



EUROPEAN UNION



EU MISSIONS

RESTORE OUR OCEAN AND WATERS



Project acronym: EcoDaLLi

Project title: ECOSystem-based governance with DANube lighthouse Living Lab for sustainable Innovation processes – EcoDaLLi

Call: HORIZON-MISS-2021-OCEAN-02-04
– Danube river basin lighthouse
– coordination activities

Programme: HORIZON EUROPE

Start date of project: 01.01.2023

Duration: 42 Months



Deliverable 3.2

Reports of at least 4 sessions organised by EcoDaLLi as part of established events



Deliverable Name	Reports of at least 4 sessions organised by EcoDaLLi as part of established events
Deliverable Number	D3.2
Work Package	WP3
Associated Task	T3.2
Due Date	29.02.2024
Completion Date	27.02.2024
Submission Date	29.02.2024
Deliverable Lead Partner	ICLEI Europe

Dissemination Level		
PU	Public	X
SEN	Sensitive	

Change Control Document History				
Version	Date	Change History	Authors	Organization
1.1	29.01.2024	First Draft	Carme Machi-Castaner, Karen Naciph, Simon Race	ICLEI Europe
1.2	16.02.2024	Inclusion of feedback received from all partners	All PPs	ICLEI Europe
Final version	27.02.2024	Deliverable ready for submission	Carme Machi-Castaner, Karen Naciph, Simon Race	ICLEI Europe

Disclaimer

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Table of Contents

1. Introduction.....	4
2. Description of stakeholder tailored workshops.....	5
3. Preparation and materials.....	8
4. Attendance	9
5. Main discussion outcomes.....	11
6. Statements on the Living labs - key message.....	34
Abbreviations and Acronyms.....	36
List of Tables.....	37
List of Figures.....	37
Bibliography	37
List of Annexes.....	37
Annex A	38
Indicative table of the institutions that took part in the four workshops	38
Annex B	39
Tables of the four workshops' agendas.....	39
Annex C	41
Outline of Workshops Presentations slides	41



1. Introduction

The EU-funded Horizon Europe EcoDaLLi Project aims to centralise Danube governance structures in terms of innovative solutions for improved ecological restoration, protection and preservation of the Danube basin, Danube Delta, and Black Sea region. As part of the project, a series of workshops have been carried out in the context of Task 3.2 “Stakeholder-tailored knowledge co-creation & engagement” within the activities of WP3 on “Innovative practices in spatial policies for the protection and restoration of freshwater ecosystems and biodiversity”. These workshops aim to bring together stakeholders from different kinds of groups, including business, academia, governance, and civil society, to exchange about their specific needs and challenges towards less socio-environmentally degraded Danube ecosystems. Some of the stakeholders engaged through these series of workshops were afterwards included, and/or previously identified, as part of the Stakeholder Database¹ presented in one of the milestones of the project (Milestone 5).

This task was based on the identification of interlinkages and gaps between local and regional urban and spatial policies in the Danube region, and the River basin restoration programs framed at EU level: Flooding Management Plans, Water Framework Directive and under the umbrella of the Green Deal goals for sustainable development (European Commission, 2021) focused on the main EU Ocean Mission and Mission Charter target for 2030: restoring marine and freshwater ecosystems.

A total of four tailored-stakeholder workshops took place, covering the Danube geographical regions of Upper, Middle, and Lower Danube, and Danube Delta & Black Sea. The workshops analysed local and regional challenges towards the well-established restoration goals, at the three main topical areas targeted by the Mission: water quality, biodiversity and climate change and circular/ blue economy. This clarifies the broad focus; however, each regional unit translates problems that are linked to their own cultural, economic, and environmental context. Disparities across the Danube region exist, further information is provided in the Baseline study for the implementation of lighthouses of the Mission (Chanou et al., 2023). The connection of international action and transnational collaboration needs to start from considering this. These workshops have leveraged the specific issues of concern and will be part of the ongoing exchange within its respective Living Lab for the Danube Ecosystem.

During the workshops, a template, prepared by ICLEI and ADRM, was distributed to each discussion group for conducting two exercises. The first exercise concentrated on identification of gaps and establishment of linkages with the current EU framework and the local and regional regulations, including land-use, flooding plans and urban policies framework, and, secondly, the recognition of both socio-economic and environmental challenges for effective restoration. The second exercise addressed the discussion with stakeholders about different enablers for change, restoration techniques and drivers for the implementation of local, regional, and cross-border policies, to facilitate a more integrated, centralised, and effective governance for ecological restoration at, and across, each unit of the Danube Basin. This document compiles the minutes of the four stakeholder workshops. The document introduces a workshop summary, conceptualisation, preparation process and materials and takeaways from the discussions. This information is presented in the chronological order workshops were designed

¹ The Stakeholder Database produced as Milestone 5 due on Month 10, was created following the methodology described in the Guidelines for the Stakeholder Mapping Process, included as another project milestone (Milestone 4, due on Month 8).

and held². A summary of the number of participants, classified by each stakeholder category is reported in Table 2. The main discussion points during each of the workshop sessions per working group are clustered by topic. The conclusion chapter of this document is drawn from the analysis of the aforementioned discussion points, considering the commonalities and differences identified across the different geographical regions in the Danube River Basin. These conclusions will be used for the further development of the EcoDaLLi Living Labs developed within WP4.

2. Description of stakeholder tailored workshops.

Four stakeholder tailored workshops took place in 2023 in the context of the EcoDaLLi project, across the Danube geographical regions as defined in Figure 1, including the Upper, Middle and Lower Danube, and the Danube Delta and Black Sea area. Information on each of the workshops is provided in Table 1, summarising the location, format, and date of the event.

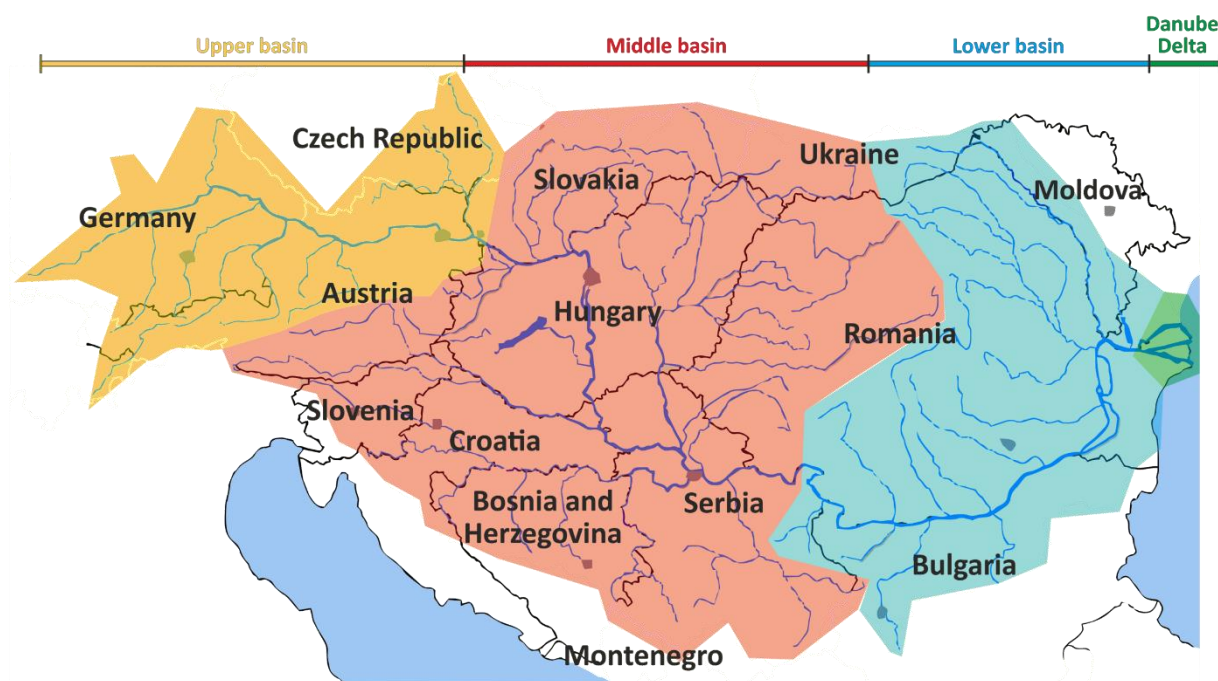


Figure 1. Geographical regions in the Danube River Basin as conceptualised in the EcoDaLLi project.

² The first workshop was held in the Danube Delta and Black Sea, followed by a second workshop in Upper Danube, then Middle Danube and, finally, Lower Danube.

Table 1. Description of the four tailored stakeholder workshops that took place in 2023.

Workshop No.	Date	Geographical Region	Place	Event	Title
1	7th June	Danube Delta and Black Sea	Tulcea, Romania	30th edition of the “Deltas & Wetlands” DDNI Scientific Community In person	Restore our Ocean and Waters - EcoDaLLi project in the Danube and Black Sea Lighthouse
2	22nd August	Upper Danube	Vienna, Austria	Lecture Room BOKU River Lab Hybrid (In person and Online event)	Restore our Ocean and Waters: EcoDaLLi stakeholders workshop on innovative solutions for improved Upper Danube protection, restoration and spatial governance.
3	27th August	Middle Danube	Draž, Croatia	In person event	First Middle Danube Stakeholder Engagement Event
4	25th October	Lower Danube	Brdo kod Kranja, Slovenia ³	12th Annual Forum of the EU Strategy for the Danube Region Online event	Restore our Ocean and Waters: EcoDaLLi stakeholders workshop on innovative solutions for improved Lower Danube protection, restoration and spatial governance

The workshops had an approximate duration of three hours and were designed as interactive discussion sessions with the targeted stakeholders. The session was structured in two parts, starting with presentations introducing the EcoDaLLi project and framing it within the EU Mission Ocean framework, guidelines, and related policies. Additionally, the Living Labs system was also presented, except for the first workshop when this conceptualization was still in process. In the case of the Upper Danube and Lower Danube this presentation section also included interventions by the municipalities of Linz and Draž, respectively. The municipalities provided information on their local context and the challenges they are currently facing related to river basin management and achievement of the Mission Ocean objectives. The list of the institutions involved in the workshops is depicted in Annex A, whereas Annex B provides an overview of the workshops’ agendas and, finally, a selection of the presentation slides is compiled in Annex C.

The second part of the workshops consisted of a participative working session involving all the stakeholders, to bring the regional and local focus for the transposition of the Mission Ocean objectives at this level. Local and international stakeholders discussed contextual specificities and possible drivers for change in the existing local and regional spatial policy framework.

³ Note that this workshop was conducted online although it was conducted during the date of the 12th Annual Forum of the EU Strategy for the Danube Region, held in Slovenia on the 24th and 25th of October.

Gaps, inter-linkages, and challenges have been identified during the interactive sessions with stakeholders. As part of this brainstorming, some possible actions were proposed by stakeholders on how to enable locals to provide and support innovation. These interactions were held in 3 groups, divided by the Mission Ocean main topics: “Ecosystem Restoration for Increased Biodiversity and Resilience”, “Reduction or Elimination of Water Pollution” and “Circularity, Blue Economy and Decarbonisation Actions”.

The discussions were conducted following the template⁴ mentioned in the introduction chapter of this document. Each of the discussion groups had a rapporteur and moderator. The rapporteur exposed the key take-aways to the plenary at the end of the event. The discussion points and input provided by the stakeholders around the three key topics feed into the conceptualisation of the EcoDaLLi Living Labs, to be implemented within WP4. Each Living Lab has a topical focus that is related to the cultural, economic, and environmental characteristics of the region (see Figure 2). As part of the process of making sure to emphasise those aspects during the interactive discussions with local actors, the topical focus of each territorial unit has also been considered in the conceptualization of the corresponding tailored-stakeholder workshop.

