RURACTIVE

# Zadar, Croatia

## D9 - Local Action Plan

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# 0. Reading This Local Action Plan

This Local Action Plan (LAP) documents the co-development process of solutions undertaken by each Dynamo to establish and empower its local Multi-Actor Rural Innovation Ecosystem (RIE). It is the result of a 12-month participatory and inclusive community-led process from May 2024 to May 2025, and contains both the description of the four steps taken to activate the RIE as well as the co-developed, innovative, place based solutions that will be implemented to support the just, sustainable and smart transition of the Dynamo's territory.

The solutions described in the LAP target one or more core Rural Development Drivers (RDDs, namely: Sustainable multimodal mobility; Energy transition and climate neutrality; Sustainable agrifood systems and ecosystem management; Nature-based and cultural tourism; Culture and cultural innovation; Local services, health and wellbeing) and integrate aspects from the three RURACTIVE crosscutting priorities (climate change mitigation and adaptation, social justice and inclusion, and biodiversity), and take into account gender considerations. During the co-development phase, Dynamos activated, engaged and empowered the local community through four Local Workshops (LWs) that provided support in defining their place-based solutions. This LAP presents the results of these four LWs, highlighting the crucial role of the local community in creating each solution proposal. For further reference to the methodology to activate the RIE and to the conceptual framework of RURACTIVE, the full documents are available on the website.

Each LAP is organised into six main sections:

- Background and Strategic Vision – Introduces the territory, its cultural identity, socio-economic profile, and key development challenges. Further, it outlines the chosen RDDs that guided the focus of local action.
- Step 0: Getting Started – Describes the early activities to set up the foundational elements of the RIE and frame the work, including the selection of the RDDs and territories where the LAPs will be implemented, mapping of previous participatory processes, and a review of relevant local and regional policies.
- Step 1: Identification – describes the activities undertaken for brainstorming, analysing and prioritising local stakeholders
- Step 2: Engagement – explains how local actors were involved through events like Open Days and the creation of Local Task Forces (LTFs).
- Step 3: Empowerment – summarises the series of Local Workshops (LWs 1–4), the recruitment of Local Community Trainers (LCTs) for capacity building and training of local communities, how local challenges were identified, and how solutions were co-designed and refined through structured participation.
- Place-Based Solutions – Lists the key challenges identified and introduces detailed breakdowns of the main place-based solutions co-developed with RIE stakeholders to be carried forward into the implementation stage starting from September 2025

This LAP serves as both a strategic roadmap and a practical implementation tool. It is intended to guide the co-implementation of local solutions and to support replication efforts by other rural communities across Europe in the future. The LAP has been collaboratively developed by the Dynamo partner in close cooperation with their RIE stakeholders, with support and guidance from mentors at the University of Bologna and RURACTIVE project partners.

# 1. Background Information

The city of Zadar is in the central part of the Croatian Adriatic coast and holds a central coastal position within Zadar County. The area of the city of Zadar belongs to two larger physiognomic units: the urban region of Zadar, which accounts for most of the population (98%), and the Zadar archipelago, which is larger in terms of area (59% of the total). The Zadar archipelago consists of several dozen smaller and larger islands, of which fewer than ten are permanently inhabited (Olib, Silba, Premuda, Škarda, Ist, Molat, Iž, and Rava). These smaller, and typically more remote, islands have been included in the city's urban structure, as they could not achieve autonomous self-governance due to their isolation and demographic weakness (in total - 1,455 inhabitants on eight islands). As a result, they form part of what is known as the urboarchipelago - a rural space in which all isolated spatial units (settlements on the mainland and the islands) are connected into a living organism (***urbo***) through new technologies and forms of transport and communication.

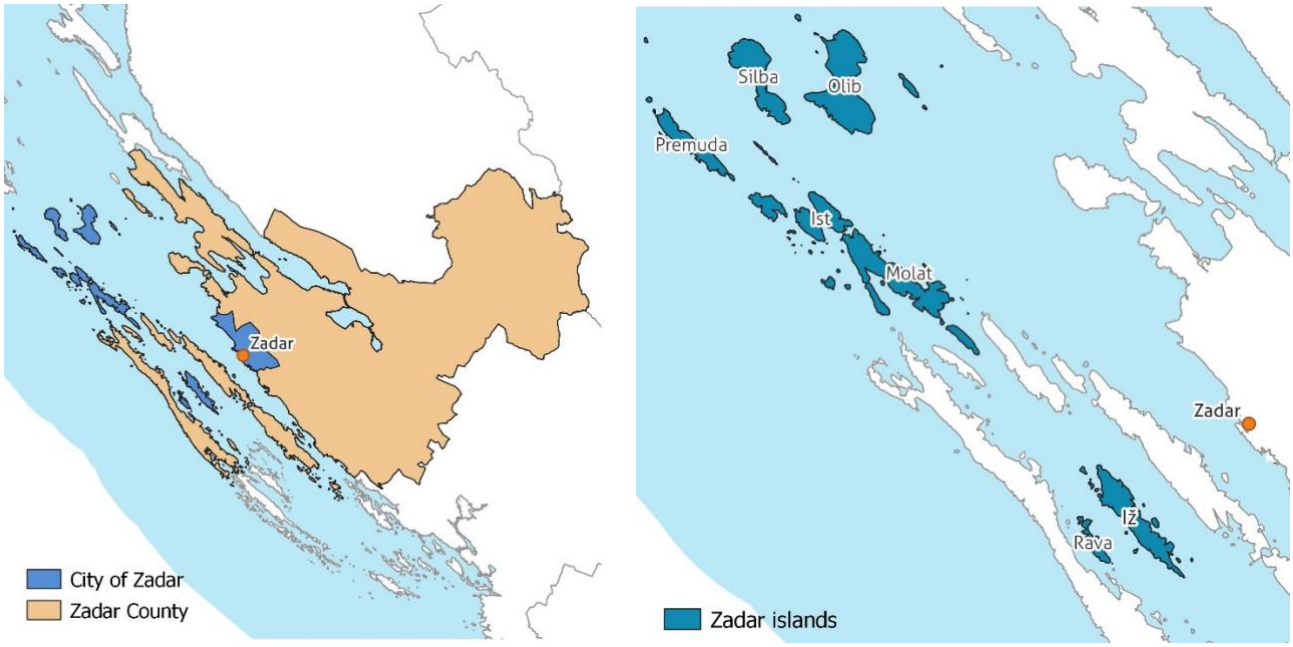


***Figure 1.*** *Cartographic depiction of the D9 (RIE) area - Zadar Archipelago*

However, the islands still face various development challenges due to their distance from the mainland and the city. The geographic problems of recent development are linked to the isolation and dispersion of the area, the singularity of each island, poor natural resources (carbonate sediments and soils, lack of water, dry summers, etc.), and socio-geographical and economic decline (depopulation, closure of industries, fisheries, schools, etc.). Depopulation in the 20th century,

caused by significant emigration and the collapse of maritime activity on islands, ultimately resulted in almost no natality, a high mortality rate, and an increasingly elderly population. This decline presents a significant obstacle to the coherent development of the entire area and the revitalization of island communities, raising the question: how can these islands be redeveloped and included in the broader process of growth along the coast?

One of the most prominent economic activities is tourism. The archipelago is becoming increasingly popular as a desirable destination in Croatia. So far, the islands have preserved most of their traditional features, which make them appealing to tourists. Due to their mild climate and other favourable natural and cultural characteristics, they serve as an ideal summer escape place for many Europeans who seek peaceful rural landscapes, exquisite beauty, preserved nature with crystal clear sea, particular social and cultural heritage.

Nevertheless, these are islands and spaces that have kept their original settings, they are spaces of an authentic way of life, where the principles of sustainability are lived, and man - an islander in everything he does, harmonizes actions with nature. By enabling the further development of this area based on principles that promote ecology and agricultural production; by equalizing island life and opportunities for social inclusion with those on the mainland; by protecting and revitalizing existing villages and preventing the loss of characteristic landscapes; and by improving the island's infrastructural systems - the real potential of these islands can finally be realised.


***Figure 2.*** *Archipelago mosaic - spatial and social fragments of island life*

# 2. Step 0: Getting started

## 2.1. Chosen RDDs

| | |
|---|---|
| **Sustainable agri-food systems and ecosystem management** | By advancing agri-food development and agroecology, the Zadar archipelago seeks to unlock the full potential of its local micro-economies through the integration of sustainable, digital, and nature-based innovations in food production. One of the most pressing challenges is the acute scarcity of water. Most islands in the archipelago lack a permanent water supply system and depend entirely on deliveries by water carriers, an unsustainable and costly solution that severely limits agricultural productivity and quality of life. The aim is to prioritize water-resilient solutions such as rainwater harvesting, efficient irrigation systems, drought-tolerant crops, and circular water management to ensure that food production and daily life can thrive despite limited freshwater resources. |

| | |
|---|---|
|  **Nature-based and cultural tourism** | Nature-based and cultural tourism offer significant potential as drivers of rural development in the Zadar archipelago. The islands are rich in natural and cultural heritage, with high biodiversity and traditional settlement patterns that reflect a strong relationship between built and natural environments. However, due to ongoing depopulation and lack of systematic interpretation, much of this heritage is at risk of being lost or overlooked. Strengthening the visibility, accessibility, and sustainable use of these assets is essential to supporting local livelihoods, safeguarding identity, and enhancing the islands' resilience through low-impact tourism development. Existing roads and paths, though currently underutilized, could serve as multifunctional infrastructure, providing access to agricultural areas, supporting fire prevention, and enabling recreational and interpretive routes for visitors. |
|  **Culture and cultural innovation** | Culture is an important component of social life on the islands, contributing to community cohesion and identity. However, limited cultural services and underutilization of heritage assets, combined with population decline, have weakened cultural engagement. To address these challenges, the aim is to promote cultural heritage and expand cultural services through valorisation and development of cultural activities, revitalisation of key sites such as forts, monuments of folk architecture, sacred places, and both mainland and underwater archaeological locations. Additionally, improving infrastructure for sports, recreation, and other public uses, alongside developing creative industries and increasing access to cultural content, should support enhanced cultural participation and contribute to sustainable local development. |
|  **Energy transition and climate neutrality** | Advancing the green energy transition and achieving greater energy independence are one of key priorities for the sustainable development of the islands within the City of Zadar. The islands' dependence on external energy sources and the absence of local energy infrastructure poses significant challenges to energy security. Combined with increasing climate-related risks, these factors highlight the need to strengthen local energy resilience. Supporting renewable energy solutions, improving energy efficiency, and promoting community-based energy models will contribute to climate neutrality, reduce vulnerability, and enhance the self-sufficiency of island communities. |

## 2.2. Starting to set up the RIE

In recent years, several important initiatives have been carried out, which were directed towards enhancing islanders engagement, including the development of strategic documents related to island development (with topics of clean energy, sustainable development, integrated territorial investments), projects like Participatory Budgeting (led by the City of Zadar) and numerous smaller,

community-led initiatives have contributed to more inclusive planning processes. These previous efforts provide a foundation for aligning activities with RURACTIVE project, fostering synergies, and avoiding duplication of initiatives.

Island associations and civil society organizations have played an especially active role in these efforts, continuously advocating for the improvement of living and working conditions on the islands. Leaning on previous projects and using existing stakeholder database maintained by the City of Zadar and Urbanex, all relevant stakeholders within the RIE area were mapped, focusing on individuals and organizations recognized as active members of the community who, through their involvement, can contribute meaningfully to the project and broader territorial development goals. Prior to the launch of RIE activities, individual meetings were held with organizations to encourage their participation and ensure the project reflects local priorities. Their long-standing engagement provided a direct link to understanding the needs of island communities.

Ana Barišić-Vulić (CZAD), Ivana Katurić, Ana Devčić (URB) and Karlo Raljević (URB) were appointed as **RIE coordinators** based on their relevant experience and professional backgrounds. Ana B.V. has brought extensive experience in project coordination within the Zadar city area. Ivana offered both academic and practical expertise in sustainable territorial development and spatial policy area. Ana D. has been actively involved in supporting participatory and community-led initiatives across various thematic areas, while Karlo contributed to the project with his expertise in environmental protection and sustainable development, as well as his in-depth understanding of island life, including the specific challenges and dynamics of island communities, stemming from his own long-standing personal experience.

**RIE sites:**

***Figure 3.*** *Cultural centre on Silba*

***Figure 4.*** *Zadar city hall*

The selected locations for periodic workshops and engagement activities were the Cultural Centre on Silba and Zadar City Hall. These locations were chosen primarily because some of the most active RIE community members were based on Silba, while Zadar City Hall was the most accessible venue for stakeholders from across the archipelago as well as those working in mainland institutions and

organizations. It is also important to note that some RIE activities were conducted online when in-person meetings were not feasible due to logistical constraints or adverse weather conditions.

