FUTURELAKES

For Nature, Climate and People

Enhanced Platforms for Dialogue

Establishing and evaluating “Critical Friends” groups for more inclusive lake governance

Deliverable D2.3

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Summary

This report examines the Critical Friends approach implemented in three FutureLakes Demonstration Sites: Lake Karla (Greece), Lake Vansjø (Norway), and the Kartuzy Lakes (Poland). The approach was developed to broaden stakeholder engagement in lake restoration and governance by involving actors who are often underrepresented in participatory processes, such as actors from different sectors, NGOs, diverse authorities, businesses, and "downstream" stakeholders. Acting as constructive, supportive 'friends' of the project, but able to point out omitted elements in lake management, they can increase the quality of lake governance. Expanding stakeholder participation is important for addressing the complex social, economic, and environmental challenges associated with lake restoration and management, as it helps incorporate diverse perspectives, build shared ownership, strengthen legitimacy, and improve the long-term implementation of restoration measures.

The Critical Friends activities followed a structured process informed by stakeholder mapping conducted in Deliverable D2.1 and by discussions with local teams in each selected Demonstration Site. Group workshops ranged from 9 to 21 participants, and activities were tailored to local priorities, defined as governance fragmentation at Lake Karla, nitrogen pollution from Lake Vansjø, and post-restoration governance of the Kartuzy Lakes. Across the three cases, the Critical Friends approach demonstrated how targeted stakeholder engagement can create spaces for dialogue, strengthen collaboration, and support the co-development of solutions adapted to local contexts.

The report provides a detailed documentation of 9 Critical Friends workshops (3 for each Demonstration Site) conducted between November 2025 and October 2026. It also provides a reflection chapter dedicated to the analysis of methods, representation, gender issues, lessons learned and replication potential. It finds that the approach was successfully implemented across all three Demo Sites, despite differences in governance settings, stakeholder networks, and prior experience with participatory processes. Key lessons highlight the importance of careful stakeholder recruitment, strong local facilitation, sustained engagement over time, and flexibility to adapt activities to local needs. While challenges such as uneven participation and visible trade-offs in stakeholder engagement goals persist, the Critical Friends groups contributed to expanded networks, strengthened stakeholder relationships, increased mutual understanding, and established foundations for a continued collaboration beyond the project activities.

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Abbreviations

ADTHSTE – Decentralized Administration of Thessaly - Central Greece

DUTH – Democritus University of Thrace

ELGO-DIMITRA – Hellenic Agricultural Organisation

ERDF – European Regional Development Fund

ESPA/NSRF – National Strategic Reference Framework

EU – European Union

FL – FutureLakes

FLL – Futures Literacy Laboratory

FNF – Forum for Natur- og Friluftsliv Østfold (Forum for Nature and Outdoor Life)

FRMPs – Flood Risk Management Master Plans

GOEB – General Organisation for Land Reclamation/Improvement

HCMR – Hellenic Centre for Marine Research

ILEC – International Lake Environment Committee Foundation

IPCC – Intergovernmental Panel on Climate Change

KPWiK – Kartuzy Water and Sewage Company

LBMG – Lake Basin Management Group

MOVAR IKS – MOsseregionen Vann, Avløp, og Renovasjon Interkommunalt selskap (Moss Region Water, Sewage, and Renovation Intermunicipal Utility Company)

NBS – Nature-Based Solutions

NECCA – Natural Environment and Climate Change Agency

NGO – Non-governmental Organisation

NIBIO – Norwegian Institute of Bioeconomy Research

NIVA – Norwegian Institute for Water Research

NMBU – Norwegian University of Life Sciences

NSRF/ESPA – National Strategic Reference Framework

ODYTH – Water Management Organisation of Thessaly

OECD – The Organisation for Economic Cooperation and Development

PDO – Protected Designation of Origin

PZW – Polski Związek Wędkarski (Polish Angling Association)

RBD – River Basin District

RBMPs – River Basins Management Plans

RCPs – Representative Concentration Pathways

RRI – Responsible Research and Innovation

THESgi – Agricultural Cooperative of Thessaly

TOEB – Local Organisation for Land Reclamation/Improvement

UNESCO – United Nations Educational, Scientific and Cultural Organisation

UWM – University of Warmia and Mazury in Olsztyn

WFD – Water Framework Directive

YPETHE – Water Resources and Environment of Thessaly blog

YPEN – Greek Ministry of Environment and Energy

Disclaimer

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Table of contents

Technical Details 2
Document history 2
Summary 3
Abbreviations 4
Disclaimer 5
Table of tables 7
1. Introduction 9
2. Inclusive lake governance and wide stakeholder engagement 10
3. Critical Friends concept 11
4. Critical Friends activities in FutureLakes 13
4.1 Lake Karla 13
First workshop, 25th November 2025 14
Second workshop, 12th May 2026 19
Third workshop, 2nd October 2026 23
4.2 Lake Vansjø 29
First workshop, 29th January 2026 30
Second workshop, 12th March 2026 32
Third workshop, 20th May 2026 35
4.3 Kartuzy Lakes 39
First workshop, 27th February 2026 40
Second workshop, 27th May 2026 42
Third workshop, 27th August 2026 44
5. Evaluating Critical Friends activities 50
5.1 Engagement methods and practical considerations 50
5.2 Representation 52
5.3 Gender 57
5.4 Lessons learned and feedback from the Demonstration Sites 59
5.5 Replication 63
6. Conclusion 65
Acknowledgements 66

Funded by the European Union

References 66

Annex: Gender monitoring 69

Table of tables

Table 1 Demo Sites with Critical Friends Groups 13

Table 2 Expected and actual participation 53

Table 3 Stakeholder representation at Lake Karla 54

Table 4 Summary for Lake Karla 54

Table 5 Stakeholder representation at Lake Vansjø 55

Table 6 Summary for Lake Vansjø 55

Table 7 Stakeholder representation at the Kartuzy Lakes 56

Table 8 Summary for the Kartuzy Lakes 57

Table 9 Gender representation in Critical Friends workshops 57

Table 10 Comparative assessment 62

Table of figures

Figure 1 Stakeholders' jurisdiction regarding Lake Karla's management 16

Figure 2 Stakeholders' main interests and drivers regarding Lake Karla's management 16

Figure 3 Main issues in Karla Lake management as addressed by local stakeholders 17

Figure 4 Map Network of collaboration among stakeholders based on local stakeholders' feedback .18

Figure 5 Primary and secondary issues regarding Karla Lake Management perceived by Critical Friends 19

Figure 6 Stakeholders' relations most frequently flagged as problematic or/and in need of strengthening 26

Figure 7 Bottlenecks and Enablers referred to sociopolitical issues in Lake Karla 27

Figure 8 Bottlenecks and Enablers referred to water and environment issues in Lake Karla 27

Figure 9 Bottlenecks and Enablers referred to economy and funding issues in Lake Karla 28

Figure 10 The Morsa Water Board 36

Photos

Photo 1 Welcoming and registration area for the participants 14
Photo 2 Presentation about FutureLakes Project and current state in Karla Lake 14
Photo 3 Discussion 15
Photo 4 Discussing different scenarios for Lake Karla management 20
Photo 5 Main points regarding different scenarios, as outlined in post-it notes by participants 20
Photo 6 Discussing bottlenecks and opportunities for Lake Karla management 24
Photo 7 The flipcharts used for the meeting (Tasks 2 and 3) 25
Photo 8 Lunch for the participants 30
Photo 9 Presentations 31
Photo 10 Discussion 31
Photo 11 Presentation of Future Lakes 33
Photo 12 Group work and discussions 34
Photo 13 Group work and discussions 34
Photo 14 Group work and discussions 35
Photo 15 Presentation of the 2025 monitoring results 37
Photo 16 Presentation of the work done in Follo 37
Photo 17 Presentation of the joint initiative project application 38
Photo 18 Presentation of Future Lakes 38
Photo 19 The "duck pond" (Andedammen) at the NMBU Campus and Vitenparken in Ås 39
Photo 20 Presentation and planning of Critical Friends activities in Kartuzy 40
Photo 21 Discussions with the Critical Friends 41
Photo 22 Recreational beach in Kartuzy 43
Photo 23 Presenting UNESCO Future Literacy Lab methodology 45
Photo 24 Future scenario discussions 45
Photo 25 Future scenario discussions 46
Photo 26 Participatory scenario development outlined in post-it notes by participants 47

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1. Introduction

Europe's lakes are under increasing environmental pressure, with nearly half failing to achieve the good ecological and chemical status targets set by the Water Framework Directive (WFD), largely due to nutrient pollution, habitat degradation, and the impacts of climate change. Ambitious policy initiatives, including the EU Nature Restoration Law and the European Green Deal, are expected to accelerate lake restoration efforts across Europe (Aragão and van de Braak, 2026). In addition to technical knowledge, this requires a good understanding of governance arrangements, including stakeholder perspectives in planning, implementing and monitoring the restoration efforts and post-restoration governance.

Inclusive approaches are fundamental for good water governance. Technical solutions alone are not able to deliver desirable outcomes if they are not coupled with the participation of engaged stakeholders (ILEC, 2005; Poikane et al., 2024). This emphasis is also reflected in the FutureLakes governance framework developed in the project deliverable D2.2, which identifies communication, outreach, and stakeholder engagement as key governance pillars. Broad participation by local communities, lake users, and the public is considered essential for strengthening legitimacy, incorporating local knowledge, and supporting the implementation of management measures (Johannessen and Kramer, 2026). It is important to move beyond stakeholder identification and actively test concrete activities that can support more inclusive lake governance and strengthen platforms for dialogue. Stakeholder mapping is an important step for any targeted stakeholder activities and has been conducted in the initial phase of the FutureLakes project (Szulecka, 2025). It helps reveal the complexity of governance landscapes and identifies marginalised groups that are excluded from decision-making processes. Meaningful inclusion requires practical mechanisms that enable these stakeholders to participate and influence outcomes. Piloting and evaluating activities, such as multi-stakeholder workshops, can help determine how different actors can engage more effectively in lake restoration and management. Enhanced platforms for dialogue are particularly important for bridging differences in knowledge, interests, and capacities among stakeholders, fostering mutual learning, trust, and collaboration. Testing such approaches in practice can provide valuable insights into how more equitable, inclusive, and adaptive governance arrangements can be developed to support the long-term success of lake restoration efforts.

The following report describes the Critical Friends approach tested under the FutureLakes project and evaluates its potential as a mechanism for broadening stakeholder participation and strengthening more inclusive lake governance across the three FutureLakes Demonstration Sites in Greece, Poland, and Norway. Chapter 2 introduces the conceptual foundations of inclusive lake governance and stakeholder engagement. Chapter 3 presents the Critical Friends concept and describes how the approach was designed and implemented within the FutureLakes project. Chapter 4 documents the Critical Friends activities carried out in each Demonstration Site, highlighting their objectives, participants, activities and key outcomes. Chapter 5 evaluates the approach by reflecting on participatory methods, stakeholder representation, gender considerations, lessons learned, and opportunities for replication and upscaling. Finally, Chapter 6 synthesises the main findings.

The report is intended for project partners, practitioners, policymakers, funding agencies and stakeholders interested in participatory approaches to environmental governance and lake management. It aims to provide both an assessment of the approach and practical insights for the design of similar engagement processes.

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2. Inclusive lake governance and wide stakeholder engagement

Inclusive lake management has become increasingly important as water governance has moved beyond traditional government-led approaches towards more participatory, multi-level and polycentric forms of governance that recognise the contributions of diverse actors in achieving effective, and inclusive water management (Akhmouch and Clavreul, 2016). Lakes represent complex social-ecological systems where management decisions possibly affect, and are affected by, a wide range of stakeholders (Freeman, 2010). Within such governance systems, strong connective capacity among actors has been shown to improve governance outcomes by facilitating collaboration, coordination and collective action (Edelenbos et al., 2013). Moreover, poor governance has been identified as a major barrier to successful lake restoration, with stakeholder engagement emerging as one of the most important factors determining the success or failure of restoration programmes (Poikane et al., 2024). Similar mechanisms can be expected for post-restoration lake governance with new emerging pressures (e.g. climate change).

Stakeholder engagement encompasses a spectrum of approaches, ranging from communication and consultation to more ambitious forms of participation, representation, partnerships, co-decision making, co-production and knowledge co-creation (OECD, 2015). Building on Arnstein's ladder of citizen participation (Arnstein, 1969), higher levels of engagement are expected to generate greater societal benefits, including increased relevance of outcomes for decision-makers, enhanced trust in science, improved communication between researchers and stakeholders, active citizenship, and greater adaptive capacity (Smyth et al., 2021). Inclusive governance also contributes to the acceptability and long-term sustainability of management measures by strengthening stakeholder ownership, social equity and cohesion, while improving knowledge exchange and economic efficiency through more coherent and widely supported decisions (OECD, 2015).

From planning through to implementation, wide and inclusive stakeholder participation is essential for ensuring that project benefits and outcomes are maintained beyond the funding period. While stakeholders often recognise the benefits of restoration, such as improved flood protection, water quality, and biodiversity, concerns can be raised regarding the distribution of costs, responsibilities, and compensation mechanisms. Experiences from different cases demonstrate that long-standing relationships and continuous collaboration can build trust, ownership, and commitment to restoration goals, whereas insufficient involvement of affected stakeholders may generate resistance and undermine implementation. These findings highlight that equitable and sustained engagement not only contributes to more legitimate and context-sensitive decision-making, but also helps establish durable partnerships capable of supporting restoration efforts and preserving their benefits long after the formal project has ended (Birk et al., 2026).

The United Nations World Water Development Report gives specific attention to inclusive water governance and highlights the importance of partnerships to address complex water-related challenges (Connor and Miletto, 2023). Partnerships may emerge organically among stakeholders or require active facilitation and support. To better understand these collaborative arrangements, the report distinguishes between three categories of partnerships based on the degree to which they are open to the involvement of different actors across sectors and governance levels. The report distinguishes between three partnership types: intra-sectoral partnerships, where actors share a common water-

related objective; cross-sectoral partnerships, where stakeholders with different or competing water interests collaborate; and extra-sectoral partnerships, where actors from outside the water sector engage. The Critical Friends activities specifically aimed to foster cross-sectoral and extra-sectoral partnerships conceptualized in the UN World Water Development Report by inviting stakeholders with diverse interests, perspectives, and objectives, including actors both within and beyond the water sector.

Despite broad agreement that water management should become more inclusive and participatory, little attention has been devoted to identifying, testing, and evaluating the specific methods, tools, and criteria needed to support effective stakeholder engagement in practice. While the benefits of participation are well documented, there is no universal model or "one-size-fits-all" approach that can be applied across different socio-ecological and governance contexts (Nesheim et al., 2026a; OECD, 2015). Engagement processes must be tailored to local actor constellations, governance cultures, environmental challenges, and stakeholder capacities. As a result, there remains a need for experimental and reflexive approaches that can generate practical insights into how inclusive governance can be operationalised. In this context, the Critical Friends groups represent an important governance innovation, providing an opportunity to pilot and evaluate participatory approaches that foster dialogue, mutual learning, knowledge co-creation, cross-sectoral collaboration and future visions for the lakes.

Methods of stakeholder engagement vary widely across contexts, objectives, and stakeholder groups. In lake governance strictly or water management more broadly, the approaches align with the broad range of engagement methods applied in environmental governance, including diverse meeting formats and applied methods for information sharing, consultation, deliberation, co-creation activities. Recognising that there is no single best method, the design of stakeholder engagement activities in this task was tailored to the specific needs and circumstances of each Demonstration Site. In developing these activities, the *Biodiversa Stakeholder Engagement Handbook* (BiodivERsA, 2014) and the *Engagement Catalogue* (Engage2020, 2020) served as important sources of inspiration, providing practical guidance and examples of participatory approaches that support meaningful, inclusive, and context-sensitive stakeholder involvement.

Literature on stakeholder engagement is considerably more developed in terms of guidelines, recommendations, and examples of good practice than in terms of robust evaluations of stakeholder engagement activities (Nesheim et al., 2026b). Therefore, rather than adopting an existing evaluation framework, we selected a set of key aspects that were particularly relevant to the objectives of the project and to the potential replication of similar engagement activities in other contexts. Given that the stakeholder engagement activities were conducted over only one year and across three Demo Sites, the material was insufficient for a systematic comparative evaluation. However, the process generated a rich collection of practical experiences and examples, providing valuable insights into how inclusive platforms for dialogue around lakes can be established, adapted to local conditions, and sustained to support collaboration among diverse stakeholder groups. This is discussed in Chapter 5.

3. Critical Friends concept

Critical Friends groups were a FutureLakes project intervention for new platforms of dialogue tested in three Demonstration Sites located in Southern, Central, and Northern Europe (Greece, Poland, Norway).

The purpose of these groups was to pilot participatory platforms that broaden stakeholder representation beyond formal lake basin management groups (LBMGs), specifically targeting influential actors currently not included, such as NGOs, downstream stakeholders, representatives of recreation and tourism sectors, local enterprises, and community organisation.

The Critical Friends approach is rooted in the principles of Responsible Research and Innovation (RRI), which emphasizes the early and continuous involvement of societal actors in shaping research and innovation processes (Kalpazidou Schmidt, 2023). Critical Friends have been operationalised in the FutureLakes project as innovative platforms for dialogue, that extend representation and engagement, are supposed to ask questions, from the position of constructive and supportive 'friends of the project'. Their participation is geared towards building bridges between the established lake governance structures (LBMGs) and Critical Friends via enhanced dialogues using various co-creation and stakeholder engagement techniques.

