New Enabling Visions and Tools for End-useRs and stakeholders thanks to a common MOdeling appRoach towards a ClimatE neutral and resilient society

D2.4 Report on the activities with NEVERMORE stakeholders v1

November 2023

New **E**nabling **V**isions and Tools for **E**nd-use**R**s and stakeholders thanks to a common **MO**deling app**R**oach towards a Climat**E** neutral and resilient society

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Abbreviations and acronyms

Acronym	Description
A&M	Adaptation and Mitigation
CoM	Covenant of Mayors
CS	Case Study
EEA	European Environment Agency
EKNorr	Energikontor Norr AB
EU	European Union
FBK	Fondazione Bruno Kessler
GA	Grant Agreement
ICT	Information and Communication Technology
IVL	Swedish Environmental Research Institute
KoM	Kick-off Meeting
KPI	Key Performance Indicators
LC(s)	Local Council(s)
NCSRD	National Centre for Scientific Research Demokritos
PAT	Provincia Autonoma di Trento (Autonomous Province of Trento)
PESTLE (analysis)	Political, Economic, Social, Technological, Legal, and Environmental (analysis)
SECAP	Sustainable Energy and Climate Action Plan

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Executive summary

NEVERMORE promotes an inclusive approach towards stakeholders across Europe who experience climate change impacts to ensure that multiple perspectives, knowledge, and expertise are considered throughout the project process, encompassing modelling tasks. The active involvement of public and private sectors and civil society is, therefore, a primary goal of NEVERMORE to reach a more comprehensive understanding of the complex challenges associated with climate change, facilitate the development of more effective and relevant climate models, and guarantee that ICT tools are useful, usable, and accountable.

Task 2.4, "Coordination of the participatory processes with stakeholders and end-users", is responsible for two main sub-tasks:

i. Coordinating the co-creation activities with stakeholders, deploying the engagement strategy defined in Task 2.3, "Development of an engagement strategy and creation of the Councils of Stakeholders", and coordinating the different activities with the Local Councils.

ii. Developing a methodology to test and validate the ICT toolkit developed in Work Package 7, "ICT toolkit design, development and deployment".

This Deliverable presents the activities conducted in pursuit of the first sub-task of Task 2.4 from M1 to M18 of the project. It reports the results of the participatory processes run with the Case Study Leaders and the Local Councils of Stakeholders for the co-creation of solutions and Case Study information elicitation.

In particular, in this Deliverable, we report:

- The approach followed to coordinate the co-creation activities across case studies.

- The methodological approach and techniques exploited in co-creation activities with the five Local Case Study Leaders and Local Councils of stakeholders.

- A summary of the insights that emerged during the consultations and the perceived usefulness and appropriateness of the methodological choices.

The detailed results of the participatory workshops conducted in the first 18 months of the NEVERMORE Project can be found in the following NEVERMORE technical deliverables, all of them Public (D6.1 "Report on NEVERMORE case studies characterisation", D5.1 "Report on review of policies, measures and initiatives", D5.2 "NEVERMORE KPI Panel", D4.1 "Report on coherent scenarios across scales design", D2.5 "Report on socio-technological requirements").

At M36 and M48 of the project, updated versions of this Deliverable will provide further reports of the participatory activities and the methodology to test and validate the ICT toolkit developed in Task 7.5.

Main highlights

NEVERMORE addressed stakeholders' active engagement throughout the project through the creation of 5 Local Councils (LCs), one in each Case Study (CS) area of the project and framed their participation via consultations based on participatory approaches (Grunwald, 2022) such as co-creation, co-design, participatory modelling, design thinking, and policy co-design.

The NEVERMORE Local Councils have the main role of informing, validating, and enriching the work of NEVERMORE technical partners on modelling the effects of climate change and policies. They have been formed to be as inclusive as possible towards the most vulnerable sectors of society to the climate change impacts by recruiting participants among different stakeholder categories, i.e., activists, civil society associations, media, nature conservation organisations, the private sector, public administrations, and researchers. Nevertheless, the five Local Councils resulted in different compositions since different territorial actors manage them, each with their own expertise, goals and

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role in the territory. Furthermore, each Case Study faces different climate change-induced challenges affecting various sectors.

To reach its challenging goals, the Task 2.4 team organised consultations with Local Councils on multiple levels. First, a coherent storyline has been created to link each consultation to the other and create an increasing knowledge path. Secondly, the most appropriate methods for each consultation have been identified considering the consultation topic, the type of information needed and the characteristics of each Case Study. Third, significant effort has been put into empowering Case Study Leaders as Local Council managers and, thus, the focal point of contact between the project and the territories.

Each consultation with the Local Councils had to be anticipated by a consultation of the technical partners with the Case Study leaders, who could familiarise themselves with the consultation topic, check the information and data already at their disposal, and develop a clear strategy on how to consult their Local Councils.

So far, the consultations with the Local Councils have been 3 (one ongoing at the moment of the writing of this deliverable) on the following topics:

1. "Local Challenges and Priorities" (at M9, linked to Tasks 5.1 "Review of mitigation and adaptation policies and measures across all relevant sectors at different scales (from local to global level)" and 6.1 "Case study characterisation");

2. "Policies and Measures" (at M11, related to Task 5.3 "Holistic analysis of mitigation and adaptation policies and measures considering synergies, co-benefits and trade-offs");

3. "Climate Change Hazards and Social Vulnerabilities" (started at M17 and ongoing, related to Task 6.2, "Multi-sectoral risk analysis in each case study").

The first two rounds of consultations had great participation, with 82 and 67 participants in total, i.e., considering the 5 case studies. As for these consultations with the LCs, we will report in this Deliverable the preparatory activities, the general methodology, how the methodology has been adopted and adapted by each Case Study Leader, and, finally, the results. Conclusive reflections on the outcome of each consultation, considering both the methods used and the results obtained, will be used to improve the consultations reported in the following versions of this Deliverable (D2.5 at M30 and D2.6 at M36).

1   Introduction

NEVERMORE's primary goals are to enhance the usefulness and applicability of climate models in policymaking and develop an ICT toolkit for assessing and understanding climate change impacts, risks and vulnerabilities, as well as the effects of mitigation and adaptation strategies, fostering climate action tailored to needs of multiple categories of users. To reach these ambitious objectives and ensure that policies, models, and ICT tools are contextually relevant, usable and useful, continuous and active participation of policymakers and diverse stakeholders in modelling and technology design, development, and testing activities needs to be promoted.

NEVERMORE aims to overcome the limitations posed by a SILO approach, i.e., the current scientific approach where all the disciplines involved in addressing the impacts caused by climate change work separately and do not exploit the benefits of transdisciplinarity by fostering a solid alignment between policymaking and modelling theory and establishing substantial synergies and knowledge exchange among climate experts, modellers, policymakers, citizens and other stakeholders.

The project leverages and pursues participatory approaches (such as co-design, co-creation and co-assessment techniques) and interdisciplinary knowledge integration to foster stakeholder engagement in the definition of models, tools, and Adaptation and Mitigation (A&M) policies and measures at different scales through the establishment of Local Councils of Stakeholders at each Case Study level

and a Transnational Council of Stakeholders. The Local Councils consist of representatives from several different stakeholder groups in terms of sectoral interests and expertise, such as policymakers, representatives of organised interests, environmental NGOs and grassroots initiatives, educators, regional development and planning coordinators, citizens, etc. The Transnational Council includes representatives from local areas and international experts in the project fields.

By giving stakeholders a central role in the generation of knowledge, NEVERMORE positively moves forward in:

i. Stakeholders' empowerment and increased capacity to use that advanced climate knowledge.

ii. Social learning allowing stakeholders to gain from each other and develop relationships and networks.

iii. Relevance of models and information thanks to the robust localisation and anchoring of NEVERMORE outputs in the reality of the targeted user groups and countries.

iv. Prolonged and continuous use of tools by the involvement of end-users in the different phases (from the design to the testing).

Within this context, Task 2.4 coordinates the co-creation activities, in which the consortium, the stakeholders, and end-users of the NEVERMORE outputs work together to elicit information from the case studies and will co-design and validate the ICT toolkit during the testing phase. Such co-creation activities are required to inform the above-mentioned technical tasks of NEVERMORE, i.e., Task 2.5 (M4), Task 5.1 (M6), Task 5.2 (M6), Task 4.1 (M8), Task 6.1 (M9), Task 5.3 (M15), Task 6.2 (M17), Task 6.3 (M24) and Task 7.5 (M37, M43).

Based on a participatory approach and the engagement strategy developed in Task 2.3 by ALDA, Task 2.4 defines the methodology that can be practically applied in each consultation, orchestrating the requirements from the specific stakeholders involved, the Case Study characteristics, and the needs of the technical partners for whom the consultation is organised.

This methodology relies on different participatory techniques, such as design thinking, co-design methods, and scenarios-based approaches, and it is expected to be applied in the five case studies (CS1. Sitia – Crete, Greece; CS2. Trentino Region, Italy; CS3. Norrbotten County, Sweden; CS4. Murcia Region, Spain; CS5. Danube Delta, Romania) coordinated respectively by the Case Study Leaders (CS1. SITIA; CS2. PAT; CS3. EKNorr; CS4. INFO MURCIA; CS5. TULCEA) and facilitated by Case Study Supporters (CS1. NCSRD; CS2. FBK; CS3. IVL; CS4. CARTIF; CS5. SIMAVI). Thus, Task 2.4 also empowers them to use and exploit such methods successfully to engage local actors in the consultations effectively.

These design-based techniques allow iterative collection cycles, refinement, and assessment of the stakeholders' inputs and needs. Knowledge integration methods such as iteration (i.e., iterative refining of the shared language and linkages, iterative cycles of collection, refinement, and assessment of the stakeholders' inputs and needs) allow benefiting from mutual learning.

Task 2.4 leveraged participatory processes and co-creation techniques to promote an inclusive approach that allows the collection of inputs from a diverse range of stakeholder groups. In particular, Task 2.4 takes care of the following activities:

- Organisational Coordination: negotiating the consultation timing with the technical experts in charge of the tasks and the Case Study Leaders based on the calendars of the five European countries of the Case Studies and the Deliverable deadlines for the technical partners coordinating the related task.

- Methodological Coordination: creating the proper methodology for each consultation; supporting Case Study leaders to adapt it according to the composition of their Local Council

and their territorial context; creating reporting templates to provide results from the consultations to both the technical partners interested and the Task 2.4 team.

- Content Coordination: Simplification of the most technical and complex content, Distinction between information and data that the technical partners could ask the CS leaders and the lived experience from the territories, which needs to be investigated through the Local Councils based on the consultation topic, stakeholders' level of familiarity/expertise with it, context, etc.

Starting from the project's third year at M24, Task 2.4 will develop and implement a methodology to test and validate the ICT toolkit integrated into Task 7.5 (D7.5 "NEVERMORE ICT toolkit first prototype" in M36 and D7.6 "Final integrated solution and user manuals" in M48). The evaluation results conducted with the Local Councils will identify the ICT toolkit's weaknesses and strengths and improve its functionalities.

1.1 D2.4 Overview and Target Audience

This deliverable is structured as follows: Section 2 presents how the guiding principles of the Engagement Strategy outlined by ALDA in D2.3 have been implemented and the composition of the five Local Councils and the Transnational one. Section 3 presents the theoretical underpinnings of the methodological approach adopted in Task 2.4 and how this has been customised to the needs and characteristics of the five Case Studies. Section 4 contains the practical actions to connect the five Case Studies, develop a coherent storyline to link the consultations and provide useful information to the technical partners. Section 5 details how each consultation was conducted with the five Local Councils and summarises the results. The report concludes with reflections on the work completed so far in Task 2.4 and plans for the future.

The primary target audience of this deliverable is experts working on the tasks of the NEVERMORE work packages requiring consultation with Case Study Leaders and Local Councils, i.e., UVa for WP4, CMCC for WP5 and RINA-C and CARTIF for WP6 (the FBK team curating D2.7 "Report on socio-technological requirements" in WP2 is the same that coordinates Task 2.4). Nevertheless, this deliverable is public, and we hope that other EU projects find it inspirational to set up a co-creation process with citizens mediated by public administrations or other local institutions.

1.2 NEVERMORE Councils: Transnational and Local

Two types of councils will guide the work of the NEVERMORE project: the Local Councils of stakeholders, which are five, one per Case Study, and have the prominent role to inform and validate the work of NEVERMORE technical partners on modelling the effects of climate change and policies; and a Transnational Council, which acts as the Advisory Board for the NEVERMORE project and includes stakeholders from Local Councils and invited experts. It enhances project standards, legitimacy, and the integrated assessment framework. With high-level experts, the latter ensures rigorous scientific discussions and monitors Case Study results. Additionally, it tests and evaluates the ICT Toolkit, assesses project deliverables, and supports dissemination efforts.

1.2.1 Local Councils of Stakeholders

At M18, all the Case Studies have created their own Local Council of stakeholders, following the recommendations and guidelines provided by ALDA in the Engagement Strategy Plan (see D2.3). Within an Engagement Strategy Working Group composed of FBK, ZSI and ALDA representatives, several activities were conducted to help Case Study leaders set up the Local Councils of Stakeholders. As reported in D2.3, this Working Group met weekly from M4 to M6 to discuss specific aspects of the engagement strategy and advise Case Study Leaders. Bilateral meetings were organised with Case Study leaders to define the stakeholders' participation in the Local Councils and support potential members' recruitment process.

In particular, suggestions were given to CS leaders about how to:

- Have a heterogenous panel of stakeholders by recruiting LC participants among different stakeholder categories, such as policymakers (i.e., public bodies, local authorities), researchers, entrepreneurs and representatives of the economic sector, civil society (i.e., NGOs, associations), vulnerable groups, biodiversity representatives, media, and members of other Horizon Europe projects.

- Sustain long-term involvement by leveraging incremental growth and different levels of engagement of participants. Considering the long duration of the project and the intrinsic risk of members losing interest in the council, it was highly advised to carry on the process of mapping and engaging stakeholders for the whole project duration.

- Raise awareness about the topic of NEVERMORE with the stakeholders (e.g., by organising presentations, online webinars, etc.).

In particular, a document called 'Memorandum of understanding' (MoU) was created to support CS Leaders in explaining to potential participants that different levels of engagement were envisaged and welcomed and to collect memberships.

Although useful to guide the creation and management of the Local Councils, the indications in the Engagement Strategy Plan allowed a high level of flexibility to structure the five Local Councils according to the Case Study characteristics. Indeed, in practice, the five Local Councils of NEVERMORE differ from one to another in their composition since different territorial actors manage them, and the Case Study faces different climate change-induced challenges which affect different sectors as each Case Study has its own goal and focus on the Project, to achieve diversity across Europe context. The following subsections will describe each Local Council's composition and characteristics.

1.2.1.1   CS1 - Local Council of Sitia Municipality, Crete, Greece

The Case Study of Sitia Municipality is led by the Firefighters Department and supported by the research centre DEMOKRITOS (NCSRD). Sitia area is subject to natural extreme events such as droughts, fires, floods, and climatic trends such as coastal erosion. The local economic sectors mostly affected by those climatic phenomena are agriculture, forestry and fishing, water management and waste, biodiversity and natural heritage, and tourism.

In terms of adaptation or mitigation actions against climate change, the priorities in Sitia are to protect both people (citizens and tourists) and the economic sectors (agriculture, tourism, freshwater management) against extreme events.

Given the area's exposure to natural extreme events, which make the whole population vulnerable, Sitia LC consists mainly of public administrations (6) and civil society associations (5). Furthermore, other organisations populating the LC are mass media (3), the representative of Sitia Geopark (1), an entrepreneur in olive oil production (1), researchers (1), and activists (1), for a total of 18 entities involved so far. For a visual representation of the composition of Sitia LC, see Figure 1.

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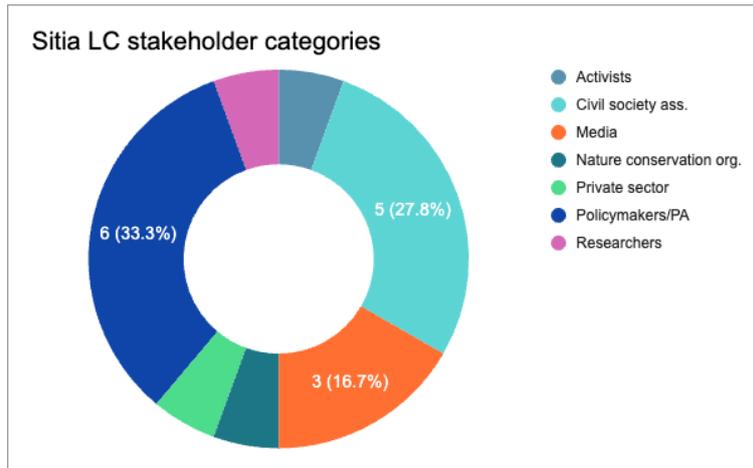
Figure 1. Sitia Local Council's composition.

1.2.1.2   CS2 – Local Council of Trentino Region, Italy

The Case Study leader of the Trentino region is the Tourism and Sport Service of the Autonomous Province of Trento (PAT). In particular, two offices lead the Case Study: one dedicated to the area's tourist promotion and the other to develop the mountain sector and infrastructures. The supporter is the Sustainable Energy Centre of Fondazione Bruno Kessler (FBK).

The area is highly touristic, and currently, it experiences a slow but constant trend of increasing temperatures, which could reduce the skiing season and tourist inflows. This trend is already leading to increased artificial snow production and, thus, a higher energy demand. Other threats due to climate change are unpredictable precipitation patterns, glaciers and permafrost melting, and increasing extreme events. Consequently, the most affected economic sectors are tourism and energy supply, linked by the competition over water resources.

In this context, Trentino's priorities are to manage tourists' flow all year round, ensure energy efficiency, sustainability, and safety, manage water resources across various sectors (drinking, snow, energy, agriculture), and have actionable data to support the sustainable management of the territory.

Therefore, Trentino LC stakeholders primarily represent the private sector (11), particularly the economic activities related to tourism. Other stakeholder categories represented are public administrations (3), researchers (4), civil society associations (2), natural parks (2), activists (1), and media (1), for a total of 24 entities involved so far. For a visual representation of the composition of Trentino LC, see Figure 2.
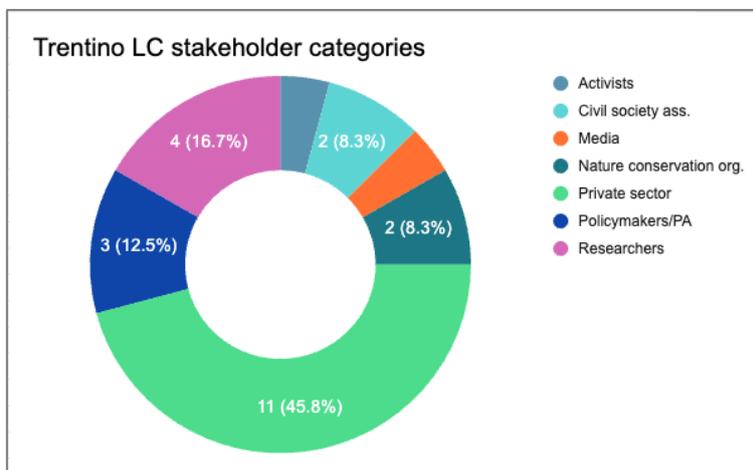
Figure 2. Trentino Local Council's composition.

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1.2.1.3   CS3 – Local Council of Norrbotten County, Sweden

The Norbotten County Case Study is led by the Energikontor Norr AB (i.e., the North Sweden Energy Agency, also called EKNorr), which is owned by the Norrbotten County Council and 14 municipalities. EKNorr's primary role is to provide the municipalities with consultancy to make new policies about increasing energy efficiency in companies and households and reducing carbon footprint across various sectors. EKNorr is supported by the Swedish Environmental Research Institute (IVL).

The climate change-related challenges for the Norrbotten area are various but interconnected. They affect energy, agriculture, fisheries, reindeer husbandry, forestry, the mining industry, transport, and tourism. There is a problem of many competing interests around the land. For example, Air Force training camps limit land use for wind power, while energy production, mining, and tourism take land from reindeer husbandry. There is a problem of increasing demand for energy production and land for mining. On the other hand, soon, energy from hydropower could be more challenging because snow melts earlier. The increased temperature could lead to boreal biodiversity loss, the increased risk of foster fires and wind damage to forestry, and the need for more pests and fertilisers damage to agriculture.

The main priorities are to protect reindeer husbandry, as it is a peculiarity of the territory; prevent local biodiversity loss, both directly caused by climate change and indirectly by other sectors; increase energy production from renewable sources, possibly avoiding trade-offs with other sectors, and maintain the sustainable forestry industry.

Therefore, Norrbotten LC stakeholders primarily represent the private sector (9), civil society associations (4), and public administrations (5). Other stakeholder categories represented are researchers (2) and activists (2), for 22 entities involved. For a visual representation of the composition of Norrbotten LC, see Figure 3.
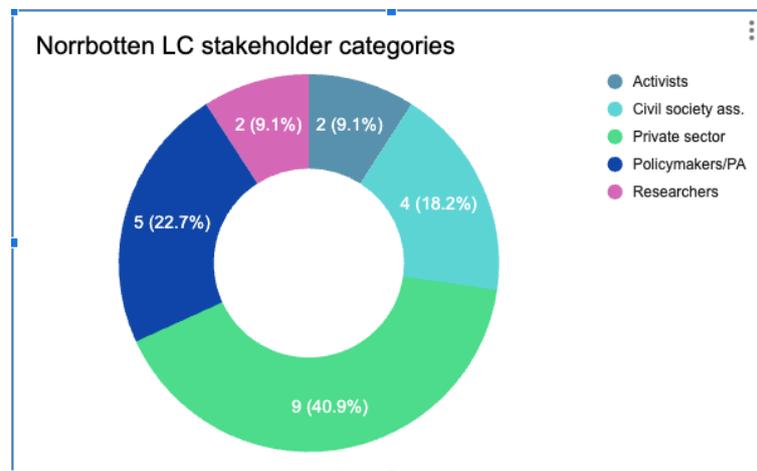
Figure 3. Norrbotten Local Council's composition.

1.2.1.4   CS4 – Local Council of Murcia Region, Spain

The Case Study of the Murcia region is led by the Instituto de Fomento de la Región de Murcia (INFO), which is the economic development agency of the Autonomous Community of the Region of Murcia and supported by Fundación CARTIF (CARTIF). INFO's role on the territory is to promote and develop the business fabric and stimulate regional companies' competitiveness, innovation and productivity (especially SMEs) to generate quality and stable employment.

The most evident impact of climate change in Murcia is desertification due to soil erosion in agricultural systems. A very relevant effect of climate change in the region is water scarcity, which affects both water infrastructure and coastal areas, so related priorities for them are to create sustainable water management and tourism sector.

Furthermore, INFO is the regional coordinator of the Covenant of Mayors[1] (CoM), the EU initiative bringing together thousands of local governments that voluntarily commit to implementing EU climate and energy objectives. INFO supports the participating municipalities in the region by providing technical and financial support for developing and implementing Sustainable Energy and Climate Action Plans (SECAP)[2]. Because some municipalities require varying levels of persuasion and motivation to act on climate change, INFO develops specific working strategies and methods directly with municipalities.

SECAPs are action plans that municipalities develop and adopt to take action against climate change impacts, either working in the direction of mitigating or adapting to climate change effects. Therefore, the NEVERMORE project and the Covenant of Mayors' initiative share the same fundamental goal: both aim for policymakers to implement the best policies for their territories to mitigate or adapt to climate change, and they rely on co-creation processes that include stakeholders' participation.

What they differ about, and they might complement each other, is that, on the one hand, SECAPs offer a standard and structured process for policymakers to identify policy opportunities, write and implement them, and check the results. This process also enables comparison and peer-to-peer learning among the municipalities participating in the CoM initiative. On the other hand, NEVERMORE aims to offer methodological and technological tools for policymakers to make the best decisions about what policies to implement, which might be used to prepare SECAPs.

NEVEMORE will then support policymakers from the Murcia Region in the preliminary analyses of the challenges they face (e.g., through case study characterisation, downscaling of climate information, multi-sectoral risk analysis, etc.) and the selection of the priority actions to be added to the SECAP (e.g., by developing and evaluating a catalogue of mitigation and adaptation policies, and modelling mitigation and adaptation policies at the EU and local scale). More precisely, NEVERMORE provides useful inputs to CS.4 by:

- Offering the PESTLE analysis, as implemented within Task 6.1, "Case Study characterisation" of the project.
- Including climate scenarios for each municipality provided by CMCC in the SECAPs.
- Presenting the approach to risk and vulnerability analysis both as a tool for the project and the SECAP methodology.
- Enabling participatory processes not only for stakeholders but also for ordinary people at the local level.
- Sharing experiences from the other Case Studies as inspiration.