## 2.3. Local Policy Analysis Results

Although there is no standalone strategic document exclusively dedicated to the development of the islands administratively belonging to the City of Zadar, their development is addressed within two key regional frameworks: the Zadar County Development Plan 2021-2027 and the Zadar Urban Area Development Strategy 2021-2027. The Zadar County Development Plan serves as the foundational strategic document, aligning with Croatia's National Development Strategy until 2030. It outlines a vision, priorities, and specific objectives for the county, including the islands, with an emphasis on sustainable development, tourism, and infrastructure.

Meanwhile, the Zadar Urban Area Development Strategy integrates island-related priorities into broader urban and regional planning, focusing on connectivity, cultural heritage, and environmental resilience. While these documents acknowledge the islands' unique challenges—such as depopulation, limited services, and climate vulnerability—their approach remains generalized, lacking targeted measures for island-specific needs.

Future policy enhancements should prioritise dedicated island development strategies to ensure equitable and sustainable progress focusing on the following core topics to be addressed through the RURACTIVE progress:

- Sustainable multimodal mobility: support the development of cycling and pedestrian infrastructure
- Sustainable agri-food systems and ecosystem management: develop innovative solutions in the water services and waste management sectors for ecosystem protection
- Culture and cultural innovation: promote cultural heritage and expansion of cultural services physical restoration, protection, and revitalization of various cultural heritage sites, such as

| RDD | Priorities and objectives (National island development plan) | Description | Strategic activities of Territorial strategy of island development (Zadar county) | Description | Priorities and objectives (Zadar City Development Plan) | Description | Priorities and objectives (Agenda for the Transition to Clean Energy on the Island of Zadar) | Description |
|---|---|---|---|---|---|---|---|---|
| Energy transition | Special objective 3.2. The development and encouragement of the construction of systems of renewable energy sources, the use of clean energy and energy efficiency | Along with the introduction of complex technical solutions in favor of energy efficiency on the islands, it is necessary to carry out activities aimed at strengthening the island population's awareness of the possibilities of using more energy efficient solutions and the advantages of using renewable energy sources. The participation of the population through energy cooperatives will be encouraged with the aim of learning and applying for projects focused on renewable energy sources. | Operation 4. Encouraging energy efficiency and use of renewable energy sources on the islands | As part of this operation, the energy transition of the islands of Zadar County continues and is further encouraged in its efforts towards complete energy self-sufficiency and climate neutrality of the archipelago. This operation particularly encourages investments towards measures to encourage the energy efficiency of public infrastructure facilities and to encourage the production of primary energy from renewable sources. | | | I. Regulation: Production of electricity | Energy self-sufficiency while ensuring a safe, high-quality and affordable supply of electricity to the island of Zadar. |
| | | | | | | | II. Regulation: Energy efficiency, heating and cooling | Increasing the energy efficiency of infrastructure and buildings in the public and private sector while encouraging and increasing the use of renewable energy sources. |
| Agri-food and agroecology | Special objective 2.2. Development of island products and services | The potential for greater economic growth and development of the island area should certainly be seen through the increase in the export activity of local business entities, because export-competitive economic entities are more stable in their operations and have a tendency towards sustainable development. In this segment, special attention will be paid to the development of branding of island products and services. The establishment of value chains and the creation of sustainable and year-round tourism will also lay the foundation for the promotion of island activities and the overall potential of the local economy. | | | PRIORITY 4.: Blue growth and development of the bioeconomy towards realizing the full potential of local microeconomies | The improvement of agricultural production is intended to be achieved by expanding the range of local products that would be available on the market throughout the year, developing more different forms of agriculture, organic farming, while at the same time focusing on autochthonous varieties and products with higher added value. | | |
| | | The cultural heritage of the Croatian islands, with the condition of systematic and sustainable | | As part of this operation, investments in the physical restoration, protection and revitalization of individual cultural heritage objects and cultural tourist locations such as forts and fortresses, monuments of folk architecture, sacred heritage, archaeological sites on land and in the sea are particularly encouraged, but also their valorization through the application of new information | | Strengthening the innovation capacities of the | | |

***Figure 5.*** *Detailed policy screening - assessing how the activities and objectives of relevant strategic policy documents and ongoing or completed projects align with the RURACTIVE RDDs*

forts, fortresses, monuments of folk architecture, sacred sites, and both mainland and underwater archaeological sites.

- Nature-based and cultural tourism: emphasise sustainable tourism development by promoting the valorisation of the island's valuable natural and cultural heritage
- Climate change mitigation and adaptation: promote the development of local drainage systems with purifiers and encourage the island's energy independence through the use of renewable energy sources.
- Biodiversity: develop public and green infrastructure, green corridors and parks with the included concern for preserving and increasing biodiversity
    - foster education and enhancing local awareness regarding the significance of biodiversity and natural heritage
- Social justice and inclusion: enhance social infrastructure and services, especially for elderly, increase spatial capacities for holding social activities intended for all age groups, especially young and elderly people.


***Figure 6.*** *Local policy factsheets based on the chosen RDDs*

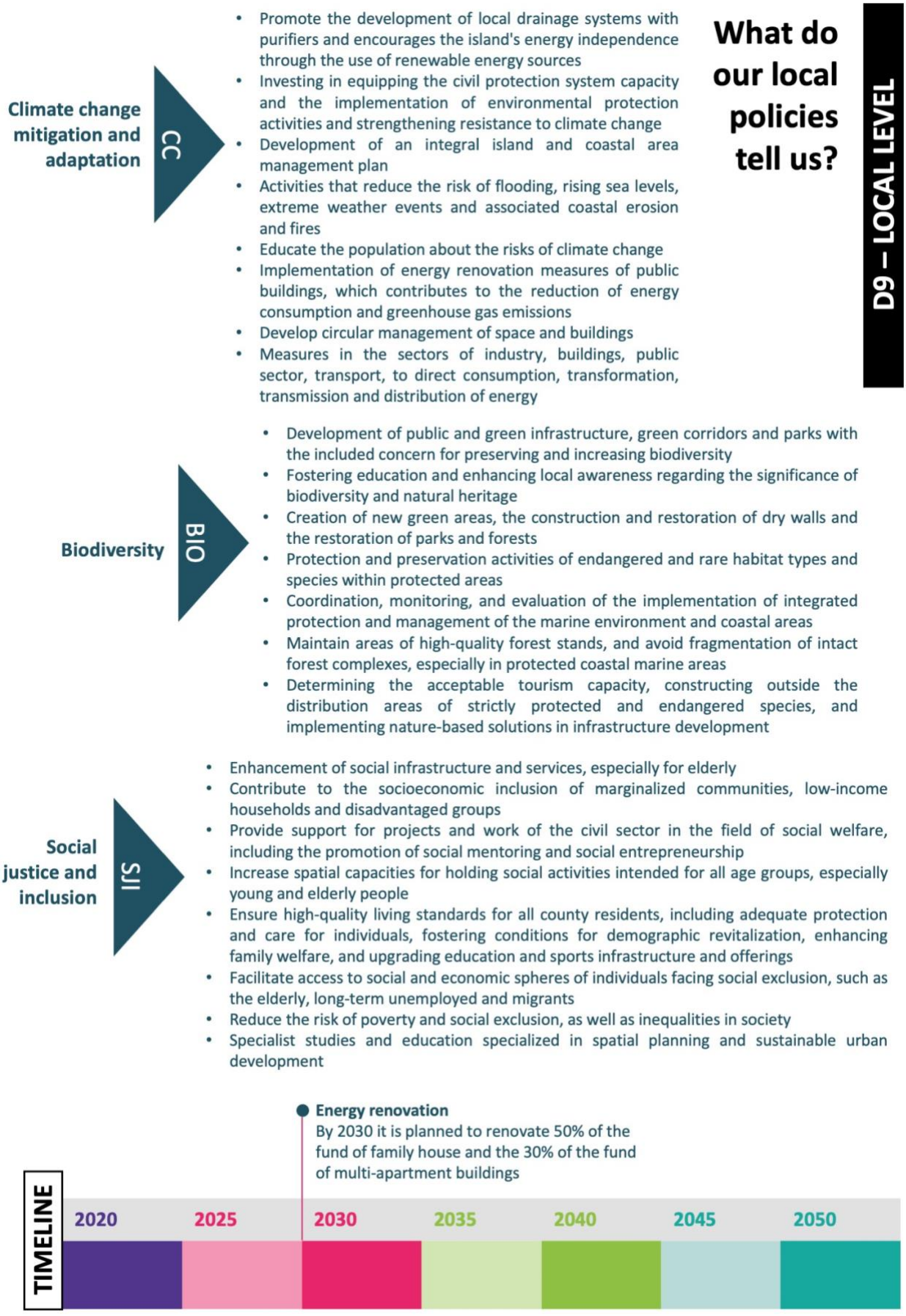


***Figure 7.*** *Local policy factsheets based on the crosscutting priorities.*

# 3. Step 1: Stakeholders Identification: brainstorming, analysing and prioritising

## 3.1. RIE composition

The process of identifying stakeholders for the RIE project began with a comprehensive mapping of all relevant parties whose activities aligned with the chosen RDDs. Emphasis was placed on ensuring diversity across different domains, which later played an important role in the prioritization phase. This initial step resulted in the identification of 30 stakeholders, including public institutions, local boards, associations, educational entities, and industry representatives. Given the islands' distance from the mainland and the city centre, where most decisions are made, for successful dialogue it was particularly important to engage stakeholders from the policy domain, followed by representatives from other key stakeholder groups present on the islands (research, industry/services/investors, public/user).

To assess their willingness to participate, an informational email was sent to each stakeholder, introducing the project and inviting them to an Open Day event. This communication served as a preliminary examination of their interest and engagement potential. Following this, stakeholders were categorized and prioritized based on their level of influence and interest in the project, as illustrated in the accompanying matrix (Figure 8). The matrix divides stakeholders into groups such as "Consult," "Collaborate," "Influence," "Inform," and "Involve," reflecting their roles and the intensity of their participation.

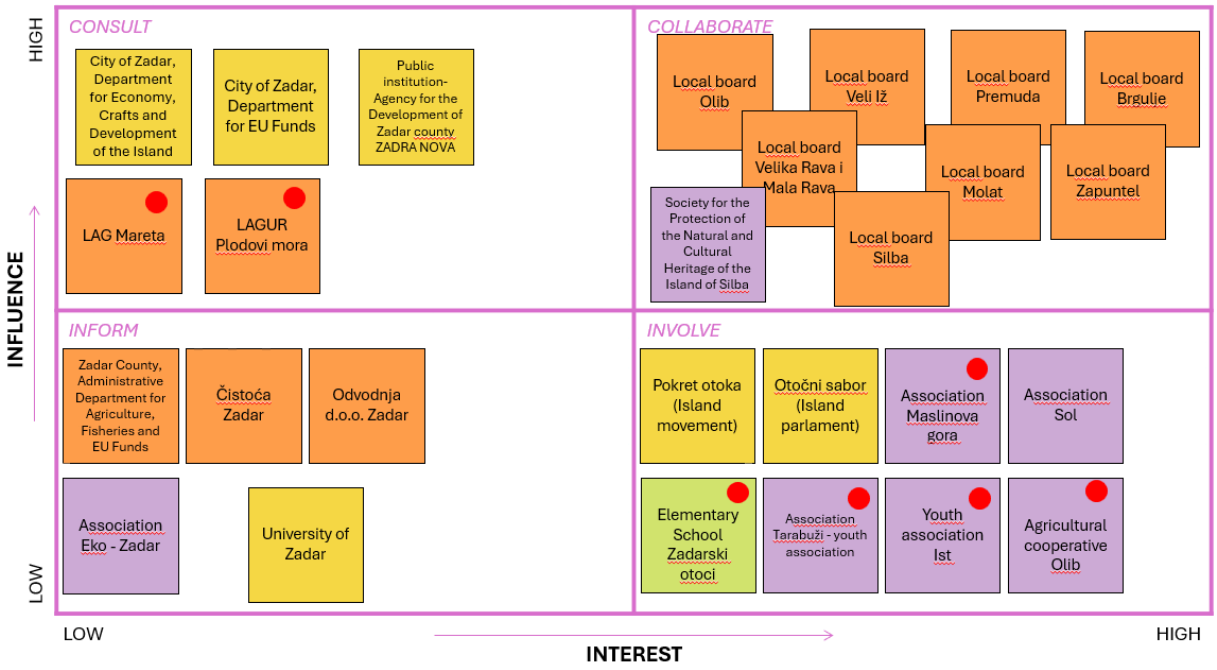


***Figure 8.*** *Stakeholder identification matrix. Red dots represent stakeholders at risk of exclusion.*

The analysis further refined this group by evaluating their level of influence and relevance to the project's goals. An important aspect considered during the identification of key stakeholders was

their engagement with groups at risk of social exclusion, in the case of the archipelago, primarily older people and youth. It was found that associations involving young people were particularly numerous and motivated to take action to drive change. Given the specific geographical characteristics of the RIE area, with many islands and communities that are distant and isolated from one another, it was important to identify stakeholders within each community and actively seek to include them in the project activities.

