



STAKEHOLDER ENGAGEMENT PLAN AND EVENTS REPORT V2

ClimEmpower Work Package 5, D5.7, v2



Project ClimEmpower: User Driven Climate Applications Empowering Regional Resilience

Work package 5, Deliverable D5.7

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Table of Contents

<i>Table of Contents</i>	<i>iv</i>
<i>List of Figures</i>	<i>v</i>
<i>List of Tables</i>	<i>v</i>
<i>List of Acronyms</i>	<i>vi</i>
<i>Glossary</i>	<i>vii</i>
<i>Executive summary (publishable)</i>	<i>8</i>
1. ClimEmpower summary	9
1.1 Project Context	9
1.2 Project Objectives	11
2 Introduction	12
2.1 Deliverable summary	12
2.2 Relation to other work packages	13
2.3 Data, security, and ethics	14
2.3.1 Data interoperability.....	14
2.3.2 Data accessibility and reuse	14
2.3.3 Security and Ethics.....	15
3 ClimEmpower Regions	16
3.1 ClimEmpower regions and background	16
3.1.1 Andalusia, Spain.....	16
3.1.2 Osijek-Baranja County, Croatia	18
3.1.3 Region of Central Greece, Greece.....	20
3.1.4 Sicily, Italy	22
3.1.5 Troodos Mountain Range, Cyprus	23
3.2 Follower regions	27
4 Stakeholder engagement plan and progress	29
4.1 Objectives of Stakeholder Engagement	30
4.2 Stakeholders’ engagement strategies and methods	32
4.3 CoP Workshops	32
4.4 Roles and responsibilities	33
4.5 Creating CoPs and initial CoP meetings (before m9)	34
4.6 Activities performed between m10 and m18	35
4.6.1 2nd CoP meeting – Andalusia, Spain.....	36
4.6.2 2nd CoP meeting - Osijek-Baranja County, Croatia	39
4.6.3 2nd CoP meeting – Region of Central Greece	41
4.6.4 2nd CoP meeting – Sicily, Italy.....	43
4.6.5 2nd CoP meeting – Troodos, Cyprus	45
4.6.6 Overall Summary of the 2nd CoP Meetings Across ClimEmpower Regions	48
4.6.7 Key Takeaways and Recommendations	49
4.7 Planned activities m19-m36	50

5	<i>Risk management</i>	53
6	<i>Conclusion</i>	55
	<i>References</i>	56

List of Figures

Figure 1. ClimEmpower at a glance: why, what, where, how and who.	9
Figure 2. left: aggregated potential impact of climate change (https://www.espon.eu/climate-2012); right: GDP/capita (based on https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210303-1)	10
Figure 3. CoP's structure and relationship to different WPs	36

List of Tables

Table 1. Data used in preparation of ClimEmpower deliverable D5.7	14
Table 2. Identified relevant stakeholders in Andalusia	16
Table 3. Identified relevant stakeholders in Osijek-Baranja County	18
Table 4. Identified relevant stakeholders in Region of Central Greece	20
Table 5. Identified relevant stakeholders in Sicily	22
Table 6. Identified relevant stakeholders in Troodos	23
Table 7. ClimEmpower regions and their follower regions (Status 02/2025)	27
Table 8. Steps to achieve objectives.	30
Table 9. CoP Workshops – topics and relation to work performed in different WPs	33
Table 10. Roles and responsibilities of CE case study	33
Table 11. Planned workshops M19-M36	50
Table 12. Risk overview and mitigation strategies	53

