local understanding of the project. To include key stakeholders from group B it is critical they feel empowered through the activation and education steps in order for them to be able to have a substantial influence.

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Table 11 Template table with a possible example for scope of co-design of floating islands

DESIGN	FIXED	NEGOTIABLE	OPEN
Finial design of reedbed	Reedbed location (sites have been preselected by the project)	Shape/length of the reedbeds Location within the pre-selected sites	Plant species used on top of the floating island (e.g. to balance aesthetics and public enjoyment with pollution treatment value).
Mussel housing on floating islands	Mesocosm structures that will hold the mussels	Platform shape and features (such as handrails, cameras etc.) Mussel species used in the experiments (if multiple species are present).	Location of reserve mussel supply used to replenish experiments (e.g. tanks off site, onsite but in a different (less polluted?) location, different river/lake nearby.
DECISION	**FIXED**	**NEGOTIABLE**	**OPEN**
Timeline of delivery	Months – the timing of the experimental activities Duration and number of experiments (this may also be negotiable, depending on the site)	Days and dates of disruption during construction and planting (e.g. to avoid local events occurring at the site, Duration and number of experiments (this may also be fixed, depending on the site) Community participation in floating island construction and planting – to facilitate community attendance, it may be best to hold events at the weekend. Community involvement in tending mussels (who, when, how)	Location of equipment drop off and store (to minimise disruption to the public and site users e.g. fishermen, sailors)
DELIVERY	**FIXED**	**NEGOTIABLE**	**OPEN**

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Monitoring mussels	The methods used to monitor and sample the water and mussels.	The who, what, where, when of supplemental monitoring carried out by citizen scientists to enhance the fixed monitoring (see also D2.1). This could be very simple such as recording when the water looks polluted/green, taking photos after rainfall events/a certain number of dry days. This additional data can then be compared to and inform results from fixed monitoring.	Co-monitoring and co-evaluating of experiments and codesigned outcomes with local communities.
Evaluation of benefits (This feeds into the catchment management discussions held in T2.4)	Evaluation of experimental results	Potential for a long term management plan (If bioremediation proves successful, could/should the mussels and/or floating islands stay in place?) Identification of additional sites which may be suitable for bioremediation.	Feedback of experimental results to participants (when, how, where) Evaluation of the additional benefits