The Critical Friends groups maintained structured interaction with diverse stakeholders to engage them in a participatory process aimed at exchanging diverse perspectives and formulating a shared vision for the future state of their lakes.

Selecting Critical Friends groups has been a process that started with the stakeholder mapping summarized in deliverable D2.1. A further participatory process led to the identification of targeted groups at each Demonstration Site, its timeline of operation and focus of activities.

- March 2025: D2.1 "Stakeholder Mapping: Analysis of Stakeholder Involvement in Lake Restoration in Six European Countries" identifies all relevant stakeholders for the Demo Sites
- March-June 2025: Demonstration Sites reflect on the stakeholder mapping results and targeting different stakeholder groups in the project activities
- June-September 2025: WP2 organizes meetings to present the Critical Friends concept for three pre-selected Demonstration Sites: Lake Karla (6.06), Kartuzy Lakes (12.06), Lake Vansjø (19.06, 2.09, 11.09). Key stakeholders are also invited to the meetings and Demonstration Site teams follow up internally with their teams to finalize the process
- September 2025: WP2 organizes a joint meeting for the three Demonstration Sites to present and exchange ideas
- September 2025: Submission of milestone M2.3
- December 2025-October 2026: 9 physical workshops, 3 for each Demo Site
- 8th October 2026: online cross-case workshop reflecting on the Critical Friends activities
- End of October 2026: D2.3 "Enhanced Platforms for Dialogue. Establishing and evaluating "Critical Friends" groups for more inclusive lake governance"

Although the original idea was to recruit the Critical Friends groups outside of the designated authorities, especially LBMGs, with closer interactions at the end of the process, Demonstration Sites highlighted the need for stronger exchanges with the authorities from an early stage. This adjustment enabled dialogue between public authorities and a broader range of stakeholders throughout the process, while maintaining the Critical Friends groups as an inclusive platform.

Each Demonstration Site had the possibility to define the Critical Friends groups and the thematic focus for their activities. Each Demonstration Site finally defined the size of the group as between 10-20 participants and some guiding thematic focus. A short summary is provided in Table 1.

Table 1 Demo Sites with Critical Friends Groups

Lake Karla	Lake Vansjø	Kartuzy Lakes
Expected 15-20 participants	Expected 10-15 participants	Expected 10-15 participants
Focus on governance fragmentation and mixed responsibilities	Focus on nitrogen runoff, enlarged catchment (Morsa-Hobøl vassdraget) and downstream stakeholders (Oslofjord)	Focus on storm water, post-restoration collaboration and future challenges

Critical Friends activities were piloted between the autumn 2025 and autumn 2026 through a series of three in-person workshops held at each Demonstration Site. These workshops provided a structured platform for mutual learning, reflection, and knowledge exchange. The next Chapter 4 presents summary reports from all workshops conducted across the Demonstration Sites, highlighting the chosen formats and key discussions. Chapter 5 builds on these findings by providing a cross-site synthesis and joint evaluation of the Critical Friends approach.

4. Critical Friends activities in FutureLakes

4.1 Lake Karla

Lake Karla, located in the Thessaly region of Greece within the Pineios River basin, is one of Europe's most notable examples of large-scale ecological restoration. Historically, the lake supported a thriving fishery and played an important role in the local economy, but it was drained in the 1960s to expand agriculture and control malaria. The drainage resulted in significant environmental and socio-economic challenges, including soil salinization and unsustainable agricultural production. In response, the Greek government initiated a major restoration programme, and by 2010 the lake had been re-established through a combination of water transfers from the Pineios River and extensive restoration measures, including wetlands, buffer strips, collector channels, and irrigation infrastructure. Today, Lake Karla forms part of a Natura 2000 protected area, recognised for its importance to migratory and overwintering waterbirds and other biodiversity values (Sidiropoulos et al., 2017). Currently, it serves as a multi-functional system which supports agriculture, biodiversity and heritage, yet it still faces pressures from water pollution and scarcity.

First workshop, 25th November 2025

Workshop participants and format

The meeting was organized in two parts. After welcoming, stakeholders registered and the first session began (Photo 1). An overview of the project, the current state and the management actions implemented in Lake Karla were presented by Prof. Ifigenia Kagkalou (Photo 2). The presentation was interactive, enabling active participation of stakeholders in many parts. At the end of the presentation the participants were asked to complete a short questionnaire about their perspectives on Lake Karla current state and management.

In the second session, the discussion focused on better understanding the issues the different stakeholders face while practicing their roles and further development of the main issues they identify in Karla (Photo 3). There, a quick voting took place where the participants were asked to choose which issue they consider as of major and moderate importance regarding the status of Karla among institutional/policy, social/community engagement and technical.

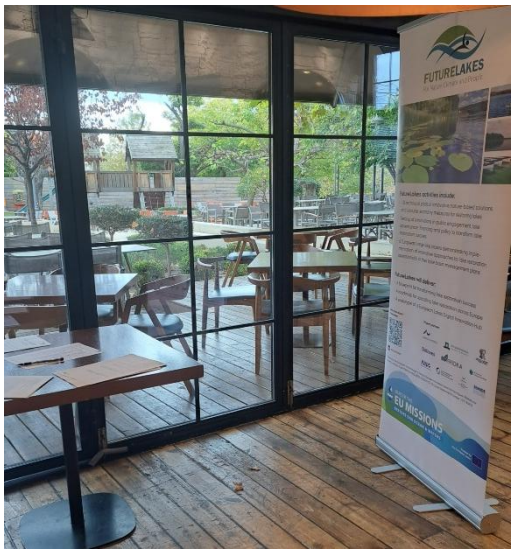


Photo 1 Welcoming and registration area for the participants



Photo 2 Presentation about FutureLakes Project and current state in Karla Lake



Photo 3 Discussion

A total of 21 participants attended the meeting. The participants represented public-sector institutions (Region of Thessaly, Decentralized Administration of Thessaly), research organisation (Hellenic Agricultural Organisation) and the professional community of Karla area. The meeting was enriched by the presence of 3 contributors from the Greek civil network of municipalities with rivers. Their involvement signaled their commitment to future cooperation with other stakeholder groups and their willingness to contribute to the sustainable management of Lake Karla area.

Results from the participatory surveys present opinions of Critical Friends and are presented in the following paragraphs as key findings in the six thematic areas.

Role and interests of each participant in relation to Lake Karla and its wider basin

Critical Friends' questionnaire reveals a centralized governance model regarding the management of Karla, with the vast majority of participants' role being at strategic administrative authorities of Greece (Figure 1). Among the above-mentioned, the newly established management authority ODYTH is currently in a transitional phase, not actively involved in strategy planning, but focusing on project supervision and the completion of vital infrastructure. Although the roles identified are multifaceted, including decision-making, advisory functions, implementation of environmental measures and technical supervision, the primary mandate for all these activities originates from the central state (Ministries, Regional/Decentralized Management authorities, etc.). In this context, the primary drivers of stakeholder involvement are institutional duty and professional diligence, followed closely by socio-economic concerns related to irrigation and flood protection (Figure 2). Despite the centralized structure, there is a fragmented operational landscape in which overlapping responsibilities are shared between national monitoring networks, regional environmental directorates, and local authorities, occasionally leading to coordination challenges.

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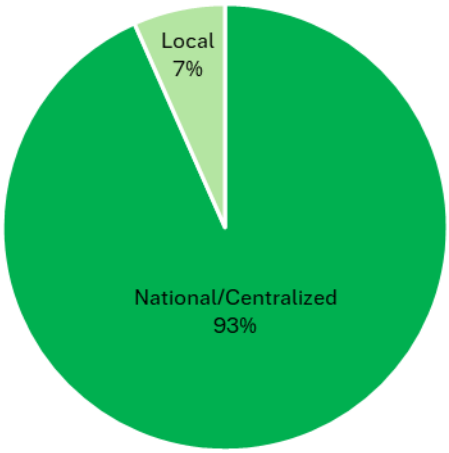


Figure 1 Stakeholders' jurisdiction regarding Lake Karla's management

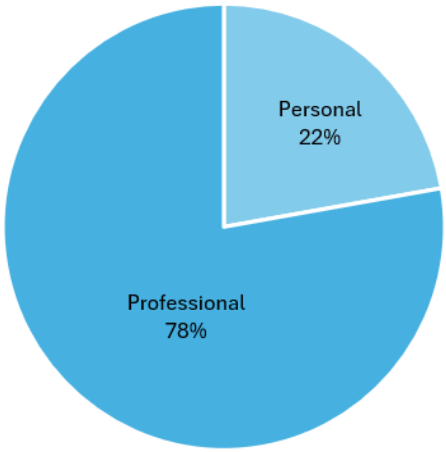


Figure 2 Stakeholders' main interests and drivers regarding Lake Karla's management

Obstacles in achieving their interests/organisational goals

The main obstacles that stakeholders face in their work and commitments are limited funding and staff, but also systemic fragmentation (Figure 3). Resources shortage and understaffing hinder the completion of infrastructure projects and daily operations, while systemic fragmentation and overlapping roles between stakeholders lead to difficulties in effective decision-making. Barriers often worsen by the "blurry" policy framework, the pending tasks and limited capacity. Therefore, it is essential to establish and encourage cooperation on multiple levels across authorities.

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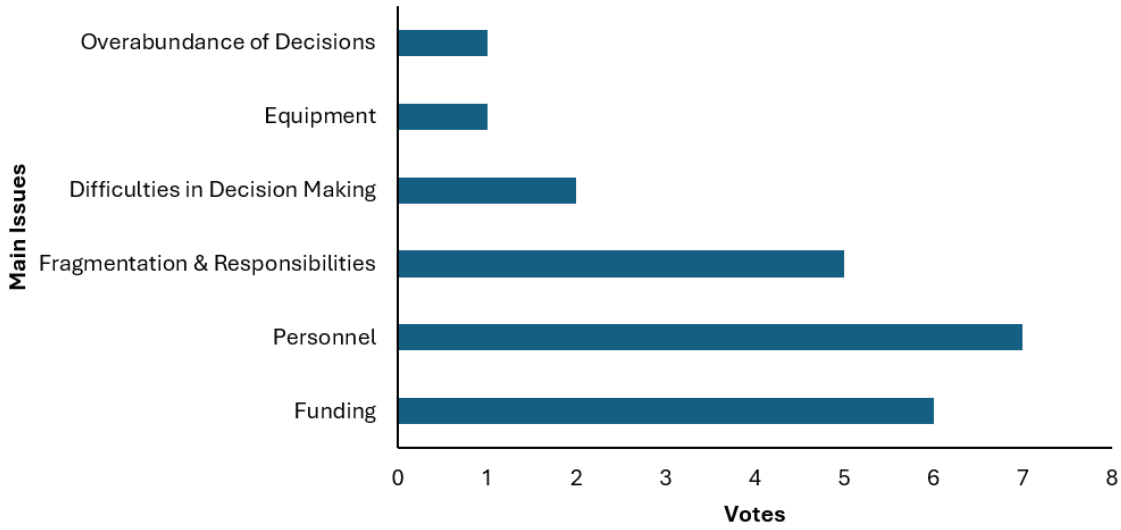


Figure 3 Main issues in Karla Lake management as addressed by local stakeholders

Suggesting solutions to overcome the obstacles

To mitigate the occurring challenges, stakeholders advocate for legislative clarity, without loopholes, but with specific responsibilities. The latter is recommended to be established as a strategic executive structure for decision-making to unify the fragmented landscape. Participants emphasized the necessity for duty distinction to eliminate overlapping roles. Active consultation during early stages for management decision making (not just as a follow-up for measures' approval), inclusion of ongoing feedback loops in management schemes across involved institutions and open dialogue were also highlighted as crucial tools to ensure inclusivity in governance and perspective alignment among stakeholders involved before final decisions.

Feedback on the positive effects of management in the last 5 years

Despite the difficulties and Daniel flood event (2023), there has been significant progress in the last 5 years regarding Karla management. This positive feedback is acquired from the European funding (NSRF & ERDF/ETPA) and the further inclusion of Karla Lake in national water monitoring projects, which has led to a vital foundation for data-based management actions. Stakeholders also noted the importance of the River Basins Management Plans and Flood Risk Management Plans, which have provided a much-needed strategic framework. Moreover, for some, the establishment of new, specialized management bodies (like ODYTH) is viewed as a positive step toward modernizing the basin's oversight.

Collaboration among organisations

The operational network surrounding Lake Karla is dense and highly interdependent. The Region of Thessaly acts as a central hub, with almost all regional stakeholders reporting to or collaborating with it. Similarly, decentralized administration of Thessaly collaborates with the majority of local stakeholders. Other key players in this network include ODYTH, NECCA, and the local water utility organisations (TOEB/GOEB). At national level, reporting lines flow from the Hellenic Agricultural Organisation (ELGO) toward the General Secretariat of Natural

Environment and Water (Greek Ministry of Environment and Energy, YPEN). The responses indicate that while the "daily" collaboration occurs between regional technical services, local management authorities (NECCA), monitoring networks (ELGO) and local users (THESgi), the "strategic" reporting is directed toward governmental structures, as the region and the decentralized administration of Thessaly and the Greek Ministry of Environment and Energy (YPEN) (Figure 4).

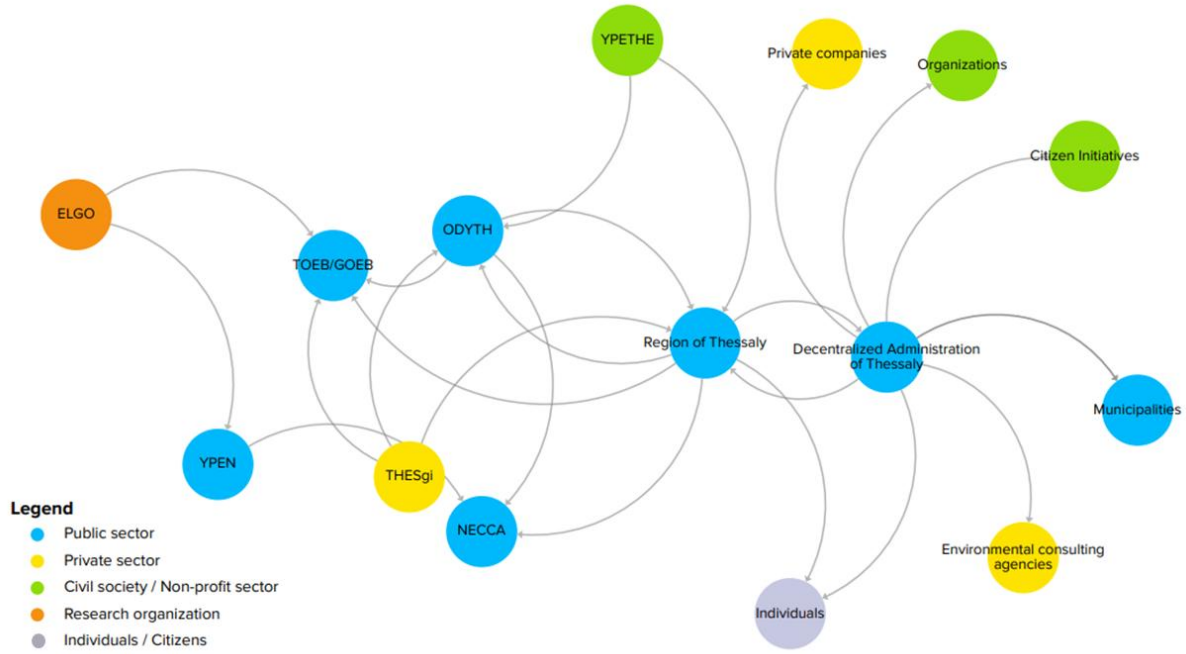


Figure 4 Map Network of collaboration among stakeholders based on local stakeholders' feedback

Primary and secondary governance issues

Stakeholders' perspectives on the management of Karla Lake reveal a significant focus on institutional and social challenges, as evidenced by their feedback on primary and secondary issues regarding their roles. According to their perspectives, social awareness and policy implications are the main two issues, while social awareness and community engagement are addressed by the majority. Some of them also specified the problem of policy implication as political matter. However, while technical infrastructure was not listed as a primary issue by any respondent, it remains a notable secondary concern for many participants (Figure 5). These findings align with the qualitative feedback where stakeholders highlighted the main obstacles. Collectively, these perspectives suggest that while technical needs exist, stakeholders prioritise the resolution of social engagement and administrative policy as the foundational steps for the basin's future stability.