List of Acronyms

AIT	Austrian Institute of Technology GMBH
ANET	Anaptixiaki eteria kinotiton periochis troodoys ltd
AMAYA	Agencia de Medio Ambiente y Agua de Andalucía (Water and environment public agency in Andalusia)
AQUA	AQUATEC – Proyectos para la gestión del agua
BINGO	Bringing INnovation to onGOing water management (H2020 program, Grant agreement ID: 641739, 2015-2019; https://cordis.europa.eu/project/id/641739)
CC	Climate Change
CERTH	Ethniko kentro erevnas kai technologikis anaptyxis
CET	CETAQUA - Fundación Centro Andaluz de Investigaciones del Agua, Fundación Privada
CoP	Community of Practice
CSF	Case Study Facilitator
DRIVER+	DRIVER+project - DRiving INnoVation in crisis management for European Resilience, 2014-2020 (FR7 programme, Grant agreement ID: 607798, 2014-2020; https://www.driver-project.eu/driver-project/)
ESPRESSO	ESPRESSO project - Enhancing Synergies for disaster PREvention in the EurOpean Union (H2020 program, Grant agreement ID: 700342, 2016-2018; https://cordis.europa.eu/project/id/70034)
FER	Sveuciliste u Zagrebu Fakultet Elektrotehnike i Racunarstva
FRC	Frederick Research Center
ICARIA	ICARIA - Improving ClimAte Resilience of crltical Assets (HORIZON-MISS-2021 program, Grant agreement ID: 101093806, 2023-2025; https://cordis.europa.eu/project/id/101093806)
IPCC	Intergovernmental Panel on Climate Change
KPI	Key Performance Indicator
OBZ	Osiiek-Baranja County (Osjecko Baranjska Zupanija)
OBZ-AZP	Public Institution Agency for the Management of Protected Natural Values in the Area of Osjensko-Baranja County (Javna Ustanova Agencija Za Upravljanje Zasticenim Prirodnim Vrijednostima na Podrucju Osjensko-Baranjske Zupanije)
PLINIVS	PLINIVS - Center for Volcanic, Seismic and Hydrogeological Engineering
PSTE	Periferia Stereas Elladas
RA s	Regional Authorities

REDIAM	Red de Información Ambiental de Andalucía (Environmental Information Network of Andalusia)
SICILY	Sicily Region
SMART	Specific, Measurable, Achievable, Reasonable and Time-bound
SSH	Social Sciences and Humanities
TGM	Trial Guidance Methodology
TSCC	Technical and cross cutting partner
WCDS	Western Costa del Sol
WP	Work Package

Glossary

Climate impacts	The consequences of realized risks on natural and human systems, where risks result from the interactions of climate-related hazards (including extreme weather and climate events), exposure, and vulnerability. Impacts generally refer to effects on lives; livelihoods; health and well-being; ecosystems and species; economic, social and cultural assets; services (including ecosystem services); and infrastructure (based on IPCC, 2018)
Community of Practice	Group of people who share a common interest or concern for a specific activity, practice or topic who engage in a process of collective learning within a shared domain by supporting each other and exchanging information through collaborative activities
Case Study Facilitator	Designated entities in each Case Study that are responsible for maintaining oversight and keeping the WP (Work Package) leaders informed about the progress and development of the CoP (Community of Practice). These entities play a vital role in establishing synergies with other Work Packages and ensure the project activities at local level meet end-users needs.
Quadruple helix model of innovation	Collaborative approach in research and development that involves four key sectors of society: industry, government (public sector), academia and civil society to involve a greater public in innovation processes
Stakeholder	A stakeholder is an individual or group with a vested interest in the progress, implementation, or outcomes of a project or process, either due to their direct involvement, potential impact, or strategic alignment with its objectives.

Executive summary (publishable)

This second iteration of Stakeholders engagement plan and events report is based on the first iteration and evaluates progress made in the first half of the ClimEmpower project and from the last version of Stakeholder engagement plan end events report v1 (28.5.2024.), identifies areas for improvement, and refines strategies for stronger stakeholder involvement in the upcoming months.

All stakeholder management strategies, objectives, and methodologies outlined in the initial iteration remain valid and continue to guide the engagement process. While this version does not explicitly restate all elements of the first plan, it relies on the structured approach previously defined, ensuring continuity and consistency in stakeholder interactions.