| NO | Entity/association/organization name | Domain | Expertise - RDDs | Groups at risk of exclusion |
|---|---|---|---|---|
| 1 | Grad Zadar, UO za gospodarstvo, obrtništvo i razvitak otoka | Policy | Transversal | |
| 2 | Grad Zadar, UO za EU fondove | Policy | Transversal | |
| 3 | Zadarska županija, UO za poljoprivredu, ribarstvo i EU fondove | Policy | Sustainable agrifood systems and ecosystem management | |
| 4 | Sveučilište u Zadru | Research | Transversal | |
| 5 | ZADRA NOVA | Policy | Transversal | |
| 6 | MO Zapuntel | Policy | Transversal | |
| 7 | MO Molat | Policy | Transversal | |
| 8 | MO Brgulje | Policy | Transversal | |
| 9 | MO Velika Rava i Mala Rava | Policy | Transversal | |
| 10 | MO Silba | Policy | Transversal | |
| 11 | MO Olib | Policy | Transversal | |
| 12 | MO Veli Iž | Policy | Transversal | |
| 13 | MO Premuda | Policy | Transversal | |
| 14 | Pokret otoka | Public/user | Transversal | |
| 15 | Udruga Tarabuži - udruga mladih | Public/user | Nature-based and cultural tourism | Young people |
| 16 | Društvo za zaštitu prirodne i kulturne baštine otoka Silbe | Public/user | Energy transition and climate neutrality | |
| 17 | Poljoprivredna zadruga Olib | Industry/services/investors | Sustainable agrifood systems and ecosystem management | Older people |
| 18 | Udruga mladih Ista | Public/user | Local services, health and wellbeing | Young people |

| | | | | |
|---|---|---|---|---|
| 19 | Čistoća Zadar | Industry/services/investors | Energy transition and climate neutrality | |
| 20 | LAG Mareta | Policy | Sustainable agrifood systems and ecosystem management | Older people |
| 21 | LAGUR Plodovi mora | Policy | Sustainable agrifood systems and ecosystem management | Older people |
| 22 | Otočni sabor | Policy | Transversal | |
| 23 | Udruga Maslinova gora | Public/user | Energy transition and climate neutrality | Young people |
| 24 | Udruga Sol | Public/user | Nature-based and cultural tourism | Older people |
| 25 | Udruga Eko - Zadar | Public/user | Energy transition and climate neutrality | |
| 26 | Osnovna škola Zadarski otoci | Research | Local services, health and wellbeing | Young people |
| 27 | Odvodnja d.o.o. Zadar | Industry/services/investors | Energy transition and climate neutrality | |
| 28 | Zadar tourist board | Industry/services/investors | Nature-based and cultural tourism | |
| 29 | Island movement | Public/user | Energy transition and climate neutrality | Young people |
| 30 | Uduga Iž u srcu | Public/user | | |

Among the prioritized stakeholders are public institutions like the City of Zadar Departments, regional development agencies such as LAG Mareta, academic contributors like the University of Zadar, community-driven organizations including the Island Movement (Pokret otoka), and local island councils. By systematically categorizing and engaging these groups, the collaboration framework was established, needed for meaningful participation in local workshops and RIE activities.

The list of prioritized organizations is as followed:

1. City of Zadar, Department for Economy, Crafts and Development of the islands

2. City of Zadar, Department for EU funds
3. ZADRA NOVA - Regional development agency
4. Island councils (Zapuntel, Molat, Brgulje, Velika Rava i Mala Rava, Silba, Olib, Veli Iž, Premuda)
5. Pokret otoka (Island movement association) - a network of professionals with extensive experience in community development, playing a key role in the energy transition of Croatian islands
6. Association Tarabuži – youth association from Veli Iž, engaged in raising ecological awareness and preserving cultural heritage
7. Association for the protection of the natural and cultural heritage of the Island Silba (Samotvorac)
8. Otočni sabor (Island parliament NGO)
9. Association Maslinova gora
10. Association SOL (island of Olib)
11. Association Eko – Zadar
12. Association Iž in heart
13. Youth association from the island of Ist – organizes activities directed towards young people on the island of Ista while working to improve living conditions
14. Elementary school Zadar islands
15. Čistoća Zadar d.o.o. (municipal waste management company)
16. Vodovod d.o.o. (municipal water utility)
17. Odvodnja d.o.o. Zadar (wastewater utility)
18. Zadar tourist board
19. Agricultural cooperative Olib
20. Agricultural cooperative Silba
21. Fisheries Local Action Group "Fruits of the Sea"
22. Local Action Group Mareta

# 4. Step 2: Stakeholders Engagement: local task force and involving stakeholders

## 4.1. LTF composition

The Local Task Force (“LTF”) is a group composed of key stakeholders with significant influence or interest in the archipelago area. The role of LTF is to co-develop solutions across multiple RDDs and support the RIE coordinator in identifying local challenges and needs. Most members participated in preparatory meetings and were actively involved in the workshops themselves, sharing insights, perspectives, and local knowledge to support the development of innovative, context-specific solutions. An important aspect of the meetings was also the mutual exchange of information about ongoing and planned initiatives on the islands. Gatherings proved valuable for strengthening connections and coordination among other local efforts as well.

The members of the Local Task Force of D9 – Zadar are:

- **Representative of Administrative department for the economy, crafts and development of the island** (City of Zadar); Head of the unit for island development and agriculture; male; 18-35 years old
- **Representative of city of Zadar tourist board**, Director and coordinator of Zadar ArchipelaGO project; female; 36-50 years old
- **Representative of Zadar County Development Agency** (ZADRA NOVA), Head of Section for Island Development; female; 18-35 years old
- **Representative of Island movement association**; Island development project manager and coordinator; female; 18-35 years old
- **Representative of Association ''SOL''**; President of an island association on Olib dedicated to the island's revitalization; male; 36-50 years old
- **Representative of Association ''Iž in heart''**; Association member, sculptor, and custodian of traditional island heritage (Iški lopuži); female; 18-35 years old

Women comprise a significant majority of the local task force, accounting for 78% of its members.

## 4.2. Open Day

The Open Day took place on the 23rd of August at the cultural centre, on the island of Iž. The aim of the Open Day was to introduce the RURACTIVE project to the RIE community, communicate its core objectives, and outline the role often Zadar archipelago islands as a dynamo area. Further, the four Rural Development Drivers ("RDDs") selected for the Zadar archipelago were presented, RIE coordinators and the Local Task Force members were introduced. Community members were also encouraged to get in touch with RIE coordinators, especially those in the position to potentially make contributions to the project's development and to local workshops. To familiarize participants with more information about the RURACTIVE project and upcoming activities, communication materials were distributed to participants.

As part of the Open day program, the theatre play "Where are we going, Dad?" typically performed at HNK Zadar was held to encourage social activities and attract younger islanders to the event, as one of the key target groups of the project.


***Figure 8:*** *Open day, held at the island of Iž*

# 5. Step 3: Stakeholders Empowerment

## 5.1. LCT Recruitment

Anita completed her education in her hometown of Zadar. She previously studied Geography in Zagreb and now works as a primary school teacher across three islands in the Zadar archipelago: Silba, Olib, and Iž. In addition to her regular teaching duties, she frequently organizes workshops for children, focusing on the geography and cultural heritage of the islands, encouraging young learners to explore and appreciate their surroundings.

***Figure 9.*** *Local Community Trainer of Zadar*

She is actively involved in an association on Silba, where she participates in various projects aimed at preserving local traditions and fostering community development. In her free time, Anita plays the piano and guitar, and teaches dance to local residents, sharing her passion for music and movement. She is currently writing a book and articles, combining her professional expertise with her love for storytelling.

## 5.2. LWs1 Vision and Challenges

The RURACTIVE Local Workshop 1 (LWs1), held online on the 27th of September. The event was originally planned as a hybrid gathering, with participants joining both in-person on the island of Silba and online for those from other islands who couldn't attend. However, due to unfavourable weather conditions, the event was held online (only)). It brought together 15 participants (10 new individuals who had not previously attended the open day) from diverse age groups (predominantly 35–50 years) and sectors (policy, research, industry, and public/users). The workshop focused on the Zadar Archipelago RIE and aimed to define a collective vision and challenges for sustainable island development. The agenda began with introductions and a project overview, followed by interactive sessions using Slido and MIRO to consolidate individual visions of island development into a shared one:

***Vision of Zadar archipelago development***

*We envision our islands as self-sufficient communities thriving through practices that honour our cultural heritage and natural resources, while cultivating local micro-economies and creating high-quality products with additional and ecological value. Our commitment to renewable energy and climate neutrality will empower us to enhance our island autonomy while improving connections through enhanced transport systems and eco-friendly mobility. Together, we strive for an inclusive future where every islander, regardless of age or background, feels empowered to contribute to our sustainable way of life for generations to come.*

The second part of the session began with a brief presentation of the scenarios and an explanation of the process for identifying related challenges. Participants were then divided into two groups based on their areas of interest. Each group worked on two different scenarios, starting with individual reflections guided by sub-questions to deepen their thinking. This was followed by a short group discussion on the identified challenges before returning to the plenary session. Stakeholders recognized the presented scenarios as very likely versions of the future and identified a wide range of challenges expected to arise from these anticipated developments. Key issues identified included:

- Gray water reuse and bio-waste management issues
- Lack of digital platforms for agricultural knowledge-sharing
- Poor energy efficiency in public buildings
- Declining local traditions due to depopulation
- Barriers to micromobility and island product distribution

Two challenges were flagged for external innovators via the Open Call:

- Bio-waste management and reuse solutions
- Efficient wastewater treatment systems

The workshop concluded with next-step discussions, emphasizing future collaborative workshops. Despite the shift to online format, participant engagement, captured through interactive tools, laid a foundation for place-based solutions, aligning with the project's goals of resilience and innovation.

| Table List of challenges | |
|---|---|
| Challenge 1 - Place based | **The awareness of the possibilities and ways of reusing grey (waste) water in households, especially for agricultural purposes, is insufficiently developed** |
| Challenge 2 - Place based | **Due to the fragmentation of agricultural land, there is a need for additional knowledge about alternative ways of food production and regenerative agriculture, adaptive gardening, permaculture** |
| Challenge 3 - Place based | **The storage and subsequent reuse of bio-waste on the islands needs to be improved** |
| Challenge 4 - Place based | **There is a lack of digital platforms through which information, content and educational materials are collected for all islanders, e.g., in the field of agricultural production** |
| Challenge 5 - Place based | **The use of bio-treatment purifiers in households and homes is inadequate and there is a need to increase monitoring of the state/quality of the sea** |
| Challenge 6 - Place based | **There are no mechanisms to influence the reduction of plastic on the islands** |
| Challenge 7 - Place based | **Recreational trails are insufficiently developed, especially bicycle paths and educational trails as part of the tourist offer** |
| Challenge 8 - Place based | **Local traditions are slowly disappearing due to depopulation and tourists are becoming less and less aware of the peculiarities of island life** |
| Challenge 9 - Place based | **Island producers and products, including traditional crafts, are insufficiently recognized and visible, the distribution of products is difficult, if at all, due to conditions (transportation) and there is a need for greater (uniform) promotion and visibility of products** |
| Challenge 10 - Place based | **The energy efficiency of public buildings, of which there are several across the islands, is inadequate** |
| Challenge 11 - Place based | **There is a need to ensure greater availability of information to older islanders (who make up the majority of the population)** |
| Challenge 12 - Place based | **There is a need to develop micromobility (bicycles, pedal-assisted bicycles, electric bicycles, electric scooters, electric scooters, etc.) as a component of sustainable mobility** |
| Challenge 13 - Place based | **Shipping lines have a problem finding vendors and berths due to the age structure of the population on part of the island** |
| Challenge – For open call for innovators | **Bio-Waste Management and Reuse on Islands** |
| Challenge – For open call for innovators | **Wastewater treatment system** |