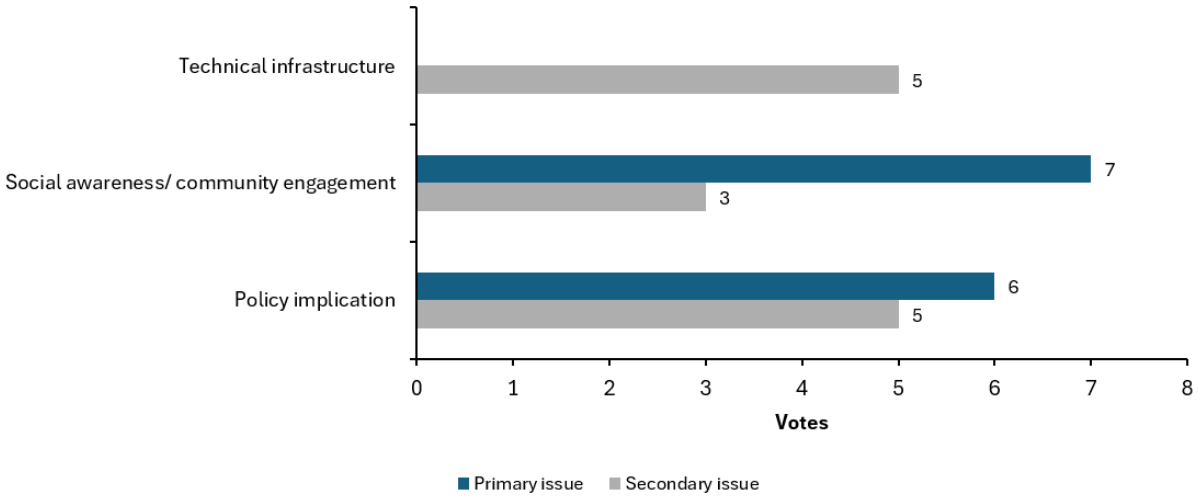


Figure 5 Primary and secondary issues regarding Karla Lake Management perceived by Critical Friends

Conclusions

Karla's Critical Friends' meeting in November 2025 has provided a comprehensive summary of stakeholders' perspectives and concerns. While the management of Lake Karla remains a challenge, with overlapping roles and fragmented legislative framework, there is notable progress on the strategies followed. The synthesis of stakeholders' perspectives identifies social awareness and policy implication issues as the main issues in Lake Karla management, while technical infrastructure issues, limited available funding and staff seem to hinder the implication of integrated and effective approaches. However, the common positive attitude towards collaboration among stakeholders serves as a key opportunity for improving governance and promoting sustainable development in Lake Karla area.

Second workshop, 12th May 2026

Workshop participants and format

Scenario-based foresight methods offer a powerful way to move beyond the constraints of current knowledge and engage stakeholders in exploring plausible futures. Rather than predicting the future, scenarios create structured spaces for what could happen, helping communities, stakeholders and decisionmakers to understand their assumptions, allocate their priorities and identify pathways for possible actions, including restoration priorities.

Lake Karla after its restoration and re-wetting offers a wide range of benefits (irrigation water, biodiversity net gain, economic value, local communities' endorsement etc.). However, the lake faces multiple environmental and anthropogenic pressures and their impact on its sustainability could be intensified by climate change conditions. Thus, in Lake Karla, where governance is centralized and actors have overlapping roles and fragmented responsibilities, running this type of scenarios, could yield useful insights for the improvement of adaptive management efforts.

The meeting took place in Larisa and a total of 19 participants from regional management authorities, private sector and civil society were present (Photo 4).



Photo 4 Discussing different scenarios for Lake Karla management

The session started with a presentation by Prof. Ifigenia Kagalou of the main findings of the 1st Critical Friends meeting and then continued with an introduction to the Future Literacy Labs methodology developed by UNESCO (Miller, 2018).

This method creates a participatory foresight framework to explore different hypotheses of future scenarios and reflect on how those scenarios would reshape the roles and assumptions in the present. The participants co-designed three scenario trajectories (Reframing, Realistic/Probable and Hope/Desirable Future Scenario) in a horizon of 20 years, for the year 2046. Shortly after, they explored and discussed in depth scenarios based on their perceptions on Lake Karla's current status (3*20-30 mins sessions). The thoughts were outlined in post-it notes that were collected together for each scenario version, except the realistic scenario that was ran mainly in an open discussion format (Photo 5). The key findings of these scenarios and the insights of discussion that followed are presented below.

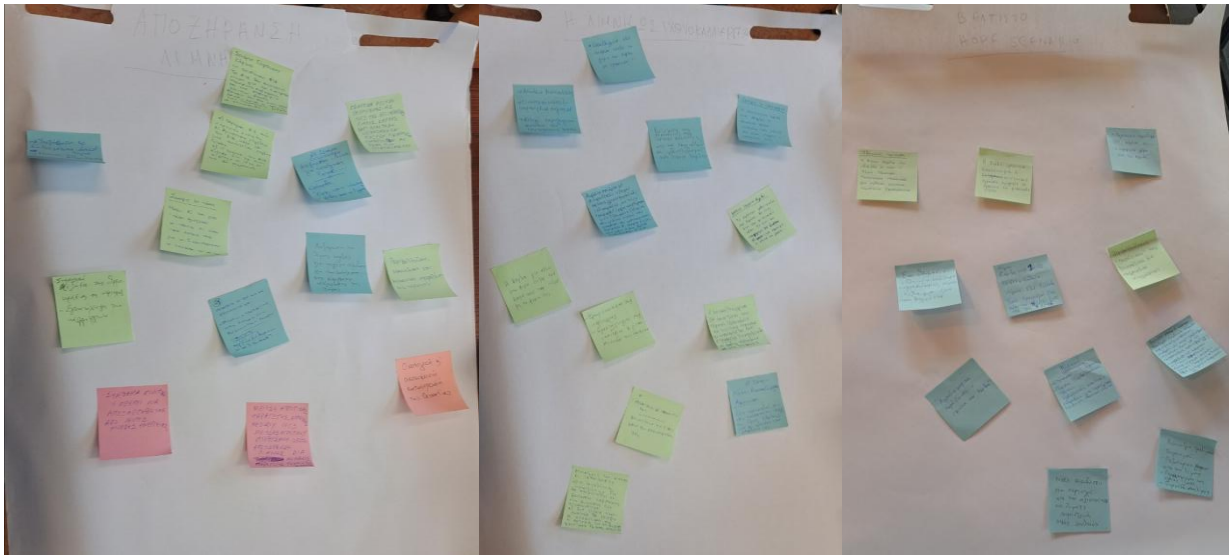


Photo 5 Main points regarding different scenarios, as outlined in post-it notes by participants

Key findings

Reframing Scenario (A, B): An unexpected "counter-scenario" that totally changes the status in the lake as we know it now.

The Reframing scenario is the most provocative among the three trajectories. Rather than extrapolating from current conditions, it introduces a specific disruptive element that overturns existing assumptions about how the system works and who controls it. Its purpose is not to predict a likely future but to surface hidden assumptions, expose governance vulnerabilities, and motivate participants to question which values and structures they take for granted. This type of scenario builds the capacity to "use the future" in novel ways: by deliberately imagining uncomfortable or unlikely futures, participants sharpen their understanding of what they are actually trying to protect or achieve in the present. During the meeting two reframing futures were explored.

A: The lake gets dried again to obtain more land for green energy (solar panels) infrastructure

This scenario posited the draining of Lake Karla to install large-scale solar panels infrastructure, driven by energy independence necessity and organized investment interests from infrastructure lobbying. In the beginning, the participants were surprised, almost shocked, showing disapproval for discussing "science fiction" scenarios (their wording) and questioning the relevance of this methodology. Despite the fact that participants strongly expressed their disapproval of such a scenario, as an apparent governance failure for the restoration project, everyone agreed that an initiative like the redrying would represent a case of ecological sacrifice in service of corporate interest rather than genuine public benefit. Among the main consequences foreseen at the local level was a drastic rise in temperatures, agricultural collapse, severe biodiversity loss, reduction in water availability, and rural depopulation. The latter was described on a post-it as a newspaper headline from 2046 "The last resident leaving Rizomylos", which is a small village of 1000 residents (mainly farmers, water end-users) in Karla area. Participants agreed that technological progress by 2046 would make such ecological sacrifice even less justifiable in retrospect.

B: The lake becomes a large-scale fish aquaculture pond

This scenario sets Lake Karla transformed into a large-scale aquaculture operation driven by a global food provisioning crisis. Participants acknowledged potential economic benefits for surrounding communities, but raised serious concerns such as biodiversity loss through the displacement of native fish species by species of high economic value, investor-imposed restrictions on public access to the lake, and the gradual erosion of benefits originating from the lake. This scenario was quite acceptable, but only under strict ecological and social safeguards.

Taken together, both reframing scenarios are in accordance with a finding from the 1st Critical Friends meeting, community acceptance is the primary issue in efforts towards change. Public support is hard to receive, and people are not easily open to big changes, whatever the nature of change, but governance frameworks must actively prevent corporate and economic interests from overriding public and ecological priorities.

Realistic/Probable Scenario:

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The Realistic scenario maps the most probable future based on current trends, policies, and structural constraints. This scenario is constructive, it grounds deliberation in what is actually achievable today, and focuses attention on the institutional, financial, and technical conditions that must change for meaningful improvement to occur.

Participants broadly agreed that a sustainable, multi-functional Lake Karla is within reach. Critical prerequisites include proper water balance management, with potential supplementation from other sources (a possible river diversion from the Acheloos basin), integration of the main existing policy/ management instruments (River Basins Management Plans/ RBMPs, Flood Risk Management Plans/ FRMPs, Master Plans) and explicit planning for climate scenarios (IPCC RCP 4.5–8.5), including multiple extreme events (IPCC, 2023). Here participants flagged several urgent structural gaps like the lack of infrastructure maintenance. Moreover, some of them stated that a system of water pricing for irrigation in Karla area would be useful for sustainable management. According to their knowledge, at the moment water use is imbalanced (70% groundwater, 30% surface water) and needs to be rebalanced toward shared proportions. Finally, participants emphasized that these technical solutions must be paired with a comprehensive reform in the management authorities to enhance operational capacity.

Desirable/ Hope Scenario:

Hope scenario aims to map a shared ambition. By asking participants to imagine an ideal desired future unconstrained by today's barriers, it generates a collective vision capable of anchoring long-term governance reform and investment decisions. In this sense, hope scenario reveals what participants truly value and builds the motivational foundation for transformative action.

Participants expressed a coherent vision. By 2046, Lake Karla could become a model of eco-development, an agri-food and ecological tourism destination with wide recognition and as successful as other popular eco-touristic lakes in Greece like Lake Tavropos and Kerkini. This scenario included over 150,000 visitors per year and a thriving wetland, with high water quality, attracting birdwatching tourism from across the Balkans. Furthermore, surrounding eco-farms would be (globally/ widely) recognised, not only for their products, but also as models of sustainable land use. Participants aspire that the lake would still offer multi-functional benefits (irrigation, flood buffering, etc.), but they hope that strategic steps in lakeside tourism and recreation would create new rural employment. However, all stakeholders underlined that such ambitious results require stable and well-planned water management, strong institutional coordination, and a local commitment to low-intensity/impact sustainable tourism.

Critical Friends perspectives and suggestions for Lake Karla after the scenario discussions

Beyond the scenario-specific discussions, participants suggested management actions that apply regardless of which future trajectory unfolds. These suggestions reflect the critical friends' collective experience and frustrations with the complex current governance in Lake Karla and constitute a good baseline set of actionable recommendations for the project team.

- **Institutional clarity:** Lake Karla was described as an "orphan project", with many relative authorities, but without one with clear and strong responsibility. Some of the participants called for a dedicated executive management body, like the independent governance structures of hydroelectric dams, with unambiguous responsibilities and adequate staffing.
- **Infrastructure:** Maintenance, renovation and improvements of hard infrastructure and existing flood protection assets are an immediate, non-negotiable priority. Complementary Nature-Based

Solutions, including buffer zones, constructed wetlands, biochar applications, and biological filters for nutrients or nutrients discharge diversion, were also proposed.

- **Data quality:** the introduction of real-time hydrological monitoring was strongly recommended. Poor data quality was repeatedly identified as root cause of governance decisions that are disconnected from the actual needs and the dynamics of the system.
- **Meaningful consultation:** Engagement with farmers and other stakeholders must go beyond tokenism and step forward. Participants gave examples of past processes described as "consultations but only theoretically, not actually", and stressed that acceptance from agricultural communities is a prerequisite for any effective governance reform.
- **Climate-proofing:** All future interventions must be designed around high-end climate scenarios. The increase in flood frequency and at the same time in drought risk confirms that extreme events can no longer be treated as exceptional outliers in management planning. In this topic, a possible addition of water pricing irrigation system was suggested that could yield more sustainable water wise use to mitigate water loss and waste.
- **Resilience and culture:** Participants called for a broader cultural shift away from passive reliance only on state actions. Environmental education, public awareness campaigns, and proactive communication strategies were seen as essential and urgent complements to technical and regulatory measures.

Conclusions

UNESCO Future Literacy Labs methodology proved well-suited to the complexity of the Lake Karla governance challenge. By working through three scenario types, participants were able to move beyond their immediate concerns and engage with the full range of futures that the lake might face. 'Reframing' scenarios made visible the real risks of governance capture and investor-driven land-use change. The 'Realistic' scenario confirmed that a sustainable, multi-functional Lake Karla is achievable, but only through integrated water governance, institutional reform, and investment in climate-proofed infrastructure. The 'Hope' scenario, meanwhile, demonstrated remarkable convergence around a shared long-term vision where Karla poses as a model eco-tourism and agri-food destination, across Greece and the Balkan region.

From the discussion part, the priorities emerging are about the establishment of a dedicated management body with clear institutional responsibilities, the maintenance of existing infrastructure and investment in new, advanced monitoring systems, with a possibility to change the irrigation water pricing. Participants highlighted also the need to align the existing policy/management instruments (RBMPs, FRMPs, Master Plans) into a single, coherent governance framework. These priorities are not new in the context of improving the governance framework of Karla, but the scenario process has given them a collective character. These findings could serve as a good basis for future governance suggestions.

Third workshop, 2nd October 2026

Workshop participants and format

Lake Karla's restoration continues to be shaped by a governance landscape in which responsibilities are distributed across multiple national, regional and local authorities, often with overlapping mandates and unclear lines of accountability. The 1st Critical Friends workshop directly focused on the complex governance issues, while the 2nd workshop using the UNESCO Future Literacy Labs methodology explored three contrasting 2046 scenarios for the Karla and converged on a shared long-term vision centered on integrated water governance and eco-tourism development. The 3rd Critical Friends meeting moved from foresight to diagnosis and prioritization.

The meeting took place in October 2026 in Larisa with 15 participants from regional management authorities, private sector and civil society were present (Photo 6).



Photo 6 Discussing bottlenecks and opportunities for Lake Karla management

The session started with a presentation of the main findings from the previous Critical Friends' meetings by Prof. Ifigenia Kagalou and Dr. Dionissis Latinopoulos and then continued with an introduction to the workshop's agenda. The participants were asked to map which institutional relations are most problematic, need strengthening and to identify which fixes matter most (Task 1). Then, they prioritised the most significant bottlenecks and enablers across three thematic areas regarding sociopolitical, water/environment and economy/funding (Task 2). Finally, they explored possible pathways for eco-tourism and local economy development of the restored lake (Task 3) (Photo 7). The key findings of these tasks and the insights of discussion that followed are presented below.

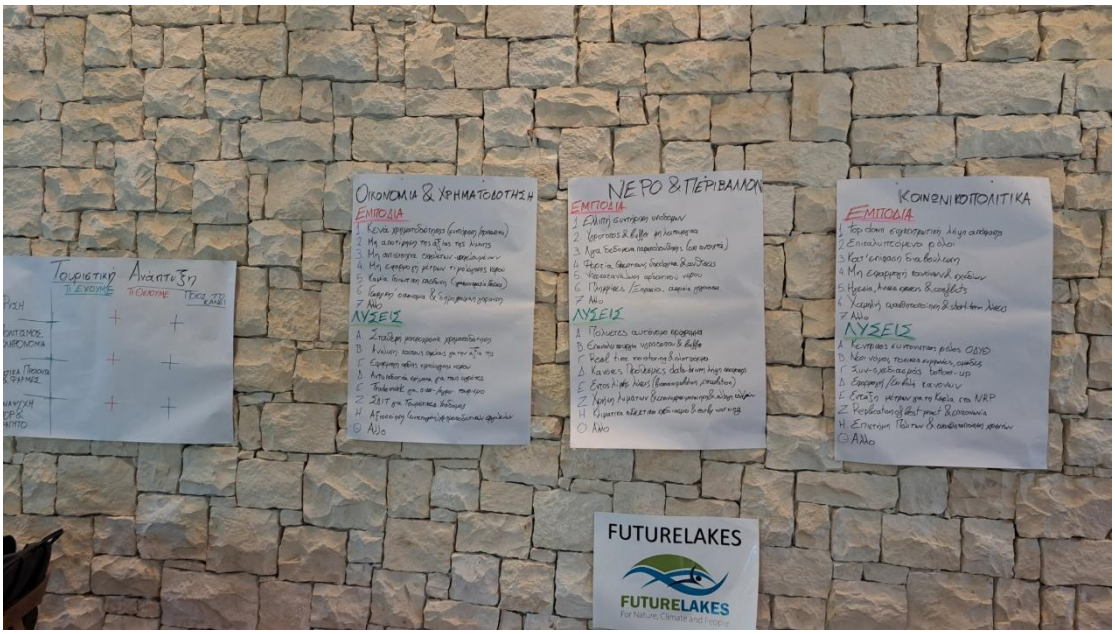


Photo 7 The flipcharts used for the meeting (Tasks 2 and 3)

Key findings

Task 1: Mapping Problematic Institutional Relations

Based on the interaction map that was created after Critical Friends' feedback from the 1st meeting (Figure 4), participants were asked to mark up to 5 (preferably) institutional relations/interactions that they perceived as problematic, or/and in need of strengthening.

72 relations were flagged in total. ODYTH emerged as the single most contested node, appearing in 37 of the 72 marked relations (roughly half), far ahead of Region of Thessaly (27 mentions). The most frequently flagged relation pair by far was between ODYTH and Region of Thessaly (10 mentions), followed by three pairs tied at 6 mentions each: NECCA and Region of Thessaly, Region of Thessaly and YPEN (Greek Ministry of Environment and Energy), ODYTH and TOEB/GOEB. NECCA and ODYTH, as well as ODYTH and YPEN interaction followed closely (5 mentions each) (Figure 6).