Over the first 18 months, significant steps were taken to engage key stakeholders, including regional authorities, policymakers, researchers, industry representatives, and local communities. The formation and operation of Communities of Practice (CoPs) in each case study region—Troodos, Osijek-Baranja, Central Greece, Sicily, and Andalusia—have created important platforms for collaboration and knowledge-sharing. CoPs are the bridge between scientific research and practical implementation – their involvement ensures that project outcomes align with specific needs and challenges for each region.

Stakeholder engagement activities have included CoP meetings, regional workshops, and participation in climate-related events. Collaboration with regional authorities has ensured that ClimEmpower's activities align with regional needs. Early exchanges with follower regions have started, supporting the replication of project solutions beyond the case study areas.

A key focus of this updated plan is to broaden and deepen engagement to ensure that stakeholder interactions result in solutions tailored to their needs. Greater involvement of industry stakeholders, policy makers and non-traditional climate actors will be prioritized to bridge the gap between scientific research and practical implementation. In addition, the second iteration aims to improve digital engagement, stakeholder-driven policy input and cross-regional knowledge exchange to ensure that ClimEmpower results remain practical, scalable and applicable beyond the project lifetime.

1. ClimEmpower summary

ClimEmpower is a Horizon Europe collaborative research project dedicated to addressing the ongoing Climate Crisis in Europe by empowering the regional stakeholders in some of the most vulnerable European regions (Figure 1).