On its part, INFO bridges the NEVERMORE and CoM initiatives by

- Gathering municipalities experiencing climate change impacts.
- Introducing and accompanying them through the SECAP methodology.
- Explaining the CoM methodology to the other 4 case studies of NEVERMORE.
- Advertising the NEVERMORE tools and results achieved over the project to the CoM central office and the municipalities adhering to the initiative by inviting them to 3 ad-hoc webinars.
- Since the SECAPs process expects municipalities to create local assemblies of experts and citizens to discuss what is best to do, INFO will promote the activities developed in NEVERMORE Local Councils to these local assemblies.

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[1] https://eu-mayors.ec.europa.eu/en/home.
[2] https://eu-mayors.ec.europa.eu/sites/default/files/2022-10/jrc112986_kj-na-29412-en-n.pdf.

- Involving municipalities as primary testers of the NEVERMORE ICT Toolkit.

- Implementing a cooperation scheme with the other NEVERMORE Case Studies (i.e., a Joint piece of candidacy led by INFO Murcia to the LIFE Clean Energy Transition call with Provincia Autonoma di Trento among the partners)

In NEVERMORE, INFO implements the project objectives and activities by sharing them among its network of municipalities enrolled in the Covenant of Mayors programme. Therefore, Murcia's Local Council consists of public administrations (13) that have committed to developing their SECAPs during the NEVERMORE lifespan, supported by the Project's technical activities and developments. For a visual representation of the composition of Murcia LC, see Figure 4.

Figure 4. Murcia Local Council's composition.

1.2.1.5 CS5 – Local Council of Danube Delta, Romania

The Case Study of the Danube Delta is led by the Office of Coordination of European Affairs of the Institutia Prefectului Judetul Tulcea (TULCEA), with the support of the company Software Imagination & Vision (SIMAVI).

Several economic sectors of the Danube Delta area are affected by climate change: agriculture, forestry, fisheries, transport, tourism, heavy industry and water as a resource. The area's main climate challenges are increased extreme hydrological events and wildfires, affecting people and infrastructures, and plant and animal diseases. Here, priorities are improving water management to prevent floods and droughts, fostering sustainable fisheries, and promoting sustainable tourism.

The Danube Delta Local Council consists of public administrations (11), natural parks (2), representatives of the private sector (2), and researchers (2), for a total of 17 entities involved so far. For a visual representation of the composition of Tulcea LC, see Figure 5.
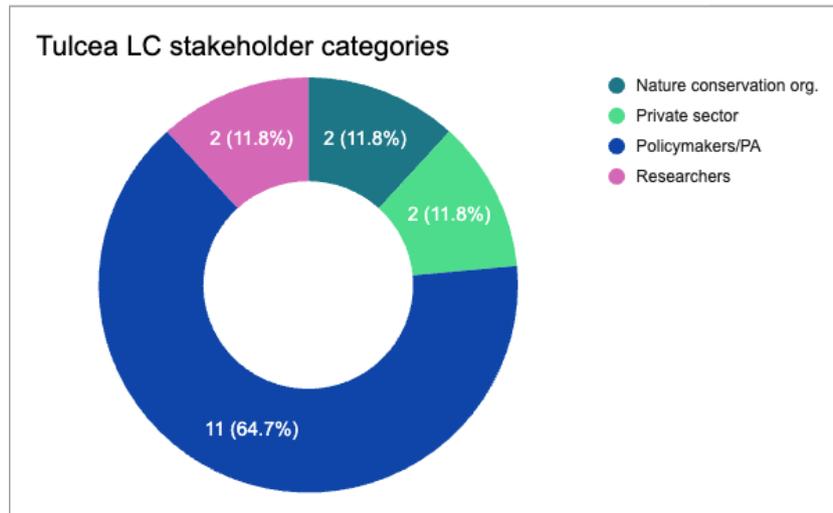
Figure 5. Tulcea Local Council's composition.

Please note that the numbers reported in this section do not represent the actual number of participants in the Local Councils but the type of stakeholders involved. They are a measure of diversity in each Local Council contextualised by the challenges of each Case Study and the role of each Case Study Leader in its territory. The number of participants in each Local Council is recorded and will be used to check on the project KPIs. They are reported in Section 6.1.1 "Stakeholders' participation and KPIs met".

1.2.2 Transnational Council

The Transnational Council aims to synthesise the results and lessons learned in local processes and analyse and compare the case study results to develop strategies for modifications and advancements throughout the project. It consists of 14 high-level experts from different countries and backgrounds. Some of the board members are actively involved in the Local Councils, while others are external actors interested in the project topics. Specifically, the Transnational Council members are professors, researchers, engineers, and project managers working on climate change action and adaptation, environmental conservation, energy, and ecotourism. The first Transnational Council was held online on 7 June 2023, during the NEVERMORE first year-consortium meeting, which was held in Sitia (GR) on 6-7 June 2023, while the second meeting is planned for December 2023.

1.3 Consultations Overview

The Task 2.4 team creates the conditions for Case Study Leaders and Supporters to facilitate the consultation activity effectively by ensuring that Case Study Leaders get acquainted with each consultation's specific goal and methodology weeks before running it with the Local Council so that if doubts arise, they can be discussed with the technical partners, and, if needed, changes to the process and methodology can be implemented. For an overview of the consultations' timeline in the first 18 months of the NEVERMORE project, see Figure 6.
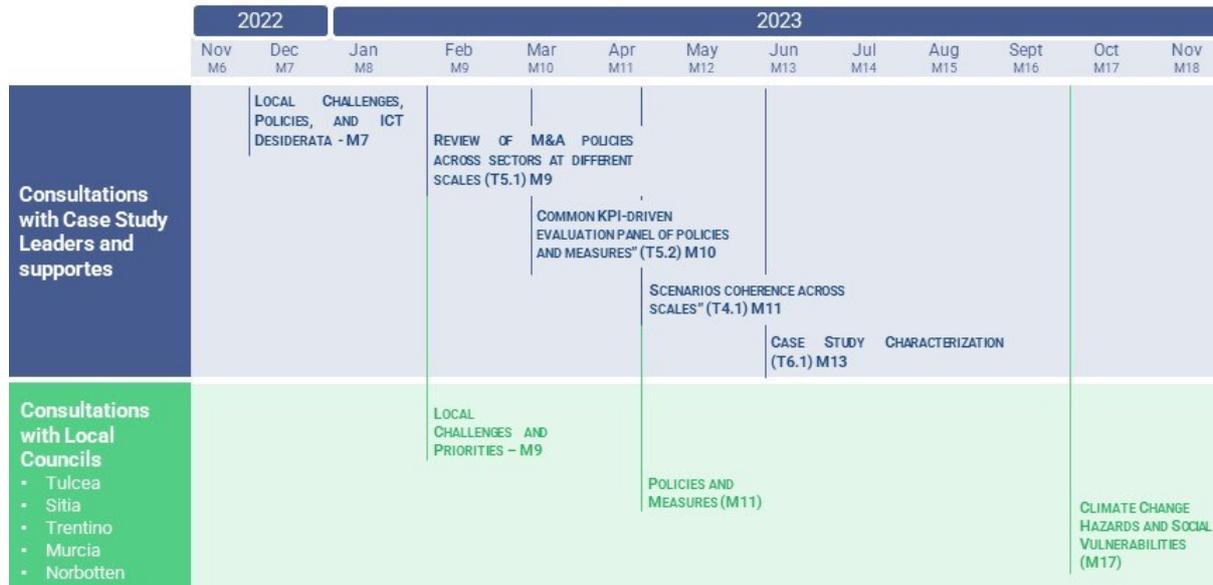
Figure 6. Consultations timeline: a visual representation of the timing of the consultations reported in this deliverable.

1.4   Roles and Responsibilities in consultations with Local Councils

Co-creation activities and their practical implementation within the Local Councils involve various actors with different expertise (either in EU projects, specific subjects, or knowledge of the territories of the five case studies), needs, and roles. Grounding on the guidelines listed in the "NEVERMORE Engagement Strategy" (D2.3), we refined the different roles and responsibilities in light of the actual carrying out of the consultations. This analysis has been the basis to better frame the role of the Task 2.4 team as coordinator of co-creation activities and sort of "mediator" between the NEVERMORE researchers and the other actors (i.e., Case Study Leaders and the five Local Councils of Stakeholders), and to structure the consultations as effectively as possible.

1.4.1   Technical Partners

Technical partners are NEVERMORE researchers in charge of technical tasks where co-creation activities with stakeholders are envisaged. According to the project GANTT, in the first 18 months of the project, these are:

- **FBK** for Task 2.5 about the "Identification of the Socio-technological requirements" [M4];

- **CMCC** for Task 5.1 about the "Review of mitigation and adaptation policies" [M6] and Task 5.3 about "Holistic analysis of mitigation and adaptation policies and measures" [M12];

- **RINA-C** for Task 5.2 about "Common KPI-Driven evaluation panel of policies and measures" [M6] and Task 6.2 "Multisectoral risk analysis in each Case Study" [M17];

- **UVA** for Task 4.1 "Scenarios coherence across scales (from global, EU, and national to local)" [M9];

- **CARTIF** for Task 6.1 about "Case Studies' characterisation" [M9].

Role of technical partners in the consultations:

1. Make clear the information required to reach the technical goal of their task (e.g., evaluate available policies for each sector of interest in the Case Studies).

2. Negotiate with the Task 2.4 team the type of activity the LCs will have to perform and receive guidance on translating technical goals into practical co-creation activities.

3. Effectively communicate the task goals to the Case Study Leaders and Supporters.

1.4.2   Case Study Leaders

Case Study Leaders (CS1. SITIA, CS2. PAT, CS3. EKNorr, CS4. INFO, CS5. TULCEA) are both NEVERMORE partners and key stakeholders for the NEVERMORE project. They are representatives of policymakers, i.e., the main target of the NEVERMORE models and ICT tools.

Role of Case Study Leaders in the consultations:

1. Find stakeholders interested in participating in their LC and negotiate their participation level.

2. Set up and manage the Local Council and coordinate its short- and long-term activities (such as organising the Council meetings and coordinating the co-creation activities).

3. Participate in the data collection activities coordinated by the technical partners and transfer the information and input collected through the LCs to the technical partners.

4. Translate the project communication material into the Council's local language.

5. Define the best way to communicate and update the Local Council members on the ongoing activities, next steps, and the outcomes of their work (e.g., through a dedicated website, mailing list, Facebook group, Telegram channel, etc. - tools suggested by the NEVERMORE engagement Strategy).

6. Disseminate information about their initiatives to the broader population of their area.

1.4.3   Case Study Supporters

Case Study Supporters are technical partners in the same geographical areas as the Case Study Leaders, i.e., CS1. NCSRD, CS2. PAT, CS3. IVL, CS4. CARTIF, and CS5. SIMAVI.

Role of Case Study Supporters in the consultations:

1. Help the Case Study Leader find the best way to manage the Local Council to meet NEVERMORE goals.

2. Support the Case Study Leader in all the activities of the Local Council from a technical point of view, for example, by providing them with training on project topics (e.g., the IAM model) and supporting them during collaborative activities (e.g., participating in events, helping facilitate LCs meetings, presenting the technical/scientific parts of the activities, etc.).

3. Collaborate with the Case Study Leader to make the results of the consultations useful for the technical partners (e.g., collecting data about the territories, translating qualitative content, writing reports, etc.).

1.4.4   Members of the Local Councils of Stakeholders

The Members of the Local Councils of Stakeholders are local actors and stakeholders of each Case Study area participating in the co-creation activities organised by the Case Study Leaders.

Role of Local Councils of Stakeholders in the consultations:
Stakeholders participate in the discussions, bring their points of view and local knowledge and answer questionnaires.

1.4.5   Task 2.4 Coordination Team

Task 2.4 include all CS Leaders (SITIA, PAT, EKNorr, INFO, TULCEA) and Supporters (NCSRD, FBK, IVL, CARTIF, SIMAVI), plus two partners with a background in Co-Design, Social Sciences, Policy Design, and Human-Computer Interaction: FBK and ZSI. These last two partners form the task coordination team.

Role of Task2.4 Coordination Team in the consultations:

The coordination team is in charge of understanding and translating the informative needs of the technical partners into a co-creation methodology for CS Leaders to apply in their LCs. As Section 2 mentions, co-creation methods and participatory activities have been set up with Case Study Leaders and the five Local Councils of Stakeholders. Therefore, the goals, methods, and coordination have been tailored to these participants.

2   Methodological Approach: Co-creation

The main goal of NEVERMORE is advancing the interdisciplinary co-production of knowledge with the participation of stakeholders in climate science and policymaking. NEVERMORE promotes an inclusive approach that ensures that multiple perspectives, knowledge, and expertise are considered in the design process. Achieving active participation of stakeholders is, therefore, a crucial issue. Following Enserink et al. (2007), participation can be defined as "the involvement of individuals and groups [i.e., the public or stakeholders] that are positively or negatively affected by or are interested in a proposed intervention". Participation is considered a key aspect in addressing environmental issues and influencing the adaptive capacity of social-ecological systems. As Von Korff et al. (2010) summarise, participation (i) enhances the credibility of decision-making authorities by fostering responsiveness among decision-makers towards those who are affected by decisions, thereby enabling the incorporation of stakeholder values and fostering trust; ii) participation ensures more pertinent and lower-cost decisions since stakeholders bring essential information that would otherwise be inaccessible, redefine issues, and introduce novel ideas, thereby increasing the likelihood of successful decision implementation.

Participation in NEVERMORE is framed in the context of participatory and co-creation approaches (Grunwald et al., 2022) to reach a more comprehensive understanding of the complex challenges associated with climate change, facilitate the development of more effective and relevant climate models, and guarantee that ICT tools are usable and useful. Overall, a participatory approach that ensures the active involvement of stakeholders in the co-creation process of both models and ICTs presents several benefits. In particular, it:

- Fosters a sense of **ownership**, as stakeholders have a direct role in shaping the design and functionalities of climate models and ICT tools.

- Helps build **trust** and **credibility** in the modelling process, as stakeholders feel that their voices are heard and their needs addressed.

- Ensures **contextual relevance** of models because they can be tailored to specific local or regional conditions, considering the unique challenges, vulnerabilities, and opportunities of a particular area, thus ensuring that the models are better aligned with the needs and realities of the communities and decision-makers who will use them. Climate models need to be contextually relevant to be effective.

- Improves **usability** and **acceptance.** Stakeholder participation and co-design contribute to the usability and acceptance of the ICT tools. By involving end-users and decision-makers from the beginning, the tools can be designed with user-friendly interfaces, intuitive features, and relevant outputs, thus increasing the likelihood of their adoption and utilisation in decision-making processes.

- Enhances **legitimacy and transparency** of climate models. Involving a wide range of stakeholders ensures that the models are not developed in isolation or influenced by a single perspective. This transparency builds trust and confidence in the modelling process, as stakeholders can see how their inputs and decisions are incorporated.

In particular, in the first 18 months of the NEVERMORE project, different technical tasks required the participation of local actors through specific consultations with the 5 Local Councils of Stakeholders.

The activities of Task 2.4 have been implemented following the steps of a co-creation process and considering different aspects of the NEVERMORE project: the informative needs of the technical partners, the local specificities of the five case studies, and the various roles and responsibilities of all the actors involved in co-creation activities (NEVERMORE researchers, Case Study Leaders, local stakeholders, etc.).

Several methods can be exploited to incorporate stakeholders' perspectives, values, and knowledge in climate change modelling and the design of climate services. In Task 2.4, our approach to implementing co-creation activities with stakeholders through the Local Councils has been guided by the principles of adaptability and flexibility (Figure 7). We tailored methods from well-established methodologies to align them each time according to the *goal* of the specific activity to undertake (e.g., modelling activities or co-design of ICT tools), the *phase* in which stakeholders' contributions are required (i.e., at which stage of the policy modelling to involve the stakeholders), and the *familiarity* and *expertise* of stakeholders with the topic to be addressed.

NEVERM⊛RE	Principles for stakeholders' engagement
FLEXIBILITY	Methods should be selected according to specific tasks and goals.
CUSTOMIZATION	Methodologies should be customized by Case Study Leaders for according to contextual specificities, stakeholders' expectations, local values.
INCLUSIVITY	Stakeholders must actively and centrally engage throughout the entire process.
ITERATION	The process is iterative, ongoing and participative in every phase.
VALUE-DRIVEN	Ethical, social, environmental and user-centric factors should be considered.

Figure 7. The main concepts driving the approach followed in T2.4.

We report the main approaches that inspired the methods used during the consultations with the Local Councils (see Section 3, "Organising the consultations: The NEVERMORE Engagement Strategy at work").

2.1 Co-creation

Co-creation is a collaborative, creative problem-solving approach involving various stakeholders at all project stages (Vargas et al., 2022). This approach entails strong bottom-up and widely participatory processes, enabling the transition from a Triple helix model (i.e., the collaboration between the public sector, academia, and private sector) to a Quadruple helix (European Committee of the Regions et al., 2016) model where the civil society is involved, either through its organisations or directly through citizen engagement (Matti et al., 2022). The different actors included in the NEVERMORE participatory process are policymakers, climate science researchers, civil society, and private sector representatives from the five territories of the case studies (see Figure 8).
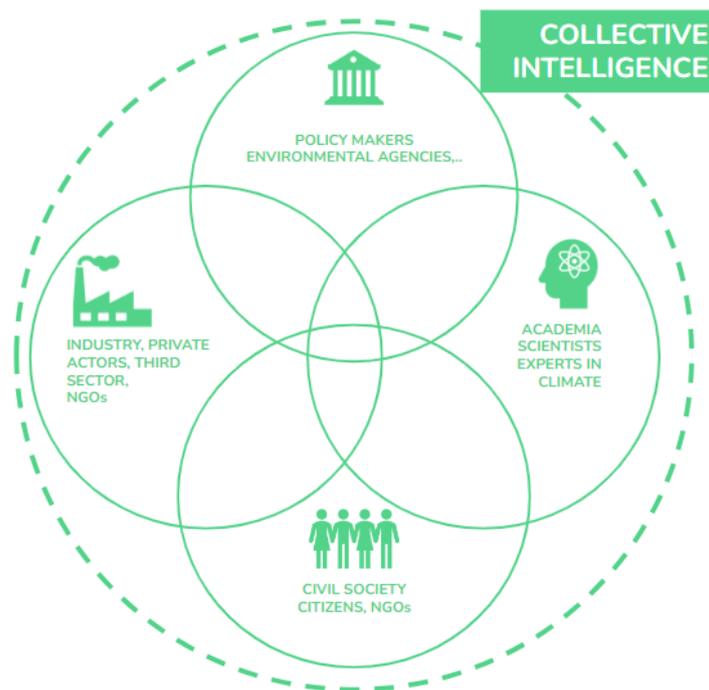
Figure 8. Groups of actors involved in the NEVERMORE participatory process according to the Quadruple Helix.

Adopting a co-creation approach provides the following benefits: i) an inclusive, robust, and flexible engagement process that generates high consensus across stakeholders; ii) a structured way to build solid collective intelligence/knowledge and a robust systemic/360° view; iii) the capacity to deliver concrete and actionable outcomes with high stakeholder support and involvement in their further implementation (Matti et al., 2022).

At the core of co-creation lies the idea of collective intelligence and creativity. Co-creation acknowledges that innovation can emerge from a network of interconnected actors and emphasises their active involvement in all the phases of product or service development, from the challenge articulation to the creation, implementation, and evaluation of solutions. To this end, co-creation occurs through collaborative events (e.g., workshops) with the active engagement of all key stakeholders, where self-organisation and design-thinking principles are applied in tackling societally relevant challenges (Matti et al., 2022).

According to Jansen and Pieters (2017), the principles of co-creation processes are the following:

- *Togetherness*: There is equal collaboration between all internal and/or external parties.
- *End-users*: They must play a central role in the overall process.
- *Ongoing*: The process is ongoing and participative in every phase.
- *Productive*: It leads to the implementation of the co-created solution.
- *Transparent*: Relevant information is accessible to all.
- *Value-driven*: Results in value creation for end-users and involved parties.

Ultimately, co-creation contributes to stimulating and enhancing a creative culture of policy innovation, systemic thinking, and problem-solving on the ground. At the same time, co-creation generates evidence to inform policymaking while gathering knowledge that may reduce uncertainties around the policy options, helping to achieve a more significant policy impact (Matti et al., 2022).

In NEVERMORE, the co-creation process can be considered the overall approach that guarantees participation from stakeholders throughout the project's entire lifecycle, will inform policy recommendations, models and ICT tools, and is chaired by policymakers. Then, more specific collaborative methods have been studied in Task 2.4 to address each complex and heterogeneous challenge of the NEVERMORE project.

2.2 Co-design

"Co-design" and "co-creation" are concepts used in design, innovation, and collaboration. While they might overlap in some of their characteristics, they have distinct meanings and implications (Vargas et al., 2022). For example, both co-design and co-creation involve collaboration and multiple stakeholders. Still, while co-design refers to a collaborative process where designers and stakeholders without a design background (users or other stakeholders) work together to envision a user-centred product, service or solution, co-creation encompasses a broader scope of collaborative innovation. All in all, co-design is more focused on the design phase of a new service and product and leverages the needs and knowledge of stakeholders about the challenges that the new product or service can address, while co-creation is a broader approach aimed at building a 360° view based on collective knowledge and the capacity to deliver concrete and actionable outcomes with stakeholder support and involvement in their further implementation (Matti et al., 2022).

Key characteristics of co-design include:

- Multidisciplinary collaboration: Co-design involves bringing together individuals from diverse backgrounds, such as designers, engineers, users, and domain experts, to contribute their insights and skills to the design process of a product/service.

- User-centred approach: Co-design strongly focuses on understanding the needs, behaviours, and preferences of end-users about a product or service to create useful and usable solutions for the target audience.

- Iterative process: The co-design process typically involves multiple rounds of refinement.

Fundamental principles applied to a co-design process (Vargas et al., 2022) are:

- Design together.
- Equal partnership.
- Openness.
- Respect.
- Empathy.

In NEVERMORE, co-design methods are used in the context of developing the ICT Toolkit. They showed particularly suitable to elicit users' requirements for the ICT toolkit (see D2.7 "Report on socio-technological requirements") and the iterative approach that will be pursued and implemented in WP7 about "ICT Toolkit design, development, and deployment".

2.3 Participatory modelling

The complexity of climate change's effects on society and the environment requires holistic strategies and transdisciplinary processes that connect academic fields, sectors, and local communities to drive positive societal change. Participatory modelling is an interactive approach that aims to incorporate stakeholders' perspectives, including those of decision-makers and the public, into developing models (Olabisi et al., 2021). It is an approach that draws on science-based evidence and the local expertise of community stakeholders while bringing policymakers into the process (Harrison et al., 2023). In recent years, there has been growing interest in participatory assessment approaches due to their

ability to combine local experts' knowledge with expert-driven climate risk analysis, such as climate models. This integration aims to facilitate the development of tailored adaptation strategies locally and to integrate national and community-level priorities for policy and climate change adaptation. It is also expected to promote more effective decision-making by involving stakeholders in developing models, understanding the implications of different scenarios, and enhancing the models' accuracy and relevance.

Many examples show the benefit of relying on a participatory modelling approach to incorporate local knowledge in the climate models. For instance, in the Aculeo Lake region of Chile, participatory hydrological modelling was used to engage local stakeholders in developing water management strategies (Ocampo-Melgar et al., 2022). Residents, scientists, and policymakers collaborated to identify optimal approaches for managing water resources in the context of climate change. They employed computer-based modelling and communication tools to simulate the effectiveness of various strategies. Finally, the group enacted a combination of measures, such as water conservation, groundwater replenishment, and utilising alternative water sources. These strategies have been implemented, making a community better equipped to address the impacts of climate change.

Shaw and colleagues (2009) provide insights into the use of participatory modelling to develop effective adaptation strategies tailored to the local community's specific needs and circumstances. They provide findings from a collaborative, participatory scenario study conducted with the Delta municipality in Southwestern British Columbia, Canada. The multi-scale scenario methodology consisted of synthesising global climate change scenarios, their adaptation to the regional and local context, and ultimately, the visualisation of various climate scenarios stretching to the year 2100. These scenarios are portrayed using 3D representations of familiar local areas.

Another research exploited participatory modelling to design adaptation strategies for a viticultural watershed in southern France (Naulleau et al., 2022). They conducted two collaborative workshops, one before and one after a simulation phase. Throughout these workshops, they formulated several adaptation strategies that represent different combinations of measures proposed by stakeholders. A spatially detailed model was then used to evaluate the effects of six adaptation measures at the field scale and in combinations at the watershed scale. They finally engaged stakeholders in discussions about the outcomes.