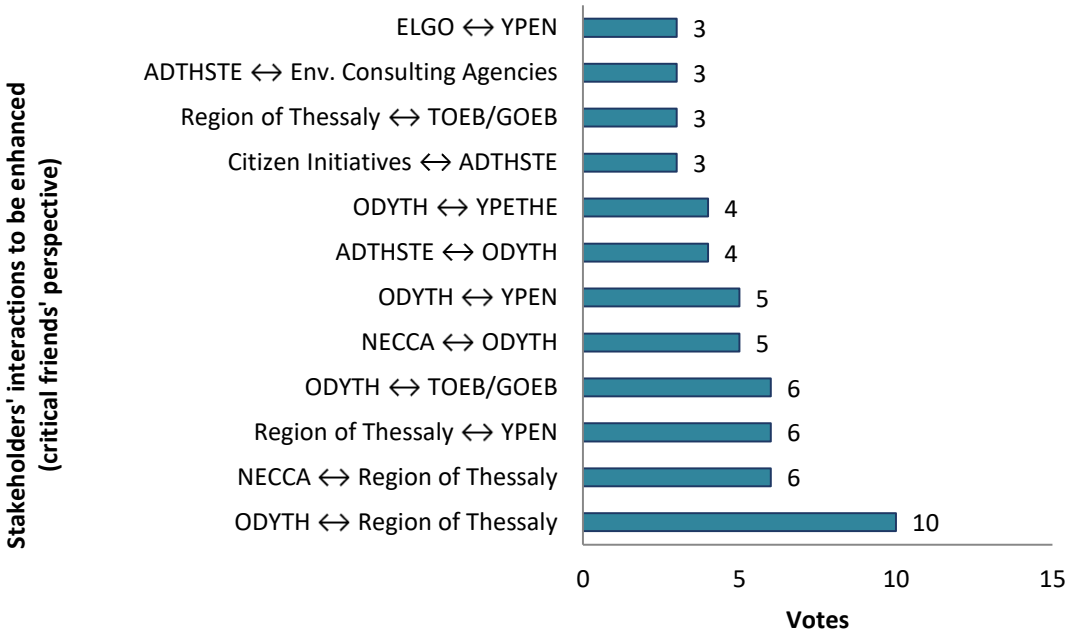


Figure 6 Stakeholders' relations most frequently flagged as problematic or/and in need of strengthening

This pattern confirms, with quantitative weight, the institutional fragmentation already surfaced in earlier meetings: the relation most urgently seen as needing improvements is not a single missing link but the core triangle of ODYTH, Region of Thessaly, and the national-level bodies (NECCA, YPEN) that share overlapping authority over the lake. The recurring presence of TOEB/GOEB (local irrigation organisation) alongside ODYTH (4 mentions) further points a second, less visible, line between the coordinating body and on-the-ground water-user organisation, while the mention of interrelation between YPETHE, an active citizen initiative with strong knowledge on Pinios basin, and ODYTH stresses the quest for a less top-down water governance.

Task 2: Voting on Bottlenecks and Enablers

Participants voted (up to 3 votes each) on the most significant bottlenecks and enablers.

A. Sociopolitical issues: Governance, Institutions & Society

Based on Critical Friends voting, overlapping institutional mandates and absent coordination emerged as the main barrier. Participants see that the lack of a strong, single entity holds definitive accountability as a governance barrier. However, low awareness, short-term convenience together with top-down centralization and performative consultations seem to signify a deeper problem of management, leadership and engagement, not just coordination. Thus, participants decisively identified ODYTH as the primary solution, advocating for a formal, legally grounded coordinating mandate. However, the substantial vote share for participatory enablers (citizen science, co-design with irrigators, multi-stakeholder working groups) demonstrates that participants feel more interested in an anchored central coordinator that facilitates genuine participatory co-management (Figure 7).

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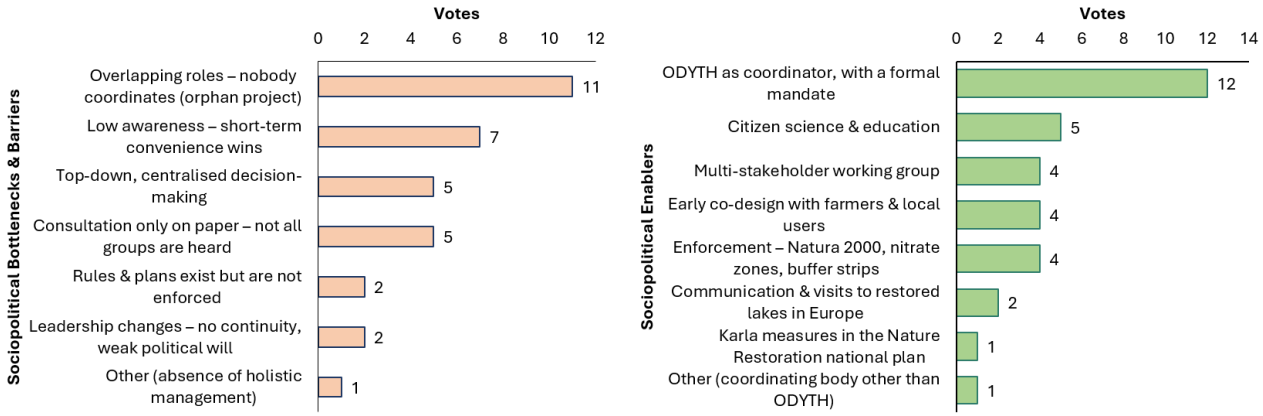


Figure 7 Bottlenecks and Enablers referred to sociopolitical issues in Lake Karla

B. Water & Environment issues: Hydrology, water quality, infrastructure

Regarding water and environment thematic area, participants agreed that the deterioration of canals, pumps, and non-functioning constructed wetlands highlight the necessity for dedicated multi-year maintenance budgets. Likewise, the barrier of data opacity is directly tied to the need for real-time monitoring. The results indicate that the participants know what needs to be done, yet the main challenge is the effective application and the maintenance beyond individual projects. The need for an effective water management approach is apparent also in how participants seem to perceive irrigation problems, but do not heavy believe that solutions like water reuse would be effective enablers (Figure 8).

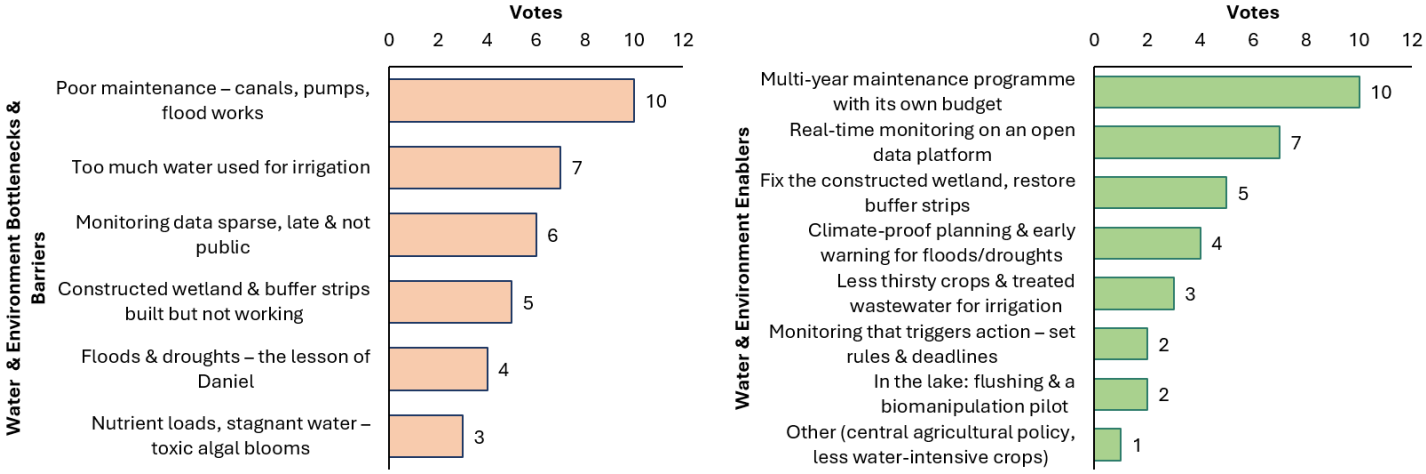


Figure 8 Bottlenecks and Enablers referred to water and environment issues in Lake Karla

C. Financial & Economic

The voting procedure underlined recurrent funding deficits and tied them directly to the absence of broader economic valuation. When Lake Karla is functionally treated only as an irrigation storage tank, justifying recurring state budgets for ecological monitoring, staff, and wetland maintenance becomes hard. Nevertheless, stakeholders prioritised and placed their hopes in developing eco-tourism, local branding, and fair water pricing. This demonstrates a conviction that the lake's socioeconomic value must be proven through diversified, direct local economy activities (Figure 9).

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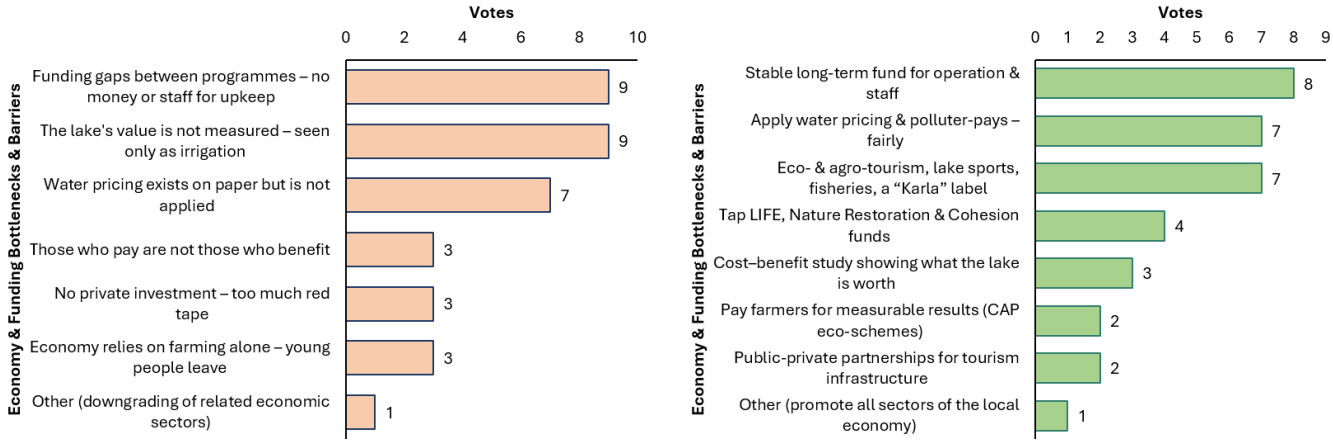


Figure 9 Bottlenecks and Enablers referred to economy and funding issues in Lake Karla

Task 3: Exploring Eco-tourism and Local Economy Pathways

Participants mapped Lake Karla's development potential across four key domains by evaluating existing assets, immediate requirements, and responsible implementers. Existing assets are largely seen as latent opportunities rather than mature products, revealing a significant implementation gap when contrasted with long-term regional development targets. Participants were asked to fill-in freely a matrix of sectors versus the status-quo and the actors. Namely they were asked to write in post-its "what we have", "what we need" and "who should do it/own it" and distribute it among: a) Nature (routes, spots of interest, birdwatching observatories etc.), b) Local products and pioneering eco-farms, c) Culture and heritage (landmarks, UNESCO heritage, traditional fishing methods etc.) and d) Recreation, sports and food.

- **Nature**: The area has strong potential (birdlife, walking corridors, and scenic viewpoints), but on-site infrastructure is sparse or degraded. Immediate needs require targeted actions, including marketing promotion, reparation, expansion and establishment of infrastructure, lake tour boats, and accommodation. Implementation demands cross-tier cooperation between NECCA, regional and municipal bodies, and private operators, anchored by ODYTH for basin-level coordination.
- **Local Products & Visitable Farms**: This represents the least developed sector, with low stakeholder awareness of existing initiatives. Unlocking value requires formal farmer-support mechanisms, direct farm-to-visitor networks, certification of local PDO (Protected Designation of Origin) products, and supporting infrastructure. Responsibility sits primarily with the Ministry of Rural Development, regional authorities, and local farming cooperatives.
- **Culture & Heritage**: Culturally, the area is rich (lake history, traditional fishing identity, archaeology), but essentially invisible to outside visitors. Priorities include national and international branding under a unified "Karla" label trademark, revitalizing traditional lake fishing practices, and establishing thematic museums/exhibitions. Implementation relies on the Ministry of Culture, municipal services, and local cultural/fishing associations.
- **Recreation, Sport & Food**: This sector exhibits the steepest deficit, currently limited to informal trail use and minimal food services. Critical requirements include the permission of water-related activities that could include structured water sports, organized recreational fishing, while working on basic tourism infrastructure, and streamlined regulatory permitting for eco-

tourism operators. Delivery requires regional and national ministries (Tourism, Environment) collaborating directly with private investors and sporting federations.

Conclusions

Mapping the bottlenecks and opportunities for Lake Karla in the third Critical Friends workshop pointed out that the main challenge is not the lack of assets, but the capacity to coordinate and sustain action. The ecological, cultural and economic ecosystem services potential is strong, particularly around nature tourism, traditional fishing and local products, yet the area remains underdeveloped and insufficiently visible. Unlocking these ecosystem services requires clear institutional leadership, stable resources, meaningful local participation and public–private cooperation. Therefore, effective development depends on a well-resourced coordinating body, with ODYTH being the most possible actor towards that, while working closely with regional and local authorities, to ensure integrated planning and long-term operational continuity.

According to participants' views, Lake Karla is undergoing a transition and changes can even be identified between the first and third Critical Friends workshops. ODYTH is expected to activate its full mandate, which also possibly would include lake's technical operation. Hydrologically, the lake has maintained water levels above its ecological limit during summer 2026 and some basic parameters from real-time monitoring are available online through the HCMR (Hellenic Centre for Marine Research) telemetry station. Concurrently, basin cultivation is shifting towards more dryland farming, trees and aromatics due to high costs, easing irrigation pressure while generating local products. However, critical challenges persist around unclear legislation on former lakebed encroachments, a lack of enforcement oversight, and the urgent need for a unified diagnostic report to address the system's structural vulnerabilities.

4.2 Lake Vansjø

Vansjø Lake lies in the municipalities of Moss, Råde, and Våler (Østfold, southeast Norway). The catchment is dominated by agriculture (notably grain) and forestry, serving as drinking water for 80,000 residents and a hub for recreation (boating, fishing, bathing). One of Norway's most agriculture-impacted catchments, Vansjø faces high phosphorus concentrations, phytoplankton biomass, and cyanobacterial blooms since the 1970s, prompting periodical beach closures. Since 1999, the Morsa Project—now under Vannområdeutvalget Morsa coordinates stakeholders (agriculture, water, municipalities) via working groups. Measures include reduced P fertiliser/manure, autumn tillage bans, 10-m buffer zones, wetlands and wastewater upgrades.

As shown in the stakeholder mapping report (Szulecka, 2025), Lake Vansjø governance has been institutionalized and has a defined structure, through meetings of the Morsa River Basin District Organisation, and the thematic groups meet several times per year. It already brings various stakeholders together and gives observer status to diverse interest groups. This allows information sharing on measures, how to implement measures, use of extension services, advisory services, workshops and collaboration with research institutions. Furthermore, Morsa is a sub-district within the wider regional context of the WFD's Glomma River Basin District (RBD).

Critical Friends activities at Vansjø aimed to bring the perspective of new stakeholders to deliver more inclusive water governance, especially targeting the downstream stakeholders with a strong interest in further implementation of measures to reduce pollution from the Oslofjord catchment, which includes

Vansjø. Thematically, the activities focused on the topic of nitrogen runoff that connects lake and marine governance. The western part of Lake Vansjø, which has been most heavily eutrophicated, drains directly into the Oslofjord, which is currently heavily polluted, with high concentrations of nitrogen and a loss of biodiversity and fisheries. There is therefore need for more knowledge and actions on treatment systems for nitrogen. The Critical Friends group aims to bring together already active stakeholders from the agricultural sector, both governments and local interest organisations, with scientists with knowledge on nitrogen runoff from catchments and processing through lakes, and with stakeholders connected to the Oslofjord.

First workshop, 29th January 2026

Workshop participants and format

The workshop was held on January 29th at Vitenparken, a science center for environment and sustainability located on the NMBU (Norwegian University of Life Sciences) campus in Ås, Akershus, Norway. It was connected to the regular meetings of the Morsa Agricultural Group.

The meeting was organized in two parts. Before lunch, the Agricultural Group went through its regular agenda with regional water management plans, changes in regional environmental standards, new fertiliser regulations, project applications to the Norwegian Environmental Agency, tree planting initiatives etc. After lunch (Photo 8), it focused on nitrogen measures and collaboration possibilities linked to the Critical Friends activities in FutureLakes. A concrete entry point was a strategic initiative of Follo (an upstream municipality) to reduce nitrogen inputs from agricultural land to the Oslofjord. The Follo representative presented ideas for a strategic initiative in Follo to reduce nitrogen inputs from agricultural land to the Oslofjord.

The NIVA team presented FutureLakes and the Critical Friends activities and discussed possible collaboration with the focus on nitrogen measures in agriculture (Photo 9 and 10).