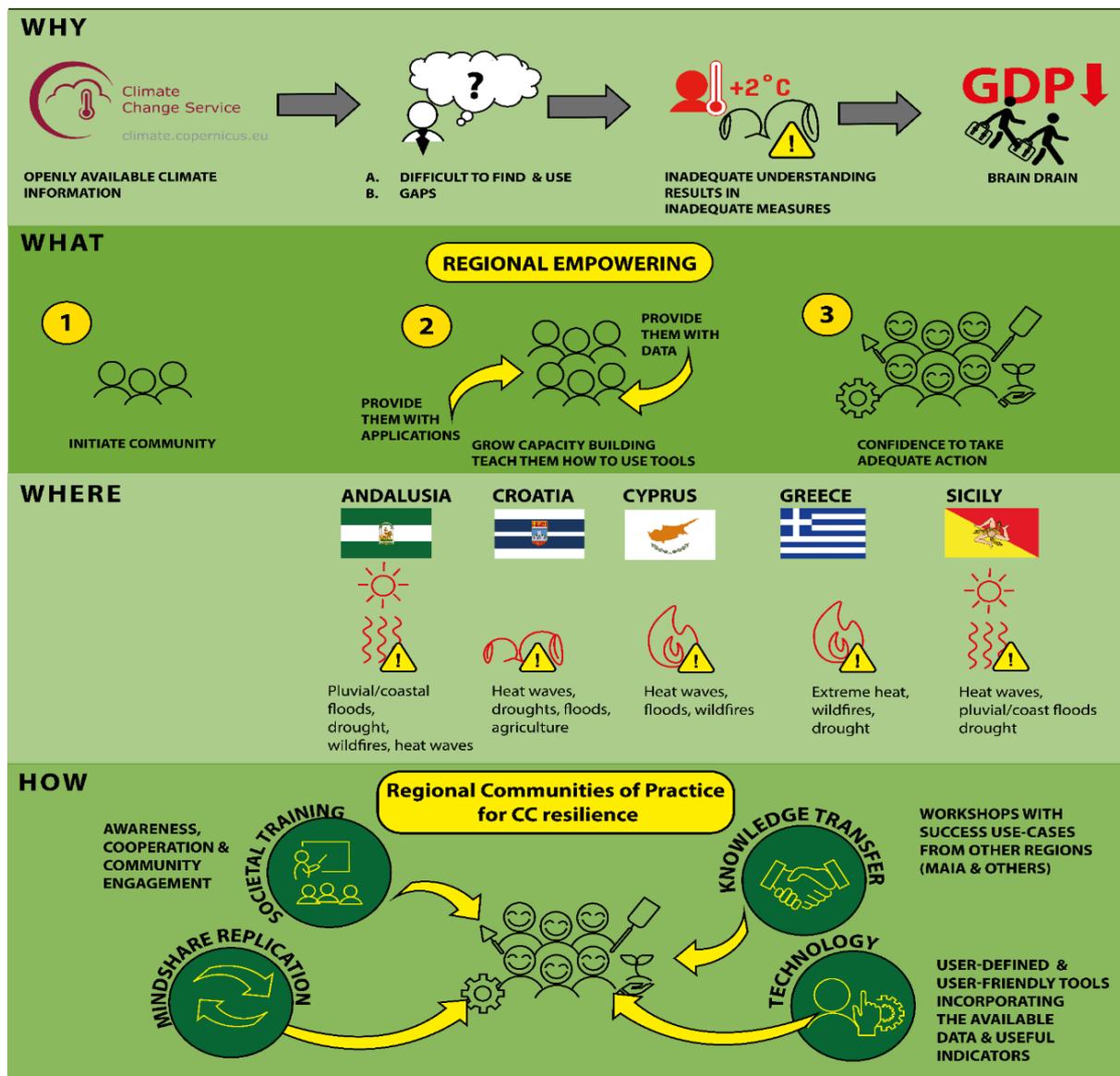


Figure 1. ClimEmpower at a glance: why, what, where, how and who.

1.1 Project Context

Climate risks results from a combination of a hazard, exposure, and vulnerability (REF). Addressing all three aspects is crucial for effective increase of regional resilience. However, exposure, vulnerability, and related aspects, such as adaptive capacity, strongly depend on

available knowledge and climate literacy. Consequently, global climate crisis frequently has a higher impact on socioeconomically vulnerable regions, thanks to a higher human and economic potential for addressing the issue in more affluent regions. To maximize its impact, ClimEmpower has therefore chosen to address the EU regions featuring a combination of high potential CC impacts and low and/or stagnant regional GDP/capita. This is mainly the case for regions in South and Southeast Europe (Figure 2).