In NEVERMORE, past research on participatory modelling is particularly relevant to ensure the match between policymaking and modelling theory by integrating the 5 Case Studies' local perspectives into theoretical models developed in the different WPs.

2.4   Design thinking

Design thinking is a methodology that aims to tackle highly complex problems by fostering an outside-the-box approach, emphasising creativity, innovation, and the user's needs. It is a non-linear, iterative process that teams use to understand users, challenge assumptions, redefine problems, and create innovative solutions. Design thinking fosters creativity, innovation, and user-centricity, helping researchers develop actionable solutions that are desirable for the user, viable for business, and technologically feasible.

The versatility of design thinking is instrumental when addressing several climate change challenges. Design thinking can be applied to various climate change mitigation and adaptation aspects, including developing user-centric solutions and accelerating progress towards sustainability goals. For instance, design thinking can be used in climate change research to model climate change's impacts by engaging stakeholders in the modelling process to incorporate their knowledge, perspectives, and priorities (Kelly & Gero, 2021). By employing design thinking in climate change research, stakeholders can contribute their knowledge, values, and views to climate change modelling, leading to more robust and context-specific assessments of climate change impacts and adaptation strategies.

NEVERMORE exploits the versatility of design thinking techniques throughout the different activities involving stakeholders and supports mutual learning and knowledge exchange among scientists, policymakers and civil society.

2.5 Policy co-design

Policy co-design is an iterative process involving stakeholders' active participation in designing and implementing policies, interventions, or research projects. This approach recognises people's and organisations' expertise over their own lives and industries and brings them into the room where the decisions are made. Policy co-design uses visual and tangible tools to directly engage communities, industry organisations, and other government departments to collaborate and design policies to make more informed decisions to meet the community's diverse needs.

Co-design is a valuable approach to policy development, as it can help ensure that resulting policies and interventions are relevant, feasible, and effective. In the specific context of policies to tackle climate change, co-design brings together diverse stakeholders to ensure that policies are grounded in scientific evidence, address societal needs, promote sustainable and equitable solutions to climate change, that models are designed to be valid and contextually relevant, and that the ICT services developed are usable.

*In NEVERMORE, policy co-design methods are used to frame the engagement of stakeholders in the activities related to policy recommendations definition and other activities related to WP5. Specific toolkits, like those developed by the British Council (British Council, 2021) (see **Figure** 9), have been presented to Case Study Leaders.*
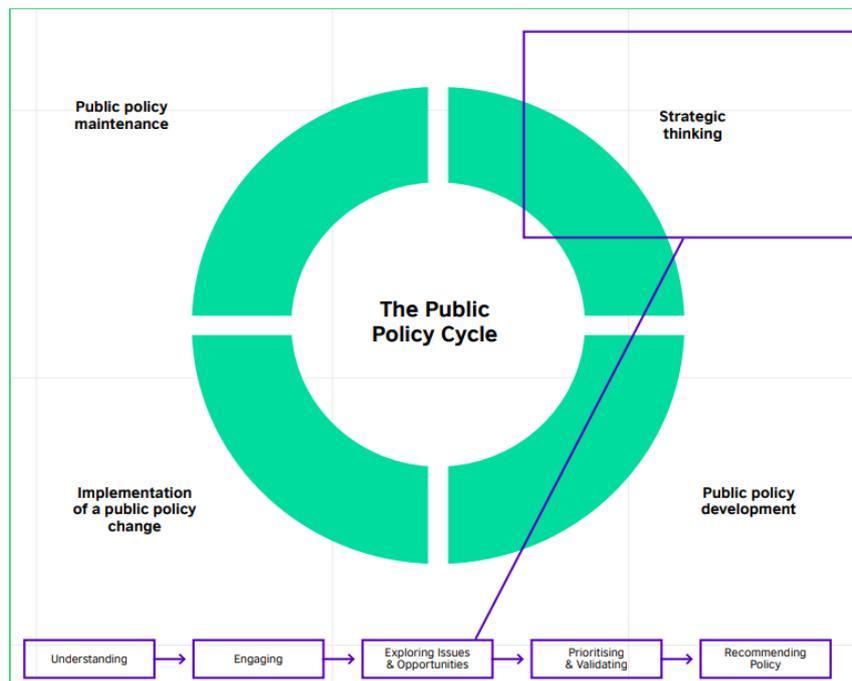
Figure 9. The Public Policy Cycle by the British Council.

3   Organising the consultations: The NEVERMORE Engagement Strategy at work

As reported in D2.3, an Engagement Strategy Working Group composed of ALDA, FBK, and ZSI researchers was created and met weekly to discuss some specific aspects of the engagement strategy and to give advice to Case Study Leaders. The reflections elaborated by this working group were then collected in Deliverable D2.3 ("NEVERMORE engagement strategy"). Task 2.4 constitutes the natural prosecution of Task 2.3 since it coordinates activities closely interdependent with those planned by

Task 2.3, such as creating Local Councils and monitoring stakeholders' participation and engagement over time. For this reason, we consider all the methodologies, templates, and tools adopted in Task 2.4 as a way to put the NEVERMORE Engagement Strategy at work.

To reach the challenging goals of the task, the Task 2.4 coordination team organised the consultations on multiple levels. First, a coherent storyline has been created to link each consultation to the other and create an increasing knowledge path. Secondly, the most appropriate methods for each consultation have been identified considering the consultation topic, the type of information needed and the characteristics of each Case Study. Third, significant effort has been put into empowering Case Study Leaders as the Local Councils managers and, thus, the focal point of contact between the project and the territories. The next subsections describe the steps and principles followed to implement and coordinate the co-creation and participatory activities with stakeholders, summarised in Figure 10.
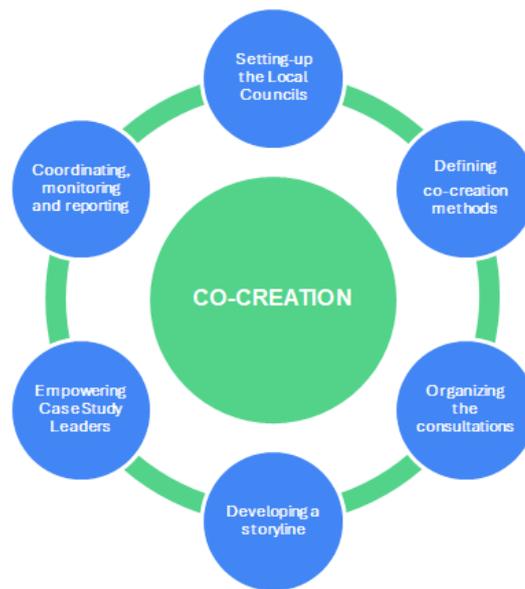
Figure 10. Activities performed in Task 2.4 to implement the co-creation activities with stakeholders.

3.1 Developing a coherent storyline for the consultations

A coherent storyline has been created to link each consultation to the others and create a path of increasing knowledge (see Figure 11). Following a process with subsequent steps has required a high level of attention from the technical partners to what the others wanted to ask to the case studies, how the information was collected and where it was stored, to avoid annoying repetitive requests to Case Study leaders and increase collaboration between technical partners. Furthermore, we realised that an effort to reach mutual understanding and terminology alignment was needed among the technical partners before presenting their requests to the Case Study leaders and Local Councils.

Figure 11. Storyline for meaningful and coherent consultations with the Local Councils.

Besides the content level, organising the consultations has required producing a shared timeline, which would consider the preparation timing (e.g., the need for Case Study Leaders to understand the topic in depth before consulting the Local Councils), the various holiday periods across Europe, and the periods in which local stakeholders are particularly busy with their activities (e.g., those linked to tourism, which typically overlap with holiday periods) or the time needed to organise long-distance travels (as it happens for the Norrbotten case study). The triangulation of these needs has led to the identification of three slots available for consultations during the year, valid for all five Case Studies (see Figure 12). These are Autumn (October-November), Early spring (February-March), and late spring (April-May). Typically, within a slot, Case Study Leaders are given a month to find the best date for their Local Councils to meet. Being flexible and allowing a broad period to organise consultations with the Local Councils was necessary to accommodate each Case Study's needs.
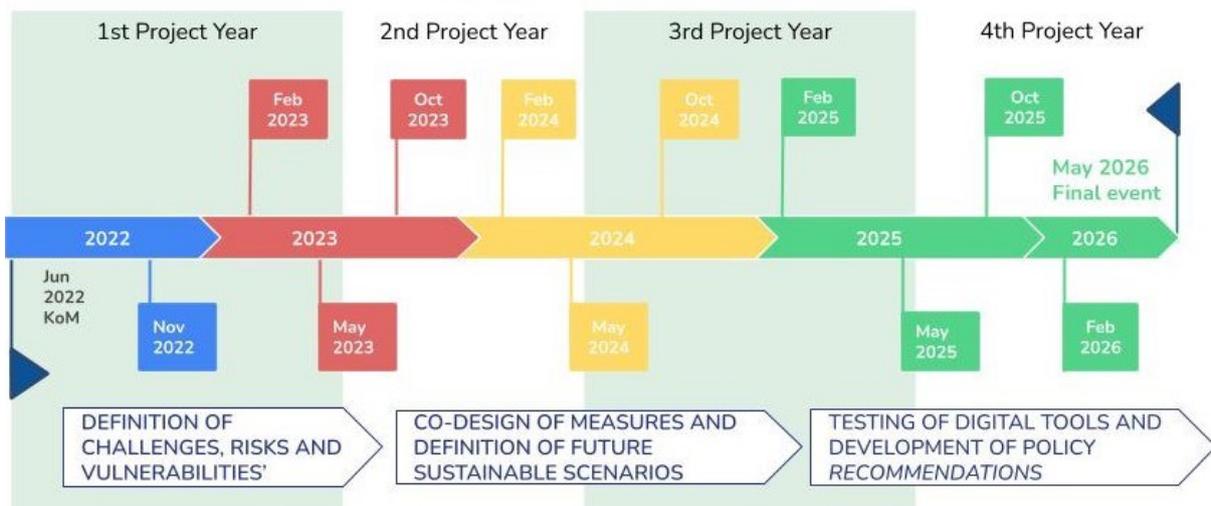
Figure 12. Consultations' timeline.

3.2 Customising the Methodological Approach to the 5 Case Studies

The approaches and methods presented in Section 2 "Methodological Approach: Co-creation", were analysed and customised to meet the NEVERMORE goals. In particular, a toolkit for supporting Case Study Leaders and Supporters has been developed and made available to effectively engage

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stakeholders and organise consultations with the Local Councils of Stakeholders (see Annex 1. Toolkit for Case Study Leaders and Supporters).

The toolkit contains several supporting tools:

- **A sample slide deck** for Case Study Leaders to raise awareness towards the NEVERMORE project and engage stakeholders.

- **Booklet of methods for co-creation activities** with the Local Councils of Stakeholders (see

- Figure 13). The booklet contains recommendations and insights targeting Case Study Leaders and Supporters, such as:

  o How to organise co-creation activities with LC considering several factors:

    ▪ Goal of the activity.

    ▪ Level of formality/informality of the event .

    ▪ Number of participants.

    ▪ Expectations of stakeholders involved.

    ▪ Time available.

  o Suggestions on things to consider before, during and after the activities and how to choose the more suitable approach (e.g., online vs offline activity).

  o Manage potential conflicts among participants.

  o Types of activities considered: online vs offline, group activities vs. expert presentations, etc.

  o Manage long-term engagement.

  o Manage practicalities (e.g., choosing the location and timing).

- **Template Consent form** ready for adaptation/translation for receiving authorization from participants about the collection and processing of data connected to the LC activities.

- **Workshop organisation checklist** (See Annex 2. Workshop/consultation planning checklist). This document is a customisable checklist that supports Case Study Leaders in organising co-creation activities with the LCs.

The methodology provided was generic and in English. Case Study leaders were asked to translate it and adapt it to the interests and peculiarities of their Case Study.
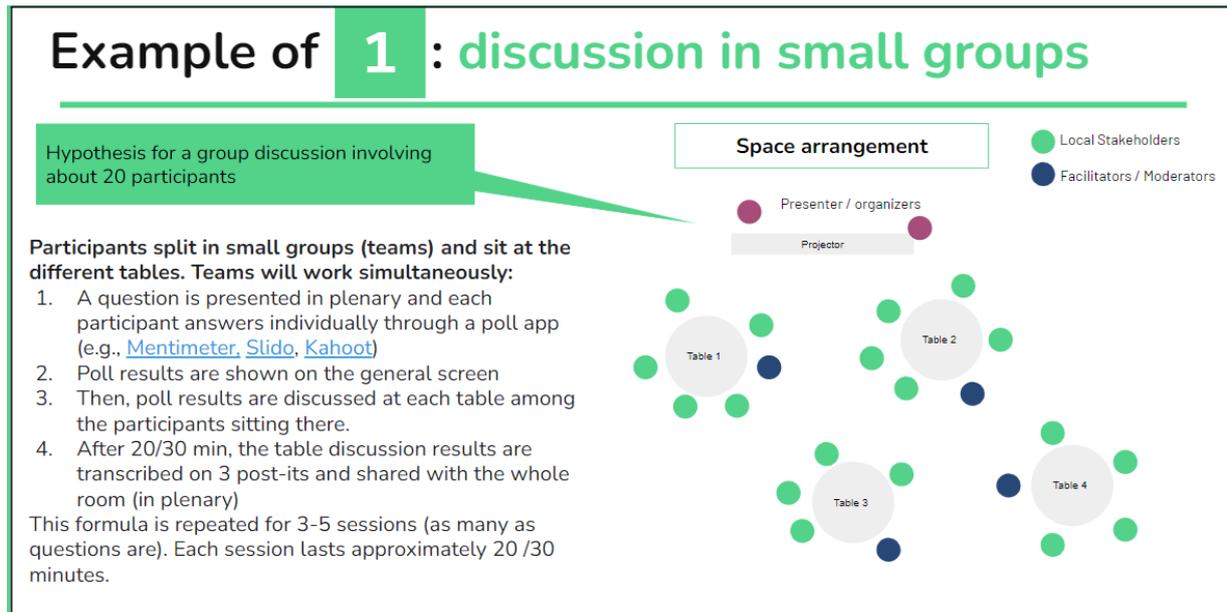
Figure 13. A snapshot of the booklet of co-creation methods distributed to Case Study Leaders.

3.3   Empowering Case Study Leaders

According to the Engagement Strategy (D2.3), for the successful outcome of the Local Councils (and consequently, the project), it was pivotal to empower Case Study Leaders to feel the right managers of their Local Council. To this end, we decided that each consultation with the Local Council had to be anticipated by a consultation of the technical partners with the Case Study leaders. In this way, Case Study Leaders could familiarise themselves with the consultation topic, check the information and data already at their disposal, and make a clear plan about how to address and what to ask their Local Councils considering their composition. For the same purpose, the Task 2.4 coordination team trained the Case Study Leaders and Supporters on how to apply the principles, methods, and procedures of the co-creation approach in the Local Councils.

3.3.1   Monthly meetings with Case Study Leaders and Supporters

Starting at M4 (September 2022), monthly meetings were organised to orchestrate Case Studies' co-creation activities with the consultations required by the project. All WP leaders and partners interested could participate in these meetings. Still, the focus is on the activities that Case Study Leaders need to carry out with the help of Supporters. The main reason for establishing a periodic meeting dedicated to Case Studies was twofold: on the one hand, we aimed to enable a dialogue and exchange among the five Case Study Leaders, and on the other hand, we wanted to allow more efficient communication between the NEVERMORE Technical Partners and the Case Study Leaders by finding a more universal, straightforward, and simple language to talk about the complex issues addressed in the NEVERMORE project. In fact, while all disciplines have technical jargon, which often hampers communication and mutual understanding among academic partners, it is even more difficult to establish clear communication and mutual understanding between academic and non-academic partners.

Furthermore, these meetings had the following goals:

- Update CS Leaders on the project progress affecting their activities and participation.

- Enable active participation of CS leaders in the project discussions and facilitate the bottom-up communication flow by welcoming clarification requests and providing useful information.

- Address emerging issues and monitor the quality of activities progress.

- Present the technical tasks requiring input from case studies and the activities to collect the required information.

- Encourage mutual learning among partners on specific topics.

- Enable the exchange of practices about the management of Local Councils, problems of the territories, organisation, management, and activities related to climate change at the local level.

- Exchange of issues and best practices among Case Study Leaders.

- Present and report the methodology and the results from each consultation with the Local Councils.

A new ad-hoc slide template for the meetings was created to enable more direct communication between CS leaders and technical partners. Such template presents:

- Slides by topic addressed rather than by WP and task as happens, for instance, in Project Management Team and WP meetings, meaning that, although a box with Task number, task leader, and WP is always present in the slide, the title and the text would be centred on the actual content of the message (e.g. Case Study characterisation).

- An invitation to the technical partners to use simple language and provide definitions and examples for any technical concept expressed.

- A Jamboard for CS leaders to ask questions and express doubts or the will to address particular topics during the following meeting. The Jamboard is meant to be populated by post-its before each Case Study meeting and to be read and discussed at the beginning of each meeting.

3.3.2 Monitoring Stakeholders' participation in the Local Councils

An Excel document was created to monitor stakeholders' participation in the five Local Councils and keep track of the advancement of the project's KPI about participation. The document was designed to share only information helpful to track project KPIs while keeping the participants' data confidential, thus complying with the GDPR.

Table 1. A synthesis of the instructions shared with the CS Leaders about how to store and share anonymised data of their LC stakeholders.

Goal	Tracking tool	Data type	Where to store it
Collect **personal information** about the stakeholders involved	In each Case Study, all Leaders will collect and store Local Council participants' personal information using the "Template Log of stakeholders' participation in [CASE STUDY] LC".	Personal information through which it is possible to identify the stakeholders (e.g., names, surnames, etc.)	This file is kept **confidential,** stored in a private folder and shared only **with the Case Study Supporter.**
Share **stakeholders' anonymised data and activities** with other partners.	Starting from the "Log of stakeholders' participation in [CASE STUDY] LC" template, each CS Leader will copy the information it contains EXCEPT THE FIRST TWO COLUMNS (i.e., name and surname) after each activity in which stakeholders are involved (e.g. consultations, interviews,..) on a shared file called "GENERAL Log of stakeholder's participation in LC activities".	Only anonymised and aggregated data will be shared among partners other than the Supporters.	This file is **shared** among Partners and stored in the "Case Studies" folder on SharePoint.

Since no personal data or information that may reveal private or sensitive information should be shared in the consortium, two versions of this file exist: the "Log of stakeholders' participation in [CASE

STUDY] LC", where all participants' details are reported and which has to be shared only by Leaders and Supporters of each case study, and the "General Log of Stakeholders" (see Table 1), which gathers anonymised data from participants in all Local Councils. The General Log of Stakeholders contains five sheets (one per case study) where the columns about personal data are removed (see Figure 14).

Case Study Leaders were asked to download the "Log of stakeholders' participation in [CASE STUDY] LC" file and store it locally. On the local version of the file, Case Study Leaders report information about Local Council members, such as affiliation and presence in the co-creation activities, as well as personal data, such as names. This local version is shared only among the Case Study Leaders and Supporters.

Furthermore, case Study Leaders are asked to copy anonymised data about each person involved in the General Log of Stakeholders relevant to tracking KPI and research purposes (e.g., gender, professional sector, etc.). No personal data or information that may reveal private or sensitive information should be shared in the consortium. Personal information such as name, surname, contact info, etc., should not be copied in the General Log of the Stakeholders. Case Study Leaders are asked to update both files after each Local Council meeting.

PRIVATE INFORMATION (CS LEADERS AND SUPPORTERS)						INFORMATION TO BE SHARED WITH NEVERMORE PARTNERS									
NAME	SURNAME	Description of the stakeholder's role in their organization	Email	Phone		ID	Type of stakeholder	Gender	Institution, company, association, etc.'s LEGAL NAME	Institution, company, association, etc.'s LOGO (link)	Institution, company, association, etc.'s WEBSITE	Preliminary Meeting (date - online)	1 consultation (date)	2 consultation (date)	...
Maria	Rossi	Head of the Environmental services office	maria.rossi@...	0461/31457 6		1		F					x		
						2							x		
						3									
						4									
						5							x		
						6									
						7						x	x	x	
						8									
						9						x			
						10								x	
						11									
						12									
						13							x		
						14									
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						18									

Figure 14. A screenshot of the private record of stakeholders, the first two columns will always remain private. In contrast, columns from "ID" will be shared with all the other partners (e.g., FBK, ZSI, and technical partners leading the consultation).

3.3.3 Reporting Local Councils' activities for Case Study Leaders' peer learning

A slide template was created to report the consultations with LCs during Case Study meetings to foster peer-to-peer learning among participants. Each Case Study had to fill in two slides with the following information about their meeting with the LC:

- First slide: a summary of the activity, i.e., when it took place, where (whether online or in presence), who participated, and how the meeting and the activities were structured.

- Second slide:

    o Key insights: What new knowledge did you gain during the consultation?

    o If you could re-do it from scratch, what would you do differently?

    o What topic would you like to delve deeper into during the following consultations?

Typically, the presentation of Local Councils' results through these slides in the Case Study meetings needs around 40 minutes, considering 8 minutes of explanation from each Case Study results.

4   Consultations with Case Study Leaders

As already stated in section 3.4, for the successful outcome of the Local Councils (and consequently of the project), we decided that each consultation with the Local Council had to be anticipated by a consultation of the technical partners with the Case Study leaders. In this way, Case Study leaders could familiarise themselves with the consultation topic and methodology, check the information and data already at their disposal, and make a clear plan about how to address and what to ask their Local Councils considering their composition.

Typically, consultations with Case Study Leaders are conducted directly by NEVERMORE technical partners (e.g., CARTIF, CMCC, RINA-C) who need data, information or feedback from the local territories to represent five different European climatic areas in their datasets and models. During the first year of the NEVERMORE Project, these consultations occurred as data collections: technical partners contacted the Case Study Leaders directly (i.e., without Task 2.4 mediation) and asked them to provide the needed information, data or feedback. Indeed, by being primarily local public administrations or institutions tightly linked with their local administration, Case Study Leaders are insiders able to provide thorough information about their territories to inform NEVERMORE models, tools, and processes.

Until the publication of this deliverable (M18), the following consultations/data collections with Case Study leaders occurred: Task 2.5 (M4), Task 5.1 (M6), Task 5.2 (M6), Task 4.1 (M8), Task 6.1 (M9), Task 5.3 (M15), Task 6.2 (M17). For the detailed results of these consultations, we refer to the technical deliverables D2.7. "Report on socio-technological requirements" (FBK), D4.1 "Report on coherent scenarios across scales design" UVa), D5.1 "Report on review of policies, measures and initiatives" (CMCC), D5.2 "NEVERMORE KPI Panel" (RINA-C), and D6.1 "Report on NEVERMORE case studies characterisation" (CARTIF). Here, we report the methodological approach and a few key insights.

4.1   General Consultation on local challenges, policies, and ICT desiderata

A notable exception to the consultation organisation in two steps, i.e., with Case Study leaders first and only later with the Local Councils, was the very first consultation. At the beginning of the project, when the Local Councils were still being formed, the facilitation by the FBK team leading the "Coordination of the participatory processes with stakeholders and end-users" (Task 2.4) was required. Therefore, in November 2022 (M6), a general consultation about Case Studies' characterisation (ask T6.1), policies and measures already in place and gaps (Task 5.1), and users' needs and desiderata about the ICT toolkit (Task 2.5) were organised. We report the consultation's methodology and broad results in the next section. For the detailed use of such information by the technical partners in their tasks, we refer to D2.7, D5.1, D6.1).

The first consultation with Case Study Leaders and Supporters addressed different needs related to multiple Tasks: Task 2.5, Task 5.1, and Task 6.1. The reasons for that were that the project was still in the initial phase, and the familiarisation between the different goals and sections of the project and the Case Study Leaders still had to be done. From the Project's GANTT chart, a consultation for Task 2.5, "Identification of the socio-technological requirements", was planned at M6. Furthermore, the purpose of Task 5.1, i.e., "Review of mitigation and adaptation policies and measures across all relevant sectors at different scales (from local to global level)", and Task 6.1, "Case Study characterisation", resonated as setting the basis for understanding each Case Study in detail.

Table 2 below presents a summary of the consultation. More detailed information, especially about the results, is reported in the following paragraphs.

Table 2. Summary of the organisation of the 1st Consultation with Case Study Leaders and Supporters (M6).