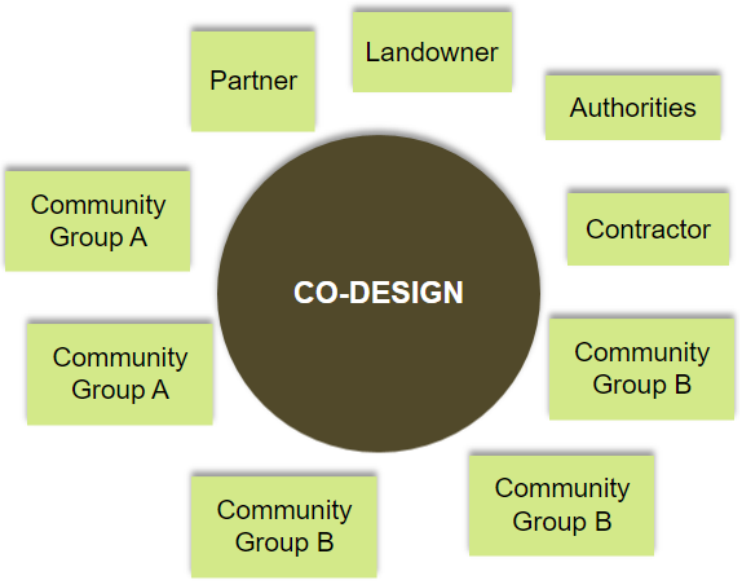

Figure 6 Example Attendance of Co-design Workshop

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Table 12 Event Promotion

HOW TO PROMOTE EVENTS AND ACTIVITIES		
TYPE	DETAIL	TIME-SAVER
Web Pages	An online project page that links to information about the project and upcoming events. See the Thamesmead page here.	Link to the SymBioRem project page
Social Media	Social media is a useful way to promote events and share project content. Project posts can be shared on local social media accounts: Instagram, Facebook and Twitter and re-shared (with some encouragement) by other local stakeholders. Tagging key stakeholders can also be used to optimise reach.	Local forums such as Facebook or neighbourhood WhatsApp groups can be a time-saving way to promote events, as well as the SymBioRem social media channels.
Posters and Leaflets	Posters and leaflets will be used to inform people about the project and promote events. Some posters and leaflets will contain general project information and could incorporate a QR code that links people to the above webpage. Other posters and leaflets will be specific to a particular event or site and will be distributed more locally.	Use project posters and banners produced by Greenovate! Europe in Section 4.6 of D7.1 Budget for third party leaflet drop
Door knocking	Door-knocking is the most effective way to engage with residents that live adjacent to, or very nearby a bioremediation demonstration site. Door knocking enables you to directly invite target communities to an event. It is advisable to combine event promotion with the above Step 2: Listening Questionnaire	This step is time-consuming so skip if there is limited capacity.

LEGACY STEPS

The following legacy steps 8 - 10 set out ways to build resilient partnerships beyond the lifetime of the project and can be enacted where bioremediation site partners have capacity to do so. They are interchangeable with, and can run parallel to, the Programme of Events steps 4 – 7.

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8. BUILD A LOCAL GROUP	
What	Active and explicit efforts to create a named group of committed volunteers that will enable sustained action and advocacy.
Why	To build influence and ownership of key stakeholders over the bioremediation site
Who	Delivery: Bioremediation site leaders Group members: all citizens and stakeholders involved
How	• Consistent and regular Public Programme of Events • Clear and open channels of communication (see Table 13 below) within the local group as well as semi-regular meetups. • Increasing citizen involvement in volunteer roles with higher levels of responsibility (see Step 10) • Encourage them to take initiative, express their ideas, and contribute to decision-making. This empowerment fosters a sense of responsibility and ownership. • Public and private celebrations, and thank-yous for work done by volunteers as well as socials.
Output	Volunteer social events designed to enhance bonds between group members and create group identity. A named group of citizens, connected by interest in the site and project. Indirect outputs of increased community cohesion.
Time-saver	Schedule online communications ahead of time. Create a 'social officer' member of the group who delivers these events and a 'comms officer' to lead on comms.

Table 13 Group Building Platforms

TYPE	DETAIL
Mailing Lists & Newsletters	A mailing list can be created to gather contacts of people who are interested in the project which will grow as the project develops. A (bi)monthly project newsletter can be sent to the mailing list with project updates, links to surveys and event listings. As the project develops there will be the opportunity to split the mailing list according to different areas of interest and send out multiple mailing lists with different foci, for example: one newsletter might contain general project updates while another might contain more specific information about volunteering.
WhatsApp groups	'Broadcast only' (only group administrators can post) WhatsApp groups are an effective way to capture local interest.
Social media	Local Facebook allows you to create actual groups if you have enough interested volunteers.

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	Posting event photos on your social media platforms will add to the sense of volunteers feeling valued and the group identity This can also be posted on the project website and the other social media that Greenovate! Europe has created for the project in WP7, including those outlined in D7.1

6. ADVOCATE FOR CHANGE	
What	Empowered citizens using the influence, knowledge and evidence built in the Symbiorem project lifetime to promote further application of bioremediation
Why	To put pressure on local authorities to remediate brownfields and polluted waterways. To raise awareness of the success of bioremediation techniques developed through the SymBioRem project and advocate for their future use in other sites as a solution to pollution.
Who	Core group of empowered stakeholders
How	Campaigns, letters, workshops, public meetings. Community modelling, which will be addressed in more detail in T2.4 Collaborative catchment management.
Output	Evidence for funding future projects and a platform for public acceptance of bioremediation techniques in their local area to enable wider implementation of techniques developed through the project.

7. CITIZEN LED GROUP	
What	A group, guided by skilled and relevant key stakeholders equipped with the necessary knowledge, practical tools, and resources, capable of autonomously sustaining the program's activities beyond the project's scope.
Why	To build a group that is a sufficiently substantial vehicle to embed, sustain and even multiply SymBioRem work beyond the lifetime of the project.
Who	Led by: Activated, educated, and empowered stakeholders. Open to all citizens and stakeholders.
How	• Recognise and empower emerging leaders: celebrate their work on public platforms, thank them privately and build a relationship that understands what they want from and can bring to the group. Encourage them to take initiative, express their ideas, and contribute to decision-making. This empowerment fosters a sense of responsibility and ownership.