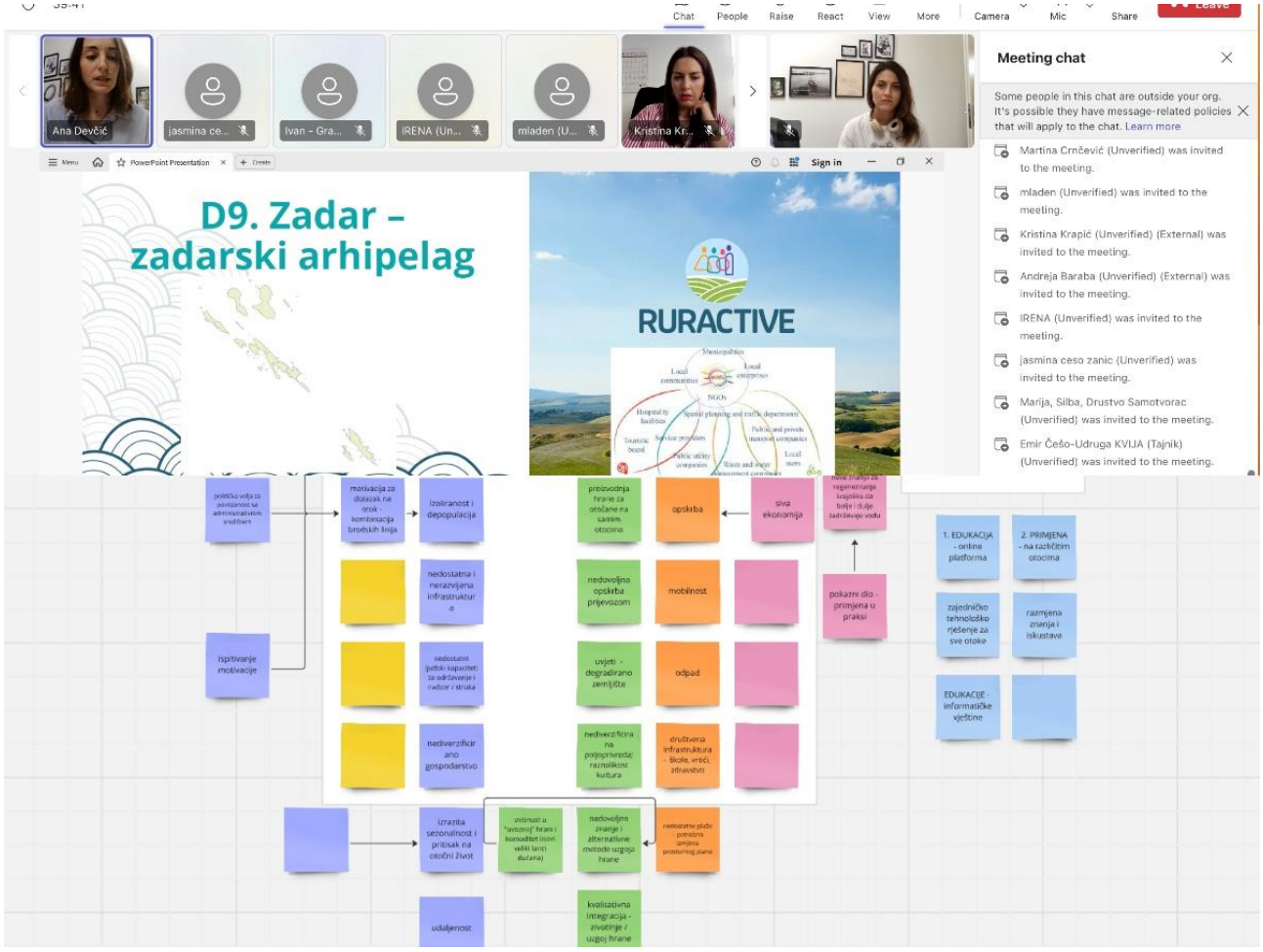


***Figure 9.*** *Fragments from the LW1, held online*

## 5.3. LWs2 Learning from others

The RURACTIVE Local Workshop 2 (LWs2), held on 25 January 2025 on the island of Silba, brought together 17 participants (13 new), reflecting a diverse cross-section of the Zadar Archipelago community. Attendees ranged across age groups, with six aged 35–50, five aged 50–65 and four aged 65–80, alongside two younger contributors aged 18–35. Gender distribution was balanced (11 male, 6 female), and the workshop included two participants with disabilities, underscoring a commitment to inclusion. Stakeholders represented by key domains were as follows: policy (3), research (1), industry/services (3), and public/users (10), with focus areas spanning sustainable agrifood systems (3), nature-based tourism (3), and transversal themes (8).

The workshop prioritised collaborative problem-solving, beginning with project updates and group divisions. Participants co-designed solutions for challenges like plastic waste reduction, heritage preservation, and digital platform gaps, leveraging tools like participatory mapping and interactive discussions. For instance, one group proposed interpretive trails to revive cultural heritage, while another outlined awareness campaigns to combat plastic pollution. A standout solution was a centralised digital platform to enhance inter-island coordination, addressing logistical barriers for marginalised groups like the elderly and long-term unemployed.

The event emphasized cross-cutting priorities, climate resilience, biodiversity, and social inclusion, while aligning with RURACTIVE's other core goals. By merging local expertise with innovative approaches, LWs2 strengthened community ownership of sustainable development, paving the way for pilot projects and future collaborations.

| List of challenges | |
|---|---|
| Challenge 1 - Place based | **Interpretation mechanisms to preserve and present local heritage (traditional landscapes, islands history and culture) and are not being developed enough** |
| Challenge 2 - Place based | **Issue of growing amounts of plastic on the islands** |
| Challenge 3 - Place based | **Lack of digital platform for islands cooperation** |
| Challenge 4 - Place based | **Risk of losing valuable knowledge about traditions and craft skills related to intangible cultural heritage on islands** |
| Challenge 5 - Place based | **Insufficiently developed tools for monitoring water quality in reservoirs and cisterns on the islands** |

| List of solutions proposals | |
|---|---|
| Proposal 1 | **Revitalizing islands trails for heritage interpretation and recreation** |
| Proposal 2 | **Promotional campaigns that encourage respectful touristic behaviour** |
| Proposal 3 | **Centralized islands communication platform for enhanced coordination and community engagement** |
| Proposal 4 | **Intergenerational for island heritage preservation** |
| Proposal 5 | **IoT-based monitoring and sustainable treatment for island cisterns** |

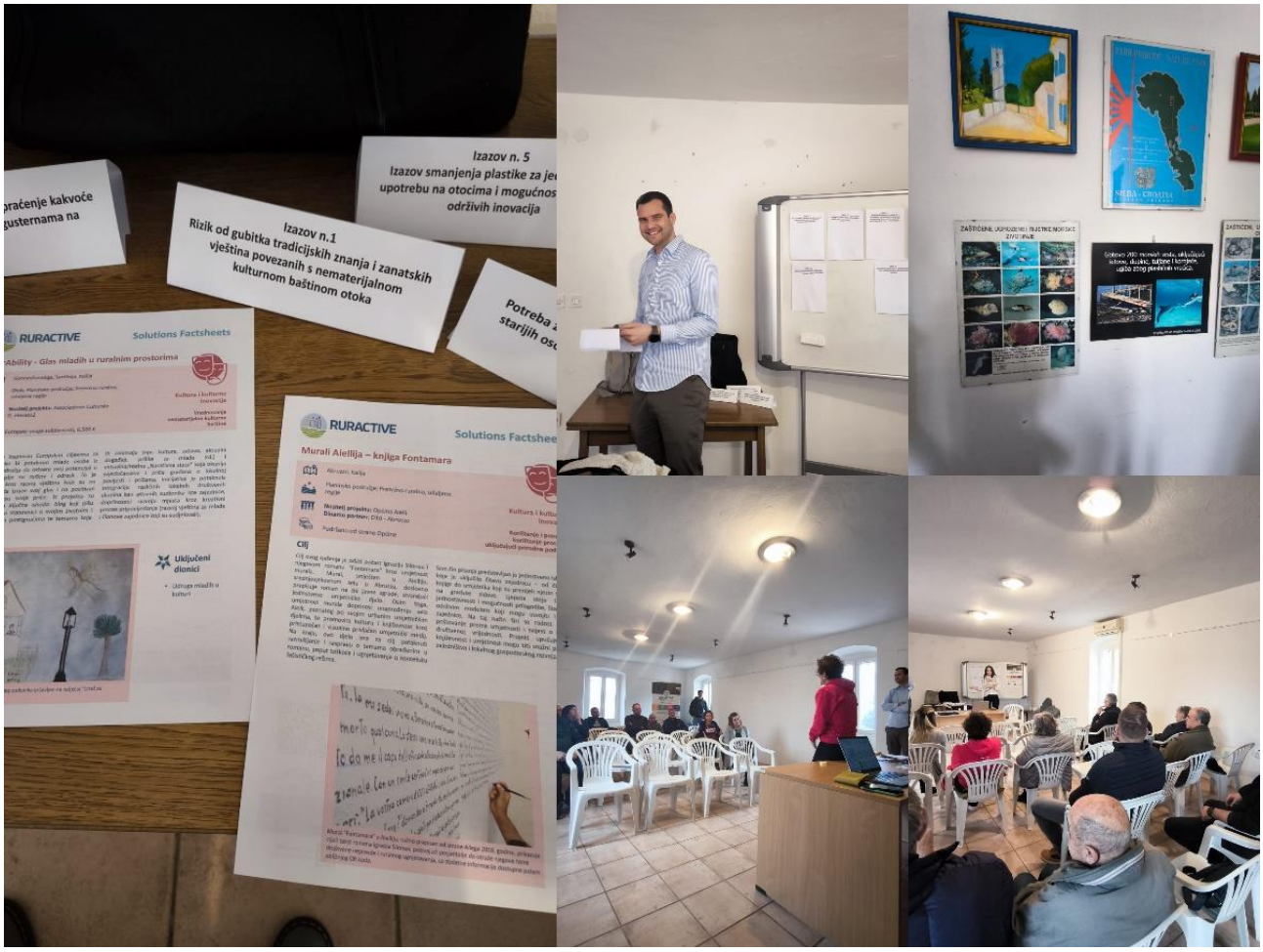


***Figure 10.*** *Fragments from the LW2, held on the island of Silba*

## 5.4. LWs3 Fine-Tuning

When organizing Local Workshop 3 (LWs3), that took place on 25 March 2025, the aim was to bring together stakeholders who could contribute to the implementation of the selected solutions, either as beneficiaries or as supporters of the implementation process.

As a result, the number of participants was smaller than in previous workshops, to ensure greater efficiency in defining project proposal details. A total of nine participants took part, including representatives from the policy sector (3), associations (3), and companies (3). All relevant RDDs were represented and included. Of the total number of stakeholders, five were women and four were men. The workshop covered different aspects of the solutions, but not completely - both due to time constraints and limited stakeholder knowledge on certain technical elements. Therefore, following the session, individual meetings were held with specific stakeholders identified as potential collaborators for the implementation and delivery of the solutions on the islands. For each solution specific activities, targets, and required resources/capitals, including natural, cultural, and financial assets were defined. Members of the Local Task Force and other stakeholders from RIE provided valuable insights, helping to refine these solutions for feasibility and expected impact.

Key stakeholders (local governments, NGOs, tourism boards, and community groups) were identified, along with their proposed contributions. Main beneficiaries (residents, tourists, and

businesses) and groups at risk of exclusion (elderly islanders, low-income families) were also highlighted to ensure inclusivity. A timeframe was partially defined, along with indicative costs and potential funding sources (EU grants, public-private partnerships). The monitoring plan includes tools like surveys and environmental impact assessments, with clear KPIs for tracking progress.

Communication and engagement strategies were discussed, including the involvement of social media, workshops, and local media to ensure community participation. Sustainability considerations emphasised eco-friendly practices, local capacity building, and policy integration.

***Figure 12.*** *Fragments from the LW3, held in the Zadar city hall*

The solutions developed through the RURACTIVE CANVA tool were:

1. Revitalizing Island Trails for Heritage Interpretation and Recreation
2. Eco-Islands Initiative – Promoting Responsible Tourism on the Zadar Islands
3. Integrated Restoration and Sustainable Management of Traditional Island Water Systems: Ponds and Wells

## 5.5. LWs4 Co-Tuning

At the LWs1, held at the end of September 2024, RIE stakeholders collaboratively defined a shared vision and identified the key challenges to be addressed. Following the workshop, the identified

challenges and requirements were further co-created and refined in collaboration with UNIBO and F6S, ensuring that the call addresses relevant and context-specific needs, and the two challenges were chosen as those with the greatest innovation potential, forming the basis of the Open Call.

| Open Call for innovators: Selected Solutions | |
|---|---|
| Proposal 1 | **Bio-waste management and reuse on islands** |
| Proposal 2 | **Wastewater treatment system** |

The Open Call was officially launched at the beginning of December 2024, at which point it became open for submissions. Stakeholders and potential applicants were invited to respond with innovative proposals addressing the defined challenges. After a submission period, applications were evaluated by a panel of external experts.
Three selected applicants in the Phase 1 were contacted to complete the administrative procedures and sign contracts:

- **CHALLENGE 1**: Bio-Waste Management and Reuse on Islands (proposal: Turning Silba into a Composting Island (TSCI) - applicant: KOKOZA, Czech Republic)
- **CHALLENGE 2**: Wastewater treatment system (proposals: 1) Decentralized wastewater treatment system integrated with sustainable agri-food systems in an Island (ISLEMET), applicants: METFILTER S.L., NANOELECTRA S.L., Spain; 2) Sensors & Edge Analytics for Wastewater Innovation in Sustainable Environments (SEAWISE), applicant: Ada Guzey Engineering Software Mechatronics Ltd., Türkiye)

This step marked the formal start of implementation (Phase 1) for the solutions proposed through the Open Call.