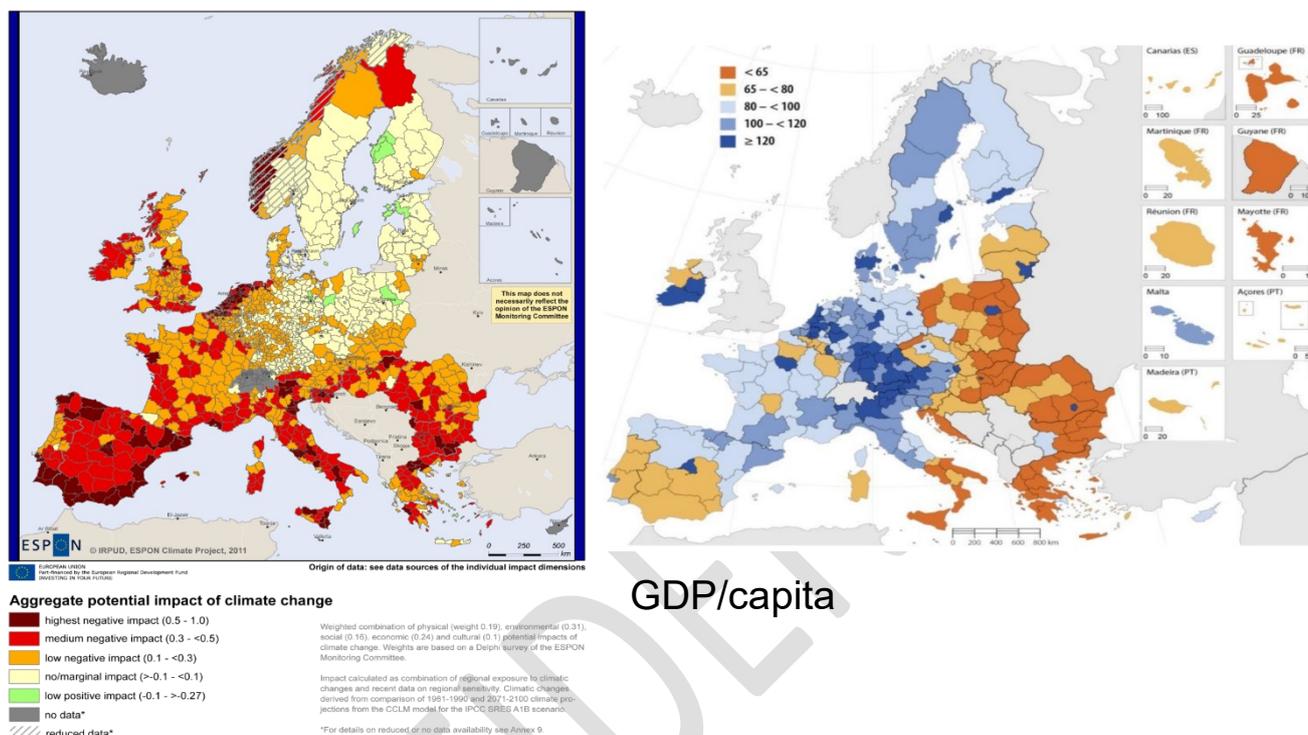


Figure 2. left: aggregated potential impact of climate change (<https://www.espon.eu/climate-2012>); right: GDP/capita (based on <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210303-1>)

The context the project addresses is thus one of an ongoing global warming, high regional vulnerability, and low coping capacity of the participating regions.

The overarching strategic objective of ClimEmpower is to empower the Regional Authorities (RAs) and other Mission Users (MUs) in five EU-regions featuring a combination of exceptionally high climate hazards and exceptionally low coping capacity. This will be achieved by improving their collective understanding of the Climate Change (CC) hazards, risks and resilient development pathways and supporting their knowledge-based regional planning and development through provision of relevant data, knowledge, and user-defined and user-friendly decision support applications.

1.2 Project Objectives

To achieve this overarching goal, ClimEmpower has identified six SMART¹ Strategic Objectives (SO), each one related to one or several work packages. The SOs have also been classified according to different categories: societal, contributing to improved dialogue, awareness, cooperation and community engagement as highlighted by the European Climate Pact (SO1, SO5); scientific, corresponding to research activities for advances beyond the state of the art (SO2, SO3); technological, suggesting and/or developing novel solutions, integrating state-of-the art and digital advances (SO4); and outreach, aimed at sharing ClimEmpower results to a broader scientific and non-scientific audience, including additional regions and communities, to maximize project impact (SO6).

- SO1 Understand regional background, challenges and expectation (WP1, societal)
- SO2 Addressing the gaps in availability and usability of CC data and services (WP2 and WP4, scientific)
- SO3 Identification, definition, estimating, and communication of climate impact/resilience indicators suitable for local end-users (WP2 and WP4, scientific)
- SO4 Simplify access to CC data and development of end user applications (WP3, technological)
- SO5 Empower the regions to activate and enhance their potential for addressing the climate change challenge. (WP4, societal)
- SO6 Ensure the use and impact of the ClimEmpower outputs (WP4 and WP5, scientific and societal)

ClimEmpower's key ambition is to **prove beyond doubt that CC-resilience should, and can, be an integral part of regional development everywhere in EU and beyond it**. That is, we anticipate that the regional stakeholders will recognise that CC-resilient development pathways offer multiple benefits to them, including but not limited to higher quality of life and reviving economy, and that these can be understood using available data, tools, and services. Second key ambition of the project is to **help the regions address the CC resilience in key community systems addressed in five ClimEmpower trials**.