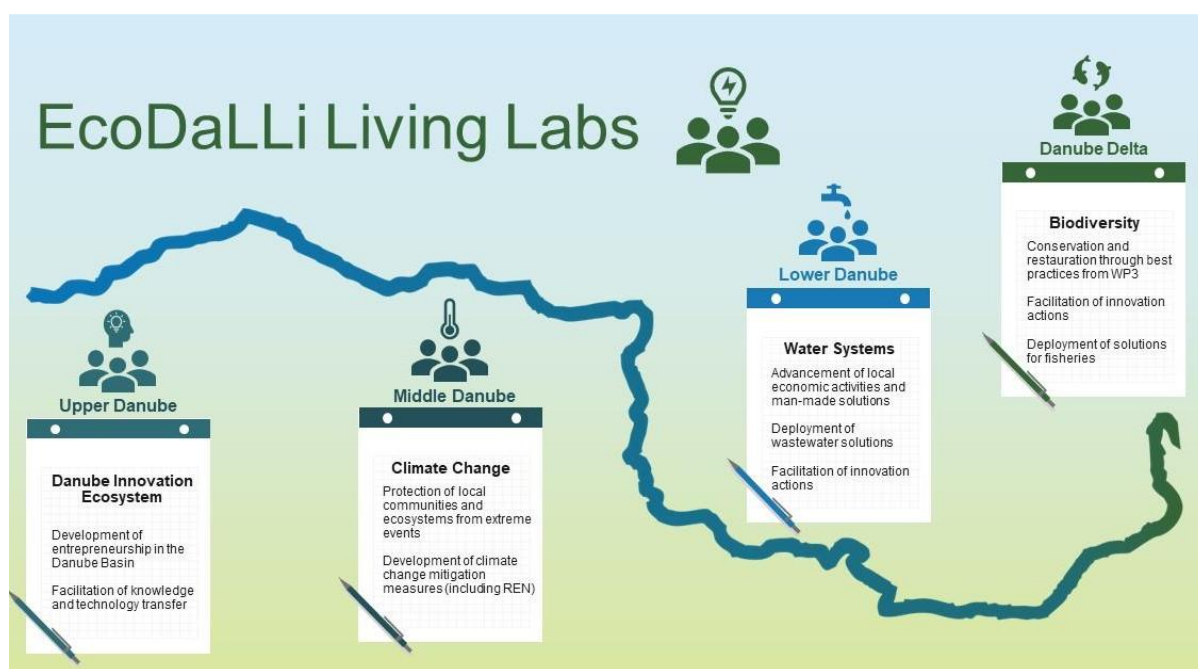


Figure 2. Design of the EcoDaLLi Living Labs System.

⁴ As already explained in the introduction, this template was composed of two parts, one focused on the identification of gaps and linkages with the current EU, local and regional policy framework, along with socioeconomic and environmental challenges. The second part focused on establishing solutions in terms of enablers of change, restoration techniques and drivers for policy implementation.



3. Preparation and materials

This section summarises the activities for the preparation of the workshops and main materials deployed to conduct them. The workshop sessions were co-organized between ICLEI Europe and ADRM, except for the workshop developed in Croatia in which the University of Zagreb and Municipality of Draž took a main role. Some of the EcoDaLLi partners supported the organisation of the events. The partners mainly involved were DDNI (for the first workshop), BOKU (for the second workshop) and the University of Zagreb (for the third workshop). The three of them helped in the coordination of the workshop logistics, including technical equipment and general assistance. Additional preparation activities conducted by ICLEI and the rest of EcoDaLLi partners included co-organisation meetings, elaboration of documents and supporting material, networking, and dissemination, as reported below:

- Co-organisation meetings held between ICLEI Europe, ADRM and other EcoDaLLi partners to arrange content, logistics and venue;
- Elaboration of invitation letter, abstract, session description and working session templates, and their dissemination to targeted stakeholders;
- Public dissemination of the event and bilaterally by email to targeted local stakeholders;
- Preparation of the PowerPoint presentations;
- Venue logistics arrangement and writing materials.

The 4 workshops followed a similar preparation process. However, it is good to highlight the slight differences among them. At the 1st workshop, two rooms were booked to conduct the presentations and interactions. At both, the first and the second workshop, venue logistics arrangements included catering, allowing stakeholders to have a more informal encounter for exchange.

The co-organisation of the 2nd workshop, held in hybrid mode, was supported by Steinbeis Europa Zentrum and BOKU, who helped to coordinate the logistics and dissemination of the event, and the virtual discussion was realised using a Miro board as a collaborative platform. Besides, an in-person and on-line registration form were prepared and disseminated, where participants provided their consent to the internal storage of their data.

For the 3rd workshop, held in person in Croatia, all present stakeholders, primarily from associations and local residents, were invited to express their opinions and needs on the Middle Danube, and registered and entered on the census list upon arrival. After the welcome words from Hrvoje Mikulčić (UNIZAG FSB)⁵, Stipan Šašlin, mayor of Draž, presented the importance of EU projects cooperation, and Filip Jurić (UNIZAG FSB)⁶ introduced the EcoDaLLi and DaWetRest⁷ projects' goal and vision.

The 4th workshop was conducted entirely online, considering this as the best option to secure a high number of participants. Registration was done through an online form and participants interacted in separated breakout rooms via Microsoft Teams. Designated moderators and rapporteurs supported in taking notes and moderating each of the groups.

⁵ Hrvoje Mikulčić (UNIZAG FSB) emphasised the Living Lab that belongs to WP4 that will be held next year in Draž (WP4) and pointed out the importance of cooperation between partners, stakeholders, residents, and governance in the Middle Danube area, addressing the importance of the collection of data for the development of the portal belonging to WP6.

⁶ Filip Jurić (UNIZAG FSB) is responsible for implementing WP6, which aims to implement the EcoDaLLi portal.

⁷ DaWetRest is a Horizon Europe project under the Mission Ocean and Waters 2030 call with a focus on wetland restoration practices in the Danube area, bringing in the experiences from 3 demonstration sites, it has created synergies with EcoDaLLi in identifying needs and providing answers to similar encountered problems across Danube stakeholders.

The dynamics for all the interactive sessions of the 4 workshops were organised based on the already mentioned subdivision of stakeholders in 3 working groups: “Ecosystem Restoration for increased Biodiversity and Resilience”, “Reduction or elimination of Water Pollution” and “Circularity, Blue Economy and Decarbonisation Actions”, with the first workshop discussions mainly focused on wetlands’ ecosystems related aspects, second on the technological innovation, and the third and fourth on Climate Change and Water Systems (following to the Living Lab topics for each territorial unit). Templates for the discussions were produced and structured in the following components:

- Identified challenges, gaps, and inter-linkages of local/ regional policies with EU framework, to foster key aspects for the corresponding territorial unit, including the main environmental and socio-economic challenges.
- Proposition of actions, brainstorming on enablers to foster the key goals pursued at each territorial unit, including citizen’s engagement processes, the formulation of structural and non-structural processes for watershed restoration and the development of ecological and innovative solutions.

4. Attendance

The workshops counted with the participation of a variety of stakeholders that enriched the discussion sessions. The attendance numbers for each of the workshops is shown in Table 2 along with the format of participation: in person or online. The participants had different backgrounds, belonging to institutions across the quadruple helix⁸ (the four stakeholders categories defined as the main target groups): research, governance, business and economic activities, and civil society. The distribution of the participants and their institutions across these target groups is presented in Figure 3 and helps to have an overview of the level of engagement from each category.

Table 2. Number of participants per each workshop session.

Attendance		Workshop 1 Danube Delta (Tulcea, Romania)	Workshop 2 Upper Danube (Vienna, Austria)	Workshop 3 Middle Danube (Draž, Croatia)	Workshop 4 Lower Danube (online)
Number of participants ⁹	In person	35	8	29	none
	Online	-	13	-	67

⁸ As defined in the EcoDaLLi project, the quadruple helix divides stakeholders by research, governance, business, and civil society. This categorisation has been applied in the EcoDaLLi stakeholder database, to define our engagement in the four tailored-stakeholder workshops and will later be used within the EcoDaLLi Living Labs.

⁹ Moderators, presenters, and rapporteurs have been included in the total number of participants.

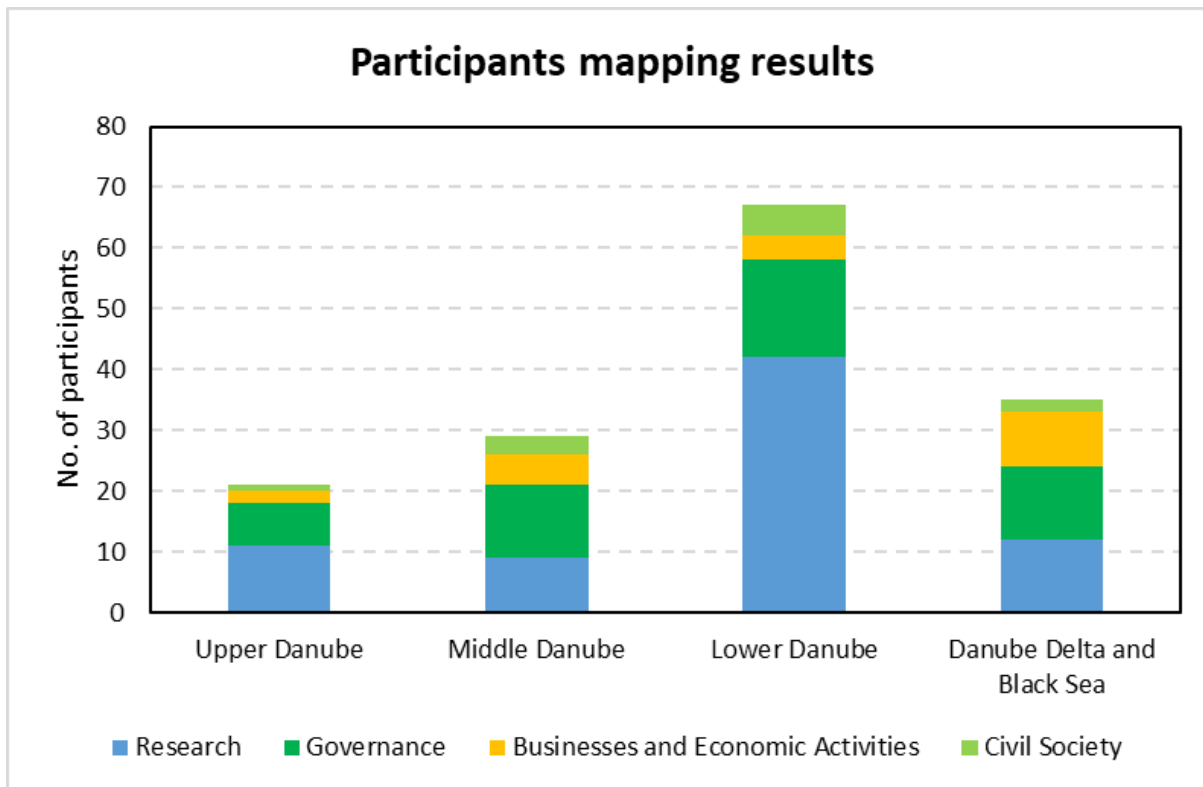


Figure 3. Distribution of the institutions that took part in the tailored stakeholder workshops among target groups.

Participants have been classified into four distinct categories¹⁰.

- Not many civil society representatives, including NGOs and associations, attended the workshops, however, used to actively engage in the discussions. For all workshops, civil society representatives accounted for between 5% and 10%. The Middle Danube workshop has attracted more civil society organisations compared to the other workshops.
- Private companies' attendees were more represented, with an average percentage of 15. The private sector was particularly represented in the Danube Delta workshop, with 25% of the attendees, and fed the exchanges on the potential for business and technological innovation to support a more circular economy.
- The research sector, which includes universities, research institutes and think tanks, was undoubtedly the most prominent sector in the four workshops, with research attendees accounting for 31 % to 63 % of the total number of participants. However, it is important to note that for the Lower Danube session, the variety of the research institutions was not related to the high number of research attendees. As such, all four workshops had a similar diversity of research actors.

¹⁰ It is important to note that some participants did not give us the name of their institutions. As such, the numbers represented above provide us with a generic overview of the nature of the institutions that took part in the sessions.



- Eventually, the governance sector, which stands for public institutions, such as ministries, national parks and natural reserves, local and regional governments, was importantly represented as well. The average percentage of governance participation in the workshops was 33 %. Some representatives of local governments presented at the beginning of the workshops which helped to bring in real case concerns and increase their visibility to the rest.

5. Main discussion outcomes

This section describes the key take away points from the discussion with the stakeholders across each of the dedicated workshops. As previously explained, the discussion points identified gaps and challenges, along with drivers and enablers for change across the three thematic pillars of the Mission Ocean objectives: biodiversity, water pollution, and blue circular and circular economy. ICLEI has analysed the key inputs and arranged the information according to subtopics that have been identified as common across all or some of the 4 workshops. The subcategories' classification is displayed in Table 3.

