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TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	5
2. INTRODUCTION	6
3. RECAP OF THE PREVIOUS ENGAGEMENTS IN THE PREVIOUS PERIOD	7
3.1. Our international Advisory board	7
3.2. Overview of the initial engagement and its activities	7
3.3. Key outcomes until November 2023.....	7
Significant Engagement milestones.....	8
Focus Areas of IAB Members	8
Key Topics for Splashdown Series.....	8
4. ENGAGEMENT ACTIVITIES DEVELOPED BETWEEN DECEMBER 2023 AND JANUARY 2025	8
4.1. Project Meeting 2024, Milan, Italy	8
4.2. Knowledge building and exchange: The Splashdowns Series.....	10
4.3. Other events: International Constructed Wetland Systems Conference in Martinique, November 2024.....	15
5. ACHIEVEMENTS AND EXPERIENCES.....	16
5.1. Key contributions from IAB members.....	16
5.2. Challenges and opportunities	17
6. NEXT STEPS AND FINAL REFLECTIONS	18
6.1. Activities before the project completion.....	18
6.2. Insights and guidance for future engagement with international advisors	19
7. CONCLUSION	20
8. ACKNOWLEDGMENTS	20

List of Figures & Tables

<i>Figure 1 Stakeholder engagement Workshop: Splashdown series, Annual meeting 2024.....</i>	9
<i>Table 1 Proposed Splashdown Series Schedule and Topics: Workshop Outcomes</i>	10
<i>Table 2 Splashdown series developed between December 2023 and January 2025</i>	10
<i>Table 3 Highlights of the Splashdown series.....</i>	12

List of Abbreviations

ENTS	Enhanced Natural Treatment Solutions
IAB	International Advisory Board
MoU	Memorandum of Understanding
NBS	Nature-Based Solutions
NBSWT	Nature-Based Solutions for Water Treatment
WP	Work package

1. Executive Summary

This report outlines the contributions and engagement of the International Advisory Board (IAB) in the MULTISOURCE project, focusing on advancing sustainable water treatment through nature-based solutions (NbS). The IAB has played a critical role in shaping project outcomes, providing expert guidance, and fostering international collaboration. Their involvement has been central to addressing key technical, social, and environmental aspects of the project.

The IAB's contributions were particularly notable during milestone activities, including the Splashdown Series, annual meetings, and international conferences. The Splashdown Series served as a dynamic platform for knowledge exchange on topics like pathogen removal, stakeholder engagement, urban water resilience, and biodiversity conservation. Events such as the Project Meeting in Milan, in 2024, and the International Constructed Wetland Systems Conference in Martinique enabled deeper discussions on wastewater treatment, decentralized systems, and innovative NbS applications. These activities highlighted the global relevance of MULTISOURCE and facilitated meaningful interactions with the wider water management community.

Despite strong engagement from several members, challenges in maintaining consistent participation across the IAB were noted. However, the proactive efforts of engaged members provided significant insights. For example, the IAB shared expertise on tools like those developed by Water Sensitive Cities Australia, explored collaboration on NbS for decentralized water systems in the U.S., and contributed to the planning and refinement of project activities. Opportunities for future collaboration include expanding connections with NbS practitioners, strengthening global partnerships, and fostering interdisciplinary innovation.

As the project nears completion, upcoming activities, such as the final meeting in Girona, Spain, and additional Splashdown webinars, will provide platforms to consolidate the IAB's contributions. These efforts will also set the stage for future engagement, ensuring that lessons learned, and insights gained from MULTISOURCE continue to influence sustainable water management globally.

The IAB's participation has been invaluable, and their guidance has significantly enhanced the project's impact. This report emphasizes their crucial role in advancing the MULTISOURCE mission, shaping its outcomes, and laying the groundwork for continued collaboration in NbS and sustainable water solutions.

2. Introduction

The MULTISOURCE project has been significantly enhanced by the active engagement of its International Advisory Board (IAB), a group of distinguished experts from diverse fields such as nature-based solutions (NbS), water management, environmental sustainability, policy development, and stakeholder engagement. Their collective experience has been invaluable in guiding the project, ensuring it aligns with global best practices, and addressing critical challenges related to water management and sustainability.

The IAB's participation has provided the project with access to a wide range of international perspectives, essential for navigating the complex and multidisciplinary nature of water management issues. These international experts have not only contributed technical knowledge but have also shared insights into governance, policy, and the social dimensions of water management. Their input has enriched the project's overall approach, enabling MULTISOURCE to develop practical, innovative solutions that are applicable across various geographical, political, and cultural contexts. Their role in providing strategic advice has also been crucial in ensuring that the project's outcomes are both globally relevant and locally adaptable.

The IAB's expertise has played a key role in shaping the project's activities, particularly in areas such as the implementation of nature-based solutions for wastewater treatment, water reuse, and urban water resilience. Their involvement in the Splashdown Series webinars, workshops, and discussions at international conferences has facilitated a dynamic knowledge exchange. This engagement has allowed for the integration of cutting-edge research, field-based insights, and innovative practices into the project's development. Moreover, the IAB's contributions have helped bridge the gap between research, policy, and practice, fostering a holistic approach to water management challenges.

Through their continued involvement, the advisors have also supported the development of a strong, collaborative network of stakeholders across different sectors and regions globally. Their guidance has been instrumental in promoting a greater understanding of nature-based solutions and ensuring that the project's outcomes are aligned with the needs of diverse communities and industries. The engagement of these international experts has not only strengthened the project's credibility but has also opened doors to new collaborations and opportunities for knowledge-sharing, helping to position MULTISOURCE at the forefront of global water sustainability efforts.