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	• Gradual hand-over of responsibility being sure to support and check-in where needed. • Provide training opportunities in leading events such as litter-picking of floating islands, vegetation management and water quality monitoring. • Explore opportunities for the local group to secure additional resources, such as funding, equipment, and partnerships. Collaborations with local businesses, NGOs, and government agencies can help ensure the group's sustainability.
Output	A core team capable and willing to take-over the work at the bioremediation site beyond the lifetime of the project.

5 INITIAL CHALLENGES

Table 14 details the citizen engagement challenges that are being experienced by the partners at each of the five bioremediation sites. These challenges have been reported by bioremediation site partners in our ongoing site meetings. In addition, there are challenges that Thames21 has faced in delivering work similar to this in the past and deemed worthwhile including here due to the potential for overlap. The main themes have been picked out and solutions advised.

Table 14 Challenges experienced in application of the citizen engagement toolkit.

CURRENT CHALLENGE	SOLUTIONS
Fears and anxieties of bioremediation site partners' around delivering citizen engagement due to:	
a) Engagement with citizens being outside of typical academic and scientific practice.	a) The co-development process of the framework aims to empower bioremediation site partners.
b) Lack of experience and confidence in citizen engagement's ability to motivate key stakeholders and facilitate collaborative work.	b) The toolkit sets out clear and detailed steps, with examples, that can be adapted to the specific site context and Thames21 will be available for support throughout the implementation of the toolkit.
c) Nature of working with people being complex and open to many variables	c) Due to the complex and variable nature of working with people, success is partly determined through the learnings gained from delivering the engagement.
d) Motivation of participants: "to find a strong community willing to engage … and to maintain the engagement during the project's lifetime"	d) The initially broad reach and accumulative nature of volunteer engagement throughout the different stages of the toolkit is designed to build strong ties with the community. The toolkit also has three legacy stages.

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Scepticism from Bioremediation site partners' abouts the success of citizen engagement due to perceptions that: a) Site specific context too different b) Non – qualified citizen involvement will jeopardise accuracy, precision and general quality of work. c) Will receive negative response from citizens to methods of engagement such as questionnaires.	a) All site-specific challenges shown in Section 3.2 have been taken into account in the creation of the toolkit. Not all elements of the toolkit will be available to all partners which is where clear clarification (step 0) and planning (Step 4) are important. b) The process of citizen science will be controlled by the bioremediation site partners and citizens given responsibility over designated portions when it is deemed, they are able to. Supervision from bioremediation site partners will further support this. Citizen science is evidenced to provide effective scientific evidence through citizen participation such as the high impact citizen collected data that has resulted in significant media attention on the issue of non-biodegradable wet wipes for Thames21 project Thames21 *(Thames21 T. , 2021)* Additionally, UK's nationwide riverfly monitoring initiative where volunteers collect intricate data such as identifying benthic invertebrate species, generating site scores aligned with local authority thresholds and trigger levels are agreed with local regulatory authorities with action to be taken if the site scores do not meet the thresholds. *(Brooks S. , Fitch, Davy-Bowker,, & Codesal, 2019)* c) All responses are informative, even if negative, provided that the reasons are identified and recorded. If recorded and identified, they become part of the specific context that the toolkit needs to be adapted to for the site in question. It's worth noting that this is common perception observed by Thames21 across all forms of disciplines and often project partners are pleasantly surprised by the positive response
Limited time and capacity of bioremediation site partners	The toolkit has been designed to be interpreted and applied according to the time and capacity available at each bioremediation site. The initial Step 0 encourages clarification of capacity and for each subsequent stage there is a 'time-saver' option suggested.
Rigidity of design of bioremediation solution hindering opportunities for co-design	Use the MOU in Step 0 and the co-design table in Step 4D to explore options for any element of the design that may be negotiable, if not open. Even if the scope is limited there will still be many benefits to including citizens. Additionally, if the design is absolutely fixed then there could be scope for influence in the delivery and monitoring of the site.
Health and Safety for citizen science challenges such as:	Creative thought applied to *how* citizens can be involved indirectly. For example: documentation of results, digital uploads, assistance with equipment and administration etc