Table 3. Common subtopics identified across the workshops linked to the three main objectives of the Mission Ocean and Waters 2030.

Thematic topic	Biodiversity	Water Pollution	Blue and Circular Economy
Aspects	Nature Based Solutions and ecosystem restoration	Nature Based Solutions and ecosystem restoration	Economic activities Waste management
	Agriculture	Economic activities	Policy, incentives and land management
	Economic activities	Policy, incentives and land management	Social aspects
	Policy, incentives and land management	Social aspects	Education & Research
	Social aspects	Education & Research	
	Education	Health	

Workshop 1: “Restore our Ocean and Waters - EcoDaLLi project in the Danube and Black Sea Lighthouse”

30th edition of the “Deltas & Wetlands” DDNI Scientific Event Community,

7th June, 2023 – Tulcea (Romania)

- Presenters, moderators and rapporteurs

Presenters: Karen Naciph (ICLEI Europe), Carme Machí Castaner (ICLEI Europe)

Moderators: Maria Tzankova (ADRM), Boryana Stancheva (ADRM), Karen Naciph (ICLEI Europe), Carme Machí Castaner (ICLEI Europe)

Working sessions facilitators: Albert Scriciu (GeoEcomar), Mihai Pondea (SMS), Givi Kochoradze (ICARTI), Dragos Balaican (DDNI)

- Biodiversity

1. Nature based Solutions and ecosystem restoration:

- Nature-based solutions need to be reinforced in the region, noticing that they are not currently implemented because of lack of citizens'/ governments' awareness of their deployment and effectiveness, knowledge about how to conceptualise, implement and maintain them, costs incurred for their implementation and maintenance, etc.
- Need for more urban NbS – as for example in Tulcea, where there is a lot of concrete, water resources are not used properly.
- In the Lower Danube area people often think that NbS are barriers to economic development.
- In the core of the NbS definition there should be a focus on social acceptance and social impact
- Education and campaigns for raising awareness are fundamental to convince stakeholders that NbS are not, by default, against economic development.
- The role of monitoring after the implementation of NbS projects should be reinforced.
- Harmful insects are present in the Danube Delta that are not endemic and cause impacts on the ecosystem¹¹.

2. Agriculture:

- Pressure from new land-uses, especially those linked to agricultural exploitation, in addition to others, all leading to privatisation of the land and loss or damage of natural areas.
- Land ownership in the Danube coastal areas (Romania and Bulgaria).

¹¹This take-away has been expressed in the workshop dedicated to the Upper Danube. It has been added to the take-aways of the Danube Delta workshop for topical reasons.



3. Economic activities: fisheries

- In Bulgaria there are subsidies for inland fisheries - this is an EU priority, there is money for development and compensation.
- Traditional activities – sturgeon fishing in the area, communities are specialised in this activity. Fishing restrictions to recuperate fish population.
- Fish migration due to changes in river flow regimens.

4. Policy and EU level framework:

- A bad example: for fisheries in Romania there is no subsidy from the EU; a policy framework should not discriminate against particular groups – fisheries vs. agriculture.
- Moldova and Ukraine have different restrictions and regulations of activities than Romania. Since the three countries share the Delta, the measures taken by Romania are ineffective and do not aid the fish populations, because of lack of conservation measures in the other areas.

5. Social aspects:

- There is a permanent conflict between nature, government, and social interest – this conflict needs to be overcome to achieve sustainability.
- Personnel shortage is an issue.
- Two key dimensions to drive change – 1. social awareness, 2. Effectiveness & co-creation/co-design.
- Monitoring activities can be undertaken in cooperation with local communities, e.g. citizen science.
- Introduction of a natural insurance scheme together with the authorities.

6. Education:

- After the implementation of a project, the results can be transferred to other institutions/organisations which can use them and ensure sustainability.

- **Water pollution**

1. Nature Based Solutions and ecosystem restoration:

- Implementation of restoration actions that are viable at local and national level, and well-coordinated with Local and National Strategies.
- Account for ecosystem benefits from wetlands and other natural water systems
- Make upstream / downstream linkages, consider all watershed impacts that may affect the same water system.
- Plan for solutions implemented upstream of the river basin as a strategy for the restoration of the entire watershed.

2. Economic activities: tourism, transportation, and energy production:

- Encompass water quality restoration with sustainable water transport actions.



- Propose dams' removal actions.
 - Promotion of decarbonization actions, utilisation of different technologies for energy supply (i.e. solar panels), and improved access to sustainable energy that does not introduce contaminants to the water bodies.
 - Promotion of water sports/ water-related recreational activities, local traditions, and good practices.
3. Policy, incentives, and land management:
- Need for better legislation and incentives.
 - Lack of cross-sectorial management of the environmental topics.
 - Deficient waste management.
 - Conditions change through implementation time.
 - Strategies cover periods that are too long.
 - Develop a smarter financing mechanism.
 - Find incentives and improve financial aspects.
 - As the Local Strategies are in place, use them to make a change: implementation is the key issue.
 - Treat the pollution problem as a transboundary issue.
 - Sustainable regulation.
 - Develop a greener urban environment.
 - Relying on datasets of trees and green spaces as part of urban planning decisions.
4. Social aspects:
- Lack of active involvement of communities.
 - Develop an association of consumers that can help protect the river basin.
 - Get references (legislation from Brussels), to increase people's commitment to their environment, taking care of it as part of their life and well-being.
 - Change population behaviours towards river and wetlands systems.
 - Citizen science and community involvement.
 - Obtain EU funding for smaller villages and engage them (knowledge exchange and co-design/ participatory involvement in the implementation of solutions).
 - Empowering citizens, improving current infrastructure, and engaging with farmers and those key actors in a more straightforward way (without requiring too much bureaucracy).
5. Education & Research:
- Incorporate risk assessment and management studies.
 - Study the balance of nature and hydrological regime, including possible changes in sediment flows.
 - Create an understanding on how to manage extreme events, and the impacts from manmade changes.
 - Develop inventories of trees and green spaces to support decision making.
 - Education at all age levels and for everybody.
 - Tourist education.



6. Health:

- More focus on the analysis and assessment: more data compiled in laboratories, to analyse pollutants and identify main inducers/ causes and impacts.
- Better understanding (and social awareness) of the interlinks between health and environment impacts: repercussions on the quality of life.
- Ecosystems and human health risks induced by the presence of microplastics.
- Risks associated with UV radiation, as water bodies can generate absorption and surfaces reflect such radiation.
- Diffuse pollution; historical pollution; chemical transformation of pollutants over time and change of phase / change into more toxic components.

- **Circular & Blue Economy**

1. Economic activities: tourism, fishing, agriculture, energy production:

- Agro-farming, regenerative farming, is a field with positive impacts on circularity. A compensation system has been set through trainers to support farmers in applying sustainable practices and reducing impacts.
- Showcase front-runners' work to inspire others (regenerative agriculture practices, find farmers that pioneer sustainable actions).
- Use CSA as a gathering point (i.e. EcoDaLLi).
- Coming back to the "blue" concept: interlinkages with regulation/ protection of water quantity, hydrological processes, water and soil quality. Ecological agriculture as key. Inclusion of techniques to reduce impact to the soil and improve water quality¹².
- Acknowledge the importance of fishing and tourism in the Delta¹³.
- Find a balance between preservation measures and economic activities in the Danube Delta management¹⁴.
- Develop better logistics & local supply chains.
- Identify sustainable business models.
- Connect ecological tourism with farmers ecologically certified: ecotourism in Danube.
- Develop sustainable transportation for tourists/ locals (less CO₂ emissions and ecosystem disturbance).
- Explore the possibility of using hydrogen from hydrogen sulfide (energy efficient compared to electrolysis) – still under debate.
- Explore how to transfer energy to Europe through the Black Sea: Submarine Power Cable Georgia – polemic debate.
- Develop local mobility relying more on human energy transportation (i.e. bikes).

¹² The "economic activities" are reflecting the specific economic activities of the Danube region during the workshop.

¹³ This take-away has been expressed in the workshop dedicated to the Upper Danube. It has been added to the take-aways of the Danube Delta workshop for topical reasons.

¹⁴ *Idem*.



- Use of technology to support circular and blue economy: real case, such as solar panels (i.e. solar panels installed on water channels to generate energy for irrigation).
 - The compromise decision on which system to generate energy is best is not easy, and is based on the comparison of diversity of options: use bikes-human energy, etc.
2. Waste management:
- Recycling of materials: textiles, plastics, etc.
3. Policy, incentives and land management:
- Decision-makers are changing every “X” years and this impacts long-term planning and decision-making.
 - Give incentives to farmers on a long-term basis: first incentives were given, the issue is how to sustain incentives in the long-term to commit them to keep applying regenerative agro-farming. Front-runners do not receive further compensation; thus, the system is not ready to support long-term vision.
 - Changes in legislation, implying potential changes in behaviours to help reduce footprints and support a more circular and blue economy, including consumption habits and chain supply.
 - Develop policy to support sustainable farming activities and restoration actions.
 - Use CSA as a gathering point (i.e. EcoDaLLi).
 - Bring important local/ regional questions to the high-level institutions (European Commission).
4. Social aspects:
- Change old mindsets: scientists, decision-makers, and citizens, bring more co-participatory processes.
 - Implement activities for citizens’ engagement and public mobilisation (i.e. Blue Nights, children entered a museum for the first time, targeting young generations to embed sustainable values and facilitate a more active interaction between scientists and the population).
5. Education & Research:
- The difficulties in correctly defining the blue economy can lead to misunderstanding or underestimation of the concept. All different aspects that are part of achieving a blue economy should be embraced: “blue” industry, mobility, agriculture, etc.
 - A measurable approach to translate the impacts (positive or negative) of activities to the blue economy is missing and would be central for widening the blue economy concept.
 - Feasibility studies to assess alternatives – important aspect for the Danube Delta: current legal regulations of the biosphere reserve.
 - Improve management of complexity: compilation of all required information, work on projections and scenarios, comparison, and assessment of different solutions.

- The anomalistic phenomenon of Black Sea anoxic and anaerobic condition should be assessed, as part of achieving a more circular and blue economy.
- Make use of real-time monitoring (i.e. sensors: pH, humidity) to economise/optimise practices (i.e. farming).

Cross-thematic key-findings

All three groups have pointed out some key findings that are transversal to the three topics. This includes international cooperation and dissemination. Concerning transnational cooperation, participants have highlighted the importance of strengthening the existing cooperation structures in cross-borders regions¹⁵. Similarly, working groups stressed the need for a holistic approach in project management, taking as an illustration the case of a project firstly focused on biodiversity, which was extended to economic aspects, especially tourism and leisure activities¹⁶. Eventually, some comments have been made on dissemination aspects, insisting on the need to transfer the project's knowledge, key findings and results to other institutions working on the field, to be later transferable for replication of good practices and a more effective implementation of the sustainability actions¹⁷.

Workshop 2: “Restore our Ocean and Waters: EcoDaLLi stakeholders workshop on innovative solutions for improved Upper Danube protection, restoration and spatial governance.”

22nd of August 2023, Lecture Room BOKU River Lab - Vienna (Austria)

- Presenters, moderators, and rapporteurs

Presenters: Nadja Schlichenmaier (Steinbeis Europa Zentrum), Carme Machí Castaner (ICLEI Europe), Isin Can Traunmüller (Linz Municipality)

Moderators: Nadja Schlichenmaier (Steinbeis Europa Zentrum), Boryana Stancheva (ADRM), Karen Naciph (ICLEI Europe), Carme Machí Castaner (ICLEI Europe)

- Biodiversity

1. Nature based solutions and ecosystem restoration:

- The role of monitoring after the implementation of NbS projects should be reinforced.
- The core of the NbS definition should be social acceptance/social impact.
- Two key dimensions – 1. social awareness, 2. Effectiveness & co-creation/co-design.
- Education and campaigns for raising awareness that NbS are not by default against economic development.
- Work on the ontologies, to create general agreement on common definitions in the field of watershed restoration (e.g. “biodiversity”, “water management”, etc).
- The impact of water quality and management on biodiversity was mentioned.

¹⁵ This idea was notably brought up by the Biodiversity group members.