This report highlights the critical contributions of the IAB to the MULTISOURCE project. It reflects on their role in shaping the project's direction, fostering innovation, and overcoming challenges. The engagement of these international experts has been a key factor in ensuring the project's success, and their continued involvement will be essential as MULTISOURCE moves toward its final phases and seeks to leave a lasting impact on the field of sustainable water management.

3. Recap of the previous engagements in the previous period

As outlined in “[D6.3 International Advisory Board Engagement Interim Report](#)”, submitted in November 2023, the engagement of the International Advisory Board (IAB) members was established through a variety of activities designed to foster communication and interaction between the IAB, consortium members, and international partners. These activities began in 2022 with the convening and formal constitution of the IAB, followed by initial virtual interactions in March 2023 and culminating in the in-person participation of some members in June 2023.

This chapter provides an overview of the IAB members, the engagement activities carried out up to November 2023, and their main outcomes. It revisits the progress made on the planned activities to that date, emphasizing the IAB’s involvement and contributions during this crucial phase of the project.

3.1. Our international Advisory board

The International Advisory Board (IAB) plays a crucial role in the MULTISOURCE project, offering external expertise and promoting a co-design approach throughout its various phases. The board consists of six globally renowned experts: Paula Kehoe (San Francisco Public Utilities Commission, USA), Sudhir Pillay (Water Research Commission, South Africa), Trine Munk (Rambøll, Denmark), Katharine Cross (Australian Water Partnership), Rob McDonald (The Nature Conservancy, USA), and Xavier Le Roux (INRAE, France). These members bring diverse expertise in sustainable urban water management, decentralized wastewater treatment, climate resilience, urban conservation, and biodiversity sciences.

The IAB has contributed significantly by reviewing project progress, providing strategic guidance on nature-based solutions, and fostering synergies for uptake and implementation. They expand dissemination channels and ensure project alignment with geographical, economic, and social diversity, emphasizing equitable participation across genders and underrepresented groups. Their collective knowledge and unique insights advance innovative solutions for urban water treatment, storage, and reuse, supporting the MULTISOURCE tools and business models while addressing real-world urban water challenges.

3.2. Overview of the initial engagement and its activities

The MULTISOURCE project has adopted two primary methods for engaging with the IAB to ensure meaningful collaboration and effective integration of expert insights. The Memorandum of Understanding (MoU) serves as a foundational framework, defining the roles and responsibilities of six globally recognized experts across various project work packages. Their contributions span from evaluating monitoring results in pilots to co-designing tools and business models, ensuring replicability and stakeholder relevance. Additionally, they play a key role in outreach by connecting the consortium with external experts and institutions.

The [Splashdown Series](#), a dynamic platform for technical discussions, complements the MoU by fostering knowledge exchange through monthly webinars. These sessions are curated to align with the project’s structure, pilot themes, and the expertise of IAB members, promoting co-creation and tailored exploration of Nature-based Solutions for Water Treatment (NbSWT). Featuring expert-led presentations and interactive discussions, these webinars facilitate a deeper understanding of NbSWT challenges and opportunities, while encouraging active engagement from the audience. Together, these engagement methods ensure a comprehensive and impactful collaboration with the IAB, driving the project’s objectives forward.

3.3. Key outcomes until November 2023

The engagement with the International Advisory Board (IAB) in the MULTISOURCE project has been essential in shaping discussions, advancing collaborative efforts, and steering the project towards achieving its goals. The following summarizes the key outcomes as highlighted in “[D6.3 International Advisory Board Engagement Interim Report](#)”;

Significant Engagement milestones

- Kick-off and Annual Meeting 2023: The IAB's active participation in these foundational meetings provided critical insights into project strategies and direction.
- Launch of the Splashdown Series: The introduction of these technical exchange webinars created a platform for meaningful collaboration and interdisciplinary exploration of NbSWT.

Focus Areas of IAB Members

The IAB members' interests span various project components, emphasizing a diverse range of expertise that aligns with the project's objectives. Key areas of interest include:

- Risk assessment, pathogens, and water reuse: Paula Kehoe expressed a focus on these areas alongside contributions to business models, lifecycle costs (WP3), and social equity (WP6).
- Centralized deliverables and business models: Sudhir Pillay highlighted the need for a centralized repository for project outputs and delving deeper into lifecycle assessments.
- Co-benefits and gender mainstreaming: Interests from members like Trine Munk and Katharine Cross centred on evaluating co-benefits and integrating gender indicators into NbSWT initiatives.
- Sanitation and NbS policies: Rob McDonald and Xavier Le Roux emphasized real-world implementation challenges, socio-economic inclusion, and multifunctionality of tools, contributing to WPs 4, 5, and 6.

Key Topics for Splashdown Series

Building on the IAB's feedback and the outcomes of the workshop, several deep-dive themes were introduced to enhance future Splashdown Series sessions. These themes are detailed in the "*D6.3 International Advisory Board engagement interim report*". However, as a summary, the key topics identified during the workshop, which involved MULTISOURCE partners, international partners, and the IAB members who attended in person, include:

- Legislation and Policies: Understanding regulatory landscapes to ensure compliant deployment of NbSWT.
- Stakeholder Engagement & Social Equity: Promoting inclusive decision-making and equitable distribution of NbSWT benefits.
- Water Governance: Exploring institutional frameworks and mechanisms for effective planning and management.
- Sustainability: Evaluating environmental, economic, and social resilience of NbSWT projects.
- Application of MULTISOURCE Tools: Scaling and adapting project tools for practical, real-world scenarios.