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a) Regulation b) Lack of insurance c) Nature of site	Alternatively other forms of engagement events can be used to show findings and generally encourage awareness.
Obtaining permissions from authorities for citizen science, events and consultations	Work in collaboration with experienced institutions who will have permission systems and relationships with authorities in place.
Lack of engagement from key actors	• keep going, exhaust every contactable person and method including turning up in person. • have a short, clear ask & offer that makes sense to non-scientists. • ask open and detailed questions to allow you to get a comprehensive understanding of the objectives of the actor in question so you can identify where they overlap with yours
Harmonised project working where NGOs are delivering engagement	The welcome benefit of engagement NGOs working on bioremediation sites is that they can bring their engagement expertise as well as their local knowledge and existing connections. It will be vital to feed this work into the ongoing WP2 conversations which would be best facilitated through NGO attendance of meetings.
Negative reputation of authorities or landowner with community due to past experiences	Build a positive relationship with the local authorities/landowner in question. Ensure clarity on role, permissions, expectations, and timings (similar to those things outlined in Section 4 Step 0) Where possible, publicly separate your identity as an actor with clarity on funding. Build trust with community groups through continued presence in the area, delivering on promises and genuinely listening.

This table of challenges will continue to be developed as bioremediation site partners feedback challenges with delving the toolkit in the post submission meetings outlined in the next section.

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6 TOOLKIT EVALUATION AND MONITORING

To assess the achievement of the goals of Task 2.2 work package partners can monitor both qualitative and quantitative engagement data, evaluating it against the intended objectives set out in both the grant agreement (Section 1.2) and the initial partner questionnaire (Section 3.1). The bioremediation site partners will vary in the engagement data they intend to collect, and common formats and data storage will be discussed in the evaluation meeting in September 2023 outlined in Section 7, Table 16. Online versions of the questionnaires as well as anonymised insights from data collected will be shared amongst consortium partners on the project SharePoint in order to harmonise data collection as outlined in D2.1. The table below gives some suggestions to be developed in these meetings.

Table 15 Suggested methods for monitoring and evaluating framework aims.

<table>
<tr><th>AIM</th><th>DATA COLLECTED</th><th>MONITORING METHOD</th><th>EVALUATION METHOD</th></tr>
<tr><td>1. Consortium partners to have local knowledge of the site and communities</td><td>Perception, engagement and barriers for locals</td><td>Initial perceptions questionnaire (See Step 2 of toolkit)</td><td>Community perceptions data to be analysed to inform programme of events.</td></tr>
<tr><td>2. Inclusive engagement</td><td>Demographics, previous experience, type of event attended</td><td rowspan="3">Event data

(See Appendix 9 for an example event registration form)</td><td>Demographic data can be compared to that produced in the Area Profile (see Step1)</td></tr>
<tr><td>3. Project engagement from local citizens and stakeholders</td><td>Number of events and attendees</td><td rowspan="2">Event data analysed in Framework support meetings to gather insights and assess impact of the toolkit</td></tr>
<tr><td rowspan="2">4. Develop a collaborative approach</td><td>Number of collaborative events, attendees and demographics</td></tr>
<tr><td>Influence experienced by volunteers</td><td rowspan="2">Volunteer feedback form</td><td rowspan="2">Volunteer feedback to be evaluated in Wash-up meeting. Key insights and learning to be identified.</td></tr>
<tr><td>5. Resilient partnerships beyond the lifetime of the project</td><td>Future plans for environmental improvement</td></tr>
</table>

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6. Activated, knowledgeable and confident key stakeholders	Level of engagement, knowledge and confidence felt by key stakeholders.		
7. Greater trust in scientists and awareness of the benefits of bioremediation	End of project perception of environmental science of the site and impact of bioremediation	Final Community perceptions questionnaire	Answers to be compared to initial perceptions questionnaire above to analyse the difference.

7 NEXT STEPS

This section outlines the ongoing procedures that will be employed to assist bioremediation site partners in implementing the toolkit throughout the project's duration.

Table 16 outlines the collaborative processes that will take place beyond the submission of the framework. These are proposals for the bioremediation site partners for how to best support this going forwards with flexibility to adapt them to the priorities of each site.