	First Consultation with CS Leaders and Supporters on Local Challenges, Policies, and ICT Desiderata
DATES	CS3. EKNorr: 5th November 2022 (pilot consultation) CS1. SITIA, CS2. PAT, CS4. INFO MURCIA, CS5. TULCEA: 5th December 2023.
GOAL	• For technical partners: setting the basis for an in-depth understanding of each Case Study's main characteristics and climate-change-related problems. • For Case Study Leaders: Clarify what kind of ICT tools the NEVERMORE project will provide.
PREPARATORY ACTIVITIES	Study of the NEVERMORE Project Grant Agreement (GA) and the presentations held by Case Studies during the project Kick-off Meeting (KoM) to gather all the existing information about each Case Study climate change-induced challenges, sectors involved, and priorities.
METHODOLOGY	Online participatory workshop during which several topics have been addressed, and notes have been taken on a shared Google Jamboard. The workshop started with a plenary session where FBK explained the purpose and methodology. Afterwards, participants split into 4 groups (one per Case Study) joined separate online rooms. In each group, the discussion was moderated by a technical expert (i.e., a researcher from CMCC or CARTIF) and a methodological facilitator (i.e., a researcher from FBK).
TECHNICAL RESULTS FEED IN	• Task 6.1 "Case Study Characterisation" (CARTIF); • Task 5.1 "Review of motivation and adaptation policies and measures across all relevant sectors at different scales (from local to global level)" (CMCC); • Task 2.5 "Identification of the Socio-technological requirements" (FBK).

4.1.1 Goal

The overall purpose of this first consultation was to provide technical partners with information and insights from local territories and Case Study Leaders on the type of ICT Tools that will compose the final NEVERMORE ICT Toolkit. To this end, the consultation was divided into three main topics:

1. Identify and discuss each Case Study's challenges, sectors, and priorities.

2. For the priorities identified, identify and discuss existing policies and measures in the territory and the related gaps.

3. Explore Case Study Leaders' habits, needs, and interests in technology related to climate change.

4.1.2 Methodology

Before the consultation, technical facilitators were asked to resume the information the Case Study Leaders had already provided about their case at the proposal stage and during the project kick-off meeting. This was done to avoid repetitions and prepare tailored questions about what aspects to investigate. The information previously provided by CS Leaders was annotated on virtual post-its on the Google Jamboard used during the consultation to take notes.

The consultation was organised as an online meeting on Google Meet, where the first part was a presentation of the activity in plenary. Then, each case study met in a dedicated room and discussed its specificities with a technical partner and a methodological facilitator.

Each online room consisted of the following:

• The Leaders and Supporters of a Case Study. They discussed each topic proposed in relation to their territory and checked that the notes transcribed on the Google Jamboard reflected their intended message.

- A technical expert who knows the project requirements, asks questions, shares the screen, and writes on the Jamboard (i.e., colleagues from CMCC and CARTIF).

- The methodological facilitator starts the recording, keeps the time, facilitates the discussion, and takes notes (e.g., Task 2.4 team from FBK).

The participants of each virtual room and their role in the consultations are summarised in Table 3.

Table 3. Roles in conducting the first consultation with CS Leaders (M6).

Case Study	Case Study Supporter	Facilitator	Technical Expert
Sitia	Efi Karakitsu (DEMOKRITOS)	Paolo Massa (FBK)	Chiara De Notaris (CMCC)
Trento	Sara Stemberger (FBK)	Chiara Leonardi (FBK)	Chiara Leonardi (FBK)
Murcia	Estefanía Vallejo Ortega (CARTIF)	Alessia Torre (FBK)	Estefanía Vallejo Ortega (CARTIF)
Tulcea	Elisabeta Savu (SIMAVI)	Eleonora Mencarini (FBK)	Maria Vincenza Chiriacò (CMCC)

A dedicated Google Jamboard was prepared for each case study to support the discussion. On the Jamboard, the different topics were assigned to different slides, and it was possible to take notes on virtual post-its (see Figure 15).
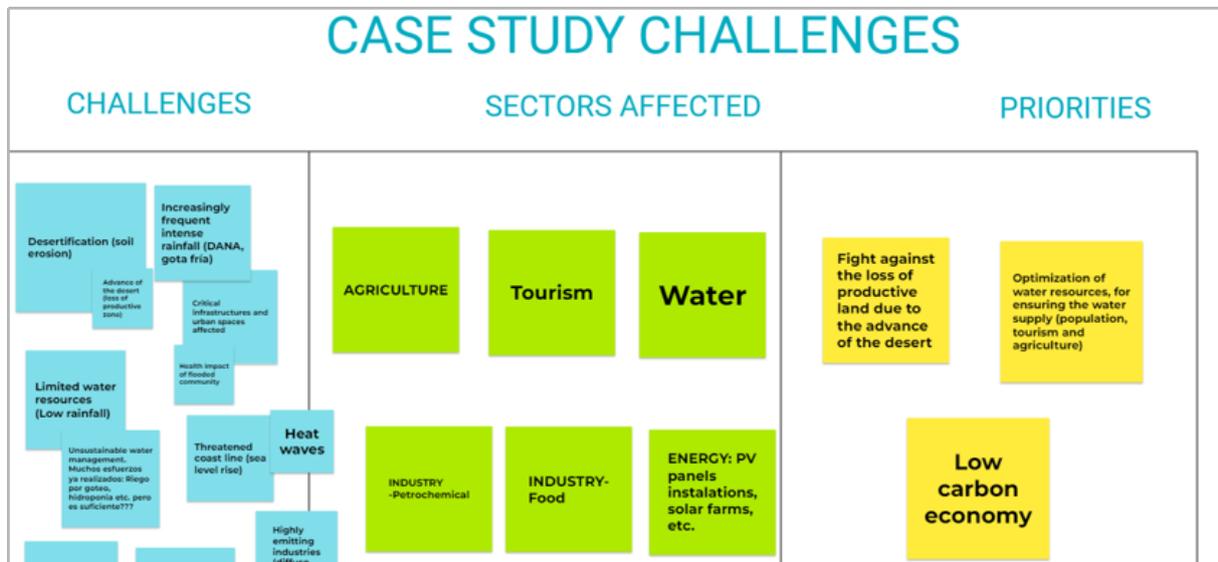
Figure 15. Screenshot of a Jamboard slide used during the first consultation with CS Leaders.

The following topics were discussed:

1. The main challenges caused by climate change the case study faces, i.e., the challenges and the affected sectors already identified in the GA and presented at the Kick-off meeting were validated, and a few priorities were drawn starting from the challenges.

2. For each priority identified, they discussed what policies and measures are already in place, whether they are adaptation or mitigation (or both) and identified policy gaps.

3. Technological desiderata, i.e., what technologies Case Study Leaders currently use to manage climate change challenges and what uses they would foresee for each tool of the NEVERMORE ICT Toolkit. For this last topic, a short description of the 4 tools included in the toolkit was reported on the Jamboard. For the sake of clarity and completeness of this deliverable, we report here the description used, while for a comprehensive description of them, we refer to D2.7, "Report on socio-technological requirements".

   a. MEASURES AND POLICIES CATALOGUE TOOL: An interactive tool to find the most suitable adaptation and mitigation measures (at the local and regional scale) and

policies (at the EU and global scales), including specific information such as synergies, co-benefits, and trade-offs with other measures, multi-sectoral effects, and negative or positive effects on SDGs. This tool will include already-implemented measures, potential solutions drawn from literature research, and scenarios co-created with the local Councils of Stakeholders.

b. EU-SCALE TOOL: A web-based tool to visualize future climate-change impacts and select, evaluate, and compare (via KPIs) adaptation and mitigation policies towards a climate-neutral and resilient society. It will include policy recommendations as a guide.

c. CASE STUDY TOOL: A web-based tool to create, evaluate, and compare (via KPIs) suitable scenarios of adaptation and mitigation measures in the case studies and then visualize risks and impacts under different scenarios. It will include measure recommendations for each case study.

d. GAMIFICATION TOOL: A simulation game tool to learn and raise awareness about climate change, which can be used for education purposes, climate change and sustainability roundtables, or role-playing games.

Each topic was discussed for approximately half an hour; thus, the discussion lasted about one hour and a half.

4.1.3 Results

Overall, each case study differs significantly from the others, for example, in size and population density, which imply different impacts of climate change and the role the Case Study Leader plays in the territory. Furthermore, each case study experiences climate change differently, i.e., it must deal with different problems, from crisis management to raising climate change awareness.

As for the technological desiderata, it emerged that there are different needs related to the ICT tools NEVERMORE will develop. Thus, there are two main fundamental options (especially for the case study tools): either developing a generalist but complete tool that allows for appropriation, i.e., each case study can use it according to their specific needs or developing tailored tools. The primary target users foreseen for the NEVERMORE ICT Toolkit are municipalities, and the primary requirement elicited is usability (ease of use, easy navigation, clear content). Especially considering municipalities, it should be noted that they often lack the time and skills to review all the data. Overall, the purpose of technology should be to persuade of the need to act and inform them about the decision to make. Maps have been acknowledged as an effective communication metaphor.

4.1.3.1 SITIA

Sitia's priorities in terms of climate change challenges to tackle are to protect people, the main economic sectors (i.e., agriculture and tourism), and fresh-water resources against extreme events; gain scientific knowledge on how to deal with climate issues, e.g., protect olive production from pests and climate change; put localised policies in place to prevent challenges related to climate change.

The policy gaps in the area are addressing challenges in an integrated manner, including more types of climate hazards in the strategies, considering that extreme events entail not only civil protection but also financial responsibility, lack of specific plans on "preventing" crisis, special commissioner (e.g., a resilience officer) in charge; principles and protocols to be followed in case of emergencies.

Thinking of how to structure the relationship with their LC, the CS Leader would like to centre the discussion on creating a dialogue between farmers and scientific consultants (mediated by the Municipality).

User requirements for the ICT toolkit

In line with their priorities, according to the Sitia Case Study Leader, the technological tools produced by NEVERMORE should also be useful for emergency management (floods, bushfires, tsunamis, etc.), considering residents and tourists. Regarding extreme event prevention, the need for high-resolution data (supported by weather/microclimate stations) has been pointed out since Sitia has very small-scale weather patterns. Similarly, the catalogue of policies is seen more as a collection of guidelines, tactics, and protocols to follow in case of extreme natural events. Once finished, natural hazards leave financial and agricultural problems behind. It would be helpful to have guidance about how to handle them, too.

The Case Study Tool would be a good opportunity to have a tangible tool to demonstrate to different types of citizens (individuals, industries, etc.) what will happen (vulnerabilities) if we do or do not do something (policies/measures). The gamification app is seen as used at best to get children involved in a fun way, and the CS Leader suggested implementing a local dimension in it to make it more relatable.

4.1.3.2 TRENTINO

The priorities the Trentino case study identified are tourist flow management, which should be data-driven and aim for an all-year (i.e., no seasons) flow; ensure energy efficiency and sustainability; improve water management; and ensure the safety of infrastructures.

As for the policy gaps, they identified the need to establish alliances (conglomerates) between tourist territories, strengthen sustainable mobility, launch energy communities, provide incentives for energy audits and specific monitoring platforms for ski resorts, support innovative start-ups in the sector of energy management; improve energy management in high-altitude structures like mountain huts; increase energy security in the mountains by undergrounding and monitoring of electrical networks, ensure availability of water storage tanks and drinking water systems for mountain huts, and build multifunctional water basins.

Thinking of how to structure the relationship with their LC, the CS Leader would like to centre the discussion on how to approach brainstorming with them, i.e., either to discuss options from scratch or provide them with a first analysis to debate.

As a desiderata for the ICT toolkit, integrating different data sources to forecast the impact of policies was mentioned.

4.1.3.3 NORRBOTTEN

The priorities and policy gaps identified by the Norrbotten case study are to protect reindeer husbandry, prevent biodiversity loss, increase energy production through renewable sources, and maintain a sustainable forest industry.

Thinking of how to structure the relationship with their LC, the Case Study Leader aims to find ways not to get stuck in discussions regarding conflicts of interest in the Norrbotten area and focus on evaluating the ICT tools.

User requirements for the ICT toolkit:

- A high degree of ease of use since municipalities lack time and interest to go through data.

- Find a unique value proposition for the NEVERMORE IC Toolkit: many tools are already open for public use in Sweden; we need to explain what can be obtained from this new one.

- The overall purpose of technology should be to foster behaviour change at the citizen level. There is a need for visualisations that convince the population that some measures are necessary.

- Interested in the Case Study tool and the gamification app.

4.1.3.4   MURCIA

The identified priorities and policy gaps in the Murcia case study are fighting against desertification, optimising water use, and adopting a low-carbon economy as a transversal pattern.

The CS Leader would like to centre the discussion with its Local Council on how municipalities should act in conformity with commitments required by the Covenant of Mayors. To this end, INFO Murcia will offer municipalities an easy-to-use methodology and experienced technical support.

User requirements for the ICT Toolkit:

- A high degree of ease of use since municipalities lack time and interest to go through data.

- Regional customisation: To ensure a large and solid adoption, interfaces should be in Spanish.

- The overall purpose of technology should be to convince municipalities to act against climate change. Persuasion for behaviour change should start at the institutional level.

4.1.3.5   TULCEA

The priorities and policy gaps identified by the Tulcea case study are water-related, i.e., improving water risk and water supply management, finding a trade-off between wetland self-regeneration, population and economic exploitation, promoting sustainable tourism and fisheries, and increasing organic agriculture.

The CS Leader would like to centre the discussion with its Local Council on the interconnections among sectors/challenges/priorities to enable a dialogue among single-sector experts.

User requirements for the ICT toolkit:

- Ease of use: tools accessible to the large public (few competencies) and all the partners in the decision process.

- Geographical visualisation through maps for the spread of animal diseases, animal diffusions, and interrupted roads due to heavy snowfalls.

Foreseen uses of the ICT Toolkit:
- Catalogue of policies: to be used with the county council and the Danube Delta Biosphere administration to develop long-term strategies;

- EU scale tool: to be used with the Ministry to provide analyses for different activity domains;

- Case study tool: with local administrations to help them develop their climate change resilience strategy;

- Gamification app: with the school inspectorate to raise awareness in the young generation.

4.2   Consultation on "Identification of the socio-technological requirements"

The consultation for identifying socio-technical requirements has been coordinated by FBK as leader of Task 2.5. Case Study Leaders have been involved in this task since the beginning of the project. A first collection of data was performed in the first consultation (described in section 4.1), and the analysis was then refined with focused interviews (starting at M10 and finishing at M12) with Case Study Leaders. Interviews were meant to provide a first list of high-level socio-technological requirements for developing the NEVERMORE ICT Toolkit, which comprises different tools: the Catalogue of climate change policies, an EU-scale tool, a Local-scale tool, the Gamification and a serious game. To this end, user-centred design principles have been applied to obtain tailored recommendations from each user group and elicit the specific requirements of the five case studies. Specifically, ten semi-structured interviews have been conducted with Case Study Leaders and technical experts in charge of developing the different ICT solutions.

The output of these activities includes a set of system recommendations that enhance the domain and user needs specific to the actors involved. The inputs elicited from users and other stakeholders in this task will be used to re-design or adapt existing components and tools that will be integrated into the NEVERMORE ICT Toolkit to provide valuable functionalities. This preliminary list of socio-technical requirements will be further refined and specified in WP7, including all actors involved in the process (public administrations, citizens, technologists, companies, and third-sector organisations), according to an inclusive design perspective. Full results are provided in deliverable D2.7, "Report on socio-technological requirements".

4.3   Consultation on "Scenarios coherence across scales"

The consultation for Task 4.1, "Scenarios coherence across scales", was carried out through a collaboration between UVa, leading the task, and the different technical partners supporting the Case Study leaders, namely the Supporters. FBK, RINA-C and ZSI also collaborated in the design of the consultation activity.

The consultation activity was carried out between April 18th and 30th, 2023. Its main goal was to explore climate policy-related storylines adapted to local concerns in a bottom-up way to complement the top-down storylines generated at the global and national levels.

The methodology consisted of a set of three steps aimed at building these storylines. These steps consisted of 1) a plenary session explaining the whole process, concepts, and expected outputs, 2) an exercise aimed at generating what-if questions that allow imagining and identifying interesting, desirable, and grounded solutions to climate change challenges adapted to local features, and 3) the generation of storylines based on the previously identified what-if questions. A working file (Excel file) was shared among all the partners to work on the what-if questions systematically. This helped UVa process the information provided to create local storylines for each Case Study.

As mentioned above, the what-if questions exercise, which was the core of the consultation process, was carried out through the support of UVa and the generation of an Excel File where a specific structure was proposed. This structure guaranteed that the what-if questions were concrete enough and were adapted to local challenges previously identified in Task 6.1 consultations. Specific guidelines were included in the Excel File, and a practical framework was generated in the scope of Task 4.1: the Scope-Actions-Actors-Sectors (SAAS) framework adapted from Absar & Preston (2015). This framework's objective was to guide the systematic development of the what-if questions, for which each question had to be aligned with the different SAAS categories. More information about the methodology is included in Deliverable 4.1, "Report on coherent scenarios across scales design", of the NEVERMORE Project (already public), section 4.2.3.

The results were very insightful, and the final outputs, i.e., the local-adapted storylines, will guide the policy modelling, simulation and communication of the results in the future tasks in WP4 "Design, modelling and integration of economic, environmental and social damages", WP5 "Climate change mitigation and adaptation policies", and WP6 "Analysis of climate change impacts and risk at case studies". Results are also included in Deliverable 4.1, section 6, "Lessons Learnt about the Methodological Approach adopted".

4.4   Consultation on "Review of mitigation and adaptation policies and measures across all relevant sectors at different scales (from local to global level)"

Task 5.1, led by CMCC, aimed at identifying and selecting relevant adaptation and mitigation (A&M) policy measures at different scales (from EU/global to national and local) and across different sectors (e.g., agriculture, forestry and fishing, energy, transport, etc.).

Case Study leaders were asked to collect and analyse policy documents at the national and local levels within Task 6.1 (led by CARTIF) to identify the most relevant policies and measures for climate change adaptation and mitigation for the sectors of interest in their territories. To not overload Case Study Leaders with repetitive tasks and optimise their efforts, the activities under Task 5.1 at the local scale were closely coordinated and aligned with Task 6.1.

The data collection occurred in February 2023. It was organised within an Excel file, in which the CS leaders had to extract the following information from the policy documents (identified under Task 6.1): name of the document, document type, the overarching framework of the policy document, policy objective (desired outcome of the policy), policy sector, measures (specific action to reach the desired target/objective), measure description (a concise and structured explanation of the measure, possibly derived by an official source), and, if available, target (the quantifiable intended effect of the measure). The Excel file was developed in close collaboration with partners from WP4, who were in charge of the modelling activities to meet their requirements based on their experience on the LOCOMOTION project[3].

From the 42 policy documents at the national/local level analysed by CS leaders, more than 800 Adaptation and Mitigation (A&M) policy measures were identified, which were then revised and consolidated with the measures identified at the EU/global scale into a list of 116 measures covering all NEVERMORE sectors and consistent across scales. Full results are provided in deliverable D5.1, "Report on review of policies, measures and initiatives", section 3 and Annex IV.

As the activities under Task 5.1 required plenty of time, the consolidated list of A&M policy measures was finalised in time for the deliverable submission. However, discussions with CS leaders highlighted the need to continue the refinement of the A&M policy measures. This activity was conducted in July 2023 under Task 5.3, during which CS leaders evaluated the relevance of the A&M policy measures and highlighted gaps. This led to co-creating new measures, extending the list of A&M policy measures from 116 to 120.

4.5 Consultation on "Common KPI-driven evaluation panel of policies and measures"

The consultation on a "Common KPI-driven evaluation panel of policies and measures" was led by RINA-C and happened in April 2023 (M10). The objectives of this consultation were i) collecting feedback on the KPIs panel framework structure proposed by RINA-C, ii) collecting input on the preliminary set of KPIs panel, iii) assessing the priority areas for each Case Study, and (eventually) iv) identifying new KPIs to integrate into the panel.

RINA proposed a structure of the KPIs panel framework for comparing and evaluating the policies and measures from the NEVERMORE Catalogue (developed in Task 5.5 and Task 6.5) based on the European Environment Agency's (EEA's) Policy Evaluation Framework[4]. In light of the NEVERMORE project structure and modelling exercise, the technical partners involved in Task 5.2 agreed to focus on the Effectiveness and Efficiency Indexes. The Effectiveness Index investigates to what extent a public intervention causes observed effects and to what extent the observed effects correspond to the objectives. At the same time, the Efficiency Index examines whether the costs involved were justified, given the changes and results achieved.

The KPIs have been identified by technical partners involved in Task 5.2. They include multi-impact indicators for both the disaster scenarios and adaptation and mitigation measures and cover the three

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[3] https://www.locomotion-h2020.eu/.

[4] EEA Environment and Climate Policy Evaluation Framework https://www.eea.europa.eu/publications/environment-and-climate-policy-evaluation/download.

pillars of sustainable development (i.e., environmental, social and economic). The Case Study Leaders have verified and integrated the list.

Then, RINA held bilateral meetings with leaders and supporters of each Case Study to discuss the appropriateness of the KPIs panel framework for their Case Study. All Case Study leaders agreed on the KPIs framework structure and the critical role of efficiency and effectiveness of KPIs in evaluating climate policies. Furthermore, most of them suggested that, when selecting climate measures to be implemented, effectiveness should be assessed first, followed by identifying the best solution in terms of efficiency.

As for the number of KPIs included in the Panel, the Case Study Leaders agreed on keeping the list as rich as possible, as intended to be a supporting (non-exhaustive) list to be adapted to the specific Case Study needs for the evaluation of policy measures in the following steps of the NEVERMORE project.

The whole KPI Panel is included in D5.2. A detailed description of the process is reported in Section 4, and the conclusions of the Exploratory Notes are attached to the KPI Panel.

4.6   Consultation on "Case Study Characterization"

Task 6.1 focused on the characterisation of the case studies, following a threefold approach to analyse the geographical landscape and historical conditions (including climate analysis, characterisation of vulnerable sectors, climate change factors analysis, and past experience and legal framework analysis), perform a PESTLE analysis to understand the local ecosystem drivers, and finally, merge the inputs in a socio-economic and environmental characterisation of each Case Study.

CARTIF led the consultation in the form of a PESTLE analysis, a tool to understand the impact of main factors and drivers on a system and, thus, facilitate strategic planning. The focus was to identify the Political-Economic-Social-Technical-Legal-Environmental drivers in each Case Study and understand them better in the NEVERMORE context as enabling factors or facilitators that will make our life easier in the design and deployment of policies to overcome the climate change impacts and adapt to it.

The PESTLE analysis was conducted through several activities in all case studies. First, a face-to-face consultation was conducted during the Sitia Consortium meeting in June 2023 (M13). This consisted of an initial brainstorming of the main drivers in the different aspects of the PESTLE for each Case Study. The activity was organised in round tables, one per Case Study, with the Case Study leaders and supporters. As a follow-up activity, a consultation was done during July 2023 (M14) with the Local Council of Stakeholders of each Case Study to obtain more inputs and views on the drivers of each Case Study. This was done through a Google Forms survey, translated into each local language and sent to the Council members to be completed with at least one driver on each PESTLE aspect. For the question on each aspect, both ideas and examples were included to guide them.

Then, the results of both activities were processed and further developed in a third activity through a Spreadsheet in which the vulnerable sectors identified as key for the Case Study were highlighted, with a first reflection part about the challenges related to those vulnerable sectors and the goals to overcome them. After that, the PESTLE analysis was completed by Case Study leaders and supporters.

More details on the methodology for the characterisation of the case studies, and more specifically for the methodology to carry out the PESTLE analysis, can be found in the Deliverable 6.1 "Report on NEVERMORE case studies characterisation" (section 2.2 "PESTLE analysis for the local ecosystem drivers' analysis"). In this report, the results are also provided in sections 3.2, 4.2, 5.2, 6.2 and 7.2 for each Case Study, "PESTLE results for the local ecosystem drivers' analysis", and with complementary and complete information of the consultations in annexes for each Case Study.

4.7   Consultation on "Multi-Sectoral Risk Analysis in Each Case Study"

The consultation related to "Multi-sectorial risk analysis in Each Case Study" is happening at the moment of the writing of this deliverable, i.e., from November 2023. The technical partner leading it is RINA-C, the leader of Task 6.2.

The focus of this consultation is to provide a comprehensive understanding of the risk analysis methodology that will be implemented in the task. To effectively carry out this risk analysis, it is necessary to categorise the primary hazards of utmost concern in each Case Study. These hazards could encompass a wide range of potential threats, such as natural disasters (e.g., wind, storms, earthquakes, landslides) or even human-related risks (i.e. risks caused directly or indirectly by human actions that impact the planet, such as heatwaves or deforestation). Furthermore, it is equally crucial to identify and assess vulnerable physical assets in the case studies. These assets may include critical infrastructure, equipment, structures, or tangible property susceptible to the identified hazards. By clearly defining and classifying the assets, we can better understand their vulnerabilities and potential consequences when exposed to specific risks.