Photo 8 Lunch for the participants

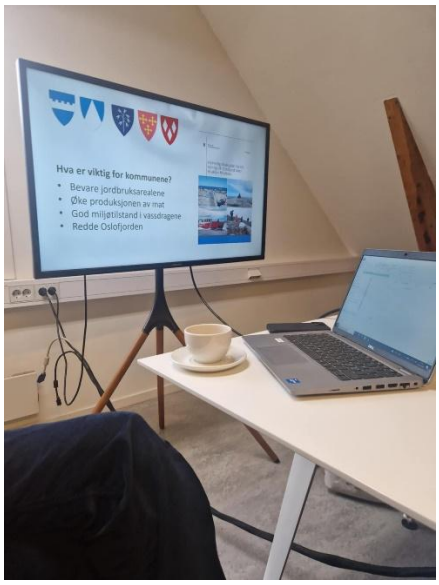


Photo 9 Presentations



Photo 10 Discussion

A total of 15 participants attended the meeting. The participants represented public-sector institutions (with numerous municipality representatives, County Governor and Morsa Water Area), representatives of farmers associations and research organisations (NIVA and NIBIO).

Key Issues and Stakeholders' perspectives

A key priority is to strengthen farmers' fertilisation and agronomic competencies through collaboration between NMBU, NIBIO, the Norwegian Agricultural Advisory Service, Aggrator, and relevant authorities. Stakeholders highlighted the need for targeted training, better knowledge exchange, stronger professional networks, practical documentation of successful measures, and dedicated funding mechanisms. The initiative builds on existing efforts, including Follo's nitrogen reduction strategy, and leverages knowledge, partnerships, and experiences to support more sustainable nutrient management and reduced nitrogen losses to water bodies.

Conclusions

The FutureLakes Critical Friends' meeting in January 2026 identified a common interest to work together on nitrogen runoff. As a next step, a strategic initiative to reduce nitrogen inputs from agricultural land to the Oslofjord, while maintaining food production is planned as a think tank session. It has been scheduled as a half-day session in Ås with in-person participation. The purpose of the session was to develop and refine a focused strategic initiative that will serve as the basis for an application for funding under Akershus County's Oslofjord Initiative. The participants in the think tank are key actors considered essential both for planning the activity and for contributing to the continued work following the meeting.

Second workshop, 12th March 2026

The previous FutureLakes Critical Friends' meeting in January 2026 identified a common interest and plan to work together on nitrogen runoff. As a next step, a strategic initiative to reduce nitrogen inputs from agricultural land to the Oslofjord, while maintaining food production was planned. This was held as a think tank session on March 12th, at 09:00-13:00 in Ås with in-person participation. The purpose of this session was to develop and refine a focused strategic initiative that will serve as the basis for an application for funding under Akershus County's Oslofjord Initiative.

Workshop participants and format

The composition of the stakeholders in the think tank was broader as compared to the first Critical Friends meeting. All participants are key actors considered essential for the development and implementation of the planned initiative. A total of 19 participants attended the workshop, representing public-sector institutions, representatives of farmers associations and farmers, university (NMBU), and research organisation and initiatives (NIBIO, Aggrator and NIVA).

The meeting started with an introduction from the initiators of the strategic initiative (Follo agricultural office and NMBU), defining the main aim of the meeting, which was to concretize and sharpen the initiative for reduced export of nitrogen to the Oslofjord from the agricultural areas of the included counties (Akershus and Østfold) while sustaining food production. Secondly, Sigrid Haande (NIVA) presented the Future Lakes project, including the Critical Friends activities (Photo 11).

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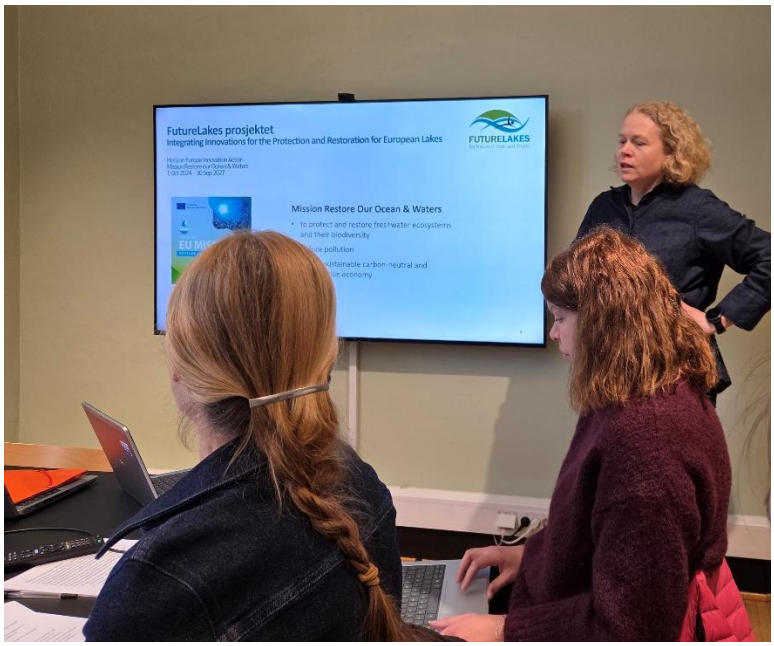


Photo 11 Presentation of Future Lakes

Further, a representative for the farmers' association in Akershus presented an ongoing, relevant project "the Oslofjord farmer", which focuses on implementing measures for reducing nitrogen runoff from agricultural areas, and where communication and information exchange between farmers are an important part.

The meeting went on with every organisation putting forward their wishes and potential contributions to the planned project, and with discussions on aims and expected results.

The rest of the meeting was carried out in two sessions of activities, where each organisation worked together as a group, discussing and concretizing the sup-goals and objectives of the planned project, before discussing this in plenum. Some areas of focus that were highlighted:

- Important to include several types of stakeholders, and cooperate all the way from the agricultural landscape to the catchments, to the Oslofjord
- Bringing the nitrogen issue into teaching (university level), and using this as a platform for communication
- It was emphasized that nitrogen runoff from agricultural areas that are transported to lakes before entering the Oslofjord will change both form (inorganic/organic) and also concentration due to processes in the lakes. More research on this is needed
- Importance of documenting effects of measures that are implemented, e.g. for motivation for the farmers that are doing the work. Grants are also needed in order to involve all farmers
- Need for more focus on the positive contributions from farmers that are already happening, instead of pointing fingers and blaming agriculture for the problems in the Oslofjord

- Use meeting places that already exist and provide communication material for e.g. municipalities



Photo 12 Group work and discussions



Photo 13 Group work and discussions



Photo 14 Group work and discussions

Conclusions and further plans

The Critical Friends group will continue to work on this initiative and apply for funding to the Akershus County's Oslofjord Initiative which has a deadline 16th April 2026. NIVA in cooperation with the Morsa Water Area should arrange a third Critical Friends meeting as part of the regular Morsa Water Area board meetings 20th May 2026.

Third workshop, 20th May 2026

During the first two FutureLakes Critical Friends meetings (January and March 2026) a common interest to work together on nitrogen runoff was identified, and a strategic initiative was developed, leading to an application for funding under the Akershus County's Oslofjord Initiative. The purpose of the project was to work together to reduce nitrogen inputs from agricultural land to the Oslofjord, while maintaining food production. The third Critical Friends meeting was held in combination with a planned board meeting in the Morsa Water Area in May 2026.

Workshop participants and format

The assembly of participants in the third meeting was somewhat different from the first two Critical Friends meetings, but with several participants being present in all three meetings. 19 participants attended the meeting, including the Morsa Water board with members and observers (Figure 10), consisting of representatives from municipalities, public-sector institutions, farmers associations, research organisation and NGOs.

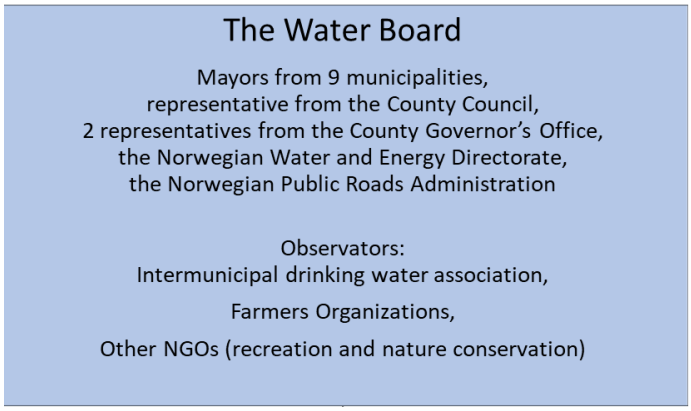


Figure 10 The Morsa Water Board

The third Critical Friends meeting was held on 20 May 2026 at NMBU in Ås and was hosted by the Morsa Water Area during its biannual board meeting. The session began as a regular board meeting and was opened by the board chair, who is also the mayor of Våler municipality. Representatives from NIVA and NIBIO presented the latest results from the 2025 monitoring of Lake Vansjø and the Morsa catchment, providing an overview of current water quality conditions and ongoing environmental challenges (Photo 15). The leader of the Morsa organisation then outlined expectations regarding the new Oslofjord Plan, scheduled for publication on 26 May 2026, and discussed its anticipated implications for future measures and funding opportunities in the region. Building on discussions from the second Critical Friends meeting, a representative from the Follo Agricultural Office presented a joint project proposal aimed at addressing nutrient management challenges in the catchment (Photo 16 and 17). Finally, NIVA introduced the FutureLakes project and summarized the Critical Friends activities, highlighting progress made in stakeholder engagement and collaborative planning for nitrogen measures and downstream stakeholder collaboration (Photo 18).



Photo 15 Presentation of the 2025 monitoring results



Photo 16 Presentation of the work done in Follo

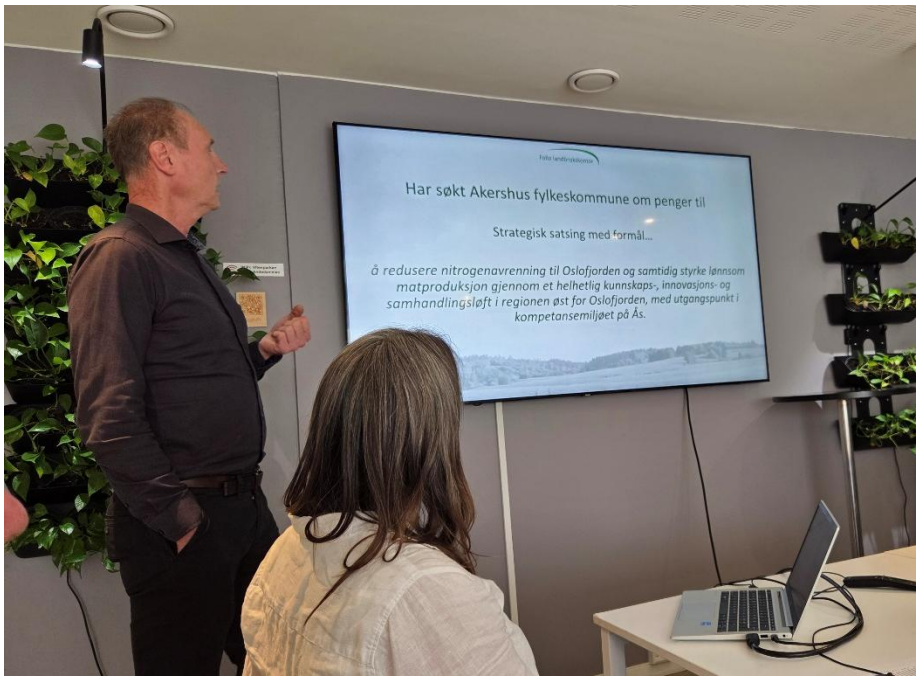


Photo 17 Presentation of the joint initiative project application



Photo 18 Presentation of Future Lakes



Photo 19 The "duck pond" (Andedammen) at the NMBU Campus and Vitenparken in Ås

Conclusions and further plans

The Critical Friends group will continue to work on this initiative. After the meeting, the group was informed that the proposed project was funded by the Akershus County's Oslofjord Initiative. The planning will start during the summer, while the work will begin in September 2026. Hopefully, this cooperation will continue also with other proposals and projects in the future.

4.3 Kartuzy Lakes

The Kartuzy Lakes, a connected system of Mielenko, Karczemne, Klasztorne Duże, and Klasztorne Małe, lie within the town of Kartuzy in northern Poland's Pomeranian Voivodeship. After decades of severe pollution from untreated municipal and industrial wastewater throughout the 20th century, comprehensive restoration efforts were undertaken, including modernisation of stormwater infrastructure, construction of retention reservoirs, and installation of pre-treatment systems. A multi-step restoration project launched in 2018 applied phosphorus inactivation and introduced an innovative circular-economy approach by converting polluted sediments into agricultural fertiliser. Biomanipulation through the introduction of predatory fish helped maintain chemical restoration effects. Completed in 2023, the project now focuses on monitoring and supporting local economic development through improved fisheries, recreation, and tourism.

As shown in the stakeholder mapping report (Szulecka, 2025), stakeholder engagement around the Kartuzy Lakes as assessed by local experts using the OECD framework, was categorised as a "partnership," bringing some stakeholder collaborations supported by shared goals and clear expectations. Civic dialogue and environmental education, facilitated through the Kartuzy Culture

Centre and dedicated project communication, further strengthened collaboration. However, it is still fragmented across the stakeholders' landscapes and vulnerable.

Critical Friends activities at the Kartuzy Lakes aimed at bringing the perspective of inclusive water governance and keep stakeholder interactions planning future vision and action, especially relevant after the end of the restoration project funding and activities. Critical Friends group meetings should have widened the stakeholder network around the lake. Furthermore, recent storm water problems were selected as relevant discussion point to bring more resilience and local ownership while facing this problem.

First workshop, 27th February 2026

Workshop participants and format

The workshop was held on February 27th at the Kartuzy City Office. FutureLakes team presented the project and Critical Friends activities and discussed possible collaboration (Photo 20).



Photo 20 Presentation and planning of Critical Friends activities in Kartuzy



Photo 21 Discussions with the Critical Friends

A total of 10 participants attended the meeting. The participants represented public-sector institutions (Kartuzy Municipality, Kartuzy Water and Sewage Company (KPWiK)), accompanied by the representatives from the Polish Angling Association, Tourist organisation and research organisation (University of Warmia and Mazury in Olsztyn and NIVA) (Photo 21). Many additional invited stakeholders (e.g. Polish Waters) did not accept the meeting invitation.

Key Issues and Stakeholders' perspectives

The meeting was held as an interactive session, with introductory presentations of the FutureLakes project and followed by discussions with the Critical Friends. Main key issues encompasses sewage, stormwater, winter oxygen depletion, and illegal waste dumping.

- Monitoring of illegal sewage: temperature monitoring sondes are widely used in lake sewage surveillance because warmwater signals often indicate the inflow of untreated or partially treated wastewater. Sewage effluent is typically warmer than natural lake water, especially in colder seasons, so continuous temperature measurements allow sondes to detect abnormal thermal spikes that may reveal illicit discharges, sewer overflows, or failures in stormwater–sewage systems. This has been successfully applied last year, and end of winter/ early spring is approaching and is the best time for such monitoring

- Low oxygen levels: currently observed at Klasztorne Małe Lake, dangerously low oxygen levels under the ice, especially when the ice cover is thick and snow blocks sunlight. Without light, photosynthesis drops and oxygen is no longer replenished, while organic matter continues to decompose and consume the remaining oxygen. In such conditions, fish and other aquatic organisms may suffer from oxygen depletion, leading to winterkills. Planned actions will involve the local fire fighters
- Discussion of possible education for local community garden/ allotment garden plots, surrounding the lakes. Even seemingly minor issues (improper greywater disposal, or the overuse of fertilisers on small garden plots) can introduce nutrients and pollutants into the lake. Because many homeowners are not fully aware of how their daily practices affect water quality, targeted environmental education is essential
- Illegal dumping of bulky waste and household rubbish into lakes and rivers remains a serious environmental problem, contributing to pollution, harming wildlife, and degrading recreational areas. To counteract this, there have already been local clean-up actions, where groups work together to remove accumulated debris. Discussion about new activities on Klasztorna Struga river and Kartuzy Lakes, plans for divers cleaning litter from the bottom of the lake/river. Here some synergies with the FutureLakes project were discussed, to dedicate some citizen science activities planned in T2.4 to cleanups.
- Issues of land ownership around Kartuzy Lakes, state treasure vs. private ownership; regulations vs. practice
- Plans for a field study trip of FutureLakes and meetings with the local stakeholders.

Conclusions

FutureLakes Critical Friends' meeting in February 2026 established the Critical Friends group and opened a new forum for discussions of current and future lake related issues. As a next step, the group will meet for two more workshops with follow-up activities for more inclusive water governance.

Second workshop, 27th May 2026

The technical restoration of Kartuzy Lakes, (a river-lake system consisting of four urban lakes, connected by Klasztorna Struga River) was performed in the period 2019-2023, after previous sewerage system modernization in the catchment and cutting-off the raw sewage inflow. After completing the phosphorus inactivation and biomanipulation of the fish structure on three lakes (Mielenko, Klasztorne Małe and Klasztorne Duże) water quality was improved. But the most polluted Karczemne Lake, which is the second in the Klasztorna Struga River cascade, after restoration still shows symptoms of advanced eutrophication. Karczemne Lake was restored using sequenced methods (sediment removal, P inactivation and biomanipulation of the fish structure). But climate change poses new challenges to Karczemne Lake's protection because of incidental external loading. After heavy rain incidents the lake is alimented by storm sewage, which is problematic in maintaining the positive restoration effects. Hence, the protection of positive restoration effects obtained on Klasztorne Lakes from the Karczemne Lake outflow is the most important issue of proposed discussion.