¹⁶ *Idem.*

¹⁷ *Idem.*

- Apply river restoration actions and incorporate parameters to monitor river ecosystem condition.
- Restoration becomes harder after each episode of extreme weather conditions.
- The introduction of other species to control insect population can imbalance the ecosystem, so would not be a recommended action.
- Standardised monitoring of restoration measures.

2. Agriculture:

- Analyse agricultural impacts on rural assets.

3. Economic activities: fisheries and industries:

- Assess anthropogenic alterations in urban areas.
- Pollution and heating island effect identified as some of the worst impacts to biodiversity.

4. Policy, incentives, and land management:

- Establish more connection with the Millennium goals 2030.
- Update ISO standards.
- Local, regional, and European agendas to address implementation needs.
- Plan and align the EU biodiversity protection and restoration strategy with local planning and conceptual framework to develop a bottom-up strategy (e.g., Linz City's more coordinated and integrated cooperation at regional and EU scale).
- Towards more integrated (less fragmented) planning.
- Introduction of a natural insurance scheme together with the authorities
- Develop ownership maps that help to understand the different landowners to be able to implement a large scale action and avoid fragmented interventions.
- Establish the connection between rural and urban landscapes.
- Legal representation for nature.
- Climate change is generating problems. Canals are being flooded in the Danube and affect biodiversity.
- Challenge to remove insects because of restricted use of chemicals, gap with legislation.

5. Social aspects:

- Generational issue. Older people remain and may be more resistant to new technologies and innovative solutions.
- Monitoring activities can be undertaken in cooperation with local communities – citizen science.

6. Education:

- Funding for assessment studies on biodiversity.
- Possible implementation of artificial intelligence for education and use of data.

- **Water pollution**

1. Nature based solutions and ecosystem restoration:

- Ensure information exchange at public level in all areas through dedicated policies (pollution, economic development, biology, ecological restoration practices).



2. Economic activities: transportation:

- Recognise that economic activities in the entire river can contribute to pollution.
- Consider transportation as an important factor towards pollution (for example, wastewater introduced by ships in the Danube remained till some years ago)¹⁸.

3. Policy, incentives, and land management:

- Recognise that legislation at the national level can have a gap in terms of transnational navigation and transportation through the Danube.
- Develop policy frameworks at transnational levels, for example an EU directive for international cooperation.

4. Education & Research:

- Monitor water quality in the river basin.

5. Health:

- Consider that heavy metals pollution on the Danube Delta can have an impact on the Delta.

- **Circular & Blue Economy**

1. Economic activities:

- Recognise tourism as a key balance between environmental action and finance and economic development.
- Tackle the lack of assessment of nature through an ecosystem services approach.
- Tackle the lack of indicators for external costs to encourage nature preservation.
- Address the lack of motivation, time and competences of companies.
- Consider freshwater providers as potential interested businesses.
- Include insurance companies.

2. Waste management:

- Tackle recycling and waste disposal issues (for example, Linz has a great industrial site with little recycling uses) to build a more circular economy.
- Need to incentivise recycling and to promote reusing, especially for water.
- Recycle old ships or reuse them.
- Design solutions for bin and rubbish to avoid plastics and wastes end everywhere with wind.
- Implementation of systematic recycling for bottles in Austria.
- Change the production system based on plastic (single used thrown away).

3. Policy, incentives and land management:

- Develop regulations related to environmental protection.
- Tackle the lack of legal framework and political pressure.
- Facilitate bureaucracy processes to help companies to navigate through this.
- Develop regulations at both local and national levels to control pollution.

¹⁸ This comment was made by the Blue and Circular Economy group and added here due to the topic.

- Promote NbS practices in legislation.
 - Address the lack of funding opportunities, especially from the public sector.
 - Introduce prevention measures and policies to encourage ecodesign, reuse, repair, awareness raising, and conscious shopping.
 - Use the ecosystem services approach that gives value to nature.
4. Social aspects:
- Address the social impacts of seasonal changes (for example, during winter, interconnections to the mainland are disrupted and people cannot access resources anymore).
 - Tackle the social impact of water scarcity, which generates migration to urban areas.
 - Ensure economic activities in policies so that younger generations can stay in the area.
 - Address the problem of ship passengers' behaviour, that is not respectful of nature preservation.
5. Education & Research:
- Raise awareness for decision makers and politicians.
 - Foster education to connect the right people with the right experts.
 - Address the problem of ship passengers' behaviour, that is not respectful of nature preservation.
 - Raise awareness in the industry.
 - Collect and share big data.

Cross-thematic key-findings

All three groups have pointed out some key findings that are transversal, for example on international cooperation or dissemination elements. Concerning transnational cooperation, participants have highlighted the importance of promoting peer-learning activities between municipalities across different Danube regions as well as sharing information practices at local level along the river basin¹⁹, which is substantially in line with the objectives of citizen engagement and knowledge exchange promoted by the Mission Ocean and Waters 2030. Additionally, the need to publicly provide information and dialogues on transversal topics has been recognised²⁰. Furthermore, some comments have been made on dissemination elements, insisting on the need to transfer the results of every project to other relevant institutions, so that the latter can use them and implement sustainability actions²¹.

¹⁹ This idea was notably brought up by the Water pollution group members.

²⁰ *Idem*.

²¹ This idea was notably brought up by the Biodiversity group members.

Workshop 3: “First Middle Danube Stakeholder Engagement Event”

August 27th, 2023 - Draž, Croatia

- **Biodiversity**

1. Nature-based solutions and ecosystem restoration:

- Identify poaching as an important challenge; an example from experience is that one person cannot monitor the entire Danube area (fuel consumption, lack of personnel and financial resources to carry out control and supervision against poaching and hunting).
- Due to soil changes (rivers, lakes, and backwaters turn into swamps and meadows), many animal and plant species are losing their habitat.
- Due to the lack of oxygen and frequent climate changes, certain species of fish and living things on the Middle Danube lose their habitat - death occurs for the reasons mentioned (disappearance of these species). As a result, living beings that are recognisable for this area (Middle Danube) lose their habitat. (butterflies, frogs, certain types of fish).
- Due to non-maintenance, more precisely due to non-cultivation of the habitat in the area of the Middle Danube River, lakes and backwaters turn into swamps and meadows. Old trees, reeds, and plants rot and create sludge, which ultimately results in habitat change.
- Due to soil changes (rivers, lakes, and backwaters turn into swamps and meadows), many animal and plant species are losing their habitat.
- Need to mitigate the impacts on ecosystems caused by the presence of microplastics.

2. Agriculture:

- Climatic changes (too high temperatures) lead to the need to irrigate agricultural land, and as such, it has a direct impact on the drying of the area and the reduction of the water level.
- The main problems caused by agricultural activities in all countries of the Danube basin are due to the inappropriate use of fertilisers and pesticides, which causes changes in the nitrogen balance and an increase in pesticides in the soil and water.

3. Economic activities: infrastructure and construction industry:

- Tackle the lack of infrastructure.
- Deal with the unresolved issues regarding the construction of buildings by the water (Danube).

4. Policy, incentives, and land management:

- Facilitate bureaucratic processes.
- Address the unregulated system in the country (in terms of excessive irrigation, use of pesticides) - monopoly of individuals.
- Address the lack of financial and physical (personnel) resources to implement the necessary measures.

5. Social aspects:

- Address insufficient communication and information between the government and the local population.
- Deal with the insufficient awareness among citizens about the consequences of destroying nature.
- Promotion and connection through social networks, portals, Living Labs, and workshops to raise awareness among citizens/residents.
- Strengthen social influence.

6. Education:

- Tackle the lack of interest from people in power in a part of Croatia that is among the least developed.
- Tackle the individuals' lack of interest in nature conservation activities due to a lack of trust in the system and the government.
- Tackle the lack of knowledge of the terrain from the institutions that pass measures and laws.
- Invest in people's education.
- Set up education and awareness-raising campaigns.
- Promotion and connection through social networks, portals, Living Labs, and workshops to raise awareness among citizens/residents.
- Invest in people's education.
- Set up education and awareness-raising campaigns.

- **Water Pollution**

1. Nature Based Solutions and ecosystem restoration:

- Tackle the invasive species issues: fish that were not found in the Danube area in the past.
- Better manage land and water resources, including inland water and wetlands
- Prevent soil erosion.
- Study the benefits and ecosystem benefits of wetlands and other natural water systems.
- Control the entire flow of the Danube to create cooperation and reduce pollution (the pollution of the Danube is a causal link-chain).
- Make upstream/downstream connections and consider all watershed impacts that may affect the same water system. (DaWetRest project that aims to do this).
- Implement a solution plan upstream of the river basin as a strategy for the restoration of the entire basin.



2. Economic activities: transportation, agriculture, construction industry, energy:
 - Address the problem of the ships that come and discharge sewage and leave garbage.
 - Promote sustainable water transport.
 - Address the discharge of liquid waste without prior treatment; transport of waste oil from agricultural machinery.
 - Address the inadequate handling of waste from livestock farms (improper disposal of manure).
 - Prevent pesticides from entering the water and generate pollution.
 - In large agricultural production, water surfaces were transformed into arable surfaces.
 - Ecologically unfavourable forest exploitation was carried out.
 - Address the lack of oxygen in the water in certain areas of the Danube. As a result, fish and other living beings in the area die. Death is most often caused by human activity (as a possibility, the participant in the discussion cites the discharge of sewage from local cottages along the Danube, and pesticides used in agriculture that have a direct impact on water quality).
 - Tackle the problems caused by concrete bridges located in the area of the "Šarkanj Vrblje" forest-hunting area along the Danube (Baranja).
 - Propose actions to remove dams (metal fences due to migrants due to the effects on wild game and other animals).
 - Promote access to sustainable energy that does not introduce pollutants into water bodies.

3. Policy, incentives and land management:
 - Stress the need for better water legislation.
 - Address the lack of intersectoral management of environmental issues.
 - Tackle the waste management problem.
 - Take into account that conditions change during implementation (e.g. extension of deadlines for project execution).
 - Regulate agricultural pesticides for all countries in the Middle Danube region (EU).
 - Regulate ship traffic (greater controls regarding the discharge of harmful substances into the water).
 - Implement local strategies that have been established.
 - Introduce sustainable regulation and tourism education (investment in tourism, promotion).



- Implement reconstruction measures that are sustainable at the local and national level and well-coordinated with local and national strategies.

4. Social aspects:

- Tackle the lack of active involvement of communities.
- Encourage the development of consumer associations that can help protect the river basin.
- Encourage changes in the behaviour of the population towards river and wetland systems.
- Promote water sports/recreational activities related to water, local traditions, and good practices (successful examples of rowing associations, hunting trades and fishing communities in Draž).

5. Education & Research:

- Conduct education for all ages.
- Advocate for financial resources for the implementation of education.
- Conduct education in schools about the consequences of water pollution and the consequences of environmental pollution.
- Use citizen and local science and involve all stakeholders in the area of the Middle Danube.
- Involve biologists in research/measurement of water quality (Topoljski Dunavac).

6. Health:

- Better understand (and social awareness) the interconnections between health and environmental impacts and its consequences for quality of life.
- Need to mitigate the impacts on human health caused by the presence of microplastics²².

- **Circular and Blue Economy**

1. Economic activities: agriculture:

- Due to the built concrete bridges and narrow passageways, there is no flow of fish; it has no fluidity and does not pass to the other side but stays in one area.
- Tackle the problems caused by concrete bridges located in the area of the "Šarkanj Vrblje" forest-hunting area along the Danube (Baranja)²³.
- Intensification of land use has been made possible by the conversion of large parts of wetlands.

²² This key-finding was added by the Biodiversity working group.

²³ This key-finding was added by the Water pollution working group.