On May 28th 2025, the RURACTIVE Local Workshop 4 (LWs4) was held on the island of Silba. This workshop provided an opportunity to actively collaborate with the selected innovators to refine, enhance, and adapt the proposed solutions to specific local needs.

All three innovators arrived in Zadar prior to the workshop and, together with the RIE coordinators, had the opportunity to discuss the information needed for fine-tuning their innovations. They also visited public institutions responsible for specific communal tasks on the islands and further prepared their presentations.

On Silba, LW4 brought in-person interactions between Dynamos, innovators, and local stakeholders. The innovators were met with particular interest by the local community, which was very open to questions and eager to share information related to the challenges these solutions aim to address. The innovators were also supported in on-site activities and toured the island to optimize their technical proposals.

Following the workshop, the innovators will submit revised proposals incorporating the feedback received. The D9 representative, together with the technical partner, will conduct an internal

evaluation using the established external criteria. This includes evaluating the proposals, sharing feedback, and collaborating with UNIBO and F6S.


***Figure 13.*** *Fragments from the LWs4, held in Cultural centre on Silba*

# 6. List of Solutions and action plan of implementation

Urbanex and the City of Zadar organized a series of workshops (described above) that brought local stakeholders together to develop three practical solutions aimed at addressing key sustainability issues and preserving the heritage of the islands. These initiatives are grounded in the islands' unique assets and shaped through inclusive, low-cost approaches that can be maintained and adapted by local actors.

The first solution focuses on revitalizing island trails to interpret and preserve the rich local heritage, addressing the lack of effective mechanisms to showcase traditional landscapes, history, and culture. The second, the Eco-Islands initiative, promotes responsible tourism while tackling the growing problem of plastic waste on the islands. Finally, the integrated restoration of traditional water systems—ponds and wells—targets the absence of tools to monitor water quality.

| Solutions N. | List of Solutions | Related challenge/s |
|---|---|---|
| 1 | **Revitalizing islands trails for heritage interpretation and recreation** | Challenge 1 - Interpretation mechanisms to preserve and present local heritage (traditional landscapes, islands history and culture) and are not being developed enough |
| 2 | **Eco-islands initiative - promoting responsible tourism on the Zadar islands** | Challenge 2 - Issue of growing amounts of plastic on the islands |
| 3 | **Integrated restoration and sustainable management of traditional islands water systems: ponds and wells** | Challenge 5 - Insufficiently developed tools for monitoring water quality in reservoirs and cisterns on the islands |

## 6.1. Revitalizing islands trails for heritage interpretation and recreation

| **Solution 1 - Revitalising island trails for heritage interpretation and recreation** | |
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| **Objectives of the solution** | • To develop value-based heritage interpretation, through a co-development process with the local community<br>• To stimulate networking and the transfer of knowledge for the cultural revitalisation of the island<br>• To enhance islands' heritage as learning environments by sharing their underlying stories making them more meaningful to people<br>• To attract and inspire visitors to search for deeper and more sustainable heritage experiences |

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| **Brief Description (max 250 words)** | The creation of interpretive trails holds potential for revitalizing, valuing, and presenting island specificities — island life, heritage, and landscape — which emerged as an expression of the long-term adaptation of closed human groups to the natural environment and physically limited living conditions. Island spaces today are subtly filled with traces of creativity and cultural heritage, which are very often not sufficiently recognized. As the population declines, the island's "biorhythm" is fading, which leads to the irreparable loss of traditional values and identity.<br>As part of this solution, the idea is for residents from Silba to collaborate in designing interpretive elements that reflect their personal and collective connections to the island's cultural and natural heritage. Trails would allow visitors to explore more of the island but also serve as "learning landscapes"—places where both, residents and visitors can connect their experiences with reflections on the multifaceted values of heritage, including sustainability. Through dedicated interpretive infrastructure, trails could reveal the local traditional cultural landscape*, highlighting key features such as the island's evolving natural and built environment, and various elements of island life.<br>Beyond their educational role, these trails could bring practical benefits. Increased use would help manage overgrown paths leading to valuable agricultural and ecological areas while also enhancing safety by serving as fire protection corridors. Additionally, interpretive trails contribute to environmental education in ecotourism destinations, enhancing visitors' learning experiences and potentially encouraging pro-environmental behaviour.<br>Furthermore, trails could function as *venues* for off-season sporting events, developed in collaboration with the local tourism sector to stimulate engagement during periods of lower visitor activity, drawing on models such as the Dugi Otok Trail in March, taking place on the nearby island.<br>**Island landscapes are primarily cultural landscapes, where the influences of humans and nature have been intensely intertwined, shaped by distinct social and cultural patterns of life. In island environments, "natural sociability" prevails, and development (still) focuses on activities closely connected to the immediate surroundings. The islands of the Zadar archipelago exemplify the deep connection between nature and humankind — every element of the built environment was created with a sense of proportion and harmony. As a result, the islands' original natural beauty has, over time, acquired distinctive features of a humanized cultural landscape. Consequently, island tourism must embody a high level of sensitivity toward this unique natural and cultural heritage.* |
| **Relevant RDD and RDD subcategory** | Nature-based and cultural tourism<br>Culture and cultural innovation |

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| **Relevant Challenge/s** | Interpretation mechanisms to preserve and present local heritage (traditional landscapes, islands history and culture) and are not being developed enough |
| **Specific Activities** | **1. Participatory mapping workshops**<br><br>Co-creating heritage trails - The solution implementation begins with a meeting of local NGOs and heritage preservation groups, structured as a participatory mapping workshop. Participants will explore good practice examples of cultural and natural heritage elements that can shape an engaging travel experience, such as spaces, landscapes, ecologically significant sites, events, memories, legends, walking paths, customs, and island art. Using photographs, audio, written records, and other existing materials, they will collaboratively categorize and map content while identifying key themes for the interpretive trail. The second phase deepens the mapping process with *personal heritage maps*, physical maps based on lived experiences, inherited memories, and place-based stories. Unlike traditional maps, these "subjective maps" highlight locations, names, and narratives meaningful to the community but often overlooked in ''usual'' cartographic materials.<br><br>**2. Storytelling workshop invitation**<br><br>Once the main themes are identified through participatory physical mapping workshops, along with collected artifacts, a call will be issued inviting residents to take part in creative storytelling workshops. The aim of this workshops is to gather personal stories, memories, and lived experiences connected to specific sites, traditions, and aspects of the island's heritage, in order to shape a locally rooted narrative that will inform the interpretive content. Stories may include cultural heritage (fishing traditions, historical events), natural heritage (e.g. island landscapes, coves, ponds and wells) while special emphasis will be put on topics highlighted within the framework of cross-cutting priorities, including the challenges of island life related to fragile ecosystems and ongoing climate change risks; the presence of specific species that contribute to the island's biodiversity; and issues of social inclusion and community life, particularly the role of women, with a conscious effort to ensure that the voices and stories of both women and men are equally represented. By merging collective and personal perspectives, the workshops should ensure the interpretative narrative reflects the island's identity, both heritage preservation and community ownership. |

### 3. Graphic and interpretive design

The design of interpretative infrastructure will draw on the expertise of the Urbanex team, which brings experience in museology, including the development of multimedia centres, interpretive infrastructure, and curatorial concepts. An example is awarded exhibition at the Croatian Coral Centre on the island of Zlarin, developed in process of co-creation with local island community. In partnership with the Zadar Tourist Board, the Urbanex team will design interpretative panels that reflect the island's heritage and natural features. These trails will be integrated into the "Project Archipelago" platform on the Tourist Board's official website, ensuring broader visibility and long-term usability.

### 4. Cataloguing the island voices

Stories and accounts that do not find their place within the physical interpretive infrastructure will be preserved and published as part of a dedicated web catalog. This catalog will be enriched with quotes from residents, old maps, historical documents, photographs, and drawings, preserving a valuable layer of local memory and cultural identity. All collected stories will be transcribed and stored on a platform such as *Storymap*.

### 5. Development of interpretive infrastructure

This activity includes installation of information boards, tourist and other signage (using local materials where possible) that explain heritage sites, traditional practices, and natural ecosystems along the trails. Dimensions and features of the interpretive infrastructure will be tailored to accommodate diverse user needs (e.g. children, visitors with visual impairments, elderly who benefit from large-print materials, individuals with dyslexia or other learning difficulties). These boards will feature QR codes linking to a digital platform (such as StoryMap or Zadar Archipelago), allowing visitors to explore additional stories, historical details, and cultural significance related to the island of Silba. Text on information board will be in minimum two languages (English and Croatian).

### 6. Trail maintenance and management

Trails will undergo regular community-led maintenance, including clean-ups and vegetation management on previously mapped trails, to ensure accessibility, prevent overgrowth, and preserve their role as fire protection corridors. Currently, these paths serve as critical firebreaks but suffer from neglect. By formalizing them as interpretive trails, their

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| | upkeep will improve, enhancing both heritage tourism and wildfire prevention.<br><br>**7. Off-Season tourism activation**<br><br>Partner with local tourism organizations and NGO's from the island to develop off-season events (e.g., Silba trail, heritage walks…) to extend visitor engagement beyond peak seasons. This activity plans to include, in addition to the local population, the population on the mainland, that is, the population in the Zadar County area, as well as other fans of sport and similar activities.<br><br>**8. Educational programs for schools**<br><br>Collaborate with island school to integrate interpretive trails into their curriculum through hands-on, place-based learning experiences. By holding field lessons on educational trails, students will acquire knowledge of their islands landscape.<br><br>**9. Monitoring & Feedback System**<br><br>Monitor changes in the number of off-season visitors to the island following the establishment of the interpretive infrastructure, with the aim of encouraging an increase. The target is to achieve a 5% rise in visitor numbers (off season, October-April) by the end of the project. |
| **Targets** | **1. Participatory Mapping Workshops: Co-Creating Heritage Trails**<br><br>• Target 1.1: 3+ participatory workshops held with locals, involving at least 20 residents in total.<br>• Target 1.2: 8+ heritage stories/memories documented and integrated into one platform (eg., Storymap) – 4+ stories narrated by women<br>• Target 1.3: 5+ co-designed trail elements (signs, art installations) installed<br><br>**2. Trail Development & Infrastructure**<br><br>• Target 2.1: 3+ km of trails cleared, marked, and made accessible within 16 months.<br>• Target 2.2: 5+ interpretive signs installed<br><br>**3. Capacity Building & Education**<br><br>• Target 3.1: 2+ school field trips conducted annually, reaching 100% of island students. |

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| | **4. Tourism & Economic Activation**<br>• Target 4.1: minimum one off-season events hosted<br>**5. Monitoring**<br>• Target 5.1: 5% rise in visitor numbers (off season, October-April) by the end of the project |
| **Location of implementation** | • Village/town (where appropriate)<br>• **Region** |
| **Geography and territorial context** | • Island<br>• Archipelago<br>• **Coastal area** |
| **Integration of relevant crosscutting** | **Climate change mitigation and adaptation** - The story of an island is always a story about water. Although islanders are surrounded by it and sometimes grow weary of the vast expanses of sea around them, collecting and preserving water on the islands is a skill that has been developed and perfected for centuries, as evidenced by the cisterns and ponds found across the islands. This challenge persists today, as islands lack access to drinking water, and the influx of visitors during the summer months only exacerbates the situation. The impact of climate change is particularly severe, as islands throughout the Adriatic are among the most exposed to prolonged dry periods, resulting in times when irrigation becomes difficult or impossible, ultimately leading to the abandonment of agricultural production. Addressing climate change and raising awareness of its effects could be achieved by thematizing and sharing stories, stories about water and the traditional methods of its collection over decades, indicating how fragile island ecosystems are, and how endangered they are by climate change.<br><br>**Social Justice and Inclusion** — Older people today make up most of the year-round population on the islands. They are guardians of island culture, customs, and traditions. Therefore, they would have an important part in the development of the solution through the inclusion of their stories about island lives, but also myths, legends, romantic tales, and island destinies in the process of creating interpretive themes.<br><br>**Biodiversity** - The islands are also notable for numerous natural and plant species that grow endemically only in this area. It can be said that the cultural agrarian landscape "mixes" with elements of autochthonous but also allochthonous plant species. Therefore, interpretation could also encompass the topic of natural heritage and the ecological network of the islands, aiming to raise visitor awareness and sensitize the public to the importance of preserving species and habitats. Additionally, the existing paths currently serve as fire protection corridors, but they are not being |