The municipal recreational beach will be officially opened July, 1st 2026 at the shore of Klasztorne Duże Lake. The recreational infrastructure is improving after the successful lake restoration and directed at

active citizens and tourists. Hence the most attention of Kartuzy Lakes stakeholders is connected to having good water quality in the recreational area.



Photo 22 Recreational beach in Kartuzy

Workshop participants and format

The meeting was held on May 27th at the Kartuzy City Office. FutureLakes team asked Kartuzy Municipality to host the meeting. Discussion was directed into Kartuzy Lakes water quality, restoration status and planned actions for mitigation of the influence of Klasztorna Struga River on the Klasztorne Lakes. Critical Friends also discussed possible collaboration areas in the next months.

A total of 9 participants attended the meeting. The participants represented public-sector institutions (Kartuzy Municipality, Kartuzy Water and Sewage Company (KPWiK)), and research organisation (University of Warmia and Mazury in Olsztyn).

Key Issues and Stakeholders' perspectives

- Discussion on the results of monitoring of potential illegal sewage inflow to Karczemne Lake: advanced temperature monitoring was done on lake. Results showed places with higher water temperature, which can be sign of suspected inflows. KPWiK Stakeholder was informed about the results and together with the municipality they will check the flagged areas. The municipal actors also checked the sewage management documents (citizens statements) in the direct catchment area, which can be helpful in further work.
- UWM shared their field observation results about present hydrological situation on Klasztorna Struga River. Now the flow is extremely low due to previous dry months, despite the snowy winter 2025/26. The NbS solutions are planned for installation in 2026, hence, to maintaining low water flow rate is necessary for this action.
- The first Citizen Science action (FutureLakes activity under T2.4) was very successful. Involved divers removed about 60 kg of litter from Klasztorne Małe Lake. Divers were invited to the next

action in September. Plans for next Citizen Science activities around Kartuzy Lakes were discussed. The proposed date was 30.05.2026 during International Children's Day Festival. FutureLakes project team will also attend other festivals organized by municipality during summer, presenting FutureLakes project to the people and organizing next Citizen Science actions.

Conclusions

FutureLakes Critical Friends' meeting in May 2026 confirmed the leading role of the Kartuzy Municipality among Kartuzy Lakes stakeholders. The group is very consolidated and opened for new activities and challenges.

Third workshop, 27th August 2026

The third Critical Friends meeting in Kartuzy was dedicated to exploring future visions for the Kartuzy Lakes for the distant future. The workshop applied the UNESCO Futures Literacy Laboratory (FLL) methodology, which encourages participants to use the future as a tool for reflection, learning, and informed decision-making in the present. Through a series of participatory exercises, stakeholders were invited to imagine and discuss alternative futures, including desirable, provocative, and reflective scenarios for the year 2076 (Photo 23, 24 and 25).

Workshop participants and format

The meeting was held on August 27th at the Kartuzy City Office. The FutureLakes team asked Kartuzy Municipality to host the meeting. A total of 10 participants attended the meeting. The participants represented public-sector institutions (Kartuzy Municipality, Kartuzy Water and Sewage Company (KPWiK), tourist and research organisation (University of Warmia and Mazury in Olsztyn and NIVA in Norway).



Photo 23 Presenting UNESCO Future Literacy Lab methodology



Photo 24 Future scenario discussions



Photo 25 Future scenario discussions

The visions were developed using the UNESCO Future Literacy Labs methodology. The scenario summaries discussed by the Critical Friends are presented below. The session was particularly dynamic, fostering creative thinking and several "out-of-the-box" ideas about the future of the lake and its catchment (Photo 26).

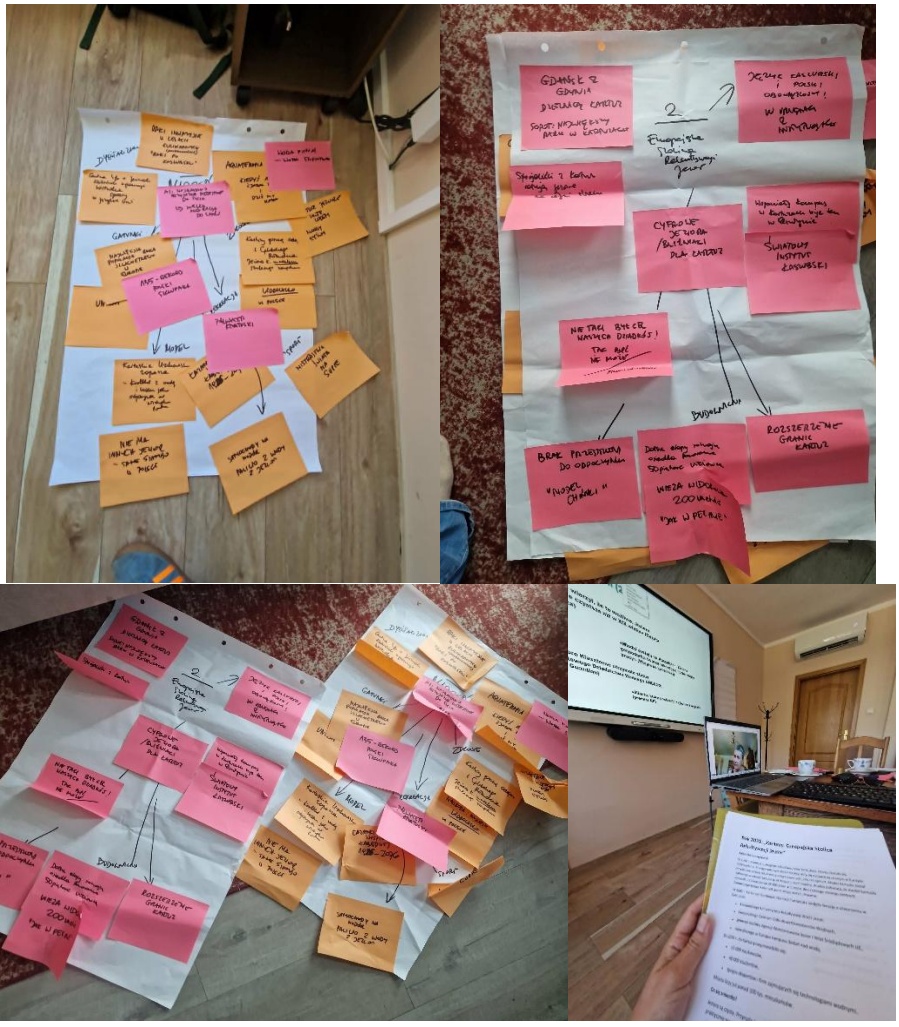


Photo 26 Participatory scenario development outlined in post-it notes by participants

Dream Scenario

The workshop participants developed a highly optimistic and aspirational vision of the Kartuzy Lakes in 2076. In this "dream scenario", the lakes are no longer viewed merely as valuable natural assets, but as the cornerstone of a thriving regional identity, economy, and way of life. Participants imagined a future in which decades of successful restoration and stewardship have transformed the Kartuzy Lakes into a nationally and internationally recognised example of how healthy aquatic ecosystems can support both human well-being and sustainable development.

According to this vision, the exceptional quality of the lakes' water has become a defining feature of the region. The lakes provide high-quality drinking water and are even associated with premium drinking water for exports, serving as a symbol of environmental excellence. Participants envisioned Kartuzy receiving national recognition as Poland's leading health resort, with the lakes and surrounding forests forming the basis of a unique wellness destination. In a society heavily dependent on the virtual environments, contact with water and nature is seen as a precious form of recreation and recovery. Aquatherapy, nature-based health treatments, and outdoor experiences attract visitors tired with digital lifestyles, while virtual reality tours of the lakes help showcase the region to global audiences.

Workshop participants also highlighted ecological recovery as one of the key achievements of this future. The noble crayfish (*Astacus astacus*), once threatened across Europe, has become an iconic symbol of restoration success. In this scenario, the Kartuzy region hosts the largest population of noble crayfish on the continent, demonstrating the exceptional ecological condition of local waters. The species is celebrated both as an indicator of environmental quality and as part of regional culinary traditions (but with invasive *American crayfish*).

The envisioned future is characterized by a high quality of life and strong connections between people and their environment. Participants described the Kartuzy region as one of the most attractive and liveable places in Europe, where clean water, access to nature, and vibrant public spaces support community well-being. The area has become a destination for delegations from around the world, particularly from countries of the Global South, seeking inspiration from Kashubia's experience in water governance, ecological restoration, and sustainable regional development. In this vision, the region serves as an international model of how communities can successfully adapt to environmental and climate challenges.

The lakes themselves once again play a central role in everyday life and recreation. Participants imagined winters cold enough for all lakes to freeze, bringing back traditions such as ice skating and winter swimming. During the summer, the region hosts major international sporting events, including the World Championships in Stand-Up Paddleboarding. The lakes are also renowned for their fisheries, symbolized by a record-breaking 135-centimetre pike caught in 2076.

A particularly powerful symbol within this scenario is Swan Island in Kartuzy. Workshop participants recalled that the island's public bathing facilities were once a vibrant social and recreational hub. In their vision for 2076, exactly 150 years after their opening, the baths have been fully restored and reimagined, once again becoming a focal point of community life, culture, recreation, and connection to the water.

Finally, participants associated the lakes with innovation and sustainability. They envisioned a region where hydrogen-powered vehicles are commonplace, supported by renewable-energy systems linked

to local water resources. In this future, water is seen as an important resource supporting climate-neutral mobility and economic development.

Overall, the dream scenario reflects a future in which the Kartuzy Lakes have become a symbol of successful ecological restoration and a source of regional pride. Workshop participants portrayed a landscape where clean water, thriving ecosystems, cultural heritage, recreation, health, and innovation are closely interconnected, creating a model for sustainable living that attracts attention far beyond Kashubia.

Reframing Scenario

For this scenario, some provocative opening has been prepared by the facilitators to stimulate more visions and discussions:

Year 2076: "Kartuzy. European Capital of Lake Restoration"
A Message from the Future
In 2048, the restoration programme for the Kartuzy Lakes was completed. The results proved spectacular. Over the following decades, Kartuzy became Europe's most renowned example of successful urban lake restoration. The "Kartuzy model" was subsequently adopted in hundreds of locations, from Spain to Finland. Analyses indicate that this approach has helped save more than 20,000 lakes across Europe. However, experts warn that without further expansion of the region's research capacity, thousands of additional lakes may still be lost.
In 2065, the European Parliament and the European Commission decided to establish in Kartuzy:
- The European University of Water and Lake Restoration,
- The European Centre for Aquatic Ecosystem Recovery,
- The headquarters of the EU Agency for Lake and Inland Water Monitoring,
- Europe's largest water research campus.

By 2076, Kartuzy had attracted:
- 15,000 researchers,
- 40,000 students,
- thousands of experts and companies specializing in water technologies.

The town's population has now surpassed 100,000 residents.
What Has Changed?
The lakes are clean. Nature is thriving. The regional economy is prosperous. Unemployment has virtually disappeared.
However, new challenges have emerged:
- Housing prices are the highest in the Pomeranian region.
- Many local residents can no longer afford to purchase property.
- English has become the dominant language in public spaces.
- Traditional Kashubian culture has increasingly been reduced to a tourist attraction.
- Most decisions concerning the lakes are made by international experts rather than local communities.

Roles for the Future Laboratory
Workshop participants may represent their current institutions, roles, or professional functions. However, they are encouraged to experiment with alternative and creative perspectives, such as:
- Mayor of Kartuzy,
- Owner of a guesthouse or tourism business,

- Representative of the younger generation (aged 20),
- Retired resident living by one of the lakes,
- An AI representing the interests of the lakes,
- Environmental NGO representative,
- Technology entrepreneur,
- Representative of future generations from the year 2126,
- Advocate for fish and waterbirds,
- Spokesperson for the lakes,
- EU Commissioner for Water,
- Curator of the Kashubian Museum,
- Representative of the Polish government

Participants developed a provocative scenario in which Kartuzy's globally celebrated success in lake restoration leads to rapid growth and unintended consequences. By 2076, the town has become an international centre of expertise in water management, with local specialists restoring lakes around the world and a world-class research campus attracting thousands of researchers and students.

The city has expanded dramatically. New high-rise developments dominate the skyline, including 50-metre residential towers and a 200-metre observation tower inspired by major global cities. In a humorous exaggeration, participants imagined Gdańsk and Gdynia becoming districts of Kartuzy, while Sopot serves as its largest urban park. Sophisticated digital twins monitor and manage the lakes, making Kartuzy a leader in environmental technology.

However, participants questioned whether growth had gone too far. Despite economic prosperity and environmental success, there is less space for recreation, tranquillity, and everyday contact with nature. The region increasingly resembles a highly efficient but densely developed global city. In a symbolic speech imagined for 2076, the mayor reflects that "this was not what our grandparents intended," calling for a reconsideration of the development model.

At the same time, concerns about cultural identity have led to efforts to strengthen local heritage. Kashubian and Polish are compulsory in public institutions, and a World Kashubian Institute has been established to preserve regional culture in an increasingly international city.

Overall, the scenario explores a central tension: how to balance global success, technological innovation, and economic growth with local identity, quality of life, and the original vision of living in close connection with the lakes.

Reflection Scenario

In the final reflection exercise, participants moved away from spectacular future visions and focused instead on the conditions necessary to sustain healthy lakes over the long term. The discussion emphasized responsibility, shared goals, and the recognition that lake restoration is not a one-time intervention but an ongoing process of care, learning, and adaptation.

Participants stressed that restoring and protecting the Kartuzy Lakes requires collective responsibility across institutions, communities, and generations. Some even suggested that, if necessary, urban development should be redirected away from the most vulnerable lake areas, symbolically "moving the

city elsewhere" rather than continuing to put pressure on aquatic ecosystems. This idea reflected a broader commitment to placing the needs of the lakes at the centre of planning and decision-making.

Education emerged as a key pillar of this future. Participants envisioned ecological education beginning in kindergarten and continuing throughout life. Simple and visual tools, such as aquarium-style cross-sectional models of lakes, would help residents understand how lake ecosystem's function and how human activities affect them. Building ecological awareness from an early age was seen as essential for creating a long-term culture of stewardship.

A recurring theme was prevention rather than reaction. Participants argued that lake protection should focus on early intervention, continuous monitoring, and addressing problems before they become severe. In this vision, restoration is understood as a process of recovery and convalescence for the lakes, requiring patience, long-term commitment, and regular maintenance rather than short-term projects.

The scenario also highlighted the importance of strong institutions and cooperation. Local authorities, water utilities, environmental agencies, NGOs, and community leaders all play active roles in protecting the lakes. Monitoring systems combine satellite observations with local measurements, while publicly accessible platforms provide information on water quality, pollution hotspots, and ecosystem health. Participants envisioned strengthened local institutions with greater resources for continuous monitoring, protective measures, and treatment of pollution in lake tributaries.

Overall, the reflection scenario portrays a future in which the health of the Kartuzy Lakes is maintained not through a single technological breakthrough or restoration project, but through a shared commitment to learning, prevention, monitoring, and collective responsibility. In this vision, successful lake management is understood as a continuous journey rather than a destination.

Conclusions

Participants provided positive feedback on the workshop. The workshop created a space for open and creative thinking that extended beyond day-to-day management challenges and encouraged participants to consider long-term possibilities and trade-offs. The Critical Friends group in Kartuzy consolidated through the workshops. The municipal actors are very engaged but showing also a strong willingness to dialogue and collaboration with other sectors and actor types. Critical Friends workshop helped expand citizen science activities, planning NBS solutions and stormwater monitoring.

5. Evaluating Critical Friends activities

5.1 Engagement methods and practical considerations

A diverse set of methods was employed across the workshops, including interactive presentations, structured discussions, group work, questionnaires, foresight approaches, and funding application co-creation. Importantly, the workshops were designed to be problem-driven rather than method-driven. Methods were therefore selected and adapted iteratively to fit the specific objectives, context, and participant needs of each workshop, with a particular emphasis on creating meaningful and valuable interactions with the Critical Friends and supporting mutual learning and reflection.

Interactive presentations: Short presentations combined with active participant involvement, allowing for questions, feedback, and knowledge exchange throughout the session. FutureLakes team members

often presented and discussed the project, monitoring data, key issues of restoration and post-restoration challenges (Greece, Norway, Poland).

Structured discussions: Facilitated discussions guided by predefined questions or themes to encourage focused reflection and dialogue among participants (Greece, Norway, Poland).

Group work: Small-group activities designed to explore specific topics, develop ideas collaboratively, and generate shared outputs (Greece, Norway, Poland).

Questionnaires: Surveys used to gather stakeholder perspectives, experiences, priorities, and feedback in a systematic manner (Greece).

Foresight methods: Participatory exercises that encourage stakeholders to explore alternative futures, identify emerging challenges and opportunities, and reflect on long-term implications for decision-making. UNESCO Future Literacy Lab was an inspiration for practically conducting the foresight exercises in Greece and Poland (Greece, Poland).

Funding application co-creation: A collaborative process in which stakeholders jointly apply for funding (Norway).

The choice and application of methods were also adjusted to the characteristics of the different case studies, which exhibited varying levels of stakeholder involvement, collaboration, and governance openness, as analysed in D2.1 (Szulecka, 2025). The Norwegian Demonstration Site benefited from a long-standing tradition of broad participation and stakeholder engagement, allowing for more collaborative and co-creative approaches. In contrast, the Greek and Polish Demonstration Sites represented contexts where stakeholder participation was comparatively less developed and could progress further along the spectrum of engagement described by Arnstein's ladder of citizen participation (Arnstein, 1969; Hurlbert and Gupta, 2015). Consequently, workshop methods were tailored to the governance context of each case, seeking both to accommodate existing practices and to encourage more inclusive forms of engagement where appropriate.