- Tackle the inadequate use of pesticides and fertilisers (growing plants, viticulture, fruit growing).
 - Focus on the permanent reduction of the use of agrochemicals in the goals of sectoral policies.
 - Encourage and participate in projects aimed at reducing soil erosion.
 - Ensure efficient management of manure from intensive animal farms.
 - Adopt innovative technologies and use nutrient-rich manure as fertiliser to reduce erosion from agricultural land and reduce pollution from large pig farms.
2. Waste management:
- Promote the use of plant waste as in the past (e.g. reed processing procedure).
 - The mentioned examples of utilisation of plant waste in the past restart the trend of houses also being built from a mixture of straw and mud that was extracted from wetlands and water.
 - Replace concrete bridges with natural materials (wood).
 - Better recycle materials: textiles, plastics, etc.
3. Policy, incentives, and land management:
- Tackle the war consequences and changes in ownership and economic conditions.
 - Focus on the permanent reduction of the use of agrochemicals in the goals of sectoral policies.
 - Encourage incentives for switching to the "blue economy".
 - Monitor incentives and improve financial aspects²⁴.
 - Encourage incentives at the State and EU level regarding decarbonization activities, use of technologies for energy supply (i.e. solar panels)²⁵.
4. Social aspects:
- Steel wires installed for migrants have a direct impact on the flow of animals (deer game, wild pigs, foxes) that inhabit and live in these areas and habitats of the Danube.
5. Education & Research:
- Address the lack of knowledge of the Blue economy and its advantages.
 - Overcome the difficulties in correctly defining the blue economy to avoid misunderstanding or underestimation of the concept.
 - The local population (narrow and wider) has no knowledge of the advantages or the meaning.
 - Raise awareness and education of all stakeholders (farmers, craftsmen regarding green sustainability).

²⁴ This key-finding was added by the Water pollution working group.

²⁵ *Idem.*



- Involve stakeholders in joint work and community well-being.
 - Conduct awareness-raising campaigns and training of farmers focused on good agricultural practice.
6. Recycling and waste:
- Promote the use of plant waste as in the past (e.g. reed processing procedure).
 - The mentioned examples of utilisation of plant waste in the past restart the trend of houses built from a mixture of straw and mud extracted from wetlands and water.
 - Replace concrete bridges with natural materials (wood).
 - Better recycle materials: textiles, plastics, etc.

Cross-thematic key-findings

As also observed in the other workshops, all three groups have pointed out some key findings that are transversal. For instance, participants have highlighted the importance of further developing cross-border State collaboration to tackle the pollution of the river as well as encouraging local and regional participation in EU projects related to nature conservation²⁶. Additionally, the need to further apply current knowledge from already existing good practices implemented at other regions and countries has been recognised²⁷ as a main challenge. Furthermore, some comments have been made on the need to develop a portal (or platform for exchange) that brings stakeholders and citizens together. As directly related to the EcoDaLLi project, the following recommendations were pointed out in the discussions: to further develop the EcoDaLLi portal that will include an exchange space for the community and posting of news, and to keep up to date with upcoming project-related events. The EcoDaLLi portal will include all relevant updates about the next activities, inform on events, as well as to feed into the Living Labs discussions. This is intended to benefit the exchanges at the Living Lab planned in 2024 in Draž²⁸ (Croatia). As a next step, the Living Lab planned at the City of Draž in 2024 should elaborate on the discussions held by each group in this workshop (Biodiversity, Circular and Blue Economy, Water Pollution).

²⁶ This idea was notably brought up by the Water pollution group members.

²⁷ This idea was notably brought up by the Biodiversity group members.

²⁸ This idea was notably brought up by the Circular economy group members.

Workshop 4: “Restore our Ocean and Waters: EcoDaLLi stakeholders workshop on innovative solutions for improved Lower Danube protection, restoration and spatial governance”

25th October, 2023 - online

- Presenters, moderators and rapporteurs

Presenters: Carme Machí Castaner (ICLEI Europe), Albert Scriciu (GeoEcomar), Bernarda Matijević (Draž Municipality)

Moderators: Albert Scriciu (Steinbeis Europa Zentrum), Karen Naciph (ICLEI Europe), Carme Machí Castaner (ICLEI Europe) and Filip Juric (University of Zagreb)

- Biodiversity

1. Nature based solutions and ecosystem restoration:

- Provide a better understanding of stakeholders of the potential, the extends and the limits of NbS.
- Use interest groups to address NbS needs and river restoration environmental concerns (e.g. dredging has negative impacts to certain groups of stakeholders), so NbS could have a bigger role in the tributaries.
- Centralised water treatment reduces the potential for NbS implementation.
- Make legislation recognise NbS and embed it into environmental policy, legislation and urban wastewater treatment policy, and prioritise them over high-tech solutions.
- Reduce projects related costs through NbS.

2. Agriculture:

- Solve the issue related to land use and landowners in the case of lateral connectivity such as wetlands.

3. Economic activities: industries:

- Overcome the challenges with companies that are negatively impacting the Delta site.

4. Policy, incentives and land management:

- Involve local legislation and local authorities in the restoration plans.
- Improve legislation and environmental monitoring to ensure the restoration of small and large areas.
- Make legislation that solves the issues with property registration (ex: the former fishing farms along the river).
- Push for including land-use as a part of the water policies at EU level.
- Harmonise policies for nature protection with sustainable water management policies at both national and European levels.

- Gather municipalities to discuss basin-level aspects to connect local and regional issues.
- Change Romanian legislation to allow implementation of actions.
- Push for bank recognition in legislation to promote positive impact rather than compensation.

5. Social aspects:

- Bring all actors together: especially communities negatively affected.

6. Education:

- Increase the capacity of Serbian local and national authorities.
- Provide Serbian professionals with special training on designing NbS.
- Include the land use information to provide authorities with better understanding.
- Create updated land-use maps for Danube Delta to present actions to public authorities.

- **Water pollution**

1. Nature Based Solutions and ecosystem restoration:

- Deal with the eutrophication issue in littoral countries due to the nutrient load carried throughout the Danube River.
- Prevent the river from further erosion.
- Generate resources for the implementation of NbS and other decarbonisation activities.
- Produce guidelines and regulations on NbS implementation.

2. Economic activities: energy production, transportation, tourism and agriculture:

- Foster dialogue with agricultural stakeholders to reduce pesticide use.
- Improve hydropower production to face issues related to algal blooms and sediment transport.
- Replace fossil fuels to reduce the climate impacts of the shipping industry.
- Strengthen innovation, technical capabilities and the share of sustainable energy sources in energy production.
- Find a way to distribute hydropower related profits to the public sector.
- Trade-offs between objectives: hydropower and carbon emissions reduction.
- Take into account the impact of tourism on the river.
- Find a balance between economic and ecological aspects.
- Face the trade decline caused by the war in Ukraine and incentive trade along the river.
- Develop sustainable tourism practices to boost the potential for economic benefits.
- Use the newly generated benefits to improve water quality and preservation.
- Develop mechanisms to allow the economic benefits to the protection of the river basin.
- Involve municipalities in supporting green tourism and agricultural policies.
- Identify funding opportunities to support municipalities' actions.

3. Policy, incentives, and land management:

- Identify how to apply the polluter pays principle in a transnational context.
- Develop more policies to regulate economic activities.
- Involve municipalities in supporting green tourism and agricultural policies.
- Identify funding opportunities to support municipalities' actions.
- Bridge the gaps in the policy frameworks in terms of NbS development and implementation.
- Publicly fund the implementation of NbS to reduce pollution.
- Use strategic environmental assessment and urban planning to integrate NbS into policy frameworks.
- Mention NbS in the WFD and UWWFD.
- Charge for nutrient discharge in the river.
- Bridge the political gaps by combining bottom-up and top-down approaches.

4. Social aspects:

- Encourage community-based projects.

5. Research and Education:

- Unlock resources needed for innovation and research on renewable energy use to reduce the carbon impact of the shipping sector.
- Make the monitoring of water quality more transparent across the river basin.
- Make the products of the Black Sea Catchment hydrological modelling available.

- **Circular & Blue Economy**

1. Economic activities:

- Use biomass for syngas production.
- Encourage eco-industrial parks (ex: The Pannonian Park in Serbia).

2. Waste management:

- Develop circular agriculture practices, such as organic farming to reduce chemical use.
- Encourage the reduction of textile waste through recycling practices (example in Hungary).
- Tackle excessive sludge formation due to unusual plant and tree fall,

3. Policy, incentives, and land management:

- Identify further funding programmes.
- Tackle increasing climate change impacts, especially floodings.
- Deal with changing water flow and level, reduction of water availability, temperature changes, and sea level rise (especially in the Delta area and in the Black Sea).

4. Social aspects:

- Promote the use of natural materials in traditional house construction, like mud bricks or reeds.

5. Education and Research:

- Develop Smart Water Management.
- Face the challenges of floating substances and sediment in Serbia.

Cross-thematic key-findings

All three groups have pointed out some key findings that are transversal, more specifically related to international cooperation. Indeed, participants have highlighted the importance of fostering partnerships and collaborative frameworks to build up integrative solutions through existing structures, like Interreg and DTP²⁹. Additionally, the need to consider the transnational situation to effectively apply the polluter pays principle has been recognised to avoid limiting pollution at the national scale³⁰. Furthermore, the necessity of establishing regular communication between the working groups from ICPDR and the Black Sea commission to keep the mechanisms functioning has been emphasised. Eventually, the working groups have accentuated the relevance of existing international frameworks and examples to better manage the Danube River, such as the Danube Black Sea initiative and the EU best practices in the catchment and WFD³¹.

Conclusions

During the discussion sessions the key stakeholders provided valuable insights into the characteristics and the local context of the geographical Danube regions, highlighting key challenges and priorities related to environmental management and sustainable development at the Danube River basin scale. The discussion points have been analysed to address the disparities and commonalities across the Danube regions in relation to the three Mission Ocean objectives and identifying how to embed these findings in the design of the EcoDaLLi Living Labs.

Geographical disparities in the Danube River basin

The stakeholders at the workshop sessions brought the realities from each territorial unit, based on discussions on daily Danube communities' activities, the kind of relation established with the fluvial ecosystem, economic activities to sustain themselves and the links with the environmental quality of the Danube area. This revealed a spectrum of different situations across the various Danube geographical regions, stemming from social, economic, cultural, technological, and technical contexts. The idiosyncrasies of each unit translate in varying problem priorities, topics of major concern and potential for innovation in specific areas (e.g. agriculture, fisheries, hydro power plants, etc). This helps to align on which are the priorities to focus on in the future Living Labs and what river restoration practices we should tailor at each location.

²⁹ This idea was notably brought up by the Biodiversity group members.

³⁰ This idea was notably brought up by the Water pollution group members.

³¹ *Idem*.

In the **Upper Danube**, stakeholders raised concerns around water pollution (related to old industrial activities, inadequate waste management, shipping and transportation activities, nutrients from agriculture, combined sewage overflow and nonpoint source contaminants from run-off in urban areas). Another problematic raised has been the consequences from more frequent high-intensity rainfall events, causing flooding of riverside urbanised areas. The main issues identified by the stakeholders were sediments released by conversion of land-uses, riverside sealing up and loss of riparian forests, industrial pollutants and discharge of other point and nonpoint source contamination into the Danube River and its tributaries. Certain understanding and experience in the implementation of NbS and fluvial restoration projects is evidenced in the region, an example of such kind of initiatives is the Traisen Life Project, with which a hypothetical meander of the Danube River has been constructed, enhancing the increase of habitat and sediment control. Nevertheless, a co-creation and co-design framework, involving all kinds of stakeholders and local communities was one of the fundamental aspects still missing.

Additionally, the Upper Danube stakeholders mentioned as a regional priority the knowledge gaps related to the need of establishing frameworks, standards, and governance models to achieve the three objectives of the Mission Ocean. Potential solutions include the establishment of education initiatives and enhancing regulations and financial mechanisms in terms of water management, ship traffic and the use of pesticides. This should be linked to the landscape and urban strategic masterplan design, as it should incorporate all regulatory needs to compensate urban impacts, protect local biodiversity and the environmental quality of the area. Further, it seems of particular relevance to carefully introduce ecological design principles for the interstitial peri urban areas and improvement of the transition between urban and rural areas.

The stakeholders from the **Middle Danube** region highlighted some important gaps in terms of effective restoration, including the lack of proper professional training on the design of NbS. As some of them argued, building local capacities might imply avoiding mistakes when implementing river and floodplain restoration practices. This was especially relevant for stakeholders from Serbia, as well as other nearby regions. In addition, stakeholders highlighted a deficient urban and territorial planning, and strategies poorly defined (e.g., without accounting for ecological aspects). A proposed solution to overcome this deficiency was to include all relevant land-use information in regional and local strategic maps for policymaking, and the development of a more integrated and holistic vision for sustainable watershed management.