In summary, the objectives of this consultation are twofold: firstly, to provide a clear and comprehensive explanation of the risk analysis methodology to be employed in Task 6.2, and secondly, to establish a systematic framework for categorising case studies based on their associated hazards and the physical assets at risk. This foundational work is vital for developing effective risk mitigation and management strategies in the task context.

The employed approach consists of a series of workshops and meetings primarily outlining the methodology to the Case Study leaders and supporters. These sessions serve as a platform for in-depth discussions with the Local Councils' participants. Following these explanatory sessions, the process moves forward to a practical phase, which involves the creation of Excel files, one for each Case Study, to serve as structured templates that allow the Case Study Leaders and Supporters to systematically document the hazards they consider most relevant and the assets of particular interest within their specific context. The hazards, the assets, and the socio-economic vulnerabilities identified by Case Study Leaders are then validated by Local Council members. By doing so, we aim to capture a detailed and accurate representation of the unique risk landscape associated with each Case Study.

The full results of this consultation will be presented in D6.2, "Risk assessment and risk maps of the case Studies", due in M24.

5   Consultations with the Local Councils of Stakeholders

The following sections will report how the three consultations were implemented. It is worth noticing that before starting with the actual consultations, almost all case study leaders had a preliminary meeting in which they presented the project so that stakeholders would be aligned on the project's objectives before starting the co-creation activities during the consultations. For each consultation, we describe the period in which the activity has been conducted, goals, preparatory activities and suggested methodology common to all five case studies. We then summarise how each Case Study developed their consultation and produced specific results. We finally report case studies' reflections about the methodology used and how the process could be improved for the next consultation. We conclude with a summary and main highlights that emerged during the first consultation.

5.1   First Consultation on Local Challenges & Priorities (M9)

This section describes the first Local Council consultation performed at M9 to explore local challenges and priorities concerning climate change in relation to the five geographical areas to provide feedback to Task 5.1 (CMCC) and Task 6.1 (CARTIF). For a summary of the preparatory activities for this first consultation, see Table 4.

Table 4. Summary of the preparatory activities for the first consultation with LCs.

	First Consultation with LCs on Local Challenges & Priorities (M9)
DATES	CS1. SITIA: 22nd January 2023. CS2. PAT: 2nd March 2023. CS3. EKNorr: 22nd February 2023. CS4. INFO MURCIA: 16th January 2023. CS5. TULCEA: 2nd March 2023.
GOALS	The first consultation had two main goals: 1. *Kick-off of the Local Councils*. In particular, explain the NEVERMORE goals, i.e., setting the context, aligning everyone on a basic understanding of the key concepts, and sharing desired contributions and involvement by LC members. 2. *Collect feedback about challenges and priorities of the local territory with respect to climate change.* More specifically, to extend and enrich the perspectives brought by the Case Study Leaders about their territories during the consultation with Case Study Leaders happening in November and December 2022 in a participatory manner.
PREPARATORY ACTIVITIES	Several meetings have been organised between the Task 2.4 coordination team, the technical partners, and Case Study Leaders to successfully align concepts related to climate change, modelling, and methodology for effectively facilitating the Local Councils. During the NEVERMORE Case Study Meeting of January 17th, 2023, the Task 2.4 coordination team presented a toolkit (see "Annex 1. Toolkit for Case Study Leaders and Supporters" for the example of a tip provided in this booklet) created ad hoc to explain the methodology to Case Study Leaders and Supporters. Some of the items presented were the Local Council purpose, methodology, possible LCs dates, activities to carry out pre-workshop, during the workshop and post-workshop, and practicalities such as location, timing, etc.
SUGGESTED METHODOLOGY	For the running of these first consultations, general guidelines were provided on how to run the workshop. Guidelines on how to structure the meeting have been explained by referring to the proposed agenda of activities: • Institutional greetings (optional); • Summary of NEVERMORE project; • Focus on the role of LC and the participatory approach to the project; • Explain why the project should be relevant for participants. List the advantages for the participants and show the overall LC timeline and level of engagement required; • Go through and explain the specific climatic issues of the Case Study; • Introduce the purpose of the day; • Get the group acquainted (team building activities); • Start group discussions; • If there are multiple groups, at the end, resume the outcome of each discussion in a plenary session; • Define the next steps. Institutional greetings were suggested as important because it was the first meeting on the territory, and having explicit and initial support from local institutions was considered very important to sustain participation in the long term.

	First Consultation with LCs on Local Challenges & Priorities (M9)
	Different modalities for getting the group acquainted (team building activities) were presented and then customised to the different contexts (level of informality of the event, number of participants, expectations of stakeholders involved, time available, etc.).
	Different methodologies for running the group discussions were presented, such as focus groups, brainstorming with post-its, parallel work in small teams (4-5 participants) and further plenary debate about the outcomes, world café, etc. and were included in the toolkit.
	The toolkit included suggestions on managing differences in opinions, i.e., "Respectfully disagree" - be aware that polarisations are possible and normal and need to be addressed.
	Explanations about the need to define roles and assign specific tasks to Case Study Leaders and supporters (consent form signature, introduction, facilitator at each group, photo documenting, etc.) were also given.
RESULTS FEED IN	- D5.1 "Report on review of policies, measures and initiatives" BY CMCC. - D6.1 "Report on NEVERMORE case studies characterisation" by CARTIF.

In the following subsections, we include the relevant parts of the reporting template filled by Case Study Leaders and Supporters after the Local Council. This structure will be followed for all Local Councils.

5.1.1 SITIA first Local Council consultation

The Local Council consultation in Sitia was the first to occur on January 22, 2023. It involved 17 participants and four NEVERMORE facilitators from SITIA and NCSRD, the Case Study Leader and Supporter, respectively. It was held in Sitia at the conference hall of the Hotel Itanos (see Figure 16). The meeting lasted about three hours (from 16:45 to 20:00). It was structured in this way:

- Invited speech by the Mayor of Sitia.
- Presentation on climate change by the NEVERMORE Case Study Supporters for Sitia, i.e., NCSRD.
- Presentation of the NEVERMORE project by the Case Study Supporters, i.e., NCSRD.
- Roundtable of stakeholders' introductions.
- Running of two collaborative activities.

Figure 16. Sitia Local Council consultation's setting and collaborative mapping activity about potential climate hazards.

5.1.1.1 Goal of the collaborative activities

The main objectives of the consultation were i) to identify the climate hazards and the affected sectors and, starting from this, ii) state needs and brainstorm possible solutions per sector, climate hazards, and personal views on the future.

In particular, the topics investigated were:

- Which challenges related to climate change are most crucial to address?

- Which economic sectors are affected by these challenges?

- Who are the most vulnerable categories to those challenges?

- Alarming outstanding effects they have observed due to climate change.

- What solutions could be suggested to tackle the challenges of each sector?

- Views on the future development of climate change in the area.

5.1.1.2   Approach and methods

The collaborative activities scheduled were two and were organised as two separate sessions:

Activity 1: Identification of climate hazards and affected sectors.

- The activity was conducted in plenary. A poster with a table with potential climate hazards as rows and sectors as columns was presented to the stakeholders. To start, NCSRD briefly explained the climate hazards they had identified when writing the NEVERMORE proposal and asked the Stakeholders to verify them and add any missing ones (participants were provided with post-its). The same was done for the sectors affected. Then, stakeholders representing or closely related to each industry took the floor to explain the severity of each climate hazard in their sector. Some minutes were given to the rest of the stakeholders to comment if needed.

- Topics discussed:

    - Topic #1: Which challenges related to climate change are most crucial to address?

    - Topic #2: Which economic sectors are affected by these challenges?

    - Topic #3: Who are the most vulnerable categories to those challenges?

    - Topic #4: Alarming outstanding effects they have observed due to climate change.

Activity 2: Stating needs and brainstorming on possible solutions per sector, climate hazard, and personal views on the future.

- Identify the stakeholders' needs to tackle the area's climate change challenges.

- The activity was conducted in smaller groups (based on the sector they represented). Based on the poster showing the potential climate hazards for the Sitia area used in the previous activity, the stakeholders were given 20 minutes to discuss and write down on post-its possible solutions to the challenges of their sector. Then, the post-its were placed on the poster, and all the stakeholders in the plenary discussed them.

- Topics discussed:

    - Topic #1: What solutions could be suggested to tackle the challenges of each sector?

    - Topic #2: Views on the future development of climate change in the area.

5.1.1.3   Results

The main concrete results of the Local Council were the co-production of a table representing potential climate hazards as rows and sectors as columns, which helped in shaping the common understanding of the many issues related to climate change in Sitia. Stakeholders appreciated that the proposed activities were concrete and tangible and could produce visible results. The Local Council was also very useful to create a group with shared vision and objectives and to complement and validate the initial

work done by the Case Study Leaders. We describe below the specific results gathered through work groups.

Activity 1. Identification of climate hazards and affected sectors.

Concerning the *challenges* related to climate change that are most crucial to address, participants confirmed heatwaves, floods, droughts, wildfires, and coastal erosion. They added landslides as an additional climate hazard in the region.

Regarding the economic sectors affected by these challenges, participants agreed on tourism, agriculture, biodiversity, and water resources. Coastal areas and urban areas were additionally identified. The stakeholders also highlighted the effects of the identified hazards on "human life" since there have been fatalities due to some of them affecting the area, e.g., landslides. The result of this citizen-driven risk analysis can be provided as a heatmap.

While discussing the *alarming outstanding effects observed due to climate change*, a comment sparked a lively conversation in the room. This was about the increase in sea surface temperature and the effects the local population has observed on biodiversity, e.g., the balance of fish populations and other endogenous species.

Also, and very importantly, a wildfire broke out in the vicinity of Sitia on the 21st of February 2023 and burned 14 acres of land. The person in charge of the Fire Brigade was Pavlos Kapetanakis, the Sitia Case Study Leader. During the Local Council, the issue came up, and the severity of the effects of droughts and heatwaves that started as early as February 2023 in the region was discussed.

Activity 2: Stating needs and brainstorming on possible solutions per sector, climate hazard, and personal views on the future.

In relation to solutions that could be suggested to tackle the challenges of each sector, participants mentioned the following:

Tourism is affected by heat waves, floods, droughts, and landslides. Possible solutions to tackle these climatic hazards are:

- Build hotel units using the most modern materials and safety standards to withstand natural disasters. Furthermore, the "greener" a hotel is, the more attractive it will be to tourists.

- Provide economic support reinforcement and equipment for civil protection.

- Promote awareness and preparedness among the community and visitors about protecting against natural hazards.

Agriculture is affected by heat waves, droughts, and floods and its problems are related to the management and possible damage of the water resources. Against these hazards, the stakeholders proposed to:

- Build a water supply network for irrigation (currently, drinking water is used for irrigation purposes, and also a significant proportion of rain or river water ends up in the sea).

- Build dams to collect rainwater.

- Restore rivers.

- Provide education to farmers and landowners on good practices.

- Do an agri-economic analysis to define resource demand and the development of a plan for proper resource allocation.

- Build and protect existing "farming steps". Terracing?

Urban areas are affected mostly by heat waves and floods. As for the latter, the stakeholders suggested:

- Urban planners should respect the building rules and limitations set by law and nature regarding new constructions and correct the mistakes already made.

- Build a rainwater drainage system.

- Expand the existing biological wastewater treatment facilities and build new ones.

Regarding water resources in general, it was suggested to incentivise the recycling/reuse of water waste, raise awareness among young people on the importance of conserving water, and educate them on how to do it.

It was proposed to place reefs or breakwaters to reduce the wave momentum on the coasts, thus protecting coastal areas from erosion.

Wildfires apply to all sectors. For those, it was suggested to create more wildfire buffer zones.

The discussion revolved around stakeholders' views *on the future development of climate change in the area.* There was an agreement that time is essential, and that agency is key in countering the dire effects of climate change. Sitia is a severe climate hot spot, and it is in imminent danger of desertification. For them, tackling climate change is an issue of survival. The stakeholders used to think climate change would not affect their generation, but now they feel they must keep time from slipping away. Still, Sitia is not an industrial area, so they think it is outside their power to affect the evolution of climate change on a large scale if the 'big players' keep their activities the same.

Participants also mentioned the importance of education about the issue of climate change. There is not enough information on climate change for adults or children in any sector. (Local) actions to raise awareness and educate are essential. Humankind's place in nature must be understood to make the necessary changes.

Another topic discussed was related to the practical actions on the territory regarding infrastructures, policies, and digital tools. Participants agreed on the following proposals:

- Need to demarcate water streams, but the funding needed to complete the work is enormous due to the standard fees. This is a national problem, so there is a need for a policy reassessment at the national level.

- Proposal of a national policy to simplify the procedures for rehabilitating local areas and restoring infrastructure damages in the case of natural disasters and extreme weather events. A prevention or restoration project should not take years to be approved.

- In the region of Crete, natural disasters have cost 350 million euros. There is no prevention mechanism or warning system for extreme weather events. In contrast, before and during a natural disaster, information management would be necessary to inform citizens efficiently so that human lives are not lost. A suggestion is made to develop a digital warning tool.

Climate change is a global phenomenon, and there are many interests involved. For a bright future, we need harmonious collaboration between all related agencies.

5.1.2   TRENTINO first Local Council consultation

The first Local Council consultation in Trentino occurred on March 2, 2023. It involved 32 representatives of the tourism and energy sectors and 10 NEVERMORE facilitators, both from PAT and FBK. It was held at the Autonomous Province of Trento headquarters in Trento (see Figure 17).
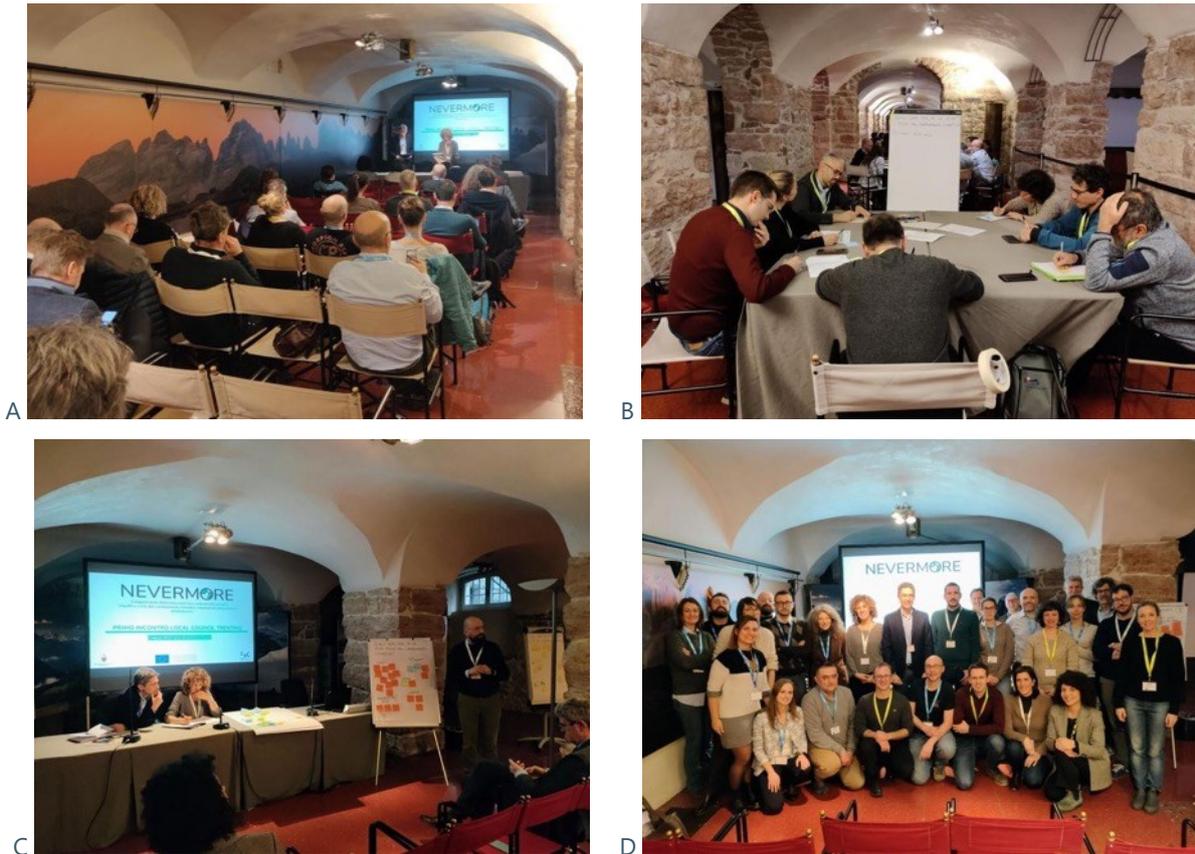
Figure 17. A) The plenary session in which the NEVERMORE project was presented, B) Discussion in small groups, C) Sharing of the results emerged from the group discussions, D) The members of the Trentino Local Council.

The meeting lasted 4 hours and 20 minutes (from 14:40 to 19:00, followed by a networking aperitif) and has been structured as follows:

- Institutional greetings by the Province Tourism Councillor and the Tourism and Sport Service Director.

- A scientific presentation about climate change in Trentino by a Professor of Environmental Engineering at the University of Trento.

- Explanation of the focus on the project objectives and presentation of the working groups.

- Participants were divided into 4 working groups, and discussions were held in 4 different tables. The discussions were followed by plenary feedback.

- A presentation about "Climate change and tourism: perspectives and challenges" by a Professor of Tourism Management at the University of Trento aimed to summarise and reflect on the main challenges that emerged in the working groups.

- Concluding remarks and next steps.

5.1.2.1 Goal of the collaborative activities

- Understand stakeholders' perceptions on the challenges posed by climate change, considering their professional activity and focusing on the Trentino area.

- Understand how the involved stakeholders would address the challenges observed.
  - Topics discussed during work activities in small groups were:

- ▪ What do you consider to be the challenges raised by climate change?

- ▪ How can these challenges be addressed (by you, by others and by the system)?

5.1.2.2   Approach and methods

The collaborative activity was performed by splitting participants into four small discussion groups. After the plenary presentations, participants moved to the assigned Group Tables that were organised as follows:

- 5-6 stakeholders. Stakeholders were mixed among groups, each representing different organisations.

- 1 methodological facilitator from FBK (Case Study Supporter).

- 1 content facilitator from PAT.

At the beginning of the group discussions, the facilitators introduced and explained the two discussion topics to the group:

- Topic 1: What do you consider to be the challenges posed by climate change?

- Topic 2: How can these challenges be met (by you, the others, and the system)?

The facilitators then invited the table's participants to reflect upon the first Topic individually by writing on some Post-it notes. This individual activity took a few minutes, and then participants were asked to take the floor individually and briefly introduce the first post-its they wrote. Post-its were attached to the board while the conversation took place; in the meantime, the facilitators clustered them by topic. Once the time had expired, the facilitators moved the conversation to the second topic. At the end of the hour dedicated to the Working Groups, a voluntary representative of each Working Group volunteered to present results in the plenary moment.

5.1.2.3   Results

In the following paragraphs, this section summarises the results that emerged from the discussion of the Working Groups and are presented as aggregated and clustered in thematic groups.

Question 1. What do you see as the challenges raised by climate change?

Cluster I - The cultural and awareness challenge

A strong need for a collective cultural change that can trigger personal and general awareness of climate change issues emerged among the participants at the tables. In one of the groups, for instance, the discussion diverges from an approach geared towards a return to the past and mere 'physical survival' to a vision that aims not only at new tourism models compatible with climate change but also, in a more general sense, at new ways of living in mountain territories where great value is placed on natural resources and time. Here also emerged the challenge of reclaiming the relationship between man and nature.

One of the challenges raised by participants is related to the change of habits by, for example, trying to abandon the capitalist approach sought by visitors (e.g. the availability of food out of context, sea fish in mountain huts) or the possibility of measuring the impact of specific choices/measures on CO_2 reduction or even the effects of climate change by also proposing 'micro-steps' that each of us could do. Notions of "limits", acceptance of the 'reduction' of well-being, sacrifice and being able to revert emerged. Some participants also point out the importance of being able to avoid 'greenwashing' activities.

Participants in the working groups emphasised the importance and need to spread information and disseminate about climate change using two distinct but mutually complementary aspects:

communication and education. Some participants suggest the need to formulate a positive communication and vision; climate change can also be communicated in terms of opportunities and not merely threats.

Cluster II - Changing Tourism Approach

Among the main challenges, participants proposed overcoming sectoral logic between tourism and other sectors, moving towards the redefinition/transformation of socio-economic models.

The adaptive/transformative logic of tourism is a crucial need: among the different groups, some concepts return, such as the evolution of the 'industrial' tourism model, the overcoming of seasonality and the diversification of the winter tourism model. The aim is to maintain the economy of the valleys and continue to ensure that tourism can represent a sector that can promote them.

It is also necessary to embrace new possibilities, professionally and in terms of lifestyle. Climate change can be seen as a threat (e.g., the difficulties of the winter skiing sector) and a possible opportunity (e.g., in summer, tourists are turning to the mountains as a refuge from the urban heat).

The common challenge, therefore, will be the evolution of the tourism use model by dedicating new products, new visions and activities to the mountains, promoting 'environmentally ethical' tourism. Other challenges among the participants include increasing the 'value' of presences - fewer presences but more revenue - a challenge not shared by all as it would risk proposing an elite tourism offer.

Another central theme that came to light was the availability of data that could be used not only to analyse tourist flows to manage the sector but also to measure the impact of specific choices on reducing/mitigating the effects of climate change.

Cluster III - Resource management

The resource management challenge emerged strongly in all four working groups for Trentino, mainly concerning water and energy. Participants agreed that it is urgent to manage better water resources for which competition is increasing and the need to conciliate concurrent uses through identifying win-win strategies, planning its use and technological adaptation, and raising awareness for its conscious use. The challenge of increasing energy efficiency came from one of the groups. For instance, a proposal was to reinterpret building management and efficiency models. One attendee brought to the table the challenge of optimising snowmaking systems by reducing waste and maximising the efficiency of technologies. For both mentioned resources, there is a need for adaptation and reinterpretation of management models, particularly for tourist sites and mountain huts and adaptation to uncertainty.

Cluster IV - Moving towards an integrated and dynamic approach to policies and strategies.

According to participants, identifying integrated policies across all sectors that combine mitigation and adaptation is a relevant challenge. The keyword 'long term' was emphasised with a quote: "Think long term but act short term" through changing the perspective of policies and together with the change of socio-economic patterns of the territory. Policies can be the incentive for change and a response to the suggested challenge. Awareness-raising and communication alone are not enough, but policy proposals and laws are necessary - some highlighted - to 'force'/guide change. The challenge posed is strategic planning that evolves from static to dynamic.

Question 2. How can these challenges be addressed?

Here, the answers are organised according to the subject that can address the challenge: "me", "others", and "the system".

What can I do?

Participants expressed a few possible actions they can take individually to tackle the challenges mentioned above:

- Promote awareness, communicate, broaden my knowledge and understand different points of view.

- Do my job well, giving scientific support to policy decisions, supporting monitoring to spread awareness, and helping find adaptation and mitigation solutions by spreading good practices.

- Consume consciously, foster energy efficiency and green building, optimise resource use, offset CO_2, and apply micro-changes.

- Start considering natural parks and protected areas as research and experimentation laboratories to monitor natural and semi-natural systems to understand climate dynamics better.

What can others do?

- Foster collaboration and sharing of information.

- Put themselves at stake and have more imagination to change the activities they propose to tourists.

- Be aware of resource consumption, be curious, be informed, reflect, and doubt. They can promote the education of new generations and spread greater awareness of climate change issues, particularly for priority areas.

- Make conscious choices, apply the cost of CO_2 in every action, pay attention to consumption, avoid short-haul trips, and integrate the indications of new regulations (e.g., the ban on disposable plastic).

What can the system do?

- Promote a paradigm change, act consciously, focus on energy efficiency and promote new systems (such as remote working). One can redefine the development model - not only in tourism - making what is environmentally sustainable and desirable. Capture the idea of limits and set them.

- Foster collaboration between sectors by listening, coordinating actions on critical issues, sharing between categories, and avoiding compartmentalisation.

- Encourage dynamic planning of monitoring and adaptation.

- Develop a long-term political vision, stimulate people in political roles, set priorities, foster foresight, and make choices beyond one's own time in political life and leadership roles. Return to a politics that looks at the general/widespread and long-term interest to create policies for sustainability.

Summarising, the decision to organise participants into separate working groups, guided by NEVERMORE members and equipped with post-it notes, proved efficient. This approach facilitated meaningful exchanges and the generation of ideas. Moreover, the opportunity for each group to share their findings and engage in thoughtful discussions added a significant dimension to the event. The professional and informative talks by public administration representatives and University professors added academic rigour to the afternoon.