4. Engagement activities developed between December 2023 and January 2025

Following the activities outlined in the "*D6.3 International Advisory Board engagement interim report*", key steps included interactions between partners and IAB members during the in-person Annual Meeting held in March 2024 in Milan, Italy; the organization of technical exchange webinars (Splashdown Sessions); and strategic participation in external conferences and events. These activities were designed to foster collaboration, create platforms for knowledge exchange, and ensure the alignment of the project's goals with global discussions on Nature-Based Solutions for water treatment. A detailed description of these activities and interactions is provided below.

4.1. Project Meeting 2024, Milan, Italy

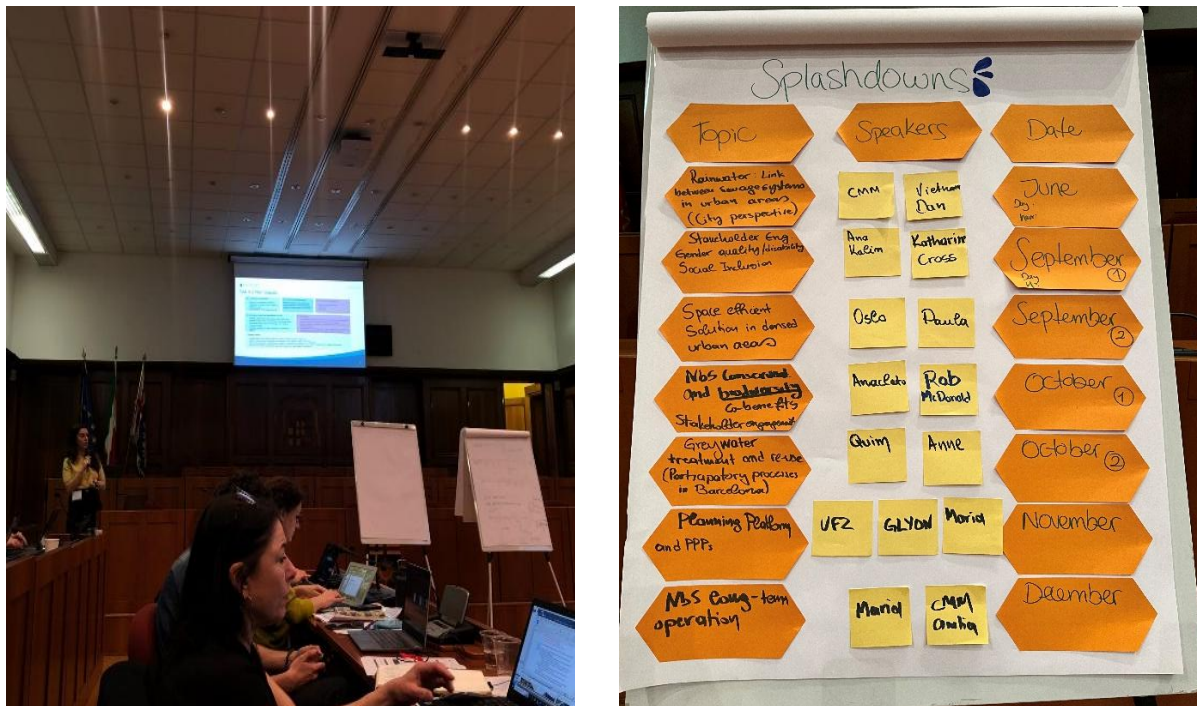
The Project Meeting 2024, held in Milan from March 12th to 14th, marked an important milestone in the engagement of the IAB. Paula Kehoe and Katharine Cross attended in person, representing the IAB, while

the remaining members were unable to participate on-site. As part of the agenda of the annual meeting, which focused on activities developed across all work packages, the two IAB members had the opportunity to showcase their expertise and exchange knowledge with the MULTISOURCE partners. They engaged in discussions leveraging the experience gained from the project’s seven pilots and the ongoing development of the planning platform.

During the meeting, the Splashdown Series was highlighted as a key engagement platform, emphasizing the valuable contributions of IAB members to these interdisciplinary discussions. Anticipating that most IAB would not be able to attend in person, the IAB was consulted beforehand regarding their availability and interest in participating in the Splashdown Series. This proactive approach aimed that IAB members could choose a topic and a preferred month for their participation, enabling meaningful engagement despite their busy schedules.

A dedicated workshop was also conducted, bringing together all attending partners, including international partners from Brazil and Vietnam, to collaboratively define topics for the next Splashdown Series. Building on insights from the previous in-person project meeting in Leipzig in June 2023, participants revisited and refined key topics of interest, identifying areas of focus and potential host participants for future sessions.

Figure 1 Stakeholder engagement Workshop: Splashdown series, Annual meeting 2024



The workshop successfully defined the topics, tentative dates, and speakers or contact points for the upcoming Splashdown sessions, as is show on Table 1. This process not only increased awareness and engagement in the series of webinars but also reinforced the importance of fostering dialogue and knowledge exchange among consortium partners, international collaborators, and IAB members. These webinars aimed to continue promoting collaboration and learning, further strengthening the project’s impact.