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| | adequately maintained. Improving their upkeep by arranging them as interpretive trails would strengthen fire prevention, since the further growth into dense maquis increases the risk of fires that can spread uncontrollably and threaten existing biodiversity. |
| **Forms of Innovation considered** | The **technical innovation** lies in applying a co-development approach in collaboration with community members for collecting their stories and knowledge — a method that, in the context of interpreting the island's heritage, has not been used on most of the islands. This also represents a form of social innovation, closely linked to governance innovation, as it fosters cooperation among diverse stakeholders (NGOs, local population, Tourist Board, City of Zadar, etc.) in developing solutions.<br><br>**Digital innovation** would be reflected in the digitization of the collected stories and interpretative themes to enhance the island's promotion and recognition among visitors seeking less developed, ecologically preserved destinations. Additionally, the trails would be digitized by incorporating their GPS coordinates into web platforms (Zadar Archipelago) and creating interactive maps, improving accessibility and navigation for visitors.<br><br>**Financial innovation** would be seen in the maintenance of the cleared paths as a no-cost or low-cost resource managed by the local community, ensuring sustainability while strengthening community engagement. |
| **Gender Sensitive Planning aspects** | The solution would involve the active engagement of the local community, with an effort to ensure that men and women are represented equally. Since men on these islands were traditionally seafarers, island life — social, public, and work life in the fields — was, for a long period and to a significant extent, a women's domain. Island stories could, therefore, focus particularly on this aspect of women's lives and work on the island, interpreting this peculiarity. Recognizing that women, particularly older generations, have historically played pivotal but often underrepresented roles in shaping island life, the project will prioritize their voices in storytelling and co-creation. Community workshops will actively encourage gender-balanced participation, inviting women and men to share distinct perspectives on traditions, ecological practices, and daily life. A dedicated storytelling session will focus on women's knowledge, such as familial customs, resource management, and oral histories, ensuring their contributions are visibly woven into interpretive content. This will be reflected in the Storymap platform, where QR-linked narratives will highlight both gendered and shared experiences of heritage.<br>Monitoring mechanisms will track gender parity in workshop attendance and evaluate the proportion of interpretive materials featuring women's |

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| | narratives. By disaggregating data, the project can assess whether women's heritage is equitably represented and adapt outreach strategies accordingly. Additionally, educational programs and off-season events will consciously promote inclusive participation, fostering a deeper understanding of how gender has shaped Silba's cultural landscape. |
| **Resources/Capitals needed** | **Cultural Capital**<br>• Traditional knowledge (oral histories, legends, crafts) from local elders.<br>• Island heritage assets (abandoned structures, folklore, place names).<br>• Artistic expressions (local music, dialect, traditional skills like drystone walling).<br>**Natural Capital**<br>• Trail routes (existing footpaths, coastal/forest access).<br>• Biodiversity (native plants, wildlife habitats, geological features).<br>• Landscapes (olive groves, vineyards, etc).<br>**Built Capital**<br>• Existing infrastructure (old stone walls, water cisterns).<br>• Materials (local stone, wood, recycled items for signage).<br>• Public spaces (village squares, schools for workshops).<br>**Social Capital**<br>• Community networks (fishing cooperatives, cultural associations).<br>• Volunteer groups (hikers, elders, younger teachers, fireman).<br>• Local partnerships (schools, NGOs, tourism boards).<br>**Human Capital**<br>• Local guides or communities (knowledge of history/ecology).<br>• Teachers (to lead educational programs).<br>**Data**<br>• Heritage inventories (documented stories, maps).<br>• Visitor statistics (trail usage, feedback surveys).<br>• Ecological surveys (sensitive habitats, species counts).<br>**Financial Capital**<br>• Grants (EU rural development, cultural heritage funds).<br>• City budgets |
| **Main stakeholders involved and their contribution** | City of Zadar<br>• Funding (municipal budgets, EU grant applications).<br>• Permits and logistics (land access, trail approvals).<br>Zadar Tourist Board<br>• Marketing trails as part of archipelago's "authentic experiences." |

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| | • Digital promotion (website, social media, visitor apps).<br>• Organizing events (e.g., "Island Trails Festival").<br>Island residents & elders<br>• Heritage knowledge (stories, traditional skills).<br>• Volunteering (trail maintenance, guiding).<br>Local schools & teachers<br>• Educational programs (field trips, student projects).<br>• Youth engagement (art installations, storytelling).<br>NGOs (e.g., heritage, environmental groups)<br>• Expertise (conservation, sustainable tourism).<br>Volunteer networks and grant partnerships |
| **Main and other Beneficiaries** | • Local community<br>• Tourists who search for new authentic experiences<br>• Schools<br>**Text on information board will be in minimum two languages* |
| **Target groups at risk of exclusion** | • **Women**<br>• **Young people**<br>• **Older people**<br>• **People with disabilities**<br>• Migrants and minorities<br>• Long-term unemployed<br>• LGBTQA+<br>• People without access to the internet<br>• General public<br>Other specific groups not listed above |
| **Timeframe (M to M)** | **Phase 1: Participatory planning, community-led narrative development, and design** (Months 1-9)<br>▪ Community Workshops (collecting stories)<br>▪ Funding & Partnerships<br>**Phase 2: Trail development and maintenance (Months 6-18)**<br>▪ Trail maintenance and cleaning<br>▪ Development of the design of collected stories on information boards<br>▪ Touristic and other signage installation<br>**Phase 3: Activation and monitoring (Months 18-24)**<br>▪ School Programs<br>▪ Off-Season Events |
| **Indicative cost** | • Development of Interpretive Infrastructure - 7.500 €<br>• Organizing workshops – 500 €<br>• Off-Season Tourism Activation (organizational support) – 1.500 €<br>• Trail Maintenance & Ecological Management - 2.500 € |

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| | **Total – 12.000 €** |
| **Indicative funding sources** | • Budget for place-based solutions (RURACTIVE project)<br>• City of Zadar with other funds |
| **Monitoring plan/tools and indicators** | • Local participation in activities - Per event<br>• Number of stories collected during the project - At the end of the project<br>• (ETIS) Percentage of the destination's events that are focused on traditional/local culture and heritage - Per year<br>• Number of educational boards installed - At the end of the project<br>• Arrivals at tourist establishments by accommodation typology (Hotels and similar accommodation) - Per year<br>• Nights spent at tourist establishments by accommodation typology (Hotels and similar accommodation) - Per year |
| **Long Term Impact Assessment** | **Economic:**<br>By extending tourism into the off-season through cultural or sport events, the project diversifies local income sources and reduces dependency on peak-season revenue. Collaborative partnerships with the Zadar Tourist Board and NGOs ensure long-term trail maintenance and promotion.<br>**Environmental:**<br>The long-term environmental sustainability impact of the interpretive trails includes preserving fragile island ecosystems by maintaining firebreaks and preventing overgrowth through regular community-led upkeep. The trails promote eco-conscious tourism by educating visitors on local biodiversity and traditional conservation practices, fostering pro-environmental behaviour. By integrating heritage with ecological stewardship, the project ensures sustainable land use while safeguarding Silba's cultural landscapes for future generations.<br>**Social:**<br>Participatory workshops empower residents, especially marginalized groups like elderly women, to shape heritage narratives, strengthening community ownership and intergenerational knowledge transfer. Educational programs for schools embed place-based learning, fostering youth engagement with local heritage. Accessible trail design ensures inclusivity for all ages and abilities, reinforcing social cohesion.<br>**Cultural:**<br>Documenting oral histories (e.g., fishing traditions, water management) safeguards intangible heritage at risk of being lost to depopulation. Interpretive content balances cultural preservation with adaptive reuse, framing traditions as dynamic rather than static. By linking stories to landscapes, the trails reinforce Silba's identity as a living cultural space, not just a tourist destination. |

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| **Communication and Engagement** | **1. Local Community & Residents**<br>(Ensure active participation, ownership, and long-term support.)<br>• Community Meetings<br>"Trail Storytelling" (elders sharing island history in an informal setting).<br>• Local Media<br>• Social Media & WhatsApp Groups<br>Dedicated group for updates, volunteer calls, and discussions.<br>**2. City of Zadar & Zadar Tourist Board**<br>• Promotional Campaigns<br>Tourist Board features trails in Zadar's official tourism materials (website, brochures).<br>Co-branded events (e.g., "Zadar Archipelago Trails Week").<br>• Regular Reports<br>Quarterly impact reports (visitor numbers, economic benefits). |
| **Sustainability consideration** | **Low-Impact Trail Design**<br>• Leave No Trace (LNT) principles will be followed —to avoid sensitive habitats, and by using existing paths.<br>• Use permeable materials (gravel, wood chips) will be used to reduce erosion.<br>• The trail revitalization will prioritize minimal ecological disruption by using locally sourced, durable materials for interpretive infrastructure and maintaining existing fire corridors to prevent habitat fragmentation.<br>**Sustainable Infrastructure**<br>• Eco-friendly signage<br>• No concrete, dry-stone walling techniques will be used for steps/barriers. |
| **Synergies with other solutions** | The solution is linked to another initiative / solution proposal prioritized during LWs2 — *Educating young people on preserving and presenting island heritage and traditions*. Both solutions aim to contribute to safeguarding the intangible cultural heritage of older islanders by collecting first-hand information (the same input data is needed — the stories of the islanders) and strengthening awareness among islanders about the importance of preserving and effectively interpreting their cultural heritage. |
| **Synergies with local policies** | The idea aligns with local policies supporting cultural and nature-based tourism, emphasizing sustainable development through the valorisation of natural and cultural heritage (*Zadar County Island Development Plan 2021–2027, Zadar City Development Plan until 2030, National Island Development Plan*). Restored trails could serve as open-air museums, integrating interpretative signage to highlight historical sites, traditional landscapes, |

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| | and biodiversity. Well-maintained trails encourage eco-friendly, low-impact tourism, attracting visitors year-round while reducing pressure on main tourist areas. |
| **Synergies with EU policies when relevant** | Although there are not many European policies focused specifically on European islands (except for the sectoral one - Clean Energy for EU Islands initiative), a significant proportion of EU policies integrates the aim to preserve cultural heritage. EU cohesion policy also emphasizes the importance of culture and the development of the cultural sector on islands, recognizing that island communities' cultural and linguistic identities should be protected and promoted, including in educational settings. These identities contribute to the enrichment of both the islands themselves and the EU as a whole on many levels. |

## 6.2. Eco-islands initiative - promoting responsible tourism on the Zadar islands

| **Solution 2 – Eco-islands initiative - promoting responsible tourism on the Zadar islands** | |
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| **Objectives of the solution** | • Education about environmentally responsible behaviour aimed at protecting the environment and nature of these islands<br>• Reduce the use of plastic bags, disposable cups and other plastic disposable items<br>• Make community actively involved in the eco-islands initiative and the process of raising awareness campaign<br>• Increase media attention for awareness and help |
| **Brief Description (max 250 words)** | The solution aims to raise awareness of the importance of preserving the natural and cultural heritage of the islands by promoting responsible tourism behaviour. The idea is to achieve reducing single-use plastics, conserving water resources, while ensuring proper waste disposal, and moving towards a sustainable tourism concept that engages visitors with environmentally friendly experiences.<br><br>To achieve this, a development of cohesive narrative is envisioned that presents the islands as environmentally sensitive areas requiring responsible behaviour (this could also include development of *charter for visitors coming on islands*, co-created with the community, but keeping the positive communication so that visitors would not see it as a list of constraints). The idea is also to create and distribute educational leaflets for tourists digital and locally, in physical formats. |

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| | An important aspect of the initiative would be the promotion of sustainable alternatives during local events. Local businesses and organizations involved in the design of events on the islands would be supported in replacing single-use plastics with reusable cups.<br><br>Through this solution, it is planned to organize beach or landfill cleaning actions on islands Iž or Olib. The local population has already organized various coastal cleaning actions on the islands, mostly before the start of the season, to clean up the waste that collects on the coast carried by sea currents. It is planned to provide support for cleaning actions to the local population and the associations in cooperation with the Zadar Tourist Board.<br><br>Experiencing first-hand work, people can feel more concerned about plastic waste, learn about the root of the problem, understand how it happens, and how important it is to reduce the effects of plastic waste by collecting it. The project will also propose the inclusion of interactive art. For example, installations made from marine debris or plastic would serve as visual reminders of the importance of preserving the environment, but also as a symbol of the versatile reuse of various materials. |
| **Relevant RDD and RDD subcategory** | Energy transition and climate neutrality<br>Nature-based and cultural tourism |
| **Relevant Challenge/s** | Issue of growing amounts of plastic on the islands |
| **Specific Activities** | **1. Support local events through "Plastic-Free Island - „Molaj plastiku!”" initiative**<br>• Encourage event organizations to eliminate single-use plastics during festivals (e.g., reusable / paper cups).<br>• Co-design charter with local stakeholders (NGOs and event organizers) to commit to reducing water bottles, straws, coffee cups and bags, including agreement to display poster and logo “Molaj plastiku!” and promote initiative during cultural events on islands<br><br>**2. Engagement activities for locals**<br>• Host yearly clean-ups led by youth NGO/associations on Olib and Iž islands<br>• Workshop with local community about recycling best practices (eg. Provir SEA.R.C.H. app), opportunities for financing initiatives related to waste management / clean-up actions on islands |