Another key issue in the Middle Danube seems to be related to the trust that should be established between the population, governmental institutions, and decision makers. Additionally, as referred by Middle Danube stakeholders, there is a noticeable lack of means and resources to guarantee the enforcement of existing policy frameworks to protect resources and biodiversity.

In the **Lower Danube**, there was an important debate around lack of more clear policy frameworks that integrate sustainable watershed management concepts, including urban wastewater treatment with NbS. Given that many peri-urban and rural areas lacked sufficient domestic sewage treatment, decentralisation of water treatment became a relevant topic of discussion during the exchanges with Lower Danube stakeholders. Some of them indicated the urgent needs for stronger environmental policies that support the uptake of NbS into decentralised domestic and Combined Sewage Overflow treatment.



The **Danube Delta communities** were often aware of sustainable resource management practices linked to their own vernacular knowledge. All this raised an important focus on social, environmental, and economic aspects for a more sustainable management of the Danube Delta area, including the wetlands and riverine ecosystems. More citizens and communities' involvement in co-design and implementation of sustainable solutions was advised in order to achieve the effective implementation of these kind of actions. Reaching out to smaller villages and leveraging population behaviours and vernacular understanding towards river and wetlands systems was critical in enabling a consensus on how to design for, implement and maintain overtime restoration practices in the Danube Delta and Black Sea regions. An important emphasis was placed on the definition of actions in an encompassed way, together with educational actions, raising awareness about the importance, complexity, and ecological relevance of Danube Delta natural heritage.

Based on the challenges pointed out by the stakeholders, it is evident that these differences translate from the local characteristics and the economic activities through which the different regions sustain themselves. This subsequently affects the value each region gives to the different objectives of the Mission Ocean. The Upper and Middle Danube regions are primarily characterised by economic activities such as transportation of goods and industrial operations, influencing their concerns around flooding and extreme weather conditions, holding a special interest in practices related to the blue and circular economy.

Meanwhile, the Lower Danube, Danube Delta and Black Sea regions rely on economic activities like fishing, agriculture, and tourism, which are heavily influenced by water quality and biodiversity aspects. It has been noticed by stakeholders that in these areas local communities have established a more intimate relation as well as an economic dependence on local natural resources and appear to be more vulnerable to biodiversity and water quality problems, such as increased soil and water pollution, wetlands loss or degradation of ecosystems. Additionally, being downstream makes these regions receptors of wastewater, sediment, and solid waste from upstream areas, particularly affecting ecosystems like the Danube Delta and its biodiversity.

As indicated by studies conducted for the entire Danube region (Chanou et al., 2023), and based on the feedback obtained from the stakeholders, we conclude that there are significant disparities in terms of livelihood, socio-economic profile, cultural background, industrial development across the territorial units of the Danube River basin and Black Sea region. For instance, as previously mentioned, many Danube Delta economic activities are related to the river, including fishing, agriculture, and tourism. The culture and livelihood of the communities of this region showed to have a deep interconnection with the different waterscapes that define the Danube Delta territory (such as wetlands, floodable prairies, riparian buffers, lakes, and meanders). Communities inhabiting these high ecological landscapes rely on fishing of species like Sturgeon, developing activities linked to tourism, manufacture of boats, farming and agriculture for their subsistence. Additionally, the culture of these communities connects to ancestral practices, including boat manufacturing techniques, rowing and other local recreational activities around the water bodies. Therefore, changes in the hydrology and water quality of the river, floodplains and wetland systems can have an important impact on their economies, which might make them migrate to other economic poles and incur in the loss of traditions.

Commonalities across the four Danube regions

In relation to the adoption of Nature-based Solutions and ecosystem restoration practices, stakeholders across the four Danube regions have identified these as pivotal drivers for targeting the objectives of Mission Ocean, particularly in enhancing biodiversity and improving water quality throughout the river basin. However, significant challenges persist, primarily stemming from a lack of understanding and public acceptance of NbS applications.

This underscores the importance of addressing two critical dimensions: enhancing social awareness and fostering co-design and co-creation practices. Furthermore, decision makers lack sufficient knowledge in terms of the societal benefits and ecosystem services that NbS implementation could provide, highlighting the need for additional policy regulations that help recognize and incentivize the use of NbS.

In terms of social aspects, a common factor across the four Danube regions is the need to raise public awareness on the relevance of topics like biodiversity, water quality and blue and circular economy. There is a need to increase education efforts on these topics, as well as on challenges and possible solutions, directed to the general population but also targeting politicians and decision makers. Especially reflecting the new and available research and data gathering into the policy framework and regional strategies.

Another shared challenge across all Danube regions is the imperative for integration across various levels, in terms of policy and the implementation of restoration measures. This requires a comprehensive approach that considers activities and their impacts throughout the entire river basin, transcending local, regional, or national boundaries. It calls for the establishment of cross-boundary governance models and the incorporation of sustainable practices at the transnational level. International collaboration is vital, along with the facilitation of peer learning initiatives and the exchange of best practices among Danube countries.

In particular, gaps have been identified in policy frameworks at different levels concerning biodiversity and the transborder transport of pollutants. These gaps derive from a lack of harmonisation of policies across sectors and topics and demonstrate the need for a holistic approach integrating sustainable water management and nature protection strategies. Harmonising legislation and policy frameworks at both national and EU levels is essential, requiring the adoption of multi-level governance approaches. Moreover, fostering international collaboration and promoting peer learning activities are pivotal for ensuring the sustainable management of the Danube region.

A frequently mentioned knowledge gap is related to the lack of a clear definition of Blue Economy and Circular Economy. Without having a unified understanding of the concept, the development of an impact assessment and monitoring framework in the area becomes more of a challenge. Additionally, the interlinkage between the blue economy and the implementation of NbS along with the concept of ecosystem services and determination of a monetary value of nature and natural resources is mentioned as a key solution.

An important activity across all the Danube regions is Agriculture and stakeholders highlight its relevance to the three Mission Ocean objectives. In terms of biodiversity and ecosystems, agriculture plays a role in terms of land uptake and land use changes. Additionally, the use of fertilisers and pesticides and its regulation is of concern due to its impact on water pollution and its subsequent impact on biodiversity.



All regions have established or mentioned the link between biodiversity and water quality and pollution, specifically in the concern of the impact of emerging pollutants related to both environmental and human health.

6. Statements on the Living labs - key message

The purpose of these tailored-stakeholder workshops was to create a basis for further exchanges within the different Living Labs.

The EcoDaLLi Living Labs emerge as a co-creative, multi-stakeholder environment that promotes a multi-method approach to foster innovation and restoration practices for real-life settings in the Danube and Black Sea region. As part of integrating the specificities of the different Danube Regions, the EcoDaLLi Living Labs focus on specific topical areas including innovation ecosystems, climate change, water systems and biodiversity, as previously presented in Figure 2. This topical focus has been taken into consideration when presenting and conducting the tailored-stakeholder workshops at the respective territorial unit. The main outcomes and findings from the workshops that should be integrated the design of each of the Living Labs are as follows:

Upper Danube (Danube Innovation Ecosystem) explores how the development of innovative solutions by private stakeholders, industries, researchers, and other stakeholders could allow for a more cohesive, integrated, and sustainable management in the Danube watershed. From the exchanges through the tailored workshops, a significant need was identified in terms of knowledge sharing, transfer and strengthened collaboration between all different stakeholders and across the territorial units. Now, more than ever, the Danube and Black Sea region is in need of this knowledge transfer and the results from the workshops should stimulate the uptake of innovative technologies (such as decentralised NbS for sewage treatment) into the regions that are more in lack of this (Lower and Danube Delta and Black Sea areas).

Middle Danube (Climate Change) works on the mission of protecting local communities and ecosystems from extreme events. We have collected the inputs from different stakeholders on increased flooding, water scarcity and soil and water pollution issues in riverine areas in middle Danube and believe that the integrated multidisciplinary work, involving vulnerable communities, has been reflected as an urgent matter by middle Danube stakeholders. A more evolved co-design framework in which communities and citizens engagement is ensured might help to translate local vulnerability issues due to Climate Change into the municipal, regional and national agendas.

Lower Danube (Water Systems) focuses on the advancement of local economic activities and man-made solutions, development of wastewater solutions and enabling innovation actions. In the Lower Danube region, the focus of attention is wastewater management and treatment. This emerges not only from the significant impact of water quality on the livelihoods and economic development of local communities but also from the challenges highlighted by the stakeholders regarding wastewater treatment and the mitigation of water pollution. A key innovative solution identified to address these challenges is the integration of decentralised water management approaches, including the implementation of NbS. Additionally, management of less environmentally harmful fishing, farming and agriculture practices might promote a deep change as well in achieving a more balanced use of local resources. All these concepts can be exchanged in the Living Labs to increase resilient practices for the Lower Danube region.



Danube Delta and Black Sea (**Biodiversity**), focus on one of the most emergent issues due to wetland loss, which is protection of biodiversity, including bird communities, fishes and aquatic vegetation that sustains the chain of natural resources. The Danube Delta and Black

Sea Living Lab should stimulate debate around wetland preservation and less harmful practices, but also how small remote local communities can benefit from including NbS and ecosystem services, reducing their vulnerability to increased water pollution, loss of wetlands and mitigate the impacts to biodiversity.

It is strongly encouraged that these findings from the tailored stakeholder workshops are integrated in the design and implementation of the EcoDaLLi Living Labs. Additionally, it is important to mention that in terms of engagement of the stakeholder's full cooperation from the local project partners is required. During the development of the dedicated stakeholder meetings, the most successful workshops within person attendance were the ones that had personal invites from the project partners located in the geographical area where the workshop was taking place. Additionally, online engagement was very successful, broadening the attendance and the target audience, which reflected on interesting discussion. It is also recommended to embed the Living Lab's workshops as part of the main program of ongoing events or conferences on a related topic, as this can boost attendance and already congregates a variety of stakeholders, rather than mobilising them for an exclusive EcoDaLLi event.



Abbreviations and Acronyms

ADRM: Association of Danube River Municipalities “Danube” (Bulgaria).

ARBDD: Administratiei Rezervatiei Biosferei Delta Dunarii / Danube Delta Biosphere Reserve Administration (Romania).

BAW: Bundesamt für Wasserwissenschaft / Federal Agency of Water Management (Austria).

BOKU: Universität für Bodenkultur Wien / University of Natural Resources and Life Sciences of Vienna (Austria).

CEKOM: Competence Centre Ltd. for research and development.

CSA: Community-Supported Agriculture.

D: Deliverable.

DaWetRest: Danube Wetlands and floodplains Restoration.

DDNI: Danube Delta National Institute for Research & Development.

DTP: Danube Transnational Programme.

EcoDaLLi: ECOSystem-based governance with DANube lighthouse Living Lab for sustainable Innovation processes.

EU: European Union.

ICARTI: International Centre for Advancement on Research , Technology and Innovation.

ICLEI: International Council for Local Environmental Initiatives.

ICPDR: International Commission for the Protection of the Danube River.

ISO: International Organisation for Standardisation.

NbS: Nature-based Solutions.

NoviSad: Univerzitet u Novom Sadu, Poljoprivredni Fakultet / University of Novi Sad, Faculty of Agriculture (Serbia).

PSSS: Poljoprivredne Savetodavne i Strucne Sluzbe Srbije / Agricultural Advisory and Expert Services of Serbia.

SME: Small and Medium-sized Enterprises.

SMS: Smarter Mobility Solutions.

SRD: Športsko Ribolovno Društvo Linjak Topolje / The sport fishing association Linjak Topolje (Croatia).

SRU: Športsko ribolovna udruga Odra / Sport Fishing Association Odra (Croatia).

UNESCO: United Nations Educational, Scientific and Cultural Organisation.

UNIZAG FSB: Fakultet strojarstva i brodogradnje, Sveučilište u Zagrebu / Faculty of Mechanical Engineering and Shipbuilding of Zagreb (Croatia).

UPB:

Universitatea Politehnica din București / Polytechnic University of Bucharest (Romania).

UV: Ultraviolet.

UWWFD: Urban Waste Water Framework Directive.

WFD: Water Framework Directive.

WP: World Package.

List of Tables

Table 1. Description of the four tailored stakeholder workshops that took place in 2023.

Table 2. Number of participants per each workshop session.

Table 3. Key points classified by aspects for each thematic pillar of the Mission Ocean objectives.

List of Figures

Figure 1. Geographical regions in the Danube River Basin as conceptualised in the EcoDaLLi project.