Table 1 Proposed Splashdown Series Schedule and Topics: Workshop Outcomes

Topic	Speakers	Tentative month
Rainwater: Link between urban green, blue systems (City presentation)	Città Metropolitana di Milano (CMM), Ho Chi Minh City University of Technology (HCMUT)	June 2024
Stakeholder engagement and gender equity: Space Inclusion	Ana Kalin, Katharine Cross	September 2024 (1)
Space-efficient solutions in mixed urban areas	Oslo, Paula Kehoe	September 2024 (2)
NbS and co-benefits (Biodiversity, conservation) and Stakeholder engagement.	IRIDRA, Rob McDonald	October 2024 (1)
Greywater treatment and reuse	ICRA, OSLO	October 2024 (2)
Planning platform and PPPs	UFZ, GLYON, Maria Wirth	November 2024
NbS Long-term operation	Universidade Federal de Santa Catarina (UFSC), CMM	December 2024

4.2. Knowledge building and exchange: The Splashdowns Series

During the period between December 2023 and January 2025, nine editions of the Splashdown Series were successfully held. These webinars were based on the initial scope of topics defined during the Annual Meeting in Leipzig in June 2023, as well as the estimated topics and speaker allocations outlined at the Annual Meeting in Milan in March 2024 (Table 1). These collaborative efforts made it possible to organize and deliver nine insightful webinars. Table 2 provides a detailed overview of the Splashdown Series, listing the names, dates, times, and speakers who participated in each session. It highlights the contributions of IAB members: Paula Kehoe, who participated in editions two and eight; Katharine Cross, who contributed to editions seven and ten; and Rob McDonald, who participated in the ninth edition.

Table 2 Splashdown series developed between December 2023 and January 2025

Splashdown series Name	Date and time	Speakers	Recording link (YouTube)
Splashdown #2: Pathogens in Water Reuse: A Deep Dive into Risk Exposure and Governance Insights	14 th of December 2023 - 16:30 CET.	Paula Kehoe - San Francisco Public Utilities Commission, USA. Prof. Maria Elisa Magri - Universidade Federal de Santa Catarina (UFSC), in Brasil.	Check the Recording here
Splashdown #3: Integrated Wetlands: All-in-one system for Raw Wastewater, Reuse, and Sludge Management	21 st of February 2024 -10:00 CET	Pascal Molle – INRAE/ Research Director at REVERSAAL research unit in Lyon Fabio Masi - IRIDRA	Check the Recording here

Splashdown series Name	Date and time	Speakers	Recording link (YouTube)
Splashdown #4: Exploring innovative solutions for combined sewer overflow	16 th April 2024 – 16:00 CET	Pascal Molle INRAE/ Research Director at REVERSAAL research unit in Lyon Riccardo Bresciani, Project Manager at Iridra	Check the Recording here
Splashdown #5: Sponge city and storm management	24 th April 2024 – 15:00 CET	Francesca Framba - Città Metropolitana di Milano Marie Langsholt Holmqvist - Bymiljøetaten Oslo Kommune	Check the Recording here
Splashdown #6: Optimizing treatment wetlands for total nitrogen removal	7 th May 2024 – 16:00	Otto R. Stein, Department of Civil Engineering, Montana State University Mireille Martens, Rietland	Check the Recording here
Splashdown #7: Stakeholder engagement: Gender equality/disability and social inclusion.	10 th September 2024- 9:00 CET	Ana Kalin - Forum for Equal Development (FER) Katharine Cross - Water Sensitive Cities Australia	Check the Recording here
Splashdown #8: Space Efficient Solutions in Dense Urban Areas	7 th October 2024 – 17:00 CET	Paula Kehoe - San Francisco Public Utilities Commission, USA. Stina Karlstrøm - Bymiljøetaten Oslo Kommune, Norway	Check the Recording here
Splashdown #9: Nature-based solutions for water quality: Conservation, biodiversity, and innovation	14 th October 2024 – 16:00 CET	Rob McDonald - The Nature Conservancy (TNC) Giulio Conte - IRIDRA	Check the Recording here
Splashdown #10: Aligning innovation and local knowledge for effective nature-based solutions governance	2 nd December 2024 – 11:00 CET	Francesca Framba- Metropolitan Area of Milan Katharine Cross - Water Sensitive Cities Australia Sara Espinosa – MARCLAIMED project. Ranko Bozovic – EuPOLIS project Enrique Romero & Carme Machí Castaner – NICE project	Check the Recording here

The Splashdown Series sessions were structured to maximize engagement and knowledge sharing within a concise 60-minute format, except for Splashdown #10, which had a duration of 90 minutes. This extended session was a collaborative webinar with the MULTISOURCE, NICE, MARCLAIMED and EuPolis project and featured a larger number of speakers. Each session began with a brief introduction to the topic and speakers, setting the stage for an insightful discussion.

The first segment of the session was dedicated to the speakers, allowing them to present their experiences, insights, and expertise on the chosen theme. This segment emphasized practical applications and real-world case studies to foster a deeper understanding of Nature-Based Solutions for water treatment.

The latter part of the session provided an interactive space for discussions, where participants from the online audience could pose questions, share perspectives, and engage directly with the speakers. This open dialogue not only enriched the conversations but also encouraged collaborative learning among participants from diverse backgrounds.

This structured approach ensured that each Splashdown session was dynamic, informative, and inclusive, balancing expert contributions with meaningful interaction from the audience.