5.1.3   NORRBOTTEN's first Local Council consultation

The first Local Council consultation in Norrbotten took place on February 22, 2023. It involved 14 participants and 6 NEVERMORE facilitators from EKNorr and IVL. It was held at the Kulturens Hus conference hall in Luleå (Sweden) (see Figure 18 and Figure 19). A few participants were connected online.

Figure 18. Selected photos from Norrbotten's first Local Council consultation.

Figure 19. Collaborative activities during Norrbotten's first Local Council consultation.

The meeting lasted 5 hours and a half (from 9:30 to 15:00), and it was structured in this way:

- Presentation of the project leaders and all the participants in the LC.
- Introduction to the project NEVERMORE and the role of the Local Council.

- Quick poll.

- Workshop 1 - challenges connected to climate change in Norrbotten.

- Presentation of climate adaptation strategies at the national and regional level by a representative of the National Expert Council on Climate Adaption in Sweden and of Norrbotten County Administrative Board.

- Workshop 2 – perspectives on the challenges and discussion on future meetings with the LC.

- Resume of the day and setting the date for the next meeting.

5.1.3.1 Goal of the collaborative activities

- Discuss whether climate adaptation is discussed in the participating members' organisations/networks.

- Allow participants to make small talk and get to know each other to make discussions in the following workshops easier.

5.1.3.2 Approach and methods

Below, we summarise how the collaborative activities aimed at collecting inputs from the participants of the Local Council were organised:

- *Quick poll*: Participants were given post-it notes to place on a wall where the poll options were stated. Is climate adaptation discussed in your organisations/networks? (Answers: Yes / No / Do not know)

- *Workshop on challenges*: to understand stakeholders' perceptions of climate change and to check whether IVL and EKNorr have identified the most relevant challenges for the county or if the group could suggest any others. Participants were divided into groups of 3-4 for this activity. They were given a large sheet to write on together with coloured markers and asked to select someone in the group to keep notes on the sheet. Then, in a plenary session, the small groups brought their sheets to the front of the room and presented the results in turns. After each presentation, participants were asked to reflect on the findings. The facilitator (EKNorr) also participated in the reflection and thanked each group.

  - Topics discussed:
    - Do you recognise/agree with the challenges identified by IVL and EKNorr?
    - Do you see other challenges?
    - How might future meetings with the LC be organised? (How do you like to meet (online/offline/field visits, etc.)? What topic would you like to get to know more about? What participant in this stakeholder group is missing and should take part in this project?)

5.1.3.3 Results

Norrbotten's first Local Council consultation has seen high participation and rich data collection. The quick poll activity was practical to know whether climate adaptation is discussed in the participating members' organisations/networks. Most answered "yes", and a few questioned whether there might be too much talk of adaptation and too little action.

During the main discussion, participants recognised and agreed with the challenges previously identified by the Case Study Leaders, but they also enriched their analysis, adding new ones, such as:

- Only a few people in Norrbotten know that they must work towards climate adaptation because, unlike other parts of Sweden, the county has no direct threat of floods/droughts.

- Climate change affects the built environment, i.e., roads, buildings, and drinking/sewage infrastructure.

- Reindeer husbandry is culture-bearing and, therefore, vulnerable from many perspectives. It is protected by laws (e.g., minority law, convention on biological diversity), but they are not enforced.

- Norrbotten relies on imported products (food, construction material, IT equipment, etc.). Therefore, they share the climate change challenges issues of the countries they buy products from. By addressing the issue of sustainable consumption, they can get closer to solutions to cut emissions and find adaptation measures in Norrbotten and other parts of the world.

Regarding the Local Council's organisational aspects, many participants expressed their preference to meet in person during a workshop, notwithstanding the long distances many of them need to travel. They suggested online modalities to share information and raise questions between onsite sessions.

Interesting suggestions were made about the composition of the LC. Participants expressed their interest in engaging other representatives in the LC, such as:

- Someone from the finance sector.

- Someone working in infrastructures such as water/sewage.

- People representing the younger generation, e.g., youth organisations.

Finally, some participants were not fully acquainted with the project's objectives and intended outcomes, leaving them uncertain about their potential contributions.

5.1.4 MURCIA's first Local Council consultation

The first Local Council consultation in Murcia occurred on February 16, 2023. Since the Local Council of Murcia is mainly composed of employees of municipalities and, due to their difficulties in moving away from the office and finding a date suitable for everyone, it was decided to conduct this first Local Council meeting online to ease participation (see Figure 20).

Figure 20. A screenshot of a moment during the online meeting.

It involved 22 participants and NEVERMORE facilitators from INFO and CARTIF. The meeting lasted one hour and a half (from 9:30 to 11:05): since it was online, it was decided to keep it short to keep the participants' attention high. The meeting was structured as follows:

- Welcome speech and agenda presentation.

- A presentation about the Covenant of Mayors in the Murcia region.

- Brief inspiring testimonial by the Municipality of Aguilas on their successfully developed SECAP by adhering to the Covenant of Mayors initiative.

- A roundtable of expectations from attendants (mainly on their interest in getting support from NEVERMORE results for developing a SECAP for their Municipalities).

- Setting the scene: Engagement in NEVERMORE and the Covenant of Mayors initiative to overcome local challenges related to climate change.

- Preparation of an online group via Teams to be used as a common repository for support documents, meeting recordings, and other documents (e.g., presentations, newsletters, etc.).

- Next steps.

5.1.4.1 Goal of the collaborative activities

- Raise the interest of attendees in the NEVERMORE project and CoM initiative.

- Highlight the relevance of developing an SECAP for the Municipalities.

- Understand participating municipalities' actual situation regarding SECAPs' development and their expectations and needs in getting support to develop these plans.

- INFO reviewed the services provided to Municipalities as a support structure of the CoM and the three INFO's strategic objectives. Notably, 34 municipalities still have not signed the Covenant's 2030 objectives and are at risk of being excluded from this network. The Case Study Leader INFO's main work mainly consists of avoiding them being excluded.

- Inform stakeholders on how the outcomes of the NEVERMORE project will positively support the development of SECAPs, especially for the climate adaptation part (e.g., climate variables provision, support in the emissions inventory, assessment of climate change risks and vulnerabilities, support for the municipalities that are part of the Local Council).

5.1.4.2 Approach and methods

The collaborative activities were all organised in plenary mode, as the online format allows for meaningful discussions in smaller groups only after a prior face-to-face engagement. After the insightful presentation with the example of the SECAP development by one of the Municipalities (supported by a former European Project), the facilitators invited each participant to reflect on the relevance that a SECAP may have for their Municipality, as well as on the opportunity that is brought to them with the support from the NEVERMORE project.

5.1.4.3 Results

The first Local Council consultation in Murcia was an important moment for the municipalities and the Case Study Leader to get to know each other, network and set the basis for the following activities and meetings. Sharing the current situation for each municipality was very important as it allowed participants to see shared struggles and start foreseeing collaborations and synergies. From this point of view, the first Local Council meeting was very useful to pave the way for proper stakeholder engagement. The Case Study Leader took the chance to introduce themselves as an expert consultant to the 14 municipalities interested in preparing Sustainable Energy and Climate Action Plans (SECAPs) through the NEVERMORE project. The Case Study Leader and Supporter of Murcia will guide the interested municipalities in becoming part of the Covenant of Mayors.

5.1.5   TULCEA first Local Council consultation

The first Local Council consultation in Tulcea took place on March 2, 2023. It involved 17 participants, and the NEVERMORE facilitators were 8. It was held in Tulcea, Hotel Delta - Constantin Gavenea Hall. To see how the space and the collaborative activities were arranged, see Figure 21.

Figure 21. Collaborative activities during Tulcea's first Local Council consultation.

The meeting lasted 5 hours (from 9:00 to 14:00, followed by lunch), and it has been structured in this way:

- Welcoming the participants.
- Round table/Icebreaking.
- Brief presentation of the NEVERMORE project.
- Let's create a community!
- Climate change analysis - local context/problem anticipation.

5.1.5.1   Goal of the collaborative activities

The first Local Council meeting organised in Tulcea aimed to i) create a modus operandi inside the Local Council, ii) create content that can be subjected to analysis from different perspectives, iii) define and structure the problem to be addressed that will form the basis of the development of the public policy.

5.1.5.2   Approach and methods

The two activities were conducted in 3 small groups. Participants were split according to the type of institutions involved: i) public institutions, ii) vulnerable groups, iii) academia/research.

First activity: "Let's create a community!".

This activity was meant to gather an overview of climate change from all three perspectives. Specific questions investigated were:

- What does climate change mean to you as a professional?

- What expectations do you have from the Council concerning your field?

- How can you contribute?

The activity lasted 30 minutes. Some members of the Case Study Leader facilitated the group discussion, while others managed the data collection.

Second activity: "Climate change analysis".

For the second activity, the same groups were given two flip chart sheets divided into six sections. In each section, they had to answer one question at a time before handing the sheet over to the next team. The questions were related, so the groups had to correlate their answers with the data the other group(s) provided. Each set of flip charts rotated two times at each group.

Specific questions investigated were:

- Which are the most affected sectors by climate change in the Tulcea County/Danube Delta area?

- Which are the priority solutions to address in each sector affected?

- What are the obstacles/problems to the implementation of the solutions?

- Which stakeholders/actors are affected by the problem?

- Who/What (technology) can solve the problem?

All team members supervised the group activity, which lasted one hour and a half.

5.1.5.3   Results

Activity 1: "Let's create a community!"

Several suggestions emerged when discussing the question, "What does climate change mean to you as a professional?". Participants' insights underscore the importance of:

- Focusing on areas significantly impacted by climate change, such as energy, transportation, sanitation, public lighting, biodiversity, green spaces, and urban regeneration.

- Identifying funding sources for implementing climate change-related plans and strategies, particularly for projects that mitigate climate change effects in the Danube Delta Biosphere Reserve (e.g., canal unclogging, kayak tourist routes).

- Additionally, some responses address the influence of climate change on the potential emergence of new occupational risks and the need to create new job opportunities or intensify professional training processes.

Concerning the second question - "Which expectations do you have from the Council regarding your field?" - feedback was the following:

- Opportunity for association and collaboration;

- Presenting proposals, suggestions, and solutions by creating a consultation platform as an ICT tool to materialise in space for debates and discussions for Council members, with the role of facilitating the exchange of ideas between the members of this structure;

- Development of ideas for the protection of the environment or the involvement of the entire community, public institutions, and companies active in the private sector;

- Identifying the instruments through which the transition to a green economy can be done without destabilising the social workforce balance;

- Initiation of a set of regulations and measures that contribute to reducing pollution;

- Mitigating the effects of drought and increasing production, simultaneously improving seed quality.

Regarding the third question - on the *contribution of members of the Local Council* - different types of contributions emerged from the discussion:

- Share knowledge and expertise and provide advice and technical assistance according to the professional background and the topic analysed, for example, by providing information and data about ecological agricultural areas and their possible evolution in terms of quality of the soil, efficient use of soil water, seeds quality, etc., or by providing insights about ecological education.

- Open cooperation with other members.

- Contribution to the testing of the new ICT tools.

- Encourage farmers to be active.

- Identification and implementation of a system for continuously monitoring and evaluating the quality of the environment to preserve biodiversity.

- Involvement in children's education to familiarise them with the natural and socio-economic problems caused by climate change.

- Stimulate respect for the environment in which professional companies are co-opted.

- Help in events about climate change, leveraging activism and art.

Activity 2, on "Climate change analysis", allowed participants to share their knowledge with the other teammates and identify a range of answers to the questions about the current impacts of climate change on the Danube Delta area. These answers will be helpful to:

- identify at least three sectors from the socio-economic field affected by climate change.

- propose solutions to address each identified sector.

- highlight the obstacles that appear in the implementation of the identified solutions.

- highlight the technologies that can solve the identified problems.

- exemplify the institutions/entities involved.

- identify the advantages and opportunities locally and nationally.

Participants agreed that climate change poses a significant threat to the environment, society, and economy, particularly in the Dobrogea region and Tulcea county, with various visible effects such as heatwaves, droughts, floods, and threats to biodiversity. The relevant sectors identified by participants were agriculture, health, environment, tourism, and forestry. It was mentioned as critical to understanding how these sectors are affected and identifying solutions aligned with national and international strategies.

5.1.6   Methodological considerations regarding the first consultations with Local Councils

In the reporting template, Case Study Leaders and Supporters were asked to evaluate the success of the first consultation and provide insights to improve the format of the following ones, answering four questions. We report the primary methodological considerations provided by Case Study Leaders below.

*Question 1. **Was the consultation helpful in raising stakeholders' interest** in the NEVERMORE project? Were the stakeholders' expectations met? What can be improved?*

Overall, the first consultation has been evaluated as very effective in engaging stakeholders and raising their interest. The councils effectively set the ground for future collaborative work, and several suggestions were made about organising the following consultations and events. For instance, within Norbotten LC, many tips emerged on places to visit with the group to learn more and on experts who can make presentations.

Some challenges emerged concerning the complexity of the topics addressed by the NEVERMORE project. Even if most participants affirmed that the first Local Council consultation was a positive and effective meeting, some of them found the project's goals unclear.

A weak point that emerged for the Trentino Case Study is related to the high-level contents on which the first LC consultation was focused. Some participants complained that the discussion has been superficial. In the next LC meeting, questions and activities on specific topics should be more in-depth. Whereas, for Norrbotten to make the Local Council's contribution more valuable, it will be important to broaden the discussions to all the relevant stakeholders.

*Question 2. **Was the consultation effective in collecting data** and useful to understand better your territory's challenges? If not, or not entirely, how could the data collection be improved?*

CS leaders agreed that the consultations proved highly effective in the data collection process, providing valuable insights into the Stakeholders' perspectives and personal experiences regarding the challenges of the different territories. The Sitia CS Leader affirmed, "The participants raised more climate hazards than we had originally identified and brought a wider range of effects to the territory. The citizen-based risk assessment was an interesting and informative task". Tulcea found the activities were very effective, too: "What seemed very promising was the fact that the participants had clear ideas on the needs of the region and of the sectors represented through the Local Council and were willing to come prepared to the next consultation meeting to discuss in-depth actions and potential new policy recommendations".

Some suggestions were made to improve the data collection. For instance, Sitia suggested that some polls performed via a digital application might be exploited to make gathering and statistically processing data faster. Another challenge mentioned by Norrbotten Local Council was that if too many topics are introduced in the group discussion, keeping the conversation focused and collecting enough feedback on each may become challenging. They suggest that in future meetings, fewer options are given or, as an alternative, topics should be made more specific. In Murcia, "some municipalities expressed concern about participating as they are tiny and cannot count on a specialist to do the work".

*Question 3. **Did any misunderstandings or conflicts occur** during the consultation? If yes, what were the motivations behind the tensions? How were they handled?*

In some cases, stakeholders had different and contrasting perspectives. For instance, in Trentino, while discussing the impact of climate change, two opposing visions emerged, one advocating degrowth and indigenous/local knowledge and the other the need for technological advancement and territorial development. Also, the Tulcea CS Leader recognised some moments of tension because of the different perspectives of participants regarding the economic cost behind environmental protection and climate change adaptation measures and the effects on the forests. Nevertheless, in both cases, the discussion was respectful, and participants kept an attitude of listening and respect for the position of others.

*Question 4. **Are there any topics** or issues you wished to emerge from this consultation **that did not or remained unsolved?***

In general, CS Leaders were satisfied and considered that useful data were collected on all the topics foreseen. However, as said in previous actions, all CS leaders reflected on how to plan the following consultations to collect data more effectively and improve participants' engagement and satisfaction.

5.2 Second consultation on local policies and measures

The second round of Local Councils' consultation has been performed at M11 to explore existing policies and measures in relation to climate change in the five geographical areas to provide input for Task 5.3, "Holistic analysis of mitigation and adaptation policies and measures considering synergies, co-benefits and trade-offs" coordinated by CMCC. After investigating the challenges of each geographical location in the first consultation, the second consultation focused on policies and measures that tackle these challenges.

The table below (

Table 5) summarises dates, goals, preparatory activities, and suggested methodology for the second Local Councils' consultations shared with all five case studies. We then report how consultations have been organised in each case study and the specific outcomes that emerged.

Table 5. Summary of the preparatory activities for the second consultation with LCs.

	Second Consultation on Local Policies and Measures (M11)
DATES	CS1. SITIA: 7th June 2023. CS2. PAT: 23rd May 2023. CS3. EKNorr: 9th May 2023. CS4. INFO MURCIA: 10th May 2023. CS5. TULCEA: 23rd May 2023.
GOALS	Collect input and inform technical partners involved in Task 5.3 (CMCC) with characterisation and analysis of selected mitigation, adaptation, and disaster risk-reduction policies, measures, and initiatives, also with an emphasis on stakeholders' perspective on synergies, co-benefits, and trade-offs among policies. Besides, feedback on policy gaps and suggestions on how to evaluate the success of a policy were also addressed. Building on the work already done for tasks Task 5.1 and Task 6.1 which allowed the collection and analysis of many policies and measures, Case Study leaders and supporters were asked to select a set of measures to be further explored with the members of the Local Councils. Topics of the second consultation were: • Knowledge and awareness of the selected set of measures. • Synergies and trade-offs between measures. • Policy gaps. • Effects and responses from the territory and gathering some bottom-up. experiences.
PREPARATORY ACTIVITIES	Several meetings have been organised between the Task 2.4 coordination team, technical partners, and Case Study Leaders to successfully align concepts related to climate change, modelling, and methodology for effectively facilitating the second round of Local Councils' consultation. During Case Study meetings and dedicated bi-lateral meetings with Case Study Leaders, the content of the investigation and the methodology to conduct it was discussed and presented by the Task 2.4 coordination team.
SUGGESTED METHODOLOGY	For the running of the second consultations, general guidelines were provided to CS leaders and supporters: • Select a small number of policies, up to a maximum of 10, that are specific and related to the needs of the area and considered interesting for effective implementation. The focus on a small set of policies was requested to allow the members of the Local Councils to familiarise themselves with the selected policies, understand them and provide their perspectives.

	Second Consultation on Local Policies and Measures (M11)
	- Bring to the discussion, if possible, both adaptation and mitigation policies for the Local Council to familiarise with the different types of actions that can be taken. - Present the selected measures in a summarised format to the Local Councils, ensuring that every participant is well-informed and can actively contribute to the discussion. - Organise discussions in subgroups and, if possible, create subgroups of stakeholders with contrasting interests (e.g., working in different sectors) to raise trade-offs and critical points in decision-making.
RESULTS FEED IN	D5.3 "Report on the analysis of policies and measures".

5.2.1 SITIA second Local Council consultation

The second Local Council of Sitia occurred on June 7, 2023, during the NEVERMORE fist-year consortium meeting. It was held at Sitia Beach Resort and Spa Conference Room, involving 11 participants and NEVERMORE facilitators from SITIA and NCSRD. The meeting lasted three hours and 30 minutes (from 16:30 to 20:00). It started with a plenary session, during which a welcome and brief description of the NEVERMORE project to new members of the Local Council was done. Then, a round table discussion was performed on existing policies, gaps, and improvements regarding tourism, water resources, coastal areas, farming and agriculture, and biodiversity. To see how the space and the collaborative activities were arranged, see Figure 22.
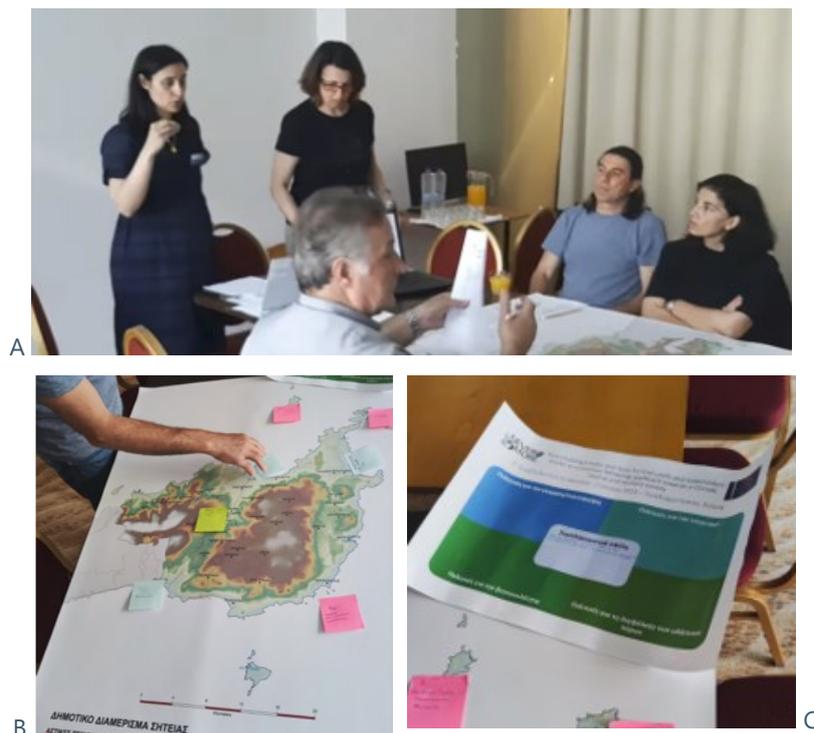
Figure 22. A) LC members and Demokritos facilitators discussing; B) The map of Sitia used to highlight areas suffering from the ineffectiveness or lack of policies; C) Poster showing the sectors of interest and the possible intersections among them.

5.2.1.1   Goal of the collaborative activity

The roundtable discussion activity was aimed at exploring the following topics:

- Review the current policies in these sectors: tourism, water resources and coastal areas, agriculture and farming, and biodiversity in the Municipality of Sitia.

- Assess the level of stakeholder awareness regarding the presence of these policies.

- Evaluate the extent to which these policies are implemented within the Municipality of Sitia and their effectiveness.

- Identify shortcomings in implementing these policies and propose strategies to enhance their effectiveness.

- Identify opportunities for cross-sector collaboration and synergies among these policies.

5.2.1.2   Approach and methods

The activity was conducted in the form of a round table. The participants received printed questionnaires with short descriptions of policies extracted from the relevant documents identified by the Municipality of Sitia. While slides presenting the policies were projected on screen, participants were asked to answer a questionnaire that asked, for each of the policies, to respond with "yes" or "no" to the following questions:

- Are you aware of this policy being in place?

- Is this policy being applied in Sitia?

- If so, is it effective?

After completing the questionnaire, each participant took turns and presented a single policy to stimulate a discussion on the effectiveness or shortcomings of that specific policy and what steps could be taken to enhance it.

Since the beginning of the activity, a large map of the Municipality of Sitia was laid out on the meeting table in front of the Stakeholders, where they could use sticky notes to highlight areas that notably suffer from the ineffectiveness or lack of a policy. As the discussion progressed towards presenting policies regarding the second sector, the facilitators suggested the possibility of synergies between policies and across sectors. At this moment, a mini poster with a graphic showing the sectors of interest and an intersection among them was presented. The Stakeholders worked on this concept, with the support of the facilitators, throughout the rest of the activity.

5.2.1.3   Results

During the second consultation of the Local Council of SITIA, stakeholders had a chance to discuss existing tourism-related policies, water resources/coastal areas, farming/agriculture, and biodiversity. In particular, it was useful in assessing stakeholder awareness, evaluating policy application and effectiveness, identifying gaps, and exploring potential policy synergies. Specific recommendations and observations were made for each sector.

Concerning **tourism**:

- 80% of the Stakeholders were not aware of a specific policy regarding actions to improve the conditions for tourists visiting archaeological sites during the hotter months with the development of green communal areas using selected endogenous plants that also eliminated air pollution and the development of an information/warning system for extreme temperatures. As a result, this policy was deemed inapplicable in Sitia and ineffective. The suggestion of the Stakeholders was to promote a plan to construct kiosks throughout the Municipality using environmentally friendly materials surrounded with appropriate trees and plants that will leave a zero footprint.

- Synergy tourism & agriculture: The geopark has benefitted from a policy providing further incentives to develop agriculture in the area and has planned to build "green fences" (fences made from specific plants). The plan could be extended to include archaeological sites and spots inside the city of Sitia.

- Regarding the policy offering incentives to upgrade tourist accommodation buildings, the stakeholders commented that it had been applied to Sitia but to a limited extent. They proposed that the Municipality take advantage of the funding and conduct an organised special study to install green roofs and vertical gardens in tourist and public buildings and private residences.

- Synergy among tourism and biodiversity: When planned and executed correctly, these urban interventions can help promote biodiversity since endogenous plants and flowers (perhaps endangered species) can be used. Side note: Also, green roofs have been proven to significantly lower the energy needs of buildings and the risk of flooding in urban areas.