Interactive presentations, group work, and structured discussions were used across all Demo Sites, providing a common engagement format. At the same time, methods were adapted to the specific governance context, stakeholder capacity, and maturity of engagement processes in each case. For example, the foresight exercise developed with the UNESCO Futures Literacy approach was implemented in the Greek and Polish Demonstration Sites, where it offered a valuable opportunity to stimulate reflection on future challenges and opportunities. However, this method was not applied in Norway, as it was considered too time-intensive for a stakeholder group already facing significant demands on their time. Participants in the Greek scenario workshop were initially reluctant to apply the UNESCO method and its reframing scenarios but managed to engage and the last scenario session revealed many shared visions in the group.

The UNESCO Futures Literacy method was also adapted to the specific needs and contexts of the Demonstration Sites. While the original approach is designed to encourage reflection on distant futures, the time horizons were adjusted to better suit stakeholder preferences and facilitate meaningful discussions. In Greece, a shorter time horizon of approximately 25 years was adopted, as the local team considered this timeframe more conducive to realistic and actionable reflections on future challenges

and opportunities. In Poland, a longer horizon of around 50 years was retained to encourage participants to think beyond current constraints and explore more transformative futures. These adaptations demonstrate the flexible application of the method and the project's commitment to tailoring engagement processes to the needs and capacities of stakeholders rather than adhering rigidly to predefined methodological protocols.

The most advanced form of engagement was the co-creation of a funding application, which was only feasible in the Norwegian Demo Site. This reflected the maturity of stakeholder relationships and the high level of trust, goal alignment, and collaborative capacity that had developed over time. In this context, stakeholders were able to move beyond consultation and dialogue towards more proactive forms of co-creation collaboration. It was also possible because of an available funding scheme that focuses on the environmental health and restoration of the Oslofjord. For Karla Lake, questionnaires were also used to better understand Critical Friends' perspectives on fragmented governance, challenges, opportunities and ways forward. Questionnaires were not considered by the Polish team, as the relatively small Critical Friends group around Kartuzy were easily able to structure discussions and stormwater and post-restoration plans did not require such methods.

Efforts were also made to minimize stakeholder fatigue and reduce participation burdens. Activities were scheduled at times that were feasible and convenient for stakeholders, and, where possible, engagement was aligned with existing meetings and processes. For example, in the Norwegian case, several workshop activities were integrated with established stakeholder meetings, helping to maximize participation while respecting stakeholders' time constraints and existing commitments. Critical Friends workshops took between 2 and 4 hours and agendas and methods were adjusted to the available time. Some challenges with workshop organisation were encountered especially for the last workshops in Poland and Greece due to the summer holiday period. When recruitment was difficult, local teams decided to postpone the workshops to more convenient time.

5.2 Representation

The Critical Friends workshop series attracted altogether 137 attendances across nine physical workshops (55 for Lake Karla, 53 for Lake Vansjø and 29 for the Kartuzy Lakes). Repeated participation by many stakeholders demonstrated continued interest, commitment, and engagement throughout the workshop process.

Participation outcomes should be interpreted against the recruitment targets established for each Demo Site. Lake Karla had the highest expected participation, with a target of 15-20 participants, while both Vansjø and Kartuzy Lakes aimed to recruit 10-15 participants (Table 2). Actual participation in Karla was in line with the upper range of expectations, demonstrating strong stakeholder interest despite the site's relatively low starting level of collaborative maturity. In Vansjø, participation exceeded expectations, indicating that stakeholders remained willing to engage when discussions were linked to a timely and locally relevant issue. In Kartuzy, participation was slightly below expectations. This can partly be attributed to practical circumstances, as some activities were conducted during the summer holiday period which reduced stakeholder availability. Also new institutions and personal discontinuation made some recruitment difficult, as building dialogue, trust and collaboration require time and commitment. Similar logistical challenges affected participation in other cases: the final workshop in Karla had to be rescheduled at short notice, while the final workshop in Kartuzy was

organized during the summer vacation season. These experiences underscore the importance of timing and flexibility in the organisation of participatory processes. It was also challenging to record participants representation as some stakeholders had dual roles (being employed in the public sector but also being members of NGOs and community organisations). This is a value added to bring more nuanced perspectives to the workshops, but difficult for stakeholder monitoring and reporting. In that case main professional affiliations were chosen.

Table 2 Expected and actual participation

Lake Karla	Lake Vansjø	Kartuzy Lakes
Expected 15-20 participants	Expected 10-15 participants	Expected 10-15 participants
First workshop: 21 Second workshop: 19 Third workshop: 15	15 19 19	10 9 10

Across the three Demonstration Sites, the Critical Friends workshops successfully engaged a broad range of stakeholders, with participation remaining stable throughout the process. Public sector actors were relatively easiest to recruit for all Demonstration Sites, providing continuity and strong links to ongoing governance and restoration processes. At the same time, representatives from research institutions, NGOs, business, agricultural organisations, water utilities, and local community groups contributed diverse perspectives. Lake Karla achieved a particularly balanced representation across public, scientific, agricultural, and civil society sectors; Vansjø benefited from strong integration with funding initiatives; while Kartuzy Lakes fostered collaboration between local authorities, wastewater utilities, researchers, and selected NGOs. Overall, the workshops created valuable cross-sectoral dialogue and strengthened diversity and common future visions post the restoration projects.

The Critical Friends workshops for Lake Karla brought together a diverse group of stakeholders representing public authorities, research organisation, the private sector, and civil society. Public sector organisation formed the core of participation, with particularly strong engagement from the Region of Thessaly, the Water Management Organisation of Thessaly (ODYTH) and the Natural Environment & Climate Change Agency (NECCA). Research institutions, including ELGO-DIMITRA and DUTH, contributed scientific expertise, while the Agricultural Cooperative of Thessaly (THESgi) represented agricultural interests. Civil society perspectives were provided by the Society of Thessalian Studies/YPETHE and the Greek Network of Municipalities with Rivers. Overall, participation reflected a balanced mix of public, scientific, agricultural, and community actors, supporting dialogue across sectors on Lake Karla's fragmented governance and restoration challenges. Participation remained relatively stable across the workshops, with 21 participants in the first workshop, 19 in the second and 15 in the third workshop (Table 3).

Table 3 Stakeholder representation at Lake Karla

KARLA Stakeholder category	Institution/Group	1st workshop	2nd workshop	3rd workshop
Public sector	Region of Thessaly	4	9	3
	Water management Organisation of Thessaly (ODYTH)	2	3	4
	Decentralized Administration of Thessaly	3		
	Natural Environment & Climate Change Agency (NECCA)	1	1	1
Research organisations	Hellenic Agricultural Organisation (ELGO-DIMITRA)	2		
	UTH			1
	DUTH	3	3	3
Private section	Agricultural cooperative of Thessaly (THESgi)	1	1	1
Civil society/ Non-profit sector	Society of Thessalian Studies (Etaireia Thessalikon Meleton)/ Water Resources and Environment of Thessaly blog (YPETHE)	2	2	2
	Greek network of municipalities with rivers	3		
Total		21	19	15

Table 4 Summary for Lake Karla

Stakeholder category	1st workshop	2nd workshop	3rd workshop
Public sector	10	13	8
University	3	3	4
Research organisations	2		
Private sector/ farmers associations	1	1	1
NGOs	5	2	2
Total	**21**	**19**	**15**

Actors' representation for Lake Vansjø had a high turnout between 15-19 participants to each workshop (Table 5). High turnout was possible due the strategic connection of the Critical Friends activities with the regular Morsa group meetings and Akershus County's Oslofjord initiative. Critical Friends activities could, therefore, be connected to the ongoing process but also shape the meeting's agenda with FutureLakes project inputs and support the funding application that will guarantee new measures in the catchment and more collaboration with downstream actors.

The group has been clearly dominated by public sector actors but had representatives from university, research organisations, business, NGO and farmers association. Continuity was highest within the public sector, while others joined by special recruitment and interest.

Table 5 Stakeholder representation at Lake Vansjø

VANSJØ Stakeholder category	Institution/Group	1st workshop	2nd workshop	3rd workshop
Public sector	Morsa Water Area	1	1	1
	PURA Water Area		1	
	Follo agricultural office		2	1
	County Governor's office, Oslo and Viken	1		2
	Akershus County Governor's office			1
	Indre Østfold municipality	1	1	
	Enebakk municipality	1		
	Råde municipality			1
	Moss municipality	1		1
	Våler municipality	2		1
	Vestby municipality			1
	Ås municipality			1
	Nordre Follo municipality	2		1
	Frogn municipality			1
	MOVAR			1
	Akershus bondelag			1
	Østfold bondelag			1
University	Norwegian University of Life Sciences (NMBU)		4	
Research organisations	Norwegian Institute for Bioeconomy Research (NIBIO)	1	4	1
	Norwegian Institute for Water Research (NIVA)	3	2	2
Start-up incubator	Aggrator		2	
NGOs	Forum for Natur- og Friluftsliv Østfold (FNF)			1
Farmers associations	Follo bondelag		1	
	Akershus bondelag	1	1	
	Østfold bondelag	1		
Total		**15**	**19**	**19**

Table 6 Summary for Lake Vansjø

Stakeholder category	1st workshop	2nd workshop	3rd workshop
Public sector	9	5	15
University		4	

Research organisations	4	6	3
Start-up incubator		2	
NGOs			1
Farmers associations	2	2	
Total	**15**	**19**	**19**

Actors' representation for the Kartuzy Demo site was smaller, with constant turnout between 9-10 participants to each workshop (Table 7). This might be explained with a smaller catchment size, less stakeholder types (no agriculture in the catchment) but also limited response from some targeted stakeholders (e.g. Polish Waters).

The group reflected a diverse, though predominantly public-sector-oriented, stakeholder composition. Across the three workshops, representatives from local water utility company and the tourism organisation formed the core of participation, with the municipality represented by 2 participants in the first workshop and 3 participants in both the second and third workshops. The local water utility company, KPWiK Kartuzy, was consistently engaged throughout the process, with participation increasing from 2 participants in the first and second workshops to 3 participants in the final workshop. Stakeholder diversity was broadened during the process through the participation of the local tourism organisation, which attended all three workshops, and the Polish Angling Association (PZW). However, achieving broader representation proved challenging despite targeted recruitment efforts. The local team invited a range of additional stakeholders from relevant sectors and interest groups, but several of those actively approached did not respond to the invitations. As a result, participation remained concentrated among a relatively small group of stakeholders, with particularly strong representation from public authorities and utility providers.

It should also be noted that stakeholder classification at the local scale is not always straightforward, as individuals may hold multiple roles and affiliations within the community. For example, representatives from KPWiK were also members of the Polish Angling Association (PZW). In such cases, categorization was based on the role under which participants primarily contributed to the workshop discussions. As the KPWiK representatives mainly attended and participated in their capacity as employees of the water utility company, they were classified under the utility sector rather than civil society or recreational user groups. This illustrates the interconnected nature of local stakeholder networks and the challenges associated with assigning participants to mutually exclusive categories.

Table 7 Stakeholder representation at the Kartuzy Lakes

Stakeholder category	Institution/Group	1st workshop	2nd workshop	3rd workshop
Public sector	Kaszuby Municipality	2	3	3
	KPWiK Kartuzy	2	2	3
NGO	PZW: Polish Angling Association	1		
	Tourist organisation	1	1	1

Research organisations	University of Warmia and Mazury in Olsztyn	3	3	2
	Norwegian Institute for Water Research (NIVA)	1		1
Total		10	9	10

Table 8 Summary for the Kartuzy Lakes

Stakeholder category	1st workshop	2nd workshop	3rd workshop
Public sector	2	3	3
Municipal company	2	2	3
University	3	3	2
Research organisations	1		1
NGOs	2	1	1
Total	**10**	**9**	**10**

Overall, representation differed across the Demonstration Sites because the Critical Friends activities were adapted to distinct governance contexts, thematic priorities and existing stakeholder networks. Lake Karla involved a comparatively broad mix of public authorities, researchers, agricultural interests and civil-society organisations, although public-sector actors remained central because institutional fragmentation and overlapping responsibilities were major concerns. Lake Vansjø drew strongly on established collaboration among municipalities, agricultural actors, researchers and water-management organisations. Integrating activities into existing meetings supported continuity and reduced participation burdens. This limited the inclusion of actors outside those networks, but the increased representation of downstream stakeholders, focused on the health of coastal waters, was an important outcome. At Kartuzy Lakes, participation remained stable but was concentrated among the municipality, water utility and research partners, supplemented by tourism and recreational interests. Despite targeted invitations, several additional stakeholders did not engage. These differences should therefore not be interpreted simply as better or worse representation. Rather, they illustrate how governance maturity, workshop purpose, recruitment response and reliance on existing platforms shaped who participated at each site.

5.3 Gender

The first tier of representation focused on stakeholder diversity. Recruitment was designed to ensure broad participation from relevant institutions and actor groups, with the aim of achieving a balanced representation of stakeholder perspectives. The second tier concerned gender representation, which local teams actively monitored throughout the recruitment process and sought to balance as far as possible within the constraints of each case study context. Summary of gender representation is provided in Table 9 below (detailed monitoring is available in the Annex).

Table 9 Gender representation in Critical Friends workshops

Critical Friends workshops			
Lake Karla	**1st workshop**	**2nd workshop**	**3rd workshop**

Female	7	33%	9	47%	5	33%
Male	14	67%	10	53%	10	67%
Total	21		19		15	
Lake Vansjø						
Female	8	53%	13	68%	9	47%
Male	7	47%	6	32%	10	53%
Total	15		19		19	
Kartuzy Lakes						
Female	5	50%	4	44%	6	60%
Male	5	50%	5	56%	4	40%
Total	10		9		10	

In total, across all countries and workshops, 66 female attendances and 71 male attendances were recorded. This indicates a generally balanced gender representation across the participatory process as a whole. While individual workshops sometimes displayed noticeable gender imbalances, the primary objective was to ensure broad representation across stakeholder groups.

As the results show, the Kartuzy Critical Friends workshops were among the most balanced in terms of gender representation. Nevertheless, some gendered patterns remained evident within specific stakeholder categories. For example, representatives from the Kartuzy Water and Sewage Company were exclusively male, whereas the municipality was more strongly represented by female participants. This illustrates that, even where overall gender balance is achieved at the workshop level, differences in gender representation may persist across stakeholder groups, reflecting broader occupational and institutional gender patterns rather than the recruitment process itself.

In Lake Karla, the initial stakeholder group displayed an uneven gender balance. Following the first meeting, the local team made a conscious effort to strengthen gender representation through more targeted recruitment. As additional participants joined the scenario workshop, the gender balance improved, particularly among public sector stakeholders. However, maintaining both stakeholder and gender balance proved more challenging during the final meeting, which involved a smaller group of participants and was organized under considerable time constraints. In this context, priority was given to ensuring broad representation across the predefined stakeholder categories. While these efforts contributed to a more inclusive participatory process, it is important to acknowledge a potential limitation. The questionnaires administered during the first and third workshops may reflect some degree of gender bias and the findings from these questionnaires should be interpreted with an awareness that certain perspectives may have been more strongly represented than others.

For Lake Vansjø, the first and third workshops displayed a relatively balanced gender composition among participants. In contrast, the second workshop was characterized by a stronger representation of women. This pattern was particularly evident among participants from the research sector but was also visible among public sector stakeholders.

5.4 Lessons learned and feedback from the Demonstration Sites

The cross-case online workshop conducted on October, 8th enabled discussing experiences from all the Critical Friends activities between the researchers and invited stakeholders. It highlighted that, despite differences in ecological, institutional, and geographical contexts, many of the challenges and opportunities related to lake restoration are shared.

Lessons learned are first summarized at the general level, discussing both the positive feedback but also challenges discussed together by researchers and stakeholders.

In the second part, each Demonstration Site will be discussed in a separate paragraph, with some reflections on continuation of the Critical Friends activities beyond the task's and FutureLakes project period.

Positive feedback

Participants emphasized that successful restoration is not only a technical challenge but also a governance challenge, requiring collaboration, trust, and sustained stakeholder engagement. Overall, the workshop confirmed that the greatest value of the Critical Friends activities lies in their ability to foster dialogue, strengthen connections, promote mutual learning, and support shared visions. The box below provides some illustrative quotes from the online workshop.

"The Critical Friends initiative is fruitful because it shows some common things which can work in every case."

"The idea is not the name itself, but creating more inclusive governance."

"You cannot plan a top-down restoration. You need local ownership."

"Governance is not only about making decisions, but about creating conditions for collective ownership of those decisions."

"The Critical Friends approach helped transform stakeholder engagement from consultation into collaboration."

"Despite differences between cases, common governance challenges and opportunities emerged across all sites."

"Restoration works best when scientific knowledge, local experience, and stakeholder perspectives are brought together."

"The most important outcome may not be a single recommendation, but a stronger capacity to work together."

"Finding common visions, actions and measures takes time, but that is the way to avoid conflicts."

"it's all about bringing all the people around the table, not to point a finger at each other, but to start collaborating on a common goal"

Challenges

Participants acknowledged that collaborative governance processes can be time-consuming, especially in complex catchments involving many actors. It was stressed, that small catchments can build

connections more easily than bigger catchments with more stakeholder groups and more possible conflicts. It was also emphasised that recruitment to the Critical Friends group was sometimes problematic. When people don't know each other and did not collaborate before, it is more difficult to make such connections. On the other hand, cases that already have high institutionalization and stakeholder collaboration patterns, can experience more challenges in finding a good purpose of such broader groups, to provide meaningful dialogue. It has been also noted that the term "Critical Friends" may sound problematic because of the word "critical," and the Vansjø team replaced it with a more neutral alternative ("Resource Group"). This helped avoid unnecessary confusion or concern among participants and ensured that stakeholders felt comfortable engaging in the process.