Table 3 Highlights of the Splashdown series

Splashdown series Name	Highlights
Splashdown #2: Pathogens in Water Reuse: A Deep Dive into Risk Exposure and Governance Insights	<p>Discussions centred on decentralized water systems and alternative water sources, with insights into regulatory frameworks designed to support these advancements. The sessions highlighted practical strategies for implementing innovative water solutions, demonstrating how they can address urban challenges and improve water efficiency. Examples from San Francisco, USA served as a reference.</p> <p>The sessions also underscored the scalability and adaptability of water treatment innovations, highlighting solutions that address diverse regional and global challenges. Through an interdisciplinary exchange of knowledge, participants emphasized the importance of collaborative approaches in advancing holistic and sustainable practices for water treatment and sanitation. As a practical reference, the work carried out at UFSC, in collaboration with the MULTISOURCE project was presented, demonstrating the potential of such partnerships.</p>
Splashdown #3: Integrated Wetlands: All-in-one system for Raw Wastewater, Reuse, and Sludge Management	<p>The third session of the Splashdown Series focused on the advancements and practical applications of treatment wetlands for raw wastewater. It provided an overview of the historical evolution of treatment wetland design (French System), highlighting how treatment chains have been tailored to address diverse objectives. The session emphasized the importance of design adaptations for different climates and the systems' ability to handle variations in wastewater loads.</p> <p>Additionally, the session showcased global case studies demonstrating the implementation of treatment wetlands under various operational conditions. Key points included the assessment of their consolidated performance and their role in market opportunities, particularly in promoting circular economy approaches. Overall, the session highlighted the versatility and sustainability of treatment wetlands in addressing wastewater management challenges.</p>
Splashdown #4: Exploring innovative solutions for combined sewer overflow	<p>The fourth Splashdown edition covered two key areas of focus related to Nature-based Solutions for urban resilience and water treatment. The first part provided an overview of a full-scale aerated and free surface wetland project in Merone, highlighting its innovative technology and the challenges that were addressed. The focus was on the innovation driving urban resilience and the market opportunities for NbSWT.</p>

Splashdown series Name	Highlights
	<p>The second part of the session explored the findings from the implementation of hybrid subsurface wetlands in Lyon Metropolis, which were designed to treat stormwater and combined sewer overflow. Two 20m² systems were used for standalone experiments, and the discussion centred on optimization paths involving light intensification, reactive materials, and bioaugmentation to improve system efficacy.</p>
<p>Splashdown #5: Sponge city and storm management</p>	<p>The fifth splashdown edition provided valuable insights into effective stormwater management and water resilience strategies through real-world case studies from two major cities. One case study focused on Oslo's proactive measures in managing stormwater in new construction projects. The city's stormwater management guidelines aimed to reduce flooding risks, enhance water quality, and promote sustainable urban development. The presentation emphasized how these guidelines have become a key component in building a resilient and environmentally sustainable urban landscape in Oslo.</p> <p>Another highlight was the discussion on the "Sponge City" strategy implemented by Città Metropolitana di Milano (CMM). This innovative approach involved 92 interventions across 32 municipalities and has significantly improved the city's resilience against extreme weather events. The strategy also enhanced water quality, positioning it as a model for sustainable urban planning. The session underscored the importance of integrated and forward-thinking strategies for managing stormwater and building water resilience in urban areas, offering valuable lessons for cities worldwide.</p>
<p>Splashdown #6: Optimizing treatment wetlands for total nitrogen removal</p>	<p>The session focused on strategies and challenges related to nitrogen removal in wastewater treatment systems, specifically through the use of constructed wetlands. The first presentation explored various strategies for enhancing nitrogen removal, with a focus on optimizing the denitrification process and making operational adjustments to achieve removal rates of up to 80% or higher. This discussion provided valuable insights into how constructed wetlands can be fine-tuned to improve nitrogen management in wastewater treatment.</p> <p>The second presentation offered a comprehensive overview of the challenges involved in achieving total nitrogen removal in wastewater treatment systems. The session highlighted the importance of understanding nitrogen removal pathways in treatment wetland systems, particularly the role of the carbon/nitrogen (C:N) ratio in driving denitrification. Case studies, including insights from two MULTISOURCE pilot wetland systems, were shared to demonstrate various strategies for optimizing nitrification and denitrification processes, with a focus on adapting techniques to different C:N ratios. Overall, the session underscored the complexity of nitrogen removal and the innovative approaches being used to enhance the effectiveness of treatment wetland systems.</p>
<p>Splashdown #7: Stakeholder engagement: Gender equality/disability and social inclusion.</p>	<p>The session emphasised the importance of designing Nature-based Solutions inclusively to benefit everyone, including marginalized groups such as women, people with disabilities, and low-income households. By providing access to public open spaces with blue and green infrastructure, inclusive NbS help foster resilient and self-sufficient communities, enhancing well-being and stimulating local economies through increased interactions and business opportunities within green environments. Drawing from experiences in Australia and the</p>

Splashdown series Name	Highlights
	<p>Mekong region, the session explored how gender equality, disability, and social inclusion can be effectively integrated into NbS implementation.</p> <p>The discussion also addressed the integration of gender and social justice into various projects, highlighting key challenges in funding, partnership-building, and stakeholder engagement. Practical examples were shared, such as the gendered dimensions of energy and transportation poverty, and gender equality plans from municipalities in Slovenia. Overall, the session underscored the importance of gender-sensitive approaches, supported by research and evidence, to ensure that gender perspectives are woven into daily work across multiple sectors.</p>
Splashdown #8: Space Efficient Solutions in Dense Urban Areas	<p>This eight-edition provided valuable insights into innovative water management strategies and stormwater solutions being implemented in urban areas across North America and Europe. The first presentation explored how cities in North America are leading the charge in deploying onsite water treatment systems. The discussion included case studies from major urban areas, focusing on the management and oversight strategies necessary to ensure these systems are sustainable and effective in protecting public health. This session highlighted the importance of scaling up onsite water treatment as a vital part of addressing water challenges in urban environments.</p> <p>The second presentation focused on Oslo's experiences in designing and implementing stormwater solutions in dense urban areas. The session provided an overview of how stormwater management systems were integrated with the city's landscapes, demonstrating how urban areas can adapt to climate challenges. Key lessons from both successful and challenging projects were shared, emphasizing the importance of careful planning and design in achieving effective stormwater management in urban settings. Overall, the session underscored the critical role of innovative solutions in addressing the growing water management needs in cities around the world.</p>
Splashdown #9: Nature-based solutions for water quality: Conservation, biodiversity, and innovation	<p>The session provided a unique perspective on the role of conservation NGOs in achieving water quality and quantity goals through NbS. The presentation highlighted the use of green infrastructure for stormwater management, comparing NbS for both stormwater and wastewater treatment. The discussion also focused on the role of treatment wetlands in mitigating agricultural runoff and how nutrient trading markets can support these efforts. Furthermore, the presentation explored the potential for "smart," high-tech NbS, emphasizing the intersection of advanced technology and natural solutions to enhance water management.</p> <p>In addition, the session examined the potential of NbS to support both water pollution control and biodiversity. The discussion highlighted the contributions of treatment wetlands, buffer strips, and vegetated ditches to biodiversity. It also addressed the challenges that highly engineered systems face in supporting biodiversity, particularly in managing polluted sewer overflows. Preliminary insights from the MULTISOURCE Project were shared, showcasing how NbS can promote biodiversity while simultaneously meeting water management goals. The session provided a comprehensive overview of the synergies between water management, biodiversity, and innovative NbS approaches.</p>