Figure 2. Design of the EcoDaLLi Living Labs System.

Figure 3. Distribution of the institutions that took part in the tailored stakeholder workshops among target groups.

Bibliography

European Commission. 2021. Mission: Restore our ocean and waters. Implementation Plan (https://research-and-innovation.ec.europa.eu/system/files/2021-09/ocean_and_waters_implementation_plan_for_publication.pdf)

Chanou, Z., McColgan, O., Berbel, J., et al., .2023. Baseline study for the implementation of lighthouses of the Mission 'Restore our ocean and waters by 2030: Atlantic, Arctic, Danube and Mediterranean lighthouses, Publications Office of the European Union. <https://data.europa.eu/doi/10.2777/34856>

List of Annexes

Annex A. Indicative table of the institutions that took part in the four workshops.

Annex B. Workshop summaries, instructions, templates and agendas.

Annex C. Slides of the workshops: Cities of Draz and Linz, etc.

Annex A

Indicative table of the institutions that took part in the four workshops

This table provides insight on the institutions related to the workshop's attendees. It is important to note that in compliance with GDPR this list reflects only the participants that indicated their institution and acknowledged the use of their data for internal project purposes. Therefore, the data in this Annex is purely indicative and non exhaustive.

Sector	Workshop 1 Danube Delta (Tulcea, Romania)	Workshop 2 Upper Danube (Vienna, Austria)	Workshop 3 Middle Danube (Draž, Croatia)	Workshop 4 Lower Danube (online)
Civil Society	2	1	3 (e.g. SRU Odra Velika Gorica, SRD Linjak Topolje)	5
Academia	12 (e.g. University of Zagreb, DDNI, ICARTI, GeoEcoMar)	10 (e.g. Boku, Slovak University of Technology in Bratislava-Faculty of Civil engineering)	9 (e.g. CEKOM, University of Pannonia, Fakultet Strojarsstva i brodogradnje)	42 (e.g. NoviSad, ICARTI, National Institute for Marine Research and Development "Grigore Antipa", Institut Jaroslav Černi, University of Ruse, International Black Sea University, McMaster University, UPB, GeoGraphic, University of Zagreb)
Governance	12 (e.g. Tulcea County, ARBDD, Romanian Ministry of Environment, National Administration for Meteorology of Romania)	7 (e.g. BAW, Viadonau - Austrian Ministry of Transport, Linz Municipality)	12 (e.g. Draž Municipality)	16 (e.g. Romanian Ministry of Environment, Almamons - Regional SME Development Agency of Romania, Federal ministry of the environment and tourism of Bosnia, Executive Agency "Study and Maintenance of the Danube River" - Ministry of Transport of Bulgaria, Water Management Directorate of Bulgaria, National Administration "Apele Romane", "Vojvodina Sume" Directorate of the Prefecture - Bulgaria, Republic of Bulgaria Vidin Regional Administration, Special Nature Reserve "Obedska Bara" of Romania, Water hazard "Srbijavode")
Businesses	9 (e.g. SMS, Geostud, Techno Instrument, Scortel ltd)	2 (Hungarian Association of Environmental Enterprises)	5 (e.g. Hidroing d. D., PSSS)	4 (e.g. Diadikasia, Garfond, Opt Banka)

Annex B

Tables of the four workshops' agendas

Workshop 1

09:20	Welcome and introductory words ICLEI Europe, ADRM
09:25	<ul style="list-style-type: none"> Ecosystem based governance with Danube lighthouse Living Lab for Sustainable innovation processes (EcoDaLLi) Mission Restore our Ocean and Waters ICLEI Europe EcoDaLLi Project overview ICLEI Europe
09:55	Coffee Break
10:15	Participatory Working Session Moderation by ICLEI Europe, ADRM and DDNI
11:15	Joint Discussion and Conclusions Moderation by ICLEI Europe, ADRM and DDNI
11:45	End of parallel session

Workshop 2

15:30	Welcome and introductory words Nadja Schlichenmaier, EcoDaLLi project coordinator
15:40	Mission Restore our Ocean and Waters, Charter Endorsement and Horizon Europe EcoDaLLi Project Carme Machi Castaner, ICLEI Europe
15:50	EcoDaLLi Living Lab concept, innovation and technology focus on Upper Danube Nadja Schlichenmaier, EcoDaLLi project coordinator
16:00	City-River interactions, challenges and actions undertaken by Linz City (Austria) Işın Can Traunmüller, City of Linz
16:15	Coffee Break
16:45	1st part of participatory session: mapping needs, gaps and interlinkages All, including online and in-person attendees, moderated by ADRM, Steinbeis and ICLEI Europe
17:15	2nd part of participatory session: actions and propositions All, including online and in-person attendees, moderated by ADRM, Steinbeis and ICLEI Europe
17:45	Reporting to the plenary (one assigned reporter from each group)



18:00	Final remarks and closure of the event
18:15	In-person social time

Workshop 3

15:00	Registration
16:45	Mayor's address - the importance of EU projects for the municipality and the importance of cooperation
17:00	EcoDaLLi presentation
17:20	Discussion - Interactive work, assessment of needs, opportunities, and challenges
18:00	Coffee Break
18:20	DaWetRest presentation
18:40	Discussion
19:00	Final remarks and closure of the event
Following day	Field visit

Workshop 4

9:30	Welcome and introductory words Nadja Schlichenmaier, EcoDaLLi project coordinator, Steinbeis
9:40	Mission Restore our Ocean and Waters, Charter Endorsement and Horizon Europe EcoDaLLi Project Carme Machi Castaner, ICLEI Europe
10:00	Danube good restoration practices and Nature-based Solutions selection methodology Albert Scriciu, Geocomar
10:10	Draž municipality challenges Bernarda Matijevic, Draž municipality
10:20	Coffee Break
10:30	1st part of participatory session: mapping needs, gaps and interlinkages All
11:15	2nd part of participatory session: actions and propositions All
12:00	Reporting to the plenary (One assigned reporter from each group)
12:20	Final remarks and closure of the event



Annex C

Outline of Workshops Presentations slides

A compilation of generic workshops' presentations slides is below provided, including the introduction of Horizon Europe Missions (one of which is tailored to restoring the ocean and waters by 2030), overview of the Mission Oceans and Water 2030, Mission Ocean Charter and cooperation framework (under the umbrella of the MIP Ocean and PREP4BLUE, clustered by the four different Lighthouses, the different Coordination and Support Actions, and Innovation Actions targeting the Mission Ocean goals) and, finally, outline of the EcoDaLLi project, four main objectives, territorial units and work plan.

Horizon Europe Missions

- Solving some of the world's biggest challenges
- Each mission will act as a portfolio of actions - such as research projects, policy measures, or even legislative initiatives - to achieve a measurable goal that could not be achieved through individual actions
- The missions will contribute to the goals of the European Green Deal, the European Plan to Combat Cancer, and the Sustainable Development Goals

Adaptation to Climate Change	Cancer	Climate-neutral and Smart Cities	Restore our Ocean and Waters	Soil Deal for Europe

RESTORE OUR OCEAN AND WATERS

Funded by the European Union

Mission Ocean & Waters

- 2030 target to protect and restore the health of our oceans and waters through research and innovation, citizen engagement and blue investments
- Cross-cutting enabling actions, in particular broad public mobilisation and engagement and a digital ocean and water knowledge system (Digital Twin Ocean)
- Supporting regional engagement and cooperation through area-based „lighthouses“ in major sea/river basins: Atlantic-Arctic, Mediterranean Sea, Baltic-North Sea and Danube-Black Sea
- Calling on Member States, regions and stakeholders to endorse the Mission Charter



Mission Restore our Ocean and Waters – Objectives

- 1 Protect and restore marine and freshwater ecosystems and biodiversity
- 2 Prevent and eliminate pollution of the oceans, seas and waters;
- 3 Sustainable, carbon-neutral and circular Blue economy.



Endorsement to the Mission Charter
is encourage to all stakeholders active in a Danube innovation action

Actions include Mission Ocean and Waters related policies, programmes, initiatives and projects to support:

1. Research and innovation;
2. Evidence-based knowledge and data and/or access provision to knowledge and data, in line with FAIR principles for the Mission Ocean and Waters Knowledge System;
3. Upscaling, deployment and replication of solutions;
4. Citizen engagement, citizens-science, youth-led initiatives, communities of practice, ocean and water literacy, outreach, awareness raising and participatory approaches;
5. Education and training.

Mission Restore our Ocean and Waters – Targets

Increased **biodiversity** and resilience

- Protect (strictly 10%), and by at least 30% of the **EU's sea** and integrate ecological corridors: Trans-European Nature Network
- Restore at least 25,000 km of **free-flowing rivers**
- Contribute to marine restoration: **seabed habitats and coastal ecosystems**



Control and prevention of **water pollution**



- Reduce by at least 50% **plastic litter** at sea.
- Reduce by at least 30% **microplastics** released into the environment.
- Reduce by at least 50% **nutrient losses**, and risk of **chemical pesticides**

Circular, blue and free carbon economy

- Net zero **maritime emissions**
- Develop zero-carbon and low-impact **aquaculture**, and promote circular, low-carbon **multi-purpose use of marine and water space**.



"2nd EcoDaLLi stakeholder workshop for Upper Danube" parallel session. 22nd August, 2023 – Danube Conference, Vienna (Austria)

Mission Restore our Ocean and Waters – Implementation

1st phase (2021-2025)

- Lighthouses** as the Mission sites for the implementation
- Hubs** and platform of transformative innovation
- Piloting and testing of **innovative solutions**



4 "lighthouses" at basin scale:



2nd phase (2026-2030)

Deployment and upscaling

- Replication and scale up of solutions developed and piloted in the first phase
- Strengthened **basin-scale cooperation** and governance.
- Development of **new business models**, financial and **societal innovation**



"2nd EcoDaLLi stakeholder workshop for Upper Danube" parallel session. 22nd August, 2023 – Danube Conference, Vienna (Austria)

Danube Lighthouse – EU Framework

EU Mission Ocean framework, guidelines and related policies:



- Implementation Plan for the Mission Ocean
- Mission Ocean and Mission Charter
- Danube Transnational Programme 2014-2020
- EU Strategy for Danube Region
- The Green Deal
- EU Nature Restoration Law

Danube Basin: From Black Forest to Black Sea

Competences:

- Spatial policies for management of flood plains
- Sediment transfers
- Wetlands and protected areas
- Riparian forests and aquatic and riverside flora and fauna
- Protection of communities to flooding, landslide, contact with contaminated soils and waters
- Waterborne transportation, riverside businesses, river exploitation



"Everything is connected to everything else." – Aldo Leopold, conservation ecologist



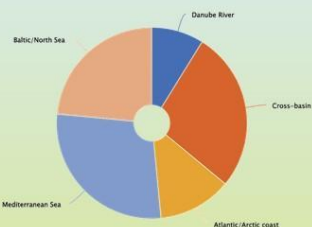
"2nd EcoDaLLi stakeholder workshop for Upper Danube" parallel session. 22nd August, 2023 – Danube Conference, Vienna (Austria)



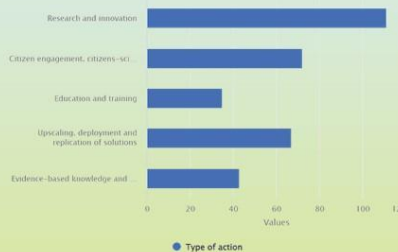
Funded by the European Union

The Mission Ocean Charter

The Mission Charter is meant to mobilize all stakeholders to achieve the goals of the Mission, strengthening cooperation, aligning efforts and achieving critical mass for the transformational change needed to restore our oceans and waters by 2030.