Table 16 Collaborative processes after submission of the Framework

COLLABORATIVE PROCESS	DETAIL	ATTENDANCE	MONTH
Monitoring Meeting	Site specific meetings to co-develop monitoring and evaluation processes using Section 6 of this framework as a foundation.	Bioremediation site partners	September 2023 [Month 12]
Co-design workshop	Thames21 will be running a co-design workshop at the Consortium Meeting in October which will aim to empower bioremediation site partners to be able to run co-design workshops at their sites.	Bioremediation site partners	October 2023 [Month 13]
Framework support meetings	• Thames21 will be available to bioremediation site partners throughout the implementation stages of the bioremediation solutions to support them through the application of the framework to their sites. • The format will be a meeting every 2 months for all bioremediation site partners. • The aim will be to continue to provide support, advice and absorb what we learn from the five	Bioremediation site partners	October 2023 – September 2025 [Months 13 – 36]

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	sites back into the framework. All partners will be encouraged to feedback: What works well? What doesn't work, and why? How can it be adapted in those cases? Are there processes that work more successfully?		
Further check-ins	Thames21 will be available for any further support needed with the process for citizen engagement and co-design. The format of this will be based on the needs of the bioremediation site partners.	Bioremediation site partners	September 2025 – September 2027 [Months 36 – 48]
Final questionnaire	A final questionnaire on perceptions, confidence and experience in citizen engagement and co-design to compare with the initial questionnaire to assess the impact of the work of Task 2.2 and Deliverable.	Bioremediation site partners	July 2027 [Month 46]
Wash-up Meeting	A concluding reflection session aimed at getting partner feedback and supporting plans for project legacy in the community.	Bioremediation site partners	September 2027 Month 48

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References

(NCAG), N. C.-p. (2021). *Ladder of co-production.* Retrieved from Think Local Act Personal : https://www.thinklocalactpersonal.org.uk/_assets/Resources/Coproduction/LadderOfParticipation.pdf

Brooks, S., Fitch, B., D.-B. J., & Codesal, S. (2019). *Anglers' Riverfly Monitoring Initiative (ARMI): A UK-wide citizen science project for water quality assessment.* Freshwater Science.

CO-CREATE. (2019). *The Co-create handbook for creative professionals .* Retrieved from Co-create Training : http://www.cocreate.training/wp-content/uploads/2019/03/co-design_handbook_FINAL.pdf

Isaacs, A., 2017. *Why do volunteers participate in water quality monitoring? Motivations of citizen scientists in the Anglers' Riverfly Monitoring Initiative* (Doctoral dissertation, Doctoral dissertation), Unpublished thesis (MSc), University of College London).

Moolna, A., Duddy, M., Fitch, B. and White, K., 2020. Citizen science and aquatic macroinvertebrates: public engagement for catchment-scale pollution vigilance. *Ecoscience*, *27*(4), pp.303-317.

Owen, R.P. and Parker, A.J., 2018. Citizen science in environmental protection agencies. UCL Press.

Thames21, & Tideway. (2022). *Thames River Watch.* Retrieved from Tideway: https://www.tideway.london/benefits/thames-river-watch/#:~:text=Funded%20by%20Tideway%20since%202014,plastic%20bottles%20and%20wet%20wipes.

Thames21, T. (2021). *Thames River Watch Impact Report.* Retrieved from Tideway: https://www.tideway.london/benefits/thames-river-watch/#:~:text=Funded%20by%20Tideway%20since%202014,plastic%20bottles%20and%20wet%20wipes.

Tough, L., & Stewart, P. S. (2021). *The Riverfly Monitoring Initiative: an update.* Retrieved from Greenspace Information for Greater London CIC : https://www.gigl.org.uk/2021/01/21/rmi-update/

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Appendices

Appendix 1: Initial questionnaire for Work Package 2 partners:

Basic Details

1. Name, Organisation, Site(s) of bioremediation solutions (if applicable)

Stakeholder Engagement

2. Define the stakeholders who will have an impact on the project / who will be affected by the project.
3. Please include the local communities and those who use/value your site.
4. For the impacted stakeholders please detail how they will be impacted by the project
5. Which of the above stakeholders are a priority and why?
6. Which of the above stakeholders do you foresee being challenging to engage with and why?
7. Please detail how community engagement will benefit your project/space/the local communities?

   Buy-in, knowledge sharing, advocacy, citizen science, network, legacy, awareness, education.
8. What do you want to be the project's legacy for the local communities?

Site Engagement & Collaborative Delivery

9. What, if any, are your current plans for community engagement?

Public consultation Co-design workshops Co-development Training Volunteer activities Public events Citizen-science (data collection/observations/monitoring etc)

10. Outline any challenges you initially foresee with these plans?
11. Which elements of your project are you planning on/would you like to design /develop in collaboration with the community?

    Engagement Skills
12. On a scale of 1-10 (10 being very experienced) how experienced are you in community engagement?
13. On a scale of 1-10 (10 being very confident) how confident are you in delivering community engagement?