Splashdown series Name	Highlights
Splashdown #10: Aligning innovation and local knowledge for effective nature-based solutions governance	<p>The last edition of 2024 provided a unique opportunity to dive into cutting-edge discussions on climate innovation, NbS, and territorial governance strategies, offering valuable insights and case studies. It showcased the latest developments in NbS, territorial governance innovations, and key learnings from various EU-funded initiatives, such as the sister projects of NICE and MULTISOURCE.</p> <p>The session featured a keynote presentation from a member of the MULTISOURCE Advisory Board, offering a deeper understanding of the strategic direction of current research, focusing on the transition to climate resilience cities by upscaling NbS. Following this, the Metropolitan Area of Milan’s approach to integrating EU-funded climate innovation projects within territorial governance strategies was presented, highlighting the region’s efforts to adapt and innovate in response to climate challenges.</p> <p>The session also included a presentation on the MARCLAIMED initiative, shedding light on its groundbreaking contributions to climate resilience, followed by a discussion on the NbS design methodologies employed by EuPOLIS. The event provided a comprehensive overview of the intersection between nature-based solutions, climate innovation, and governance strategies, with key lessons and strategies drawn from EU-funded projects that advanced sustainable solutions for the future.</p>

The recent Splashdown sessions received positive feedback during and after the discussions, with attendees acknowledging the depth and relevance of the discussions on innovative water management, nature-based solutions, and urban resilience strategies. Participants appreciated the real-world case studies shared by experts, which provided practical insights into the implementation of effective stormwater management systems and the integration of sustainable urban planning practices. The sessions were well-received for their informative content, engaging presentations, and the valuable lessons drawn from leading-edge projects across Europe and North and South America.

All the Splashdown webinar recordings are now available on the YouTube channel. These recordings can be accessed through the following [link](#), offering an opportunity for further learning and exploration of the cutting-edge strategies and solutions discussed during the event.

4.3. Other events: International Constructed Wetland Systems Conference in Martinique, November 2024

At the International Constructed Wetland Systems Conference in Martinique, 25th-29th November 2024, key contributions were made by members of the MULTISOURCE consortium, in particular Marco Hartl – Alchemia, and Paula Kehoe, highlighting significant project findings and fostering new collaboration opportunities. Alchemia (Marco Hartl) delivered two oral presentations:

- **"GRETA™ vertical green wall system for grey- and rainwater treatment with on-site reuse for toilet flushing"**

This presentation showcased the innovative GRETA™ green wall system, developed under the HOUSEFUL Project and further investigated in Barcelona by ICRA. The session emphasized the potential of this NbS for decentralized water reuse, treating greywater and rainwater for toilet flushing.

- **Public and private business models for innovative treatment wetland technologies in urban areas"**

This talk presented findings from interviews and multi-actor co-creation cases, providing insights into business models for green walls and other nature-based solutions in urban areas. *Paula Kehoe* delivered a keynote speech on *wastewater treatment and reuse* in San Francisco. Following the GRETA presentation, she engaged in discussions with Alchemia to explore opportunities for collaboration and knowledge exchange. Paula extended an invitation for Alchemia to share findings and experiences during a webinar she hosts in 2025.

Key Takeaways and Discussions:

1. Technical Insights:

- Green walls, when paired with UV/Ozonation treatment, are capable of producing water for reuse that meets EU and national legal standards.
- A significant advantage of green walls lies in their use of vertical space in urban areas where horizontal space is often limited. Additional co-benefits include:
 - Mitigation of the urban heat island effect
 - Improved building insulation
 - Enhanced biodiversity
 - Aesthetic value

2. Challenges and Business Models:

- Current CAPEX and OPEX remain high and need optimization through experience and innovative financing models.
- The importance of public involvement in water reuse management was highlighted. The presentation suggested that responsibility for implementing and financing such solutions should ideally rest at the municipal level, ensuring equitable access and preventing gentrification.

3. Collaboration:

- Alchemia, as part of the European Green Wall Cluster (including BOKU Vienna, IRIDRA, and others), explores opportunities for furthering green wall technologies.
- Discussions with Paula Kehoe opened pathways for future collaboration, with Alchemia expected to contribute to a 2025 webinar on wastewater treatment and reuse.

5. Achievements and experiences

5.1. Key contributions from IAB members

The IAB members have made significant contributions to the MULTISOURCE project through their active participation in various Splashdown Sessions, key conferences, and ongoing discussions related to certain project activities, particularly those related to the pilots and the planning platform. Their expertise and insights have been instrumental in shaping the project's direction and advancing its objectives.