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| | **3. Creation and distribution of educational leaflets for tourists in digital and (locally) physical formats**<br>• A digital paper booklet listing recommendations on eco-friendly behavior (e.g., refuse a plastic bag, use of refillable bottle).<br>**4. "Sea Currents & Plastic Pollution" eco-monument**<br>• Set up installations at ferry terminals & beaches showing how plastic and other disposed material / materials carried by sea currents can be reused<br>**5. "Silent Eco-Guides"**<br>• Place footprint stickers leading to recycling bins with messages like *"Follow me to keep the island clean!"*<br>• Attach small signs around the island or in the apartment *"The sea starts here – conserve water!"* |
| **Targets** | • Engage 20+ locals annually in beach clean-ups and sustainability workshops.<br>• Display "Molaj plastiku!" posters in 2+ visible locations (ferry terminals, event venues).<br>• Support at least one+ event through "Plastic-Free Island" initiative<br>• Distribute 50+ physical leaflets in key tourist spots (ferries, rentals, info centres).<br>• Install 1+ eco monument<br>• Partner with 5+ rental owners to adopt signs in their properties. |
| **Location of implementation** | • Village/town (where appropriate)<br>• Region<br>• Country |
| **Geography and territorial context** | • Island<br>• Archipelago<br>• Coastal area |
| **Integration of relevant crosscutting** | **Climate change adaptation and mitigation** — Awareness campaigns would emphasize the environmental vulnerability of the islands to climate change, highlighting ongoing mitigation measures as efforts to safeguard and sustain ecosystems.<br>**Biodiversity** — Improper waste disposal, particularly plastic pollution in marine environments, represents a considerable threat to island and underwater ecosystems. Educational campaigns would aim to inform visitors of the adverse consequences of such actions, promoting responsible practices that support the protection and preservation of biodiversity, both on and around the islands.<br>**Social justice and inclusion** - This initiative ensures environmental sustainability is inclusive and equitable by actively involving the local |

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| | community, tourists, and businesses in collaborative actions. By co-creating the plastic-reduction charter and educational campaigns with residents, the project prioritizes local voices while avoiding top-down impositions. Accessible multilingual materials and visual eco-guides make participation possible for all, including non-native speakers and children. Small businesses receive support—not penalties—in adopting reusable alternatives, ensuring economic fairness. Tourists are engaged as partners through clean-ups and interactive art, fostering shared responsibility rather than exclusion. The approach reframes sustainability as a collective cultural value, strengthening community ownership and ensuring no group is left behind in the transition toward a greener future. |
| **Forms of Innovation considered** | This solution brings **social innovation**, as it encourages community and visitor participation through dedicated events that promote environmentally responsible behaviour and preserve the islands ecosystem and natural resources. Solution also strengthens collective action and collaboration between islanders, regarding sustainable practices (e.g. producers of eco-friendly products, businesses and organizations involved in the design of events on the islands, artists), improving possibilities for joint sustainable initiatives in the future as well. It also supports **technical innovation**, as art installations made from recycled materials would serve as visual reminders of environmental preservation - repurposing materials into meaningful art requires technical skill and creative processes that highlight resource efficiency. |
| **Gender Sensitive Planning aspects** | Recognizing that women often lead household waste management and sustainable consumption, this initiative integrates a gender-sensitive approach to ensure inclusive participation and impact. Women's perspectives will be highlighted through storytelling elements, such as testimonials from female eco-entrepreneurs or local households, making the campaign more relatable. To measure inclusiveness, participation rates in activities will be gender-disaggregated (e.g., tracking the percentage of women and men engaged in workshops or certified as eco-partners). By addressing gendered roles in waste management and promoting equal involvement, the project ensures that sustainability efforts benefit and empower all community members equitably. |
| **Resources/Capitals needed** | **1. Financial Capital**<br>• Costs for producing leaflets and posters<br>• Workshop materials (gloves, cleanup bags).<br>• Design/printing of the brochures<br>• Stickers, signage, installation costs.<br>**2. Human Capital**<br>• Project Coordinator – Manages activities and partnerships.<br>• Educators/Workshop Leaders – For tourist/locals' training. |

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| | • Local Volunteers – Beach cleanups, promotions.<br>• Desing Support<br>**3. Physical Capital**<br>• Workshop Spaces (schools, tourist offices, community centres).<br>• Cleanup Equipment (gloves, compost/recycling bags, rakes).<br>**4. Social Capital**<br>• Partnerships – Local businesses (e.g., rentals, NGOs).<br>• Government Collaboration – Tourist boards, City of Zadar.<br>• Media Coverage – Local press, tourist board website<br>**5. Natural Capital**<br>• Beach Cleanup Sites – Access, safety, waste transport.<br>• Local Sustainable Materials<br>**6. Data**<br>• Waste Tracking: Partner with local waste management for official metrics. |
| **Main stakeholders involved and their contribution** | Tourist Board<br>• Official promotion of the initiative to visitors.<br>• Funding/logistical support for events (e.g., workshops, exhibits).<br>• Integration of eco-certification into island branding.<br>• Distributing Eco-Passports at info centres.<br>• Featuring "Plastic-Free Partners" on tourism websites/maps.<br>2. NGOs & Environmental Associations (Udruge)<br>• Co-organizing cleanups/workshops (expertise, volunteers).<br>• Advocacy for policy changes (e.g., plastic bans).<br>• Provir (support for education – SEA R.C.H. app)<br>3. Local Rentals<br>• Displaying "Silent Eco-Guides" in apartments (water/energy tips).<br>4. Čistoća d.o.o.<br>Support of workshops and providing data |
| **Main and other Beneficiaries** | • Local community<br>• Tourist<br>• City of Zadar |
| **Target groups at risk of exclusion** | • **Women**<br>• **Young people**<br>• Older people<br>• People with disabilities<br>• Migrants and minorities<br>• Long-term unemployed<br>• LGBTQA+<br>• People without access to the internet<br>• **General public** |

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| | • Other specific groups not listed above |
| **Timeframe (M to M)** | Phase 1: Preparation (Months 1–6)<br>• Stakeholder meetings (tourist board, NGOs, municipalities).<br>• Secure first local business commitments.<br>• Develop workshop content (beach cleanups, renter training).<br>• Workshop with local community about recycling best practices<br>Phase 2: Implementation (Months 7–18)<br>• Beach cleanups + workshops.<br>• Creation and distribution of educational leaflets for tourists<br>• Collect waste/water usage data.<br>• Pop-up exhibits at ferry terminals.<br>Phase 3: Evaluation & Scalability (Months 18-22)<br>• Analyse data (plastic reduction…).<br>• Host a stakeholder debrief (what worked/failed).<br>• Plan expansion of campaign to 1–2 new islands. |
| **Indicative cost** | • Support local events through "Plastic-Free Island" initiative - 3.000 €<br>• Workshops for locals – 3.000 €<br>• Educational leaflets for tourists – 1.000 €<br>• Sea Currents & Plastic Pollution" eco-monument – 500 €<br>• Silent Eco-Guides" – 500 €<br>**Total: 8.000 €** |
| **Indicative funding sources** | • Budget for place-based solutions (RURACTIVE project)<br>• Zadar Tourist board |
| **Monitoring plan/tools and indicators** | • Education - locals/tourists trained in workshop<br>• Number of local actions for cleaner environment<br>• Cleanups - kg waste collected (or number of bags)<br>• Total collected municipal solid waste per capita<br>• Number of installations<br>• Number of festivals supported by the plastic reuse initiative |
| **Long Term Impact Assessment** | **Environmental**<br>The initiative will reduce plastic pollution through beach clean-ups, reusable alternatives at events, and educational campaigns, directly improving coastal and marine ecosystems. By promoting sustainable practices among tourists and locals, it fosters long-term behavioural changes in waste management and water conservation, helping preserve the islands' fragile natural habitats.<br>**Social**<br>Engaging communities in clean-ups and workshops strengthens local environmental awareness and collective responsibility. Interactive art installations and educational materials create emotional connections to |

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| | sustainability, while youth-led activities empower future generations to champion eco-friendly practices.<br>**Economic**<br>Shifting toward plastic-free events and responsible tourism enhances the islands' appeal as eco-destinations, potentially attracting conscientious travellers. Supporting local businesses in adopting sustainable practices (e.g., reusable cups) reduces long-term costs while aligning with global green tourism trends, boosting the islands' economic resilience. |
| **Communication and Engagement** | A. Local Community & Residents<br>• Community Meetings<br>• Local Media<br>• Social Media & WhatsApp Groups.<br>B. City of Zadar & Zadar Tourist Board<br>• Promotional Campaigns<br>• Regular Reports |
| **Sustainability consideration** | **1. Environmental Sustainability**<br>• Plastic Reduction: Promoting reusables ensures lasting cuts in single-use plastics.<br>• Waste Management: Regular cleanups + tourist education reduce recurring marine litter.<br>**2. Economic Sustainability**<br>• "Plastic-Free Partners" gain marketing benefits, creating an incentive to maintain practices.<br>**3. Social Sustainability**<br>• Community Ownership: Locals lead workshops and cleanups, fostering pride and long-term engagement.<br>• Tourist Participation<br>Education: Schools/NGOs integrate programs into curricula, ensuring generational impact. |
| **Synergies with other solutions** | There is synergy with the solution *Revitalizing islands trails for heritage interpretation and recreation*, given that both solutions include a component of raising visitor awareness of limited resources on the islands and responsible behaviour when staying on the island. |
| **Synergies with local policies** | The idea aligns with local policies supporting the development of sustainable and eco-tourism, as well as innovative solutions in the waste management sector for ecosystem protection and the preservation of island biodiversity, geodiversity, and landscape diversity (Zadar County Island Development Plan 2021–2027, Zadar City Development Plan until 2030, National Island Development Plan). |

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| **Synergies with EU policies when relevant** | European Green Deal & Circular Economy Action Plan<br>• Synergy: Focus on waste prevention, reuse, and circular business models.<br>EU Biodiversity Strategy 2030<br>• Synergy: Targets marine ecosystem protection. |

## 6.3. Integrated restoration and sustainable management of traditional islands water systems: ponds and wells

| **Solution 3 - Integrated restoration and sustainable management of traditional islands water systems: ponds and wells** | |
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| **Objectives of the solution** | • preservation and revitalization of ponds as an integral part of the traditional landscape, cultural heritage and prerequisites for life on karst islands<br>• contribute to the preservation of dry-stone pond restoration techniques<br>• encouraging the active involvement of local stakeholders and citizens in caring for water bodies (ponds and cisterns) in their area to ensure the long-term sustainability of restored water bodies<br>• ensure the conservation of aquatic habitats to contribute to the overall biodiversity of the island, enabling the survival of species associated with aquatic and wetland habitats |
| **Brief Description (max 250 words)** | Ponds and wells traditionally represent small freshwater ecosystems. Ponds are shallower bodies of water with open, wider surfaces and at least partially sloped shores, while wells are deeper structures with smaller water surfaces, often featuring vertical walls and sometimes covered. Ponds, whether natural or artificial, were once extremely important for ensuring sufficient water quantities to meet the various needs of populations in karst areas. Their significance is even greater in island environments where water is a limited resource and population is dependent on rainwater or water-carrying ships. However, with the adoption of new technologies and the depopulation of the islands, ponds have lost much of their importance. As is often the case in such processes, nature has taken its course – vegetation has grown, dry stone walls have largely collapsed, and ponds have nearly fallen into oblivion. Today, they primarily serve as habitats and sources of drinking water for the animals and plants that inhabit them.<br>The islanders have recognized the importance of restoring these ponds, not only as part of their biological and cultural heritage but also as a means of raising community awareness about the preservation of wet habitats on the islands. This solution therefore proposes their preservation and protection through processes such as waste removal, mowing, and the reconstruction of walls and rings. The initiative seeks to involve local experts, community |