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14. Please detail any areas of community engagement you lack confidence in/ would you benefit from support on?
15. Please detail any areas of community engagement you are confidence in / have delivered particularly successfully?
16. Please add any other comments or questions relating to the SymBioRem Engagement Framework

Appendix 2: Example of Area profiles for Step 1A of the Toolkit: Oblin, Wroclaw

1. Location of the study site

Ołbin (German: Elbing also Der Vicenz Elbing) - a housing estate in Wrocław, north of Ostrów Tumski, the nucleus of settlement in Wrocław, located in the area of modern Wyszyńskiego, Nowowiejska and Prusa streets, near the church of St. Michael the Archangel.

Fig.1. Location of research field – Ołbin housing estate.

The heart of the estate is Stanisław Tołpa Park - a small park in Wrocław (8.96 ha) located entirely in the Ołbin estate (51°7'11.46"N, 17°3'16.87"E), cared for by the City Greenery Authority.

Fig.2. Location of research field – Stanisław Tołpa Park in Wrocław.

The history of the park from conception to implementation covers the years 1902-1907. Within the park there is a small water reservoir, which is a relic of the Odra river branch. There is a slight hill in the north-western part. Children's playgrounds and playground for dogs were also built. The park hosts numerous events for the residents of the estate and physical education lessons for children from a nearby primary school. It is mainly used for recreation and relaxation.

At the park there are, among others: the church of St. Michael the Archangel and the Faculty of Architecture of the Wrocław University of Science and Technology (Bauschule).

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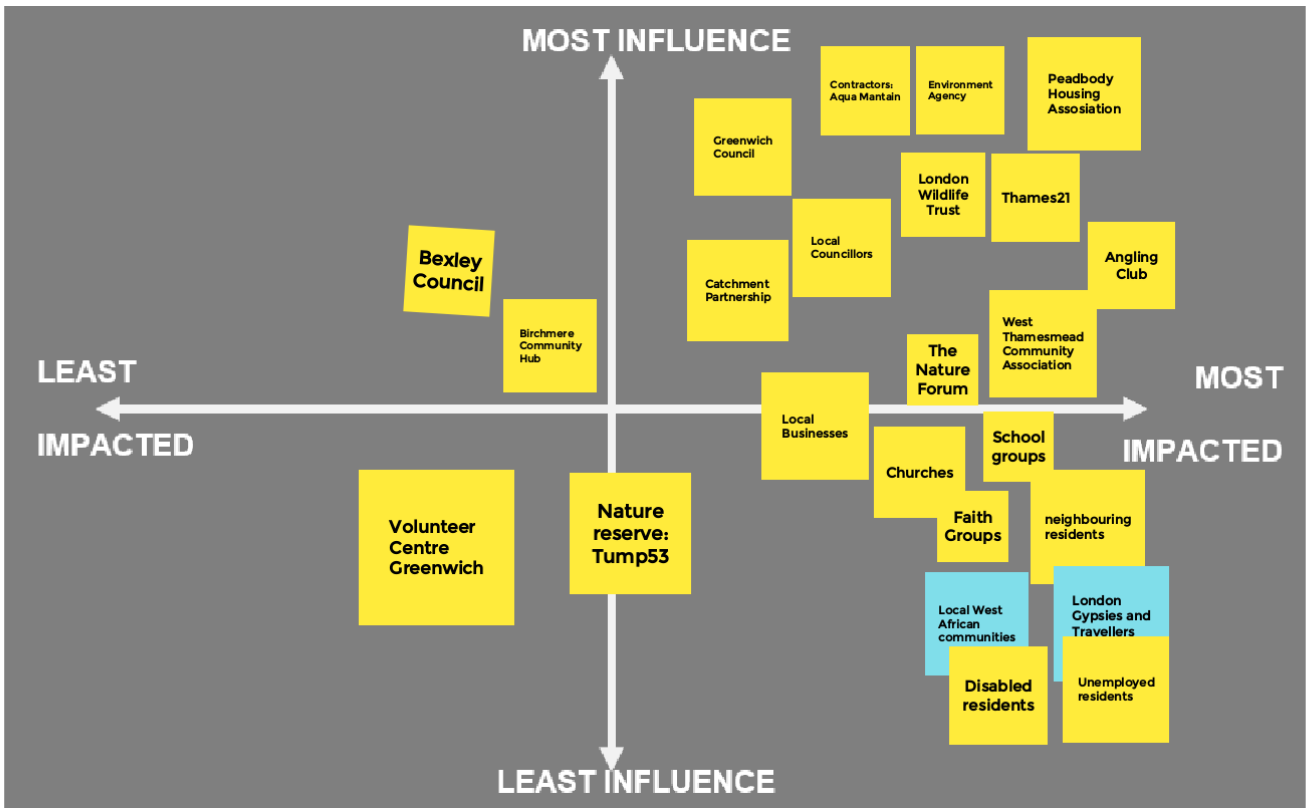
Appendix 3: Inclusive Stakeholder Map for London Bioremediation Site