The inputs from the IAB related to core project activities mainly came through their participation in discussions during various workshops and in-person annual meetings throughout the project's duration, followed by later communications for knowledge exchange. For example, Katharine Cross focused on tools and provided insights on developments by Water Sensitive Cities Australia that could be valuable for MULTISOURCE. She also highlighted her engagement with MULTISOURCE in reporting to the Australian Department of Foreign Affairs and Trade – DFAT, and through Australian networks. Paula Kehoe contributed by inquiring and commenting on technical activities, particularly those related to

pathogen removal in water systems. Additionally, she looked to further partner with NBS project partners to inform decentralized water systems in the U.S.

During the Splashdown series, IAB members contributed valuable knowledge across a wide range of topics. Paula Kehoe participated in Splashdown #2, which focused on pathogens in water reuse. Her input deepened the understanding of risk exposure and governance insights, drawing on her experience in San Francisco, USA. She also contributed to Splashdown #8, which addressed space-efficient solutions in dense urban areas. Her expertise from the USA was vital in shaping innovative approaches to urban water management. Katharine Cross contributed to Splashdown #7, focusing on stakeholder engagement with an emphasis on gender equality, disability, and social inclusion. She played a crucial role in integrating these aspects into water management strategies, based on her experience in Australia. Katharine also played a key role in Splashdown #10, where she strengthened the project's engagement efforts with other EU-funded projects. Her perspective, drawn from case studies on using nature-based solutions as a climate resilience strategy across South-East Asia and Australia, offered valuable insights. Rob McDonald participated in Splashdown #9, which explored nature-based solutions for water quality, conservation, biodiversity, and innovation from the perspective of a Non-profit Organisation (NGO). His contribution helped shape actionable insights on how NbS can improve water quality while supporting biodiversity. Rob also referenced his work related to sanitation and NbS as part of The Science for Nature and People Partnership (SNAPP): [Water Sanitation and Nature working group](#), which Katharine Cross was also a part of. In Splashdown #1, which focused on innovations in wastewater treatment, IAB members, including Sudhir Pillay, shared their expertise in nature-based solutions. Sudhir provided an overview of some NbS applications in sub-Saharan Africa and across the sanitation value chain, emphasizing the vital role of NbS for sustainable and resilient water management in developing regions, despite existing challenges.

In addition to their participation in the Splashdown sessions, Paula Kehoe also contributed significantly to the project's development through her collaboration with various MULTISOURCE partners, including the UFSC, at the International Constructed Wetland Systems Conference in Martinique, November 2024. During this conference, Paula shared valuable insights into wastewater treatment and reuse strategies in San Francisco, which provided an important input during the sessions in which the project participated. Her experiences in San Francisco helped frame discussions on the role of constructed wetlands in urban water management, particularly in the context of water reuse and resilience. The collaboration with MULTISOURCE partners at this international conference was instrumental in strengthening the project's focus on sustainable water management practices and promoting the adoption of nature-based solutions for wastewater treatment, further enriching the global exchange of knowledge and best practices.

These inputs have been key in shaping the MULTISOURCE project's direction and its overall impact. The IAB members' collective contributions have ensured that the project remains aligned with global best practices and cutting-edge approaches, enriching its technical, social, and environmental dimensions. Their involvement has also been pivotal in ensuring that the MULTISOURCE project engages with diverse stakeholders, integrates inclusivity and equity, and fosters innovative solutions that contribute to sustainable water management practices across varied geographical and socio-economic contexts.

5.2. Challenges and opportunities

The International Advisory Board played a key role in addressing the challenges encountered throughout the MULTISOURCE project. One of the most valuable contributions from the IAB was their ability to bring international insights into the project, offering solutions grounded in global best practices. For example, members with expertise in water-sensitive cities from Australia provided essential tools and frameworks for integrating nature-based solutions into urban settings, which were directly applicable to the project's goals. Their inputs were invaluable in aligning the project with international standards, especially in terms of stakeholder engagement, the implementation of NbS, and addressing challenges like pathogen removal in decentralized water systems.

The cross-disciplinary contributions of the IAB were particularly significant in resolving complex technical and social challenges. For example, discussions around pathogen removal and the optimization of decentralized water systems benefitted from the collaboration between experts in engineering, public health, and social inclusion. These discussions enriched the project's approach to creating solutions that are not only technically sound but also socially equitable and inclusive, addressing issues like gender equality and disability, which are crucial for the success of NbS in real-world contexts.

Despite these achievements, the engagement of all IAB members proved to be a challenge. While several members were actively involved in the project's activities, such as participating in the Splashdown series, some members did not engage as much as initially desired. Despite efforts to encourage participation through various communication channels—meetings, webinars, and collaborative sessions—there were limited contributions from certain members. This finding underscores the complexity of sustaining uniform engagement among all members of an advisory board, even with diligent efforts to maintain their involvement in significant project activities.

However, the opportunities identified by the IAB have provided a strong foundation for future development. One of the most promising avenues for continued collaboration is connecting with the broader network of NbS practitioners and academics, both within Europe and globally. Several IAB members have suggested this as an area of opportunity, recognizing the value in fostering stronger links with international experts and research groups working on similar challenges. Such connections could facilitate knowledge exchange, promote the scaling of NbS, and help the project's findings reach wider, more diverse audiences.

Finally, the potential for NbS in urban settings is clear, with the IAB emphasizing the role of decentralized water systems, particularly in the United States. The IAB has suggested that the project's final report should highlight opportunities to encourage the adoption of NbS in the U.S., where these solutions could have a significant impact in addressing water management challenges. This could provide essential guidance for incorporating NbS into decentralized systems, with a particular focus on wastewater treatment and stormwater management. The IAB's input in this area presents a compelling opportunity to further explore NbS applications and collaborations in the U.S., Africa, Australia and beyond, reinforcing the global relevance of the project's outcomes and ensuring its future success.