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| | members, and volunteers in the restoration of these biotopes. The process would include a detailed inspection of the ponds, along with documentation of the surrounding flora and fauna. For these purposes, drones could be used to conduct aerial surveys before and after restoration, while the use of GIS could help in creating maps to track progress.<br>Additionally, the idea is to systematize existing data on the island's ponds, followed by field trips to record basic data on each pond. Restoration activities would include repairing dry stone walls and enhancing the ponds' horticultural surroundings, potentially through volunteer actions. Beyond physical restoration, the proposal includes organizing workshops for the local population on dry-stone construction techniques and the biological value of the ponds. These workshops would highlight how traditional techniques, once crucial for survival on the karst, are now being revalued not only for their historical and ethnological significance but primarily for their role in biodiversity and nature protection. |
| **Relevant RDD and RDD subcategory** | Sustainable agri-food systems and ecosystem management<br>Culture and Cultural Innovation |
| **Relevant Challenge/s** | Insufficiently developed tools for monitoring water quality in reservoirs and cisterns on the islands |
| **Specific Activities** | **1. Mapping and database creation**<br>• Conduct field surveys to map the locations of traditional ponds and wells using GPS and GIS tools, and historical maps<br>• Develop a centralized digital database documenting each water body's attribute<br>• If feasible, use drone aerial surveys to capture high-resolution images of ponds and wells (in collaboration with University of Zadar).<br>**2. Ecological and structural assessment**<br>• Perform detailed inspections of ponds and wells, recording water quality parameters (pH, temperature, oxygen levels) using IoT sensors.<br>**3. Dry-stone wall restoration on the island of Olib**<br>• Organize workshops with local community to train volunteers in traditional dry-stone wall repair techniques.<br>• Reconstruct collapsed dry-stone walls around ponds to improve structural integrity<br>**4. Vegetation management & waste removal**<br>• Clear invasive vegetation and debris from ponds to restore their functionality on island of Olib |

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| | • Conduct periodic mowing around ponds to maintain accessibility and prevent overgrowth.<br><br>**5. Education and publication of handbook**<br><br>• Making a final report on lessons learned / a small handbook compiling everything we've learned through the project about island ponds: their characteristics, preservation methods, and maintenance practices. |
| **Targets** | • Map 100% of traditional ponds and wells on the island within the first year<br>• Creating maps using GIS tools<br>• Restore at least 1 pond within two years, focusing on structural (dry-stone walls) and ecological rehabilitation.<br>• Remove invasive vegetation and waste from at least 1 of identified ponds in first phase<br>• Engage 20+ volunteers in cleanup and restoration activities over the project duration.<br>• Publish a short handbook on restoration progress and ecological improvements. |
| **Location of implementation** | • Village/town (Zadar's Island with wells and ponds such as Olib) |
| **Geography and territorial context** | • Island<br>• Archipelago<br>• Coastal area |

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| **Integration of relevant crosscutting** | **Biodiversity** - Ponds and their immediate surroundings serve as habitats for many rare and protected species, and in karst areas, they often represent the only aquatic environments. As such, they have an important role in supporting overall biodiversity by enabling the survival of species dependent on aquatic and wet habitats, such as amphibians. Therefore, cleaning and restoring ponds through this solution would directly contribute to increasing biodiversity, often facilitating the return of certain species, while also providing essential drinking water for wild animals and birds, which is one of the most important functions of these ecosystems.<br><br>**Climate change adaptation and mitigation** – Islands are heavily affected by droughts during the summer, making ponds and wells increasingly valuable as natural 'water storage' in these prolonged dry periods. The key functions of ponds in this context include providing water for numerous species and offering a potential water source for irrigation and agricultural processes. Therefore, the restoration of ponds is directly linked to climate change adaptation.<br><br>**Social justice and inclusion** – The proposed solution emphasizes active community involvement to ensure social justice and inclusion, fostering a sense of shared responsibility for the preservation of traditional ponds. Local island residents, including farmers, elders, and youth, will play a central role in restoration efforts, drawing on their traditional knowledge of dry-stone techniques and water management. To strengthen ties between urban and island communities, volunteers from the mainland, particularly the city of Zadar, will be invited to participate in clean-up and restoration activities. This cross-community collaboration aids in physical restoration but also builds solidarity, raising awareness among urban populations about the challenges faced by islanders in preserving their cultural and natural heritage. Educational workshops will further engage diverse groups, ensuring that marginalized voices, including those of older generations with traditional skills, are valued and integrated into the project. |
| **Forms of Innovation considered** | **Digital and Technological Innovation**—The project integrates cutting-edge digital tools to enhance the efficiency and precision of restoration efforts. Drones are used for aerial mapping, providing high-resolution imagery before and after interventions to track changes in pond conditions. Geographic Information Systems (GIS) enable the creation of dynamic maps that document the locations, structural integrity, and ecological status of each water body. Additionally, IoT sensors are deployed to monitor water quality parameters (pH, temperature, dissolved oxygen) in real time, ensuring adaptive management of these fragile ecosystems. A centralized digital database systematically stores all collected data—from historical |

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| | records to biodiversity surveys, making it accessible for researchers, policymakers, and the local community.<br>**Technical Innovation** - The solution combines traditional craftsmanship with modern engineering to restore and sustain island water systems. Dry-stone walling techniques, passed down through generations, are revived to rebuild collapsed pond structures, ensuring their stability and water retention capacity. The project also explores low-impact excavation methods to rehabilitate silted ponds without disrupting surrounding habitats. By merging ancestral knowledge with contemporary technical insights, the solution achieves both cultural preservation and ecological resilience.<br>**Social and Organizational Innovation** - At the heart of the project is a participatory governance model that engages local communities as key stakeholders. Volunteer-driven restoration campaigns mobilize island residents, fostering a sense of ownership and responsibility toward water bodies. Workshops on dry-stone masonry and pond ecology educate participants on the historical and environmental value of these systems, bridging generational gaps in traditional skills. Partnerships with local schools, NGOs, and municipal authorities create a collaborative framework for decision-making, ensuring that restoration aligns with community needs. This model not only strengthens social cohesion but also institutionalizes long-term stewardship, preventing the abandonment of ponds after project completion. |
| **Gender Sensitive Planning aspects** | The restoration and preservation of traditional ponds and wells will actively integrate a gender-sensitive approach to ensure inclusive participation and representation. Recognizing that water management practices historically involved distinct gender roles, with women often playing a central part in water collection and maintenance, the project will prioritize collecting oral histories from women and other community members to enrich storytelling with diverse perspectives. Workshops, training sessions, and volunteer activities will encourage gender-balanced participation, promoting equal opportunities for involvement in dry-stone wall restoration, clean-up actions, and decision-making. Additionally, monitoring will include gender-disaggregated indicators (e.g., the percentage of women and men participants in workshops) to track and ensure equitable engagement. By embedding these considerations, the project not only safeguards cultural heritage but also strengthens social equity in revitalizing the island's water systems. |
| **Resources/Capitals needed** | **Cultural Capital *(essential for heritage preservation)***<br>• Dry-stone walling techniques, traditional pond maintenance methods (traditional knowledge) |

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| | • Oral histories, customs, and local names tied to water sources (Intangible heritage)<br>**Natural Capital**<br>• Water resources: Rainwater and groundwater feeding the ponds.<br>• Biodiversity: Endemic species (amphibians, plants, birds) dependent on ponds.<br>**Built Capital (physical infrastructure)**<br>• Dry-stone structures<br>• IoT sensors - Installed water-quality monitoring devices.<br>**Social Capital (networks and collaboration)**<br>• Community: Volunteers, local associations NGO's<br>• Institutions: Research bodies, Croatian Institute of Public Health, University of Zadar, Local action group<br>**Human Capital (skills and expertise)**<br>• Specialists such as hydrologists, ecologists, landscape architects.<br>• Volunteer capacity<br>**Financial Capital**<br>• EU funds: finance for cleaning fire paths, Ruractive funding<br>• Local funding: City budgets, Tourist board budget<br>**Data**<br>• GIS mapping: Pond/well locations and conditions.<br>• Database: Biological/hydrological records.<br>• Historical maps |
| **Main stakeholders involved and their contribution** | • University of Zadar (Department of Geography) - *(expressed interest)* - mapping support<br>• City of Zadar and Tourist board – support in financing cleanup actions<br>• NGOs (such as Udruga Sol) - local knowledge of ponds and wells, dry stone walls techniques, volunteer<br>• Volunteer fire department – cleaning ponds and wells<br>• Zadar Islands elementary school – field trips organized, and dissemination of gained knowledge to pupils |
| **Main and other Beneficiaries** | • Local community<br>• Tourists who search for new authentic experiences<br>• Schools and universities in field of geography and biology |
| **Target groups at risk of exclusion** | • Women<br>• Young people<br>• Older people<br>• People with disabilities<br>• Migrants and minorities<br>• Long-term unemployed<br>• LGBTQA+ |

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| | • People without access to the internet<br>• General public<br>• Other specific groups not listed above |
| **Timeframe (M to M)** | • Launch community meetings to introduce the project and recruit volunteers (1-6 M)<br>• Begin GIS mapping of ponds/wells (and drone surveys if it's feasible to arrange with university) (6 – 10 M)<br>• Complete initial database setup with mapped water bodies (7-12 M)<br>• Start priority pond restoration (clear vegetation, remove debris) (10 – 20 M)<br>• Begin dry-stone wall repairs (10 – 20 M)<br>• Launch school outreach program (student field trips to ponds) (18-23 M)<br>• Publish final project toolkit (22 – 24 M) |
| **Indicative cost** | • Mapping and Database Creation – 1.000 €<br>• Ecological and Structural Assessment – 1.000 €<br>• Dry-Stone Wall Restoration, Vegetation Management & Waste Removal – 3.000 €<br>**Total: 5.000 €** |
| **Indicative funding sources** | • Budget for place-based solutions (RURACTIVE project)<br>• City of Zadar with other funds |
| **Monitoring plan/tools and indicators** | • Number of clean ponds and wells – minimum 1<br>• Number of maps – minimum 3<br>• Number of repaired dry stones around ponds – minimum 1<br>• Number of volunteers - 20+ |
| **Long Term Impact Assessment** | **Environmental**<br>The restoration of traditional ponds and wells will enhance freshwater ecosystems, improve biodiversity and provide critical habitats for native flora and fauna. Regular monitoring and maintenance will ensure water quality preservation, contributing to the overall resilience of island ecosystems in the face of climate change.<br>**Economic**<br>Revitalized water bodies can support sustainable agriculture and reduce dependency on external water supplies, lowering costs for local communities. Additionally, restored ponds may attract eco-tourism, creating new opportunities for guided tours and educational programs.<br>**Social**<br>Community involvement in restoration fosters a sense of ownership and pride, strengthening local stewardship of natural resources. Workshops on dry-stone techniques and water conservation empower residents with traditional skills, ensuring intergenerational knowledge transfer.<br>**Cultural** |

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| | Preserving these structures safeguards an important part of the islands' heritage, reconnecting communities with traditional water management practices. Documenting and promoting their historical significance raise awareness of their role in shaping the island's cultural landscape. |
| **Communication and Engagement** | Local community<br>• Volunteer Campaigns: Programs for locals to monitor/maintain restored sites.<br>• Community Storytelling: Document oral histories about ponds (interviews, exhibitions).<br>Social Media<br>• Regular updates (before/after photos, volunteer spotlights). |
| **Sustainability consideration** | This solution ensures long-term environmental, social, and economic sustainability through:<br>1. Ecological Sustainability – Restored ponds enhance biodiversity, improve water retention, and support climate resilience in karst areas, aligning with EU and national green policies.<br>2. Cultural Sustainability – Reviving traditional dry-stone techniques preserves intangible heritage while training locals ensures knowledge transfer to future generations.<br>3. Community Sustainability – Volunteer programs and local guardianship models foster ownership, ensuring maintenance beyond project completion. |
| **Synergies with other solutions** | Wells and ponds are part of the traditional island landscape, offering a place to learn about nature, habitats, and water as an eternal theme of life on the islands. For this reason, this idea aligns with the solution of *Revitalizing island trails for heritage interpretation and recreation*, as it contributes to preserving the island's heritage. Additionally, these two solutions can be physically connected by incorporating the ponds as points of interest along the interpretation trail. |
| **Synergies with local policies** | The idea aligns with local policies supporting cultural and nature-based tourism, emphasizing sustainable development through the valorisation of natural and cultural heritage (*Zadar County Island Development Plan 2021–2027, Zadar City Development Plan until 2030, National Island Development Plan*). |
| **Synergies with EU policies when relevant** | EU Water Framework Directive (WFD 2000/60/EC)<br>• Restoring ponds improve groundwater recharge and freshwater biodiversity, supporting WFD goals of "good ecological status" for water bodies.<br>EU Biodiversity Strategy 2030<br>• Ponds are "blue infrastructure" that protect pollinators, amphibians, and wetland species, aligning with the EU's target to restore 25,000 |

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| | km of free-flowing rivers and 30% of degraded ecosystems. To provide more space for nature, at least 10% of agricultural areas should be transformed into high diversity landscape features by 2030 to provide space for wild animals, plants, pollinators and natural pest regulators. Such landscape features could include, for example, buffer strips, rotational or non-rotational fallow land, hedges, non-productive trees, terrace walls, and ponds. |