Appendix 4: Example Listening Questionnaire (Thamesmead, London)

This example can be adapted for use at other demonstration sites.

GALLIONS LAKE POLLUTION PERCEPTION SURVEY
How often do you use/access the park?
What do you do in the park?
What's your favourite thing about Gallions Park?
Can you identify opportunities to enhance the Park?
How would you rate the (ecological) health of the lake?
Reason for your answers
Are you aware of any pollution sources entering the lake?
Details (if yes)
How does this (the health of the lake) impact you and your community? If at all

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Would you be interested learning more about possible lake improvements?
On a scale of 1 - 5 how confident are you in talking about environmental issues?
(Post code / area of housing)[1]
We will be running a programme of events, activities and workshops around the work we are doing to improve Gallions Lake. Would you like us to keep you updated?

Appendix 5: Example questions for 1:1 relational meeting

This example can be adapted for use at other demonstration sites.

About us – [keep it neutral, don't plant ideas]
Tell me about your organisation….
Do our objectives overlap with yours? Could our objectives support the work you do, and the people you work with?
About the community… *can you tell me a bit about the community you work with?*
• What areas of the community do you reach? [demographics: ethnicity, income, age, religion, gender, ability] • In what volumes? Do you intentionally target any specific demographics? If so why/to what means? • What matters to the people you work with in the community?
Listening tips
• What have you found to be the best way to listen to the communities in the area?
Perception in general, don't bias
• How do those you work with [in general, or specific groups] view/ think about/ connect with the site?
Use
• Has the site ever been part of any of the work you do/have done?

[1] In past projects, residential location of participation has enabled Thames21 to ensure that the target demographics are being reached.

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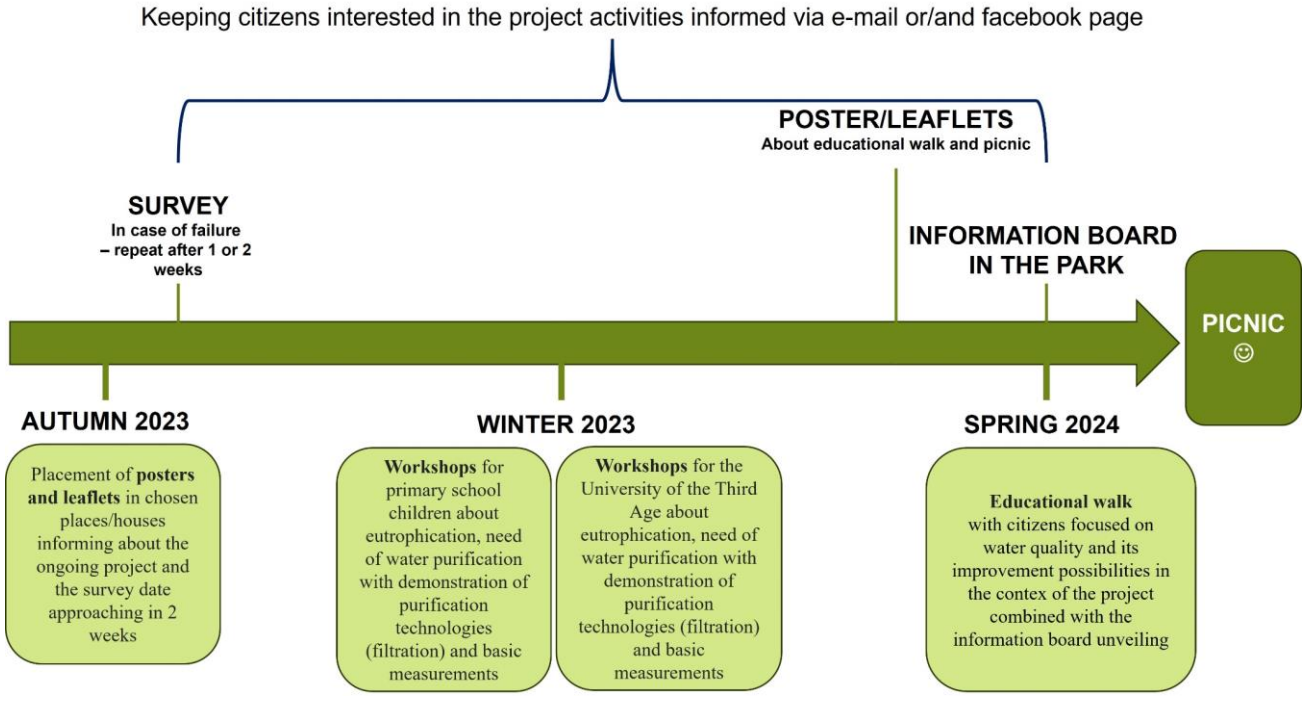
• To your knowledge, how do people currently 'use' the site? [the space, the water, the idea]		
Barriers		
• What stops the people you work with using or having a connection with the site? • Any ideas of how to overcome these barriers?		
•		
Activities and Ideas		
• What activities are most popular with the people you work with? • Which of our current/potential activities would appeal to those people you work with?		
Currently being offered	Collaborate ideas	far out ideas
Network – Leads Influencers, decision makers, ambassadors		
• Are there people in the community you work with that hold particular influence, or would be particularly enthusiastic about this project - could you put me in touch with them? • Are there other organisations like yours?		