6. Next Steps and final reflections

6.1. Activities before the project completion

As the MULTISOURCE project approaches its conclusion, several key activities remain to ensure the effective engagement of the International Advisory Board and the successful delivery of the project's outcomes. These final tasks provide an opportunity to solidify the IAB's contributions and ensure their expertise informs the project's closing phases and reporting.

The upcoming in-person meeting in Girona, Spain, scheduled from March 25th to 26th 2025, will serve as a significant milestone. This meeting will provide a platform for IAB members to actively participate in the final discussions of the project, offering their guidance and reflections on the achievements and future potential of MULTISOURCE. Additionally, IAB members are invited to engage in the Water Market Event organized by Water Europe, taking place between March 27th and 28th, where one of the Splashdown sessions is planned to occur in person. This dual event format is expected to foster a rich exchange of ideas, strengthen collaborative networks, and highlight the project's innovations in a broader professional context.

The Splashdown series will also continue in the lead-up to the project's completion, addressing topics identified in Table 1. As of the present moment, the organization of these sessions is in progress. The IAB's contribution is deemed essential in shaping these discussions, ensuring that the sessions provide valuable insights for both the project and its stakeholders. These webinars are intended to function as a medium for the dissemination of knowledge and engagement with a diverse audience.

One notable development stemming from the participation in the International Constructed Wetland Systems Conference in Martinique is the opportunity for future collaboration initiated by discussions with Paula Kehoe. This has led to plans for Alchemia to contribute to a 2025 webinar focused on wastewater treatment and reuse, reflecting the project's ongoing impact and fostering continuity beyond its formal conclusion.

Through these activities, the IAB will play a vital role in guiding the project's final phases. Their insights will ensure that MULTISOURCE's achievements are well-documented and aligned with global best practices, laying the groundwork for future collaborations and the continued application of the project's findings in diverse contexts. These final engagements underscore the value of the IAB's expertise and its important role in the project's success.

6.2. Insights and guidance for future engagement with international advisors

The engagement with IAB members has provided valuable insights into fostering meaningful collaborations and maximizing advisory input. Feedback from IAB members highlighted the Splashdown series as an effective and innovative way to engage, emphasizing the importance of continuing similar initiatives in future projects. This format allowed for impactful knowledge exchange and was well-received by participants.

Many IAB members appreciated the frequency of annual meetings and webinars, suggesting that the current schedule strikes a good balance. However, some recommended introducing semi-annual discussions or brief project summaries to enhance communication and maintain connectivity. A concise, one-to-two-page progress update every six months was proposed as a practical way to keep advisors informed and engaged.

Coordination was identified as another critical area for improvement. Suggestions included involving IAB members earlier in event planning and providing more structured opportunities for their input in key project activities. These efforts could help ensure more consistent participation and greater alignment with project goals.

Overall, IAB members reflected positively on their experience, describing the project as well-organized and impactful. To build on this foundation, it was recommended to expand networks, foster partnerships for future collaborations, and focus on strategic guidance in areas like decentralized systems with nature-based solutions. These steps would ensure continued success and innovation while strengthening the role of international advisors in addressing complex global challenges.

7. Conclusion

The IAB has played a determining role in the MULTISOURCE project, contributing expertise and strategic insights that have shaped its direction and outcomes. Through their engagement in workshops, Splashdown sessions, and international events, the IAB has provided a wealth of knowledge that has enhanced the project's technical, social, and environmental dimensions.

The Splashdown series proved to be a particularly effective platform for fostering dialogue and exchanging ideas. IAB members brought diverse perspectives, addressing topics such as nature-based solutions (NbS), stakeholder engagement, pathogen removal, and urban resilience. These contributions were vital in aligning the project with global best practices and exploring innovative approaches to sustainable water management.

In addition to thematic inputs, the IAB's guidance on core project activities—such as pilot implementation and planning platform development—was invaluable. Members provided technical feedback, shared international case studies, and offered strategies for integrating NbS into decentralized water systems, fostering a multidisciplinary and collaborative approach to problem-solving.

Despite the meaningful contributions from engaged members, the project faced challenges in securing consistent participation from all IAB members. Efforts to engage the full Advisory Board were ongoing, highlighting the importance of tailoring communication and participation opportunities to individual availability and areas of interest.

Looking forward, the project has benefited from IAB suggestions for future engagement, such as maintaining the Splashdown series and fostering collaboration within the NbS community in Europe and beyond. These recommendations underscore the potential for continued partnership and knowledge exchange, even after the project's conclusion.

In summary, the IAB's participation has been a cornerstone of the MULTISOURCE project, enriching its activities and amplifying its impact. Their collective expertise and commitment have not only advanced the project's objectives but also laid a foundation for ongoing innovation and collaboration in sustainable water management. The project concludes with gratitude for their invaluable contributions and optimism for future engagements inspired by their insights.

8. Acknowledgments

The MULTISOURCE project sincerely thanks the International Advisory Board (IAB) members for their invaluable insights, expertise, and commitment to advancing sustainable water management through nature-based solutions. Their contributions have been instrumental in shaping the project's direction, enhancing its impact, and fostering innovation.

Through their active participation in workshops, Splashdown sessions, and discussions, the IAB members have generously shared their time and knowledge, helping to address complex challenges and build a foundation for continued progress. MULTISOURCE deeply appreciates their dedication and collaboration in this journey toward a more sustainable future.

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 (NBSWT) and compare scenarios both with and without NBSWT.



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