Concerning the sector of **water resources/coastal areas**:

- Only three Stakeholders were aware of the policies regarding water resources and the coastal regions, and only one believed all of them were applied and effective in Sitia.

- The most popular policy to the LC is funding to avoid building private residences or business development near coastal regions suffering from extreme events and coastal erosion. However, they all agreed that the policy was not effective.

- A lack in policies they identified was funding to perform a detailed scientific study on the natural phenomena contributing to coastal erosion and measures to prevent/tackle them, e.g., breakwaters, artificial reefs, etc.

- Another lack of policies was the need for a proper urban planning study and the imposition of fines or demolition of illegal and dangerous structures.

Concerning **farming/agriculture:**

- 82% of Stakeholders were unaware of two specific policies: 1) financial support to farmers to use closed hydroponic systems and 2) financial support to relocate crops and livestock farms to areas of low climate risk.

- A gap identified by the participants related to the policies about financial support to farmers and breeders to make any upgrade/change in practices was that it usually takes around two years to implement them and get up and running normally. These two years could prove quite damaging financially. There is no provision to support them during these two years of adaptation.

- Through the conversation, the stakeholders discovered that the financial support provided to organic farming farmers is much higher than the funds allocated to traditional techniques. However, there is no policy urging or supporting the transition from traditional to organic agriculture. This is something the stakeholders wanted to explore more.

- Even though a policy exists to provide DNA samples of endogenous plants and animals for preservation, a genetic bank does not exist in Sitia nor on the island of Crete, so farmers of olive trees took the initiative to send samples to a European bank.

- A policy supporting improving and modernising livestock facilities is in place, and breeders have implemented the changes. However, the animals cannot be easily restricted and continue to leave their enclosure and return at will. Reverse synergy: although this should be fixed, it is a natural phenomenon contributing to regional biodiversity.

Concerning **biodiversity**:

- Most stakeholders were unaware of a policy supporting studies to map the area's invasive plant and animal species.

- Participants also found a gap in the biodiversity-related policies. There is no regulation or monitoring of plants used in public areas; the animals roam free in the region, which may harm the endogenous species.

From a methodological point of view, using a map of the Municipality of Sitia was very practical: it helped the Stakeholders describe the situation better and recall events and areas affected by ineffectiveness or lack of policies. Participants could use sticky notes to highlight areas that suffer notably from the ineffectiveness or absence of a policy, and this practical and tangible activity was very much appreciated. Activities on a map were deemed successful and valuable to be replicated in future consultations in other case studies. Furthermore, the idea that policies could create synergies across different sectors had not occurred to most stakeholders, leading to significant interest and an engaging discussion. Finally, the stakeholders' broader concern is the absence of higher-ranking local authority representatives within the Local Council (LC). In response to this concern, an initiative was put forward, suggesting proactive outreach and persuasion efforts to encourage local authorities' active participation in forthcoming meetings.

5.2.2   TRENTINO second Local Council consultation

The second Local Council consultation in Trentino involved 18 participants from 15 organisations and bodies, and the NEVERMORE facilitators were 10 with different roles (moderators, notetakers, observers) from PAT and FBK. It was held at Trentino Marketing Headquarters, Trento. To see how the space and the collaborative activities were arranged, see Figure 23.

The NEVERMORE logo

New **E**nabling **V**isions and Tools for **E**nd-use**R**s and stakeholders thanks to a common **MO**deling app**R**oach towards a Climat**E** neutral and resilient society
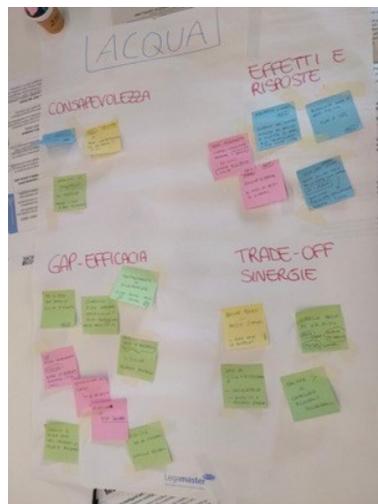
Figure 23. Group discussions about existing local policies and policy gaps in Trentino.

5.2.2.1   Goals of the collaborative activity

This second consultation aimed to examine a set of policies and measures the Case Study leader identified, starting from the corpus of 225 measures gathered for Task 5.1 and Task 6.1. Among these, 27 local measures specific to the Trentino Case Study were filtered and clustered into 6 discussion topics (for a visual representation of the selection process that led to identifying the 6 clusters of policies/discussion topics, see Figure 24).

The 6 topics were:

1. Balanced management of tourist flows.
2. Corporate sustainability.
3. Efficient and integrated water management.
4. Sustainable mobility.
5. Energy efficiency and renewable for the decarbonisation of the tourism sector.
6. Human capital.
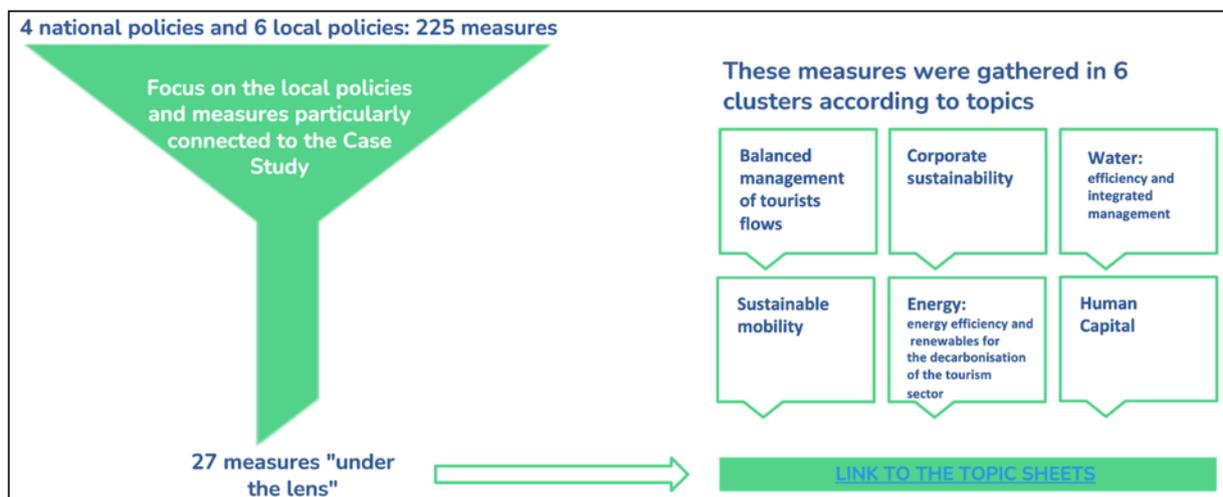
Figure 24. Diagram of the selection process done by the Trentino CS Leader and Supporter to identify the policies to discuss with the LC.

The goal of the discussion with stakeholders was to investigate:

- Their knowledge and awareness of the measures.
- Synergies and trade-offs between measures.

- Policy gaps.

- Effects and responses from the territory as well as gather some bottom-up experiences.

5.2.2.2   Approach and methods

The meeting lasted 3 hours and 10 minutes (from 9:00 to 12:10). It was structured with a plenary session in which representatives from the Case Study Leader organisation PAT presented the objectives, the policy analysis work carried out as part of the project activities and explained the methodology to be used during the collaborative activity in small groups.

Participants were split into three groups, each gathering approximately 6-7 stakeholders from diverse organisations and experiences, plus three facilitators. Each group engaged in two different discussion sessions, each one targeting one of the topics and lasting 45 minutes. Each topic gathered several measures identified by analysing the local policy and measures. Several questions were formulated to guide the conversation within the groups. Facilitators led the conversation, covering different roles: one conducted the discussion with questions, a second facilitator synthesised concepts on Post-it and organised the discussion board, and a third facilitator took notes. Discussions were recorded for annotation purposes.

Awareness:

- Were you aware of the existence of the policies and measures identified?

Effects and responses from the territory:

- Are they also applied in your territory or your area of work?

- Are you aware of spontaneous initiatives concerning this topic in your territory?

Gaps and effectiveness:

- Do you think these measures respond comprehensively to the challenge they aim to address?

- Are they effective (do they achieve their objective? Are they successful? If yes, at what cost)? Do these measures offer an (effective) solution?

- In your opinion, how could their effectiveness and efficiency be measured?

Trade-offs and synergies:

- Do these measures generate trade-offs between sectors?

- Does this measure create synergies?

A final plenary session, in which the three groups shared the main insights that emerged during the discussions, closed the consultation.

5.2.2.3   RESULTS

We present in the following the main outcomes that emerged during the discussion organised according to the 6 topics identified:

TOPIC 1: Balanced tourist flow management
The groups acknowledge periods in which tourists are too many for the territory and its ability to welcome them (indirectly generating reduced satisfaction with the tourist experience, the so-called "boomerang effect") and periods characterised by much fewer tourists. To balance tourist flows, the concept of deseasonalisation has been discussed. In this regard, two different trends have emerged: on the one hand, it was noted that the deseasonalisation approach is already occurring, in contrast with the current business management model, and on the other hand, it was also pointed out that this is a relatively new concept for people not working in the tourism sector. However, a cultural shift in

that direction is needed, i.e., choosing not to promote the months of July and August, accepting reductions for these periods, and instead promoting innovative products and offers for the Autumn. Also, some areas have large tourist loads while others are less visited.

Regarding policy gaps and effectiveness, it must be considered that many structures in Trentino are family-run (e.g., in Val di Fassa, family-run tourism enterprises are about 96%-97%), and these structures cannot stay open for many consecutive months since this would cause psycho-physical difficulties to the workers and owners.

Another gap is the availability of data and tools to make informed decisions about tourist flows despite the many projects already addressing this topic.

Implementing such systems to better manage emergencies and extreme events with more punctual control over the territory is also important. Rapid and unpredictable changes due to climate change, such as droughts, snow shortages and abnormal heat, make it challenging to plan tourist management. The issue of flow control also emerges in relation to safety in the Alpine territory and environment.

The trade-offs are mainly between tourists and residents, e.g., during the tourist season, there is no parking for residents, while in the off-season, all economic activities are closed. Thus, residents perceive that "there is too much to do in season and nothing out of season".

TOPIC 2: Corporate sustainability

There is high awareness of measures concerning this topic, and many local actors are deploying projects to increase the sustainability of their companies. For example, the Val di Fassa Tourist Board has partnered with the multinational REPOWER to offer local companies a free energy consumption check. This alliance will provide control units and electric recharging stations to be placed on dedicated platforms. However, it was noted how getting private companies to adhere to the proposed sustainability measures is problematic. Still, entrepreneurs will willingly join the projects if they see the possible benefits, such as increased competitiveness and visibility. An example of a certification that has provided no benefits is the Ecolabel because it has been adopted by many and, therefore, no longer constitutes a competitive advantage.

It is considered essential to raise awareness among visitors, e.g., by indicating in menus or mobility services the most sustainable options (e.g., cable car route vs. own vehicle).

Environmental education should also be addressed to residents.

Discussions about electric mobility being the real ethical solution and short supply chains not always offering sufficient quantities of products for activities were addressed.

TOPIC 3: Water - efficiency and integrated management
As for the overall water infrastructure and management, the discussion revolved around the problem with a 360° perspective. The public administration should place rewards for water-saving behaviours through incentives and special tariffs. Furthermore, it should take great care of vulnerable residents and businesses if the threat of energy poverty reoccurs due to contextual factors such as the international geo-political context.

It was reckoned that the water infrastructure needs to be improved. For example, in some valleys, aqueducts running on both sides of the valleys are not connected between them. Similarly, it happens for irrigation systems. As a form of care towards ecosystem balances, a new measure has been created for new hydropower plants to consider Minimum Ecological Outflows instead of Minimum Viable Outflows. Finally, connecting to over-tourism, it has been reported that peaks in tourist flows can create shortages in the plants for the purification of water, which might be undersized for those periods.

A theme that connects water management, energy, and tourism in Trentino and is becoming a problem concerning climate change is artificial snow production. Participants discussed whether a winter tourism model based exclusively on skiing is still viable. In this regard, a participant brought the example of Switzerland, where banks have been banned from financing investment for slopes below 1500 m, while Trentino has ski resorts at 1000 m. The sustainability of artificial snow production entails many aspects. First, it requires specific temperatures and climate conditions to be worth producing. Artificial snow can last if temperatures do not exceed 4°C, so constant monitoring is needed.

Furthermore, excavating new water reservoirs for artificial snow is a widespread practice, but they impact landscape and environmental balance. This topic also recurred while discussing trade-offs and synergies since it emerged that artificial basins are often designed for multiple uses. Still, considering the water scarcity due to climate change, tensions may arise between using water for drinking, agriculture, or snowmaking. Finally, alternative practices to artificial snowmaking, such as snow farming, i.e., the conservation of natural snow to use it the following year, were discussed even if they are not currently in place in the Trentino province.

TOPIC 4: Sustainable mobility
The discussion revolved around possible sustainable mobility options and their advantages and disadvantages. One broadly agreed-upon problem is the lack of interoperability of ticketing apps between buses, trains, and other means of transportation. Another alternative mobility option for mountain valleys could be low-altitude ropeways accompanied by car restrictions, but there should be a solid political will to deploy car restrictions measures. For example, a proposal for car access restriction was made in Molveno as part of the 'Dolomiti Paganella Future Lab'[5] initiative. Access quota restrictions are also in place in other places where reservations are compulsory. Bus & Go initiatives are on-demand mobility projects with minibuses that collect mobility requests from the territories and create a route. These projects have worked well in the Garda Lake area in collaboration with Trentino Trasporti (the provincial transportation company). However, they also have difficulties with timetables or the lack of telephone signal coverage in certain mountain places.

To plan wisely, it would be essential to monitor mobility data, but this is not the case. For example, although 15 years have passed since the Skibus service was introduced, data has yet to be collected on its usage. This lack of data collection reveals a cultural issue: the lack of awareness regarding the importance of data collection.

It was also noted that there are areas committed to cycling in which public transport does not always provide options for transporting bikes. Participants suggest potential solutions, like bike buses, to address this issue.

TOPIC 5: Energy efficiency and renewables for the decarbonisation of the tourism sector.
Participants knew the measures but had no specific, detailed knowledge of them. The proposed measures seem to translate existing practices into norms. Companies unaware of the norms have acted in the same direction out of their need to answer their customers or the territories' requests, such as meeting energy costs. However, territorial and corporate actions are driven not by public incentives but by public opinion, awareness, and energy costs. Indeed, economic incentives help. Proposed measures should suit both large and small companies. Some effects of the proposed measures are emerging, for example, energy communities.

The example of a cable-mobility company that lately has conducted internal analyses to assess waste and heat recovery possibilities for immediate action is brought to the discussion. Analysis and design of photovoltaic systems on all structures have been initiated, but the maximum estimated coverage of

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[5] https://www.dolomitipaganellafuturelab.it/en/home-en/.

photovoltaic panels is 3-5% of the energy demand. On the other hand, there are margins for installing hydroelectric power plants connected to the snowmaking facilities.

TOPIC 6: Human Capital

Awareness of human capital policies and measures is limited to specific cases, e.g., the energy manager. There is much emphasis on promoting human capital growth and the need for continuous and organic intervention, with a special effort towards cultural change and pervasive training. However, the first recipients of these policies about human capital must be the local communities and only in future the tourists. Participants acknowledged that training might take years to spread; in fact, cultural innovation brings results after ten years. Results are therefore expected in the long term, but continuous action must be taken employing wide-ranging training (from schools, people, and women as an element of change). All this indirectly affects tourists as they become integrated into the host community.

5.2.3   NORRBOTTEN second Local Council

The second consultation of the Local Council in Norrbotten occurred on May 9, 2023. It was conducted online via Zoom because it was difficult to have enough participants to travel far away to reach a shared location (see Figure 25). It involved 12 participants (all sectors but energy, reindeer husbandry and tourism represented), and the NEVERMORE facilitators were 5.
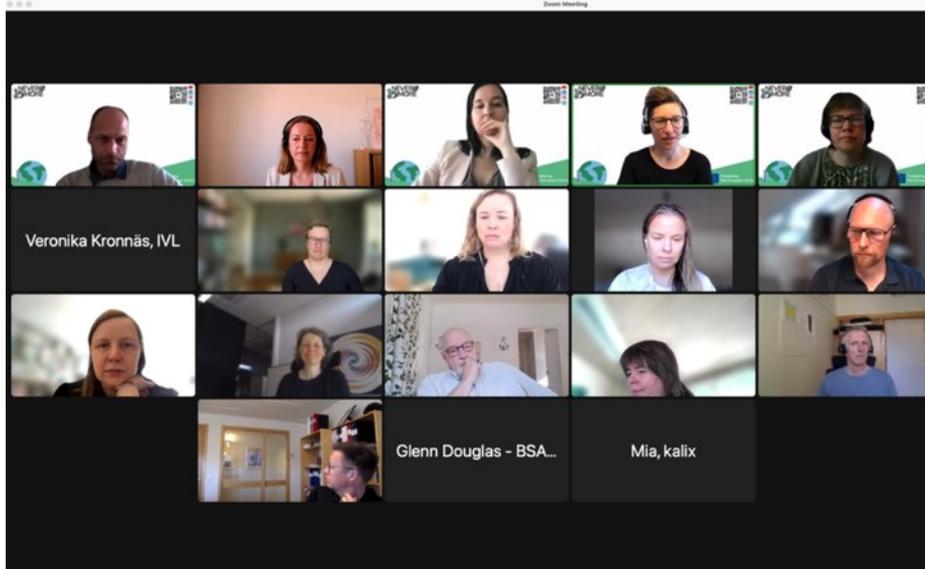

Figure 25. Norrbotten Local Council members participating in the online meeting.

5.2.3.1   Goals of the collaborative activity

The main objectives of the consultation were to i) inform participants that there is no regional policy on climate change adaptation, ii) introduce the topic of trade-offs/synergies between policies or measures, and iii) investigate whether there is a gap between the existing (national) policy and the stakeholders' needs.

The topics discussed were the following:

- Topic #1: Do you think the objective of the national strategy for climate adaptation is enough? Would your organisation benefit from having more detailed regional policies/measures?

- Topic #2: Do you see any synergies or trade-offs between the actions in the county administrative board's plan?

- Topic #3: Do you find gaps between the actions in the County administrative board's policy and your organisation's needs?

5.2.3.2   Approach and methods

The meeting lasted 2 hours and 30 minutes (from 9:00 to 11:30) and was structured in the following way:

- Presentation of new participants;

- Split into smaller breakout rooms where participants introduced themselves to others and tested the rooms. Moderators entered each breakout room to facilitate the discussions and answer any questions regarding the three topics to discuss;

- In plenary, presentation of the plans for climate adaptation by the County Administrative Board and Case Study Leader and Supporter;

- After a recap of the last meetings, split into the breakout rooms for group discussions;

- In plenary, sharing of discussions and a presentation by the Case Study Leader about other case studies and NEVERMORE work packages.

5.2.3.3   Results

Even if it happened online, the second meeting of the Local Council of Norrbotten was highly participated. We report the main findings concerning the three topics discussed.

Topic #1: Do you think the objective of the national strategy for climate adaptation is enough? Would your organisation benefit from having more detailed regional policies/measures?

Participants considered the advantages of broad national climate adaptation policies as they encompass various perspectives. However, they acknowledged the risk of these policies lacking concreteness and effectiveness, emphasising the need to break them down into specific regional measures.

Topic #2: Do you see any synergies or trade-offs between the actions in the plan of the County administrative board?

Participants acknowledge synergies when different fields or sectors collaborate, particularly in municipal planning, where planning for water and sewage infrastructure presents opportunities for synergy. Trade-offs arise when political decisions do not align with climate mitigation measures, such as the need for housing development versus climate adaptation. Trade-offs also exist in developing renewable energy and its impact on local communities.

Topic #3: Do you find gaps between the actions in the County administrative board's policy and your organisation's needs?

Participants agreed it is difficult to answer for an organisation that does not work actively with climate adaptation. First, internal work needs to be done to know their needs. After that, finding the gaps between existing policies and needs would be easier. Participants also acknowledge the lack of policies for including civil society in the debate: the county administrative board and municipalities must include and engage civil society more. Public authorities can be more active and find resources that can help society. Another challenge identified is related to the difficulty in understanding the value of the different policies for each specific stakeholder: even if there were a policy, it would be crucial for stakeholders to find an answer to "what is in it for me". Finally, participants witnessed the lack of cooperation policies and agreed that cooperation is crucial to tackling climate change issues because it makes organisations resilient.

5.2.4   MURCIA second Local Council consultation

The second Local Council consultation in Murcia occurred on May 10, 2023, at Instituto de Fomento (INFO)'s offices. It was a hybrid event, with most of the delegates participating face-to-face. It involved 15 town hall representatives: 11 were present, while 4 could not travel to INFO's offices and were connected online (see Figure 26). The meeting lasted 1 hour and 15 minutes (from 10:30 to 11:45),

and it was focused on how INFO[6] (through the NEVERMORE project) can support municipalities in developing a SECAP.
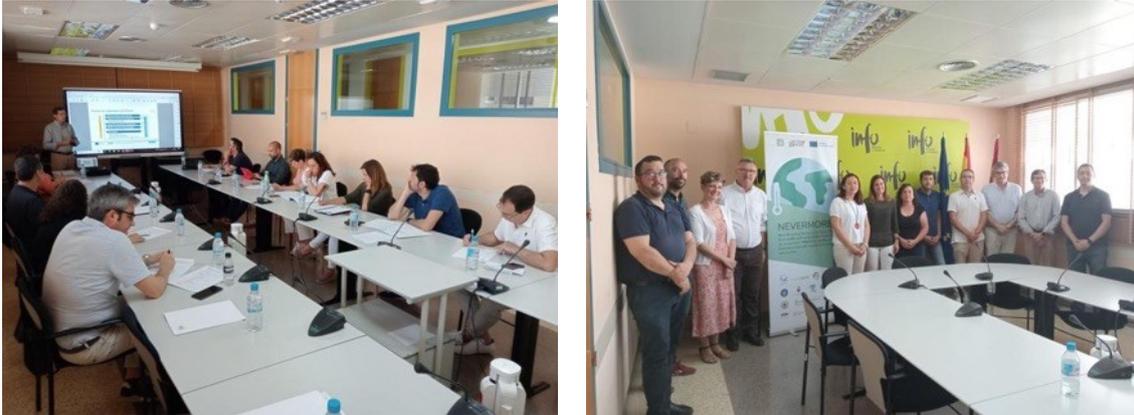

Figure 26. Members of the Murcia Local Council.

5.2.4.1   Goals of the collaborative activity

The consultation's main goal was to co-create a process with local stakeholders for writing a SECAP. It is worth noting that a SECAP refers to a plan created and approved by the city council of each municipality participating in the Covenant of Mayors. By building a shared vision, they have to prepare an emission inventory, assess climate change impacts and define a set of actions to be implemented individually and jointly in the concerned territory[7]. Therefore, the goal was for participants to get used to the SECAP approach and to give them information and tips on actively contributing to developing a SECAP. Drafting a SECAP is a technical work for which not all municipalities might have internal expertise, and this is where INFO, through the NEVERMORE project, can help. However, it was very important for the Local Council members to meet to work together and help each other create the SECAP for their own municipality.

5.2.4.2   Approach and methods

Since it was the first face-to-face event for the Murcia Local Council, the first part of the meeting was dedicated to getting to know each other. Each town hall representative presented and discussed their situation concerning the Covenant of Mayors (where they are, their plans to submit a SECAP, and which timeline they manage). The importance of developing the SECAPs of their municipalities was also discussed. This first phase of engagement, sharing things and being informed about the support that can be provided, was very relevant for the municipalities, especially if they are neighbours or have similar contexts or characteristics, to share many common traits and weaknesses.

5.2.4.3   Results

The Council of Stakeholders of Murcia is very well centred on SECAPs' development as part of the commitment to the Covenant of Mayors' initiative. Thus, the second Local Council consultation also focused on this specific process, with particular emphasis on the importance of Local Council stakeholders actively participating in developing these plans.

The consultation set the ground to co-develop the SECAPs by establishing a team of different municipalities to share doubts, strengths and weaknesses that allow them to progress together. Guidance was provided on the different phases to develop a SECAP (diagnosis phase, participation

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[6] The main objective of INFO is to promote regional economic growth and competitiveness in the Region of Murcia by fostering the economy, increasing investment, removing obstacles, and establishing an environment that favours competitiveness (https://www.institutofomentomurcia.es/web/portal/en).