The value of the approach is not the label itself but its ability to facilitate constructive exchanges among actors with diverse perspectives. Finally, the three Demo Sites started with unequal experience of stakeholder collaboration in their catchments as shown in D2.1 on stakeholder mapping (Szulecka, 2025). This can well illustrate the flexibility of the approach, but it also makes direct comparisons challenging, as activities and outcomes should be interpreted differently. The box below provides some illustrative quotes on the challenges encountered during the Critical Friends processes.

"We invited for our meetings all stakeholders, but not everybody responded"

"And also, I have experienced from other cases of restoration, if the catchment is big, it is a really big challenge to build stakeholder cooperation"

"When we started the work on the Critical Friends, we really struggled to find our way into.
How should we approach and how can we use these Critical Friends groups in a way that's not going to do something that we've been doing before (…) we spent quite some time to find out how to do it best"

"I have to admit to you that we at some point decided not to call it Critical Friends, but to call it a Resource Group. And the reason we did that was that we thought that using the word Critical Friends would be a bit disturbing for the work that we would do"

"I was kind of jealous for the common project co-creation that they (another Demo Site) managed to do (…) but ok, their Demo has more than 30 years of experience with these kinds of activities. And I would like to see Karla reaching such a maturity level sometime in the future"

Lake Karla

The case of Lake Karla faced the most challenging conditions for establishing and sustaining stakeholder collaboration. As documented in Deliverable D2.1 (Szulecka, 2025), the case was assessed as having the lowest level of collaborative maturity among the project cases when evaluated using an Arnstein-inspired ladder of participation. This reflected a fragmented stakeholder landscape, limited traditions of collaborative governance, and challenges in bringing together diverse actors around a shared vision.

Against this backdrop, the Critical Friends activities played an important role in creating opportunities for dialogue, relationship-building, and mutual learning among stakeholders who would not necessarily engage with one another through existing governance structures. Critical Friends workshops for Lake Karla managed to recruit diverse stakeholders and attracted most participants across the participating Demo Sites. The local team employed a big variety of participative methods, to provide good room for

discussions, future plans and common visions. As a result, the activities revealed the emergence of new initiatives, including a planned PhD project focused on Lake Karla and preparations for an Interreg funding application involving a diverse group of stakeholders.

These developments suggest that the Critical Friends process not only facilitated dialogue and trust-building but also helped create momentum for future collaborative actions. One key stakeholder from Karla admitted that "*we are looking forward to cooperation. I would also like to point out that the fragmentation of the responsibility and the implementation of measures was really a big problem throughout this last 15 years of the current restoration project.* Another crucial stakeholder concluded that *"the structure that has existed today, with a fragmentation of responsibility, has been the cause of many problems. The findings of these projects are very important for us."*

It seems that the group created in Critical Friends workshop will remain active under the new organisational umbrella for Lake Karla management (ODYTH) and there are plans and visions for new projects, including developing eco-tourism and local economy pathways in participatory processes. The Karla discussions highlighted a strong but underutilized potential for eco-tourism and local economic development linked to the lake's natural assets, cultural heritage, and local products. Participants emphasized that improving visibility and promotion should be the priority, alongside developing basic recreational infrastructure and stronger links between visitors, local producers, and tourism activities. Future development should be based on shared ownership and coordinated governance involving public authorities, local communities, businesses, and civil society organisation. Four key collaboration areas are to strengthen accountable governance, secure long-term funding, maintain monitoring and management of the lake system, and build on the lake's eco-tourism and local development potential through broader stakeholder engagement.

Lake Vansjø

In contrast, the Vansjø case represented the most advanced and institutionalized form of cross-sectoral and multi-actor collaboration among the project cases as indicated in stakeholder mapping report D2.1 (Szulecka, 2025). Established governance structures, long-standing stakeholder networks, and a strong culture of cooperation provided a solid foundation for engagement. At the same time, this maturity created a different challenge: identifying project activities that could add value to an already well-functioning governance system and avoiding stakeholder fatigue resulting from repeated participation processes.

The Critical Friends activities built upon existing collaborative platforms rather than creating parallel structures. Linking project discussions to emerging concerns among downstream stakeholders regarding Oslofjord degradation and nitrogen pollution proved highly relevant and helped maintain stakeholder interest and engagement. The process contributed to the development of new collaborations with downstream stakeholders and supported a successful funding application focused on nitrogen reduction measures, demonstrating the value of connecting project activities to ongoing governance priorities and stakeholder needs. Earlier experience with collaborative planning and implementation of phosphorus reduction measures proved valuable for building trust, coordination mechanisms, and shared understanding among stakeholders, providing a strong foundation for planning joint action to address nitrogen pollution. "*And with the experience from working with the measures for reducing phosphorus loading in the lakes, that was a good starting point for our Critical Friends group to work with the*

nitrogen runoff. How do we work with nitrogen runoff? How do the farmers work on their land to reduce nitrogen runoff? That was the team that we wanted to use for a Critical Friends group. So we identified common interests and plans to work together on nitrogen runoff (…). After this think tank, this project proposal was submitted to the Akershus County Oslofjord Initiative. And the project was successfully funded in June this year, and the kick-off is just around the corner. So this was a really nice and good timing of our Future Lakes Critical Friends group as well to organise this think tank."
Unlike at Lake Karla, the Critical Friends workshops for Vansjø did not trigger a new collaborative process. Rather, they helped stakeholders build on their previous experience with phosphorus mitigation measures to jointly address nitrogen pollution, laying the groundwork for activities that will continue within a funded follow-up project.

Kartuzy Lakes

The Kartuzy Demonstration Site illustrated how the Critical Friends approach can help sustain stakeholder collaboration beyond the implementation stage of key restoration measures. The strong engagement of municipal actors reflected a view of restoration as a continuous process rather than a project with a clear end point following sediment removal and technical interventions. Continued attention to emerging challenges and opportunities, including stormwater management, environmental education, clean-up initiatives, nature-based solutions, and collaboration with research institutions, created an openness to new projects and partnerships.

At the same time, the case highlighted the challenges of maintaining broad stakeholder engagement over the long term. The recruitment of Critical Friends participants succeeded in expanding the network beyond municipal and research actors to include representatives from tourism, angling, research and wastewater management. However, some sectors and institutions remained difficult to engage. This suggests that while strong local leadership and a history of successful collaboration provide an important foundation, sustaining diverse participation requires continuous effort, targeted outreach, and clear incentives for stakeholder involvement. Discussions in the Critical Friends group fostered continued interest in collaboration around the lake. They also supported the planning of NBS measures and citizen science activities, including activities that were implemented under FutureLakes during summer 2026, helping to maintain momentum for future joint action. As it was summarised in the cross-case reflection workshop: "*the group working for Kartuzy Lakes' sake was establishing and strengthening"*.

Table 10 provides a summary of the comparative assessment of the Critical Friends activities across the three Demonstration Sites based on their initial governance conditions, challenges, methods applied, role of the groups and their impacts and future perspectives beyond the FutureLakes project.

Table 10 Comparative assessment

Aspect	Lake Karla	Lake Vansjø	Kartuzy Lakes
Starting point (D2.1)	Low collaborative maturity, fragmented governance, limited	Highly institutionalized and mature governance system with established	Strong restoration legacy and active municipal leadership, but challenges

	tradition of stakeholder collaboration, has been characterised as "participation"	networks, has been classified between a "partnership" and "co-production of knowledge"	in sustaining broad engagement with the current form of collaboration among stakeholders, characterised as "partnerships"
Main challenge	Building collaboration and trust among diverse actors	Adding value without duplicating existing structures or causing stakeholder fatigue	Maintaining diverse stakeholder participation beyond implementation of restoration measures
Methods	Interactive presentations, structured discussions, group work, questionnaires, foresight methods	Interactive presentations, structured discussions, group work, funding application co-creation	Interactive presentations, structured discussions, group work, foresight methods
Role of Critical Friends	Created a new platform for dialogue, networking, and joint vision-building	Built on existing collaboration structures and connected stakeholders around nitrogen pollution	Sustained existing collaboration and broadened discussions on future restoration opportunities
Type of impact	Initiated new collaborative momentum and future governance pathways	Strengthened and redirected existing cooperation toward an emerging environmental challenge	Maintained momentum and supported continuation of restoration-related activities
Prospects beyond FutureLakes	Continued collaboration under ODYTH and plans for eco-tourism and local development initiatives, new collaborations, planned PhD project, preparation of an Interreg proposal, stronger stakeholder network	Continued cooperation through a funded nitrogen reduction project	Planning NBS, future inclusive lake management, cooperation on stormwater

5.5 Replication

The experiences from Lake Karla, Lake Vansjø, and Kartuzy Lakes demonstrate that the Critical Friends approach can be successfully adapted to very different governance contexts, ranging from fragmented governance systems to highly institutionalized collaborative arrangements. The approach proved effective not because it followed a rigid methodology, but because it provided a flexible platform for

bringing stakeholders together around shared challenges, learning processes, and future-oriented action. The following guidance is therefore presented as a set of recommendations derived from the three FutureLakes cases rather than a universally validated procedure.

Step 1. Assess the governance context and identify missing voices

Conduct an initial stakeholder mapping and governance analysis to understand existing institutions, collaboration mechanisms, power relations, and representation gaps. Particular attention should be paid to actors who are affected by lake management decisions but are not routinely involved in governance processes. In all three cases, the workshops benefited from stakeholder diversity, but some authorities and decision makers remained difficult to engage, highlighting the importance of targeted recruitment efforts.

Step 2. Clarify the added value of the process

Before establishing a Critical Friends group, determine how it will complement existing governance structures. The FutureLakes cases showed that the approach can serve different purposes: initiating dialogue where collaboration is weak (Karla), addressing emerging challenges within established governance systems (Vansjø), or sustaining engagement after restoration measures have been completed (Kartuzy).

Step 3. Recruit stakeholders around a concrete challenge

Engagement is stronger when participation is linked to a clearly defined and relevant issue. In the three cases, stakeholders were mobilised around specific challenges such as governance fragmentation, nitrogen pollution, future post-restoration priorities. Participation should, therefore, be organized around a shared problem or opportunity rather than participation itself.

Step 4. Create a trusted space for dialogue

One of the most important lessons from the Critical Friends activities was the value of creating an environment where participants can openly exchange perspectives, challenge assumptions, and discuss disagreements constructively. Such trusted spaces allow actors from different sectors and knowledge communities to interact in ways that are often difficult within formal governance arrangements. This is particularly important where responsibilities are fragmented or where trust between stakeholders is limited.

Step 5. Adapt methods to the existing maturity of collaboration

The choice of methods should reflect the existing level of collaborative maturity. Cases with limited collaboration experience may require trust-building activities, shared problem framing, and visioning exercises. More mature governance systems can focus directly on strategic planning, co-design of projects, and identification of actionable measures. The FutureLakes experience suggests that there is no single optimal format; flexibility is essential.

Step 6. Combine present challenges with future-oriented thinking

Future-oriented methods, including the UNESCO Futures Literacy Lab approach used for Lake Karla and Kartuzy, helped participants move beyond immediate constraints and consider long-term scenarios, uncertainties, and opportunities. Exploring alternative futures encouraged strategic thinking, revealed hidden assumptions, and helped stakeholders identify governance barriers that might otherwise remain unnoticed.

Step 7. Prioritise sustained engagement over one-off consultation

Meaningful outcomes emerged through a sequence of workshops rather than through single consultation events. Repeated interactions allowed stakeholders to build trust, deepen their understanding of complex issues, and move progressively from problem identification to envisioning solutions and prioritising actions. A process-oriented approach is therefore preferable to isolated engagement activities. Our experience shows that a relatively small number of well-structured interactions can already generate tangible outcomes.

Step 8. Connect discussions to concrete opportunities for action

The strongest outcomes occurred when discussions were linked to actual decisions, funding opportunities, management processes, or project development. In Vansjø, for example, the Critical Friends activities contributed directly to the development of a successful funding application on nitrogen reduction measures. Participants are more likely to remain engaged when they can see a realistic pathway from dialogue to implementation.

Step 9. Document outcomes and ensure continuity

The process should capture not only discussion outputs but also participant reflections, emerging partnerships, and follow-up opportunities. Plans for ownership and continuation should be discussed early.

6. Conclusion

Stakeholder engagement is not only a democratic ideal but also a practical pre-requisite for effective and sustainable lake governance. By bringing together scientific experts, public authorities, resource users, businesses, NGOs, and local communities, participatory processes combine different forms of knowledge, improve the quality of decisions, and increase the legitimacy of management measures (Smyth et al., 2021). Inclusive engagement helps build trust, strengthen ownership, reduce conflicts, improve transparency, and support adaptive management through continuous learning and dialogue (Ibidem). These benefits are particularly important for addressing complex environmental challenges and increasing resilience. At the same time, inclusive governance is not without challenges. Participatory processes can be time-consuming and costly, consensus might be difficult to achieve, and the need to accommodate diverse interests may slow decision-making when rapid action is required, as with climate urgency.

The three FutureLakes Demonstration Sites illustrate different starting points for stakeholder engagement processes as documented in D2.1 (Szulecka, 2025). Lake Vansjø benefited from a long-standing tradition of collaboration among municipalities, farmers, scientists, and environmental authorities, which has contributed to improved water quality, reduced algal blooms, and sustained political support for restoration measures. In Kartuzy Lakes, public concern over lake degradation stimulated action, creating opportunities for scientists and local authorities to co-develop restoration measures that gained broad community backing. In contrast, Lake Karla has faced challenges related to fragmented governance structures, limited stakeholder participation, and coordination difficulties, underlining the importance of strengthening inclusive governance approaches.

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Through the establishment of Critical Friends groups, FutureLakes sought not only to enhance stakeholder inclusion across all three Demonstration Sites but also to explore how inclusive governance can work in practice. The activities provided opportunities to test and document different engagement formats, methods, and outcomes, while fostering dialogue across sectors and strengthening connections between science, policy, and practice in lake restoration and management.

Across all three sites, the Critical Friends approach generated tangible outcomes, including new collaborations, project ideas, funding applications, planning of NBS and citizen science activities, and stronger stakeholder networks.

A key success factor across all sites was the dedication and expertise of the local teams. Their personal engagement, knowledge of local governance contexts, and existing stakeholder relationships were essential for recruiting participants, facilitating discussions, and transforming dialogue into action.

No engagement process is without challenges. Difficulties related to stakeholder recruitment, availability, representation, gender balance, sensitivity to timing (e.g., holidays, rescheduling) were encountered across the Demonstration Sites. Such trade-offs require careful understanding and management (Nesheim et al., 2026a).

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Annex: Gender monitoring

VANSJØ Stakeholder category	Institution/Group	1st workshop	2nd workshop	3rd workshop
Public sector	Morsa Water Area	F	F	F
	PURA Water Area		F	
	Follo agricultural office		MM	M
	County Governor's office, Oslo and Viken	F		FM
	Akershus County Governor's office			F
	Indre Østfold municipality	F	F	
	Enebakk municipality	F		
	Råde municipality			M
	Moss municipality	F		M
	Våler municipality	MM		M
	Vestby municipality			M
	Ås municipality			F
	Nordre Follo municipality	MM		F
	Frogn municipality			M
	MOVAR			M
University	Norwegian University of Life Sciences (NMBU)		FFMM	
Research organisation	Norwegian Institute for Bioeconomy Research (NIBIO)	F	FFFF	F
	Norwegian Institute for Water Research (NIVA)	FFF	FF	FF
Start-up incubator	Aggrator		FM	
NGOs	Forum for Natur- og Friluftsliv Østfold (FNF)			F
Farmers associations	Follo bondelag		M	
	Akershus bondelag	M	F	M
	Østfold bondelag	M		M
Total		9F,	13F, 6M	9F, 10M

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KARLA Stakeholder category	Institution/Group	1st workshop	2nd workshop	3rd workshop
Public sector	Region of Thessaly	FMMM	FFFFF MMMM	FFM
	Water management organisation of Thessaly (ODYTH)	FM	FFM	FMMM
	Decentralized Administration of Thessaly	FFM		
	Natural Environment & Climate Change Agency (NECCA)	M	M	M
Research organisation	Hellenic Agricultural Organisation (ELGO-DIMITRA)	MM		
	DUTH	FFM	FFM	FFM
	UTH			M
Private section	Agricultural cooperative of Thessaly (THESgi)	M	M	M
Civil society/ Non-profit sector	Society of Thessalian Studies (Etaireia Thessalikon Meleton)/ Water Resources and Environment of Thessaly blog (YPETHE)	MM	MM	MM
	Greek network of municipalities with rivers	FMM		
Total		7F, 14M	9F, 10M	5F, 10M

KARTUZY Stakeholder category	Institution/Group	1st workshop	2nd workshop	3rd workshop
Public sector	Kartuzy Municipality	FF	FFM	FFFM
	KPWiK Kartuzy	MM	MM	MMM
NGO	Polish Angling Association	M		
	Tourist organisation	M	M	
Research organisation	University of Warmia and Mazury in Olsztyn	FFM	FFM	FF
	Norwegian Institute for Water Research (NIVA)	F		F
Total		5F, 5M	4F, 5M	6F, 4M