Appendix 6: Programme of Event for Polish Bioremediation Site: Lake Tolpa, Wroclaw



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Appendix 7: Programme of Event for London Bioremediation Site: Gallions Lake

Step of the Toolkit	Public Title	Type	Delivery
	July		
2. Listen	Perceptions Survey	Survey	
2. Listen	Perceptions Survey	Survey	
3. Network	Meadow Mapping/ marking out event	Volunteering	
	August		
4. Discover	Thamesmead Festival	Festival	
4. Discover	Gallions Lake Open Day	Open Day	
6. Volunteer	Planting	Volunteering	
	September		
2. Listen	Perceptions Survey	Survey	
6. Volunteer	Meadow Maintenance	Volunteering	
5. Learning & Training	Water Sampling Training	Training	
3. Network	Nature Forum	Network	
5. Learning & Training	'A future without a Lake?'	Learn	
4. Discover	Engagement Event*	Experience	
	October		Water Sampling
5. Learning & Training	What is Pollution in Gallions Lake	Training	
4. Discover	Engagement Event*	Experience	
7. Influence	Wetland Co-Monitoring	Workshop	
6. Volunteer	Water Sampling	Volunteering	
	November		
6. Volunteer	Wetland Installation?	Volunteering	Wetland Installation
4. Discover	Engagement Event*	Experience	
5. Learning & Training	Why are wetlands amazing	Learn	
	December		
6. Volunteer	Wetland Installation?	Volunteering	
4. Discover	Engagement Event*	Experience	
	January		
6. Volunteer	Water Sampling	Volunteering	
4. Discover	Engagement Event*	Experience	
8. Build Group	Wetland Celebration!	Volunteer Social	
	February		
5. Learning & Training	What is Bioremediation	Workshop	
6. Volunteer	Water Sampling	Volunteering	
7. Influence	Co-Design Bioremediation	Workshop	
	March		Mussel Installation
6. Volunteer	Water Sampling	Volunteering	
8. Build Group	Mussel Bed Celebration!	Volunteer Social	
	April		
7. Influence	Community Modelling	Workshop	
5. Learning & Training	Leading Action for Healthy Rivers	Training	

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Appendix 8: Poster for an Open Day at the London Bioremediation Site

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Appendix 9: Thames21 Public Activity Registration Form

Essential Information:

Full Name / Email / Phone/ Postcode

Emergency contact name & contact number /Number of children attending with you:

Additional Information:

Gender / Ethnicity / Date of Birth

Do you consider yourself to have a disability?

What language(s) do you speak fluently?

Have you taken part in a Thames21 activity before?

Terms and Conditions:

All data collected by project partners has to be compliant with the EU GDPR and data collection and storage regulation.

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