[7] https://eu-mayors.ec.europa.eu/sites/default/files/2023-06/J-SECAP-ref_guide_final.pdf

phase, planning phase) and to the main objectives that the NEVERMORE project shares with the Covenant of Mayors (mitigation and adaptation to climate change, as well as to fight energy poverty).

The process of elaboration of the SECAPs was detailed and explained to guide the cities, including the following key aspects:

- Creation of a cross-municipalities SECAP team (mentioned before).

- Creation of an emission-tracking inventory, which typically should be already in progress.

- Assessment of risks and vulnerabilities to climate change (in a qualitative way).

- Energy poverty analysis (involving the Social Service department for proper vulnerability analysis).

- A first participatory workshop (that already took place focused on the SWOT analysis and the selection of primary action lines at the local level).

- The SECAP must be approved in a Plenary Council meeting.

- Stakeholder opinions must be considered, including those of various companies and municipal sectors. These include finance, insurance, urban mobility companies, and municipal sectors, such as buildings and street lighting. The involvement of policymakers and the entire governance is paramount; the commitments outlined in the SECAP should be transversal to political colours and extend beyond election cycles to ensure continuity.

- Engaging citizens and identifying and collaborating with relevant stakeholders is also highlighted, and the Design Thinking methodology is recommended. From this point of view, each community and municipality gathered around drafting its own SECAP could be considered like a specific Local Council of NEVERMORE. Murcia Case Study leaders are also facilitating the setting up of those.

Also, stakeholders were reminded that the commitment of the CoM consists of two actions: first, the development and submission of the SECAP, and second, the implementation of the actions reported in it.

5.2.5 TULCEA Second Local Council

The second Local Council consultation in Tulcea occurred on May 23, 2023, and was held at Tulcea County Prefect's Office headquarters. It involved 22 participants, and the NEVERMORE facilitators were 11 in different roles (moderators, notetakers). The meeting lasted 3 hours and 30 minutes (from 10:00 to 12:45). To get an idea of how the space and the activities were organised, see Figure 27.

Figure 27. Tulcea Local Council starting the meeting with an introduction by the Case Study Leader.

5.2.5.1   Goals of the collaborative activities

The main goals of the second consultation were to analyse the gaps between the national and regional strategies on climate change, considering, in particular, the National Climate Change Adaptation Strategy 2030/2050 and the Danube Delta Sustainable Strategy 2030. Furthermore, the consultation was meant to keep the members focused and engaged on the objectives of the Council and familiarise them with the policy design steps.

5.2.5.2   Approach and methods

After a welcome by the prefect's cabinet director, there was a short presentation of the project status and a recall of the previous Local Council consultation results. Then, a recap by TULCEA as Case Study Leader on the vulnerable sectors identified during the last Local Council consultation has been done. Finally, two collaborative activities were carried out:

Activity 1: *Comparative analysis of vulnerable sectors based on strategies in force.*

The Case Study Leader identified two strategies: The national climate change adaptation strategy 2030/2050 and the Danube Delta Sustainable Strategy 2030. Both documents were previously emailed to the Tulcea Climate Change Advisory Board members. The Tulcea team prepared presentations for each vulnerable sector, highlighting what the first consultation revealed and how it is reflected in the two documents. The members intervened with technical insights as they had consulted the two strategies in advance.

Activity 2: *Education, the long-term solution for adaptation to climate change*

Considering the first consultation results and the two strategies, participants were divided into three groups, each with a specific focus: i) Agriculture and forestry, ii) Health, and iii) Tourism and culture). Each group provided a set of fundamental competencies and knowledge for the young generation to become a resilient society. The results were gathered by the facilitators.

The topics discussed during this activity were:

- What fundamental competencies and knowledge would the next generation need to transform our society into climate change-free and zero carbon footprint?

- How can the above topic conclusions be implemented and integrated into the new Climate Change public policy design? Should the local identity be integrated into the methodology?

5.2.5.3   Results

The first activity aimed to engage members of the Council and examine the disparities between national and regional strategies related to climate change. It also aimed to acquaint participants with the steps required by policy design.

The discussions revolved around four sectors and their representation in the two national strategies. A key observation was the disparity between the Danube Delta Sustainable Strategy and the National Strategy for Climate Change Adaptation in terms of the completeness of the approach. While the latter was noted to be more comprehensive and holistic, the former addressed climate change measures only superficially. This insight motivated the members to consider creating an updated version of the Danube Delta Sustainable Strategy or a completely new regional climate change public policy document.

Another important conclusion drawn from the discussions was the cost of dealing reactively with climate change, which was considerably higher than adopting proactive measures. In essence, this activity centred around analysing climate change strategies, underscoring the need for a more comprehensive regional approach and highlighting the essential role of science-based impact assessments in policy implementation.

Three other important considerations emerged from the discussion:

- The cost of a reactive society is always higher than that of a proactive one.

- Accepting trade-offs is crucial.

- Considering scientific impact studies before introducing Climate Change or Zero carbon adaptive measures is fundamental.

Concerning the second activity, considering education as the long-term solution for adaptation to climate change, participants discussed how the conclusions of the first activity might be implemented and integrated into the new Climate Change public policy design. Participants agreed that there is a need for developing competencies and knowledge related to climate change at primary and secondary educational levels. Furthermore, the members recognised the "Green Week"[8] module as an excellent opportunity to introduce the new climate change public policy and incorporate local identity elements into the education system. Understanding local identity, including landscape and cultural traditions, is crucial for the next generation to balance sustainability and cost-effectiveness.

5.2.6 Methodological Considerations regarding the Second Consultation with the Local Councils

As for the first consultation, Case Study Leaders and Supporters were also asked to evaluate the second round of consultations and provide insights to improve them, answering the four questions. We report the main methodological considerations provided by Case Study Leaders and Supporters in the following.

Question 1. Was the consultation useful in raising the interest of stakeholders toward the NEVERMORE project? Were the stakeholders' expectations met? What can be improved?

Overall, CS Leaders evaluated the interest of stakeholders toward the second consultation positively; they generally agreed that participants' expectations were met, and they were interested in the topics discussed. Concerning the data collection on policies and measures, CS leaders stated that interesting information had been collected.

In Murcia, the consultation was successful because municipalities had a chance to understand the process of SECAPs writing and, more importantly, had the opportunity to discuss possible challenges together. This is crucial for Murcia's CS leader to address the NEVERMORE objectives in the following consultations.

Some challenges emerged in identifying relevant policies to be discussed with Local Councils and making the meetings and participation easy and, at the same time, informative for stakeholders. Norrbotten, for instance, chose to let the county administrative board give a presentation on their policy rather than expecting the participants to read it before the meeting. The discussion on policies in small groups was also considered efficient. Trentino CS leader, for instance, considered having small groups of heterogeneous stakeholders very effective: "Having a good mix of experts and external professionals on the table was successful." However, concerning stakeholders' engagement, they noticed that expectations in their Local Council are changing, and stakeholders ask for more concrete and data-centred approaches.

Question 2. Was the consultation effective in collecting data useful to understand your territory's challenges better? If not, or not entirely, how could the data collection be improved?

Sitia evaluated the different activities, such as questionnaires, interactive maps, and mini-posters, as highly effective in facilitating data collection. Questionnaires allowed stakeholders to immerse themselves in policy-related matters while enabling the Case Study Leader and Supporter to gather

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their initial dataset systematically. The interactive maps and mini-posters significantly enhanced stakeholders' ability to visualise connections and efficiently tackle their tasks.

In Norbotten's experience, it was particularly beneficial to revisit the challenges identified during the first consultation since identifying suitable discussion topics was initially a hurdle, as most participants preferred to delve into best practices and tangible measures rather than policy discussions.

In Trentino, the consultation process yielded valuable insights and perspectives on the six main discussion areas. The proposed activities also proved useful in uncovering new local measures and initiatives, which could inform an updated policy mapping. Nonetheless, a more data-focused approach is needed to keep participants' engagement high.

Question 3. Did any misunderstandings/tensions/conflicts occur during the consultation? If yes, what were the motivations behind the tensions? How were they handled?

No major conflict emerged during consultations. The CS leaders agreed that stakeholders found it interesting to learn more about the existence and effectiveness of policies in different sectors and the differences between policies within the same sector. In this way, they started thinking of ways to collaborate to find possible synergies.

As for the first consultation, in Trentino, some difficulties emerged in one group as two stakeholders, one representative from a civil society group with degrowth affirmations and the other from a local company concerning technological innovation, had opposite views on development strategies. These tensions slowed the dialogue but did not finally counteract the group discussion.

The Tulcea case study raised a challenge about participant engagement during group discussions. They noted that some enthusiastic members tended to dominate the conversations. To address this, they are considering organising separate sessions for each vulnerable sector to ensure that all members have the opportunity to contribute and share their knowledge effectively.

Question 4. Are there any topics/issues you wished to emerge from this consultation that did not emerge/remained unsolved?

CS leaders found that most of the topics have been covered. Some suggestions, however, were made. Norrbotten suggested introducing the topic of best practices; this seemed very interesting to participants. In particular, it was recommended to let some participants present how they work with adaptation/mitigation and have presentations from some experts or organisations outside the project. Trentino and Tulcea also had some suggestions related to topics to be discussed, such as the PESTLE analysis, which could provide the opportunity to delve more into the quantitative analysis of the impacts and risks of policies, focusing on data.

5.3 Preview of the third consultation on climate change hazards and social vulnerabilities

The third consultation with the Local Councils aims to provide input for Task 6.2 about "Multi-sectoral Risk Analysis in Each Case Study", led by RINA-C. The table below summarises dates, goals, preparatory activities, and suggested methodology for the third Local Councils' consultation shared with all five case studies.

Since the consultation is ongoing while writing this deliverable, i.e., workshops are still happening, and data are still being collected, we report here only the preparatory activities for this consultation. We postpone the detailed account of the different adaptations of the methodology in each Case Study and the results in the next deliverable of Task 2.4, D2.5, "Report on the activities with NEVERMORE stakeholders v2", due at M36.

Table 6. Summary of the preparatory activities for the third consultation with LCs.

	Third Consultation on Climate Change Hazards and Social Vulnerabilities (M17)
DATES	CS1. SITIA: February 2024. CS2. PAT: 7 November 2023. CS3. EKNorr: 23 November 2023. CS4. INFO MURCIA: 14 December 2023. CS5. TULCEA: 28 November 2023.
GOALS	Collect input and **inform RINA-C** (as the technical partner leading Task 6.2), i.e., identify, in each case study, the most relevant assets vulnerable to natural hazards.
PREPARATORY ACTIVITIES	RINA-C has presented their framework and methodology to analyse natural hazards/extreme events risks of a geographical area based on assets' vulnerability. ZSI has presented the concept of social vulnerability to climate change. NCSRD has provided clear definitions of natural hazards. The Task 2.4 coordination team has chaired all the meetings and presentations and committed to finding a reasonable, logical path and activities for both the Case Study Leaders and Local Councils. To prepare for the consultation with LCs, Case Study Leaders first analysed their territories. They filled out an Excel file provided by RINA-C where they were asked to list the most vulnerable assets to the natural hazards that affect their area.
SUGGESTED METHODOLOGY	1. Introduction to provide LC members with a short explanation of how risk analysis works (based on RINA-C's presentations); definitions of the technical terms used in this consultation, i.e., 'hazard', 'exposition', 'vulnerability', 'risk'; an explanation about what social vulnerability to climate change can entail and how it can be characterised according to ZSI's presentation. 2. As for the discussion during the LC consultations, it was suggested to organise discussion tables around the main natural hazards affecting the zone that had been identified and arrange groups of stakeholders in those tables according to their competencies or vulnerabilities with respect to that hazard. To this end, it is suggested to collect available maps visualising the impact of vulnerabilities and risks on the territories. For each threat, the discussion should aim to identify the vulnerable socio-economic, natural, and physical elements. Then, participants could be asked what indicators or data could measure the damage the hazard at hand provokes to each vulnerable element. In this way, we aim to identify, through the local knowledge of participants in the LC, possible indicators or data sets to be passed to RINA-C to inform the model behind the case study tool. 3. Assigning priorities to the territory's most vulnerable/precious elements. The final activity could be a voting session where participants would mark the most vulnerable and the precious elements on their territory, according to their opinions.
RESULTS FEED IN	D6.2 "Risk assessment and risk maps of the case studies"

6 Lessons Learnt about the Methodological Approach adopted

In this section, we report the main problems and difficulties the Task 2.4 coordinator experienced during the first year and a half of the NEVERMORE project. From each of these, we learned lessons that will be considered for improving the stakeholders' participation. Nevertheless, it should be highlighted that the Task 2.4 coordinator is delighted with how stakeholders' participation has been managed and integrated into the project so far.

NEVERMORE topics are complex, and the project's goals have remained unclear to some participants for the first LCs meetings. The task 2.4 coordination team and Case Study Leaders have made a

significant effort to translate the project's goals and how its output will impact the effectiveness of mitigation and adaptation strategies. As for the complexity and technicality of the topics addressed in each consultation, something more could be done. So far, LC stakeholders have presented the topics on the consultation day. Taking inspiration from Tulcea's Case Study leader during the second consultation, we could anticipate topics for LC members to join the consultation prepared and eventually allow them to gather data, collect insights from colleagues or discuss internally with the organisation before sharing it at the meeting. To this end, we need technical partners to agree to start the consultations on their tasks well in advance.

LC members wish to have an impact and discuss topics and solutions with a practical outcome. As it emerged from the Trentino and the Tulcea LCs, high-level discussions are perceived as superficial and not appreciated. Each LC meeting should then revolve around very focused topics and activities. Furthermore, how the results of the activities conducted by the Local Councils will inform and impact the work done by technical partners and, eventually, the outputs of the entire project should be transparent. This is something that the Task 2.4 coordination team have been trying to do but should receive attention from the whole project consortium.

Research and EU projects have a different, much more dilated timing than civil society and business activities. Thus, keeping Local Council members' interest and engagement high is challenging. Strategies must be implemented to show participants how their input feeds into the project and is highly valued. Furthermore, invitations can be made to experiment with solutions autonomously locally.

Having visual support tools such as maps or structured posters is of great help to stimulate and, at the same time, ground the conversation. The Task 2.4 coordination team encourages Case Study Leaders to produce this kind of support material for every consultation. Nevertheless, tools to collect data should be carefully chosen, considering the number of facilitators and the workload to analyse and report the data after the consultation. Although easy and flexible, pen-and-paper methods are very demanding from a reporting point of view.

Stakeholders see Local Councils as learning, and especially peer-to-peer learning, occasions. Other formats for Local Council meetings could be envisioned. For example, sharing best practices or showing how they work with adaptation/mitigation. Similarly, presentations from experts outside the project are often valued.

As the Task 2.4 coordination team, we observed significant variability in how Case Study Leaders have reported consultations in the reporting template. Furthermore, some questions were not clearly phrased since we did not get the intended information. The template will thus be revised, and more precise instructions on filling it out will be provided.

6.1.1 Stakeholders' participation and KPIs met

In this last subsection, we report the number of participants reached so far in each Local Council. According to the NEVERMORE Grant Agreement, 15 workshops (3 per Case Study) should be organised along the project duration, and each workshop should have between 15 and 30 participants.

As for the first KPI, i.e., number of workshops organised, at M18, we have run 12 workshops (2 per Case Study), while three are in preparation for the third consultation with the Local Councils due at M17. This means that 66% of the KPI is met. As for the latter KPI, i.e., the number of participants in each workshop should be between 15 and 30. Currently, the KPI is mostly met: on average, we have 18 participants per Local Council. The first consultation was participated in by 82, and the second involved 67 participants across the 5 case studies.

6.1.1.1   CS1 – Sitia Municipality, Crete Island – Greece

Table 7. Participation in CS1 - Sitia's Local Council of Stakeholders.

	Project presentation	First consultation (22 February 2023)	Second consultation (7 June 2023)
Activists		-	1
Civil Society		4	1
Media		3	1
Natural parks		1	1
Private sector		1	1
Policymakers		6	5
Researchers		-	1
Total		**15**	**11**

6.1.1.2   CS2 - Trentino Region – Italy

Table 8. Participation in CS2 - Trentino's Local Council of Stakeholders.

	Project presentation (27 October 2022)	First consultation (2 March 2023)	Second consultation (23 May 2023)
Activists	-	-	1
Civil Society	2	2	1
Media	1	1	1
Natural parks	1	2	1
Private sector	11	9	10
Policymakers	3	5	6
Researchers	3	4	-
Total	**21**	**23**	**20**

6.1.1.3   CS3 - Norrbotten County – Sweden

Table 9. Participation in CS3 - Norrbotten's Local Council of Stakeholders.

	Project presentation	First consultation (22 February 2023)	Second consultation (9 May 2023)
Activists		1	1
Civil Society		2	2
Media		-	-
Natural parks		-	-
Private sector		4	3
Policymakers		5	3
Researchers		2	1
Total		**14**	**12**

6.1.1.4   CS4 - Murcia Region – Spain

Table 10. Participation in CS4 - Murcia's Local Council of Stakeholders.

	Project presentation (16 February 2023)	First consultation	Second consultation (10 May 2023)
Activists	-		-
Civil Society	-		-
Media	-		-
Natural parks	-		-
Private sector	-		-
Policymakers	13		13
Researchers	-		-
Total	**13**		**13**

6.1.1.5   CS5 - Danube Delta – Romania

Table 11. Participation in CS5 - Tulcea Local Council of Stakeholders.

	Project presentation (several dates)	First consultation (2 March 2023)	Second consultation (23 May 2023)
Activists	-	-	-
Civil Society	-	-	-
Media	-	-	-
Natural parks	2	2	1
Private sector	2	2	-
Policymakers	11	11	8
Researchers	2	2	2
Total	**17**	**17**	**11**

7   Conclusions and future work

In this deliverable, we described the activities of Task 2.4., which coordinates the co-creation with stakeholders, deploys the engagement strategy, implements the associated plan defined in Task 2.3, and coordinates the different activities with the Local Councils. We described the approach, methodologies, and consultations with Case Study Leaders and the Local Councils. By involving various stakeholders and exploiting innovative participatory approaches, the objective was to ensure that the models, actions, and digital solutions implemented in NEVERMORE are inclusive, effective, and aligned with climate neutrality and resilience goals.

Local Councils have proved to be an effective means for the Case Study Leaders and the NEVERMORE project overall to gain knowledge. By hosting local and heterogeneous perspectives on the various impacts of climate change, Local Councils provided unexpected insights based on the stakeholders' local knowledge and lived experience of climate change.

To reach the challenging goals of Task 2.4, consultations with Local Councils on multiple levels were organised. First, a coherent storyline has been created to link each consultation to the other and create an increasing knowledge path. Secondly, the most appropriate methods for each consultation have

been identified considering the consultation topic, the type of information needed and the characteristics of each Case Study. Third, significant effort has been put into empowering Case Study Leaders as Local Council managers and, thus, the focal point of contact between the project and the territories.

The most significant result of Task 2.4 has been creating a dialogue and a triangulation between the NEVERMORE technical partners, the Case Study Leaders, and the Stakeholders of the Local Councils. The developed methodology requires that first, technical partners present their instances to the Case Study Leaders who can provide them with data and need to be familiarised with the different technical topics. Only afterwards, the Case Study Leaders will present the topic and organise a consultation with the Local Council of Stakeholders.

During the first year and a half of the NEVERMORE project, the Case Study Leaders have progressively developed a sense of ownership towards the methodology and the coordination of their LCs. The stakeholder engagement has been successful. The number of participants has settled at around 15 on average for each Local Council, which we deem optimal for facilitating the group and giving space and value to the different points of view.

The next consultation planned in the project GANTT will be about Task 6.3 "Impact assessment considering social, economic, and environmental aspects" at M24 (i.e., May 2024) and again led by RINA-C. No consultation is planned for the 3rd year of the project (i.e., from June 2024 to May 2025), whereas five consultations are scheduled for the last year of the project. Namely, the consultations of the last year of the project will be at M37 (i.e., June 2025) and will be about:

- Task 5.5, "Methodology to model adaptation and mitigation policies at different scales", led by IVL.
- Task 6.6, "Evaluation of adaptation and mitigation policies and measures", led by CMCC.
- Task 7.5, "Continuous integration, testing, and validation", led by SIMAVI.

Then, at M43 (i.e., December 2025), we will have a consultation about:

- Task 7.5, "Continuous integration, testing, and validation", led by SIMAVI
- Task 8.5, "Train-the-trainer guidelines including activities for gamification and educational purposes", led by CMCC.

To contain the risk of losing stakeholders' engagement and a decrease in their participation in the Local Councils, we constantly monitor the number of actual participants in each Local Council and their satisfaction through the perception of the Case Study Leaders. Should this risk materialise, we will discuss it with the Case Study Leaders and Supporters to identify the causes of this disengagement and offer appropriate responses. In any case, LCs are flexible and ongoing entities that allow for new participants to be recruited at any moment. Furthermore, the monitoring activity conducted and the constant collection of feedback about the methodology developed (see Sections 5.1.6 and 5.2.6) will be the basis for improving the consultations with Case Study Leaders and Local Councils.

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9   Annexes

9.1   Annex 1. Toolkit for Case Study Leaders and Supporters

Some snapshot of the Toolkit that comprised several sections such as: i) steps for policy co-design, ii) co-design methods, iii) methods to collaboratively define the problem to be addressed, iv) examples on how to structure and manage a collaborative activity with heterogeneous stakeholders, v) example of agenda to structure the whole Local Council consultation considering the different phases of the meeting (welcome, introduction, activity, etc.), vi) examples on how to practically organise group discussion to collect insights from stakeholders.

PROBLEM SETTING: how?

A collaborative discussion (workshop/brainstorming) can be fostered among the stakeholders to collect different perspectives and viewpoints on the problem to address. In particular, the discussion with stakeholders during the first consultation might contribute to **refining and enriching the activity developed during the Case study leaders' first consultation** (November 2022).

1 Discussion in small groups

Participants split in small groups (teams) and sit at the different tables. Teams will work simultaneously:

1. A question is presented in plenary and each participant answers individually through a poll app (e.g., Mentimeter, Slido, Kahoot)
2. Poll results are shown on the general screen
3. Then, poll results are discussed at each table among the participants sitting there.
4. After 20/30 min, the table discussion results are transcribed on 3 post-its and shared with the whole room (in plenary)

This formula is repeated for 3-5 sessions (as many as questions are). Each session lasts approximately 20 /30 minutes.

1 Agenda

	TIMING	ACTIVITY
WELCOME	15 min	Welcome Participants sign the Consent Form
INTRODUCTION	10 min	Welcome by the organizers and short summary of project goals; the purpose of stakeholders involvement and participatory activities: why they are crucial for the Case Study Leader, the territory, and the NEVERMORE project.
	5 min	Opening by an institutional representative
	20 min	Presentation of an expert on a topic related to climate change in general or related to the territory
	20-30 min	Ice-breaking activity and participants' introduction
BREAK	10 – 15 min	Break
TEAM WORK	5 min	Explanation of the activities and the methodology used.
	1:20 h – 1:30 h	Division into 3-4 groups (based on the number of participants) 3-5 questions will be presented to participants - * 20 / 30 min to dedicate to each question
BREAK	10 – 15 min	Break
CLOSING	20 min	Plenary restitution of the discussion results of each table
	10 min	Conclusions, next steps and thanks

9.2   Annex 2. Workshop/consultation planning checklist

This checklist might be used and adapted to set up consultations with stakeholders. It is important to prepare for the workshop in advance, e.g., two months or more before the workshop/consultation.

Workshop/consultation planning checklist

This checklist might be used and adapted to set-up consultations with stakeholders

Two months or more before the workshop/consultation It is important to start preparing for the workshop in advance

Checklist of activities:

Before the event	
❏	Set the goals and objectives of the workshop
❏	Decide when you will organize the workshop (first, you can ask the most relevant and certain participants when they would be available)
❏	Decide the venue
❏	Invite local expert(s)
❏	Invite representative of local policy / local authority for institutional greetings
❏	Book the catering if needed
❏	Identify and invite participants
❏	Define roles: • Who will moderate the discussion? (consider 1 facilitator every 4 participants) • Who will manage the logistics? • Who will take notes? • Who will take pictures?
❏	Draft the agenda and crosscheck it with your objective
Close to the event	
❏	Send out confirmation emails/letters to participants with a complete agenda and the details with the venue, times, dates,..
❏	Start collecting materials for the workshop e.g. post-its, pens, handouts, flip charts, etc.
❏	Check room equipment: projector, tables, chairs, flipchart,...

☐	Prepare the presentations / PowerPoints
☐	Print all the materials you will need for the workshop
☐	Prepare consent forms to be signed by participants
☐	Test technologies you will use (Mentimeter, etc.)
☐	...
During the event	
☐	Take pictures
☐	...
☐	...
☐	...
Just after the event	
☐	Fill in the report about the workshop results

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