372 actions submitted so far (01.09.2023)



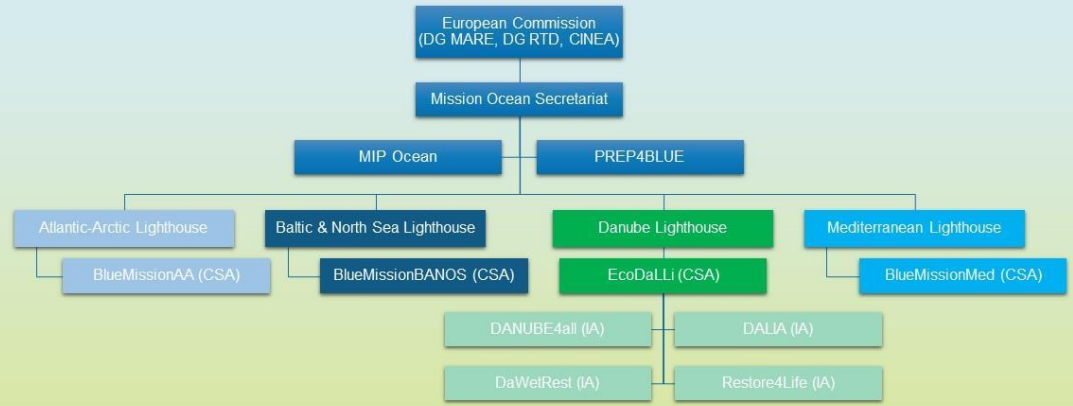
15.12.2023

5



Funded by the European Union

Mission Ocean Cooperation

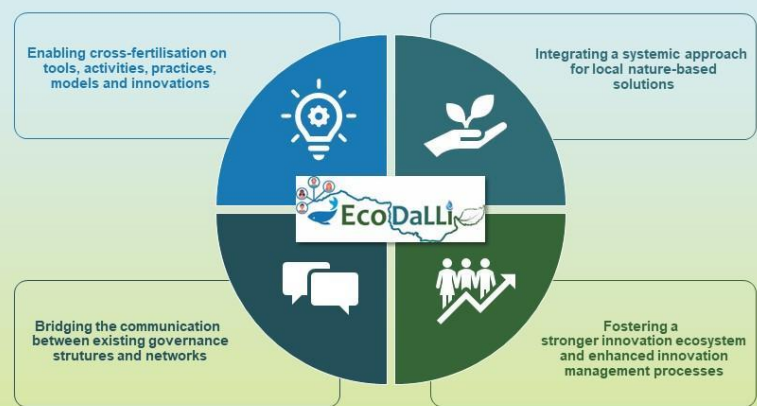


EcoDaLLi Outline

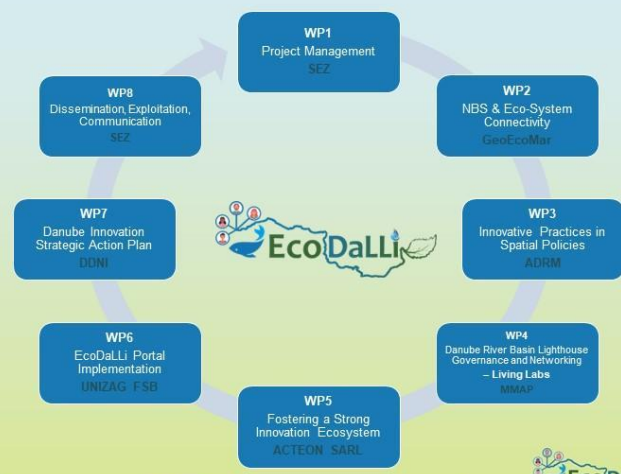
- CSA under HORIZON-MISS-2021-OCEAN-02 (Protect and restore marine and freshwater ecosystems and biodiversity) **Danube Lighthouse**
- Project duration: **42 months** (01/23 – 06/26)
- Project Budget: €2,684,875.00
- 17 Partners + 1 AP
- 11 countries



EcoDaLLi Concept



EcoDaLLi Workplan



EcoDalli Project - Activities

Innovative solutions for improved ecological restoration, consolidated and engaged within a well-connected Living Lab system, stakeholder workshops and the EcoDalli digital portal.



Stakeholder workshops
targeting 4 stakeholders' categories, support local-regional innovation



Living Lab systems
Monitoring at upper, middle (Draz, Croatia), Lower and Danube Delta and Black Sea (Tulcea, Romania) level



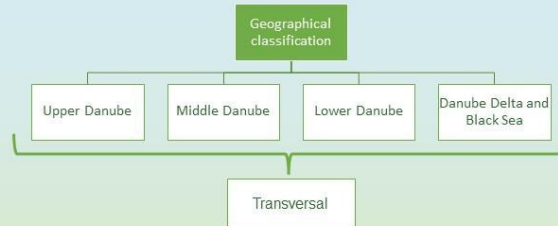
EcoDalli digital portal
An open exchange platform for all, biodiversity, restoration, policy-making and "services"



"2nd EcoDalli stakeholder workshop for Upper Danube" parallel session. 22nd August, 2023 – Danube Conference, Vienna (Austria)

EcoDalli Project – Stakeholder Mapping

- Identification of relevant stakeholders
- Engage a broad range of stakeholders to support a more centralized governance
- Promote collaboration amongst different local and regional governance bodies, entities and businesses in the Danube



"2nd EcoDalli stakeholder workshop for Upper Danube" parallel session. 22nd August, 2023 – Danube Conference, Vienna (Austria)

In addition to the above generic slides used at each workshop event, both, the cities of Linz and Draz, offered a presentation of their specific challenges and actions related to the Danube. Some slides from the presentation of the City of Linz (Austria), have selected and included here as follows:

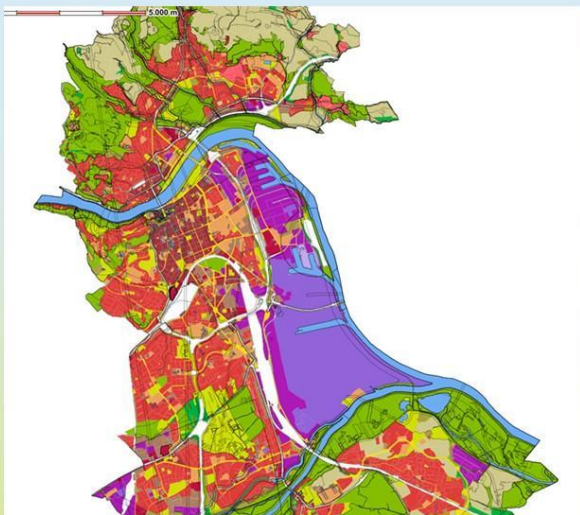
History of Linz, city and river interaction

First half of 18th century

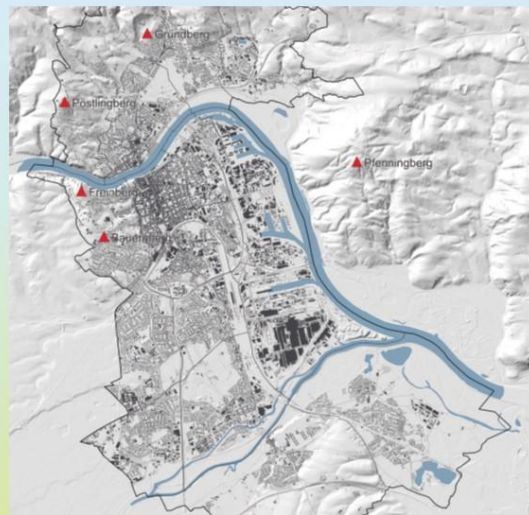


- The Roman name Lentia is derived from the Celtic root *lentos=bendable, curving.
- Linz indicates a settlement at the bend of the river (Danube), which indeed coincides with the local realities.
- Linz lies at an altitude of about 266 m above sea level on the Danube and is embedded in the foothills of the Bohemian Massif, which encloses the northern and central districts in a horseshoe shape.

Source: [Linz-Ansichten aus sechs Jahrhunderten | Stadtgeschichte Linz](#)



Landuse Plan Linz



Source: Zukunft Linz



Source: [Ausstellung Linz. Einst/Jetzt. Linz - Zentrum | Stadtgeschichte Linz](#)

Source: City of Linz



31



Source: City of Linz



32



Linz Strategie 2022

- How can the qualities and potential of Linz's green and open spaces as well as the Danube and the banks of the Traun be preserved and enhanced?
- How can tree protection, open space planning standards, quality assurance in open space design, etc. be incorporated into everyday planning?



Local Development Concept for the Danube Landscape structure with large-scale green elements

- In the **local development concept**, goals and measures for the Danube region in the individual districts are defined, especially in the green space concept.
- **Preservation of the Danube** valley green corridor as a regional green corridor with a focus on local recreation.
- Designation as a landscape priority zone for local recreation as areas with recreational function in the functional plan along the Danube green wedges and green corridors.



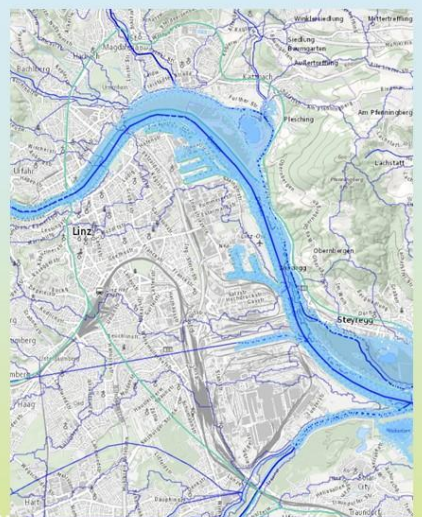
An Island for Linz, park-like recreation area on the former parking lot at the Urfahrmarkt site



Redesign of the area of the Urfahr fairground.

Source: City of Linz

The map of flooding areas (which occurs statistically each 30 year)



Source: [Views of Linz from six centuries | History of the City of Linz](#)

- Mapping of flooding areas situated downstream of the city center as a diagnosis for future planning and flooding prevention.
- In case of flooding, plans to minimise the input of industrial hazardous substances discharged into water.

Finally, some slides of the presentation from Draz Municipality (Croatia) have also been integrated into this Annex as follows:

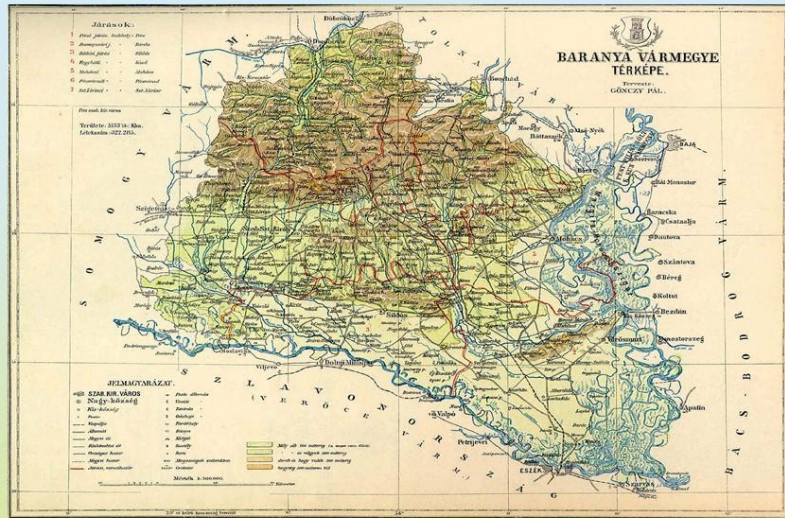
- A part of the Municipality Draž along the branches of the Danube River and part of the mountains Draž, Gajić and Podolje are included in the areas protected by **ecological network** so-called POVS and POP areas Natura 2000 namely: HR2001309 Danube North of Kopački rit (POVS - Areas of conservation important for species and habitat types) and HR1000016 Danube and Donje Podravlje (POP- Conservation areas important for birds).



River traffic

- The Danube River (traffic corridor VII) is navigable throughout the year and in accordance with the European Treaty on main inland waterways of international importance (AGN), is included in the network of inland waterways of international importance.
- The Danube flows through the Republic of Croatia for a total length of 137.5 river kilometers, it flows through the Osijek-Baranja County in a length of 86 river kilometers.





Draž Municipality challenges



- Chemization in agriculture, use of pesticides



- Microbiological pollution and pollution by substances that cause heterotrophic growth and oxygen depletion

Draž Municipality challenges



- Invasive species of fish, animals and plants in the Middle Danube region



- Water pollution by ships, discharge of feces from ships and the waste they leave behind (plastic and other waste)

Draž Municipality challenges



- Excessive sludge formation
- Trees and other plants that are not used fall into the water and turn into sludge



- Large amounts of waste brought by the Danube basin

Draž Municipality challenges



- Sudden climate changes that cause floods or droughts, rivers, lakes and swamps become meadows



- Excessive irrigation of agricultural areas, which leads to drying up of rivers and lakes