Underlying philosophy of the project is to “**help the regions to help themselves**”. This will be achieved through various mechanisms, including co-creation and mediation of the regional “**Communities of Practice**”, provision of the **Climate Change -resilience training materials**, as well as in provision and training in use of the user-centric data and services – including those that have already been made available through previous research projects and EU initiatives.

¹ Specific (related to WPs), Measurable (by relevant KPIs), Achievable (the WPs in which they will be achieved are listed), Realistic (since they are referred and explained in the methodology section), and Timebound (each KPI is related to a deliverable and a month of achievement).

2 Introduction

2.1 Deliverable summary

This deliverable is a part of WP5 Enhancing the Outreach and Impact and outlines the strategy and activities for engaging relevant stakeholders in the project. It focuses on leveraging input from Communities of Practice (CoPs) to set up and refine project tools while empowering stakeholders to actively participate in climate resilience efforts and execute project-related activities. These activities are structured as an “onion”, with core activities addressing CoP’s in ClimEmpower’s case study regions, followed by activities also addressing the follower regions and other stakeholders in case study regions, and the activities addressing the audience beyond ClimEmpower trial and follower regions.

As version 1, this document is also **primarily connected to Strategic objective SO6: Ensure the use and impact of the ClimEmpower outputs**. Stakeholder involvement helps ensure that ClimEmpower’s project outputs are relevant and useful to the regions, and it contributes to wider project acceptance and impact. Engaging stakeholders gives insights into the specific needs, preferences, and priorities of trial (see chapter 5) and follower regions (see 3.2).

In the context of the ClimEmpower project, a trial refers to a structured process of testing, validating, and refining climate resilience strategies, data services, and adaptation tools within real-world settings. These trials will be conducted in the project's case study regions—Andalusia, Osijek-Baranja, Central Greece, Sicily, and Troodos—to assess the applicability, usability, and effectiveness of proposed climate solutions. The trials engage regional stakeholders, including policymakers, researchers, industry representatives and local communities, to ensure that solutions are tailored to their needs, scientifically robust, and practically implementable. By following the Trial Guidance Methodology (TGM), these trials will provide empirical insights to the project consortium. Trial execution and more detailed plan will be given in D4.5 ClimEmpower application and trial specifications (M24).

Capacity-building and training activities enhance stakeholder ability to effectively use and benefit from project outputs. Training sessions, meetings, workshops, toolbox, video and educational materials, are means for empowering end users with knowledge, skills, and resources.

Secondary connections are to:

- **SO1: Understanding the regional background, challenges and expectations:** stakeholder engagement activities help gather information on regional challenges and expectations. Engaging with a wide range of stakeholders from different sectors and backgrounds in the region ensures that various perspectives are heard and helps technical and scientific partners to tailor their solutions to the specific needs and challenges of the regions.
- **SO2: Addressing the gaps in availability and usability of CC data and services:** stakeholder engagement activities can identify gaps in the availability and usability of data and services and suggest improvements - survey, questionnaire, discussion, workshops.
- **SO3: Identification, definition, estimating, and communication of climate impact/resilience indicators suitable for local end-users:** involvement of stakeholders enables the identification of relevant indicators and communication with local users. Based on CoP meeting conclusions, the project team can select indicators that resonate with local problems and challenges.

The main goal of the second iteration of the Stakeholder Engagement Plan and Events Report is to assess the effectiveness of stakeholder engagement activities conducted in the last 9 months of the project (since v1), refine engagement strategies, and strengthen collaboration between the scientific community, policymakers, industry stakeholders, and local communities. This iteration builds on the foundation established by the Communities of Practice (CoPs) in each case study region—Troodos, Osijek-Baranja County, Region of Central Greece, Sicily, and Andalusia—and evaluates their role in fostering knowledge exchange, influencing policy, and enhancing climate resilience practices.

2.2 Relation to other work packages

The stakeholder engagement plan and events report are (directly or indirectly) linked to all work packages of the ClimEmpower project. CoP's meetings, workshops and meetings with stakeholders not included in CoP's are of great importance for other work packages because they anchor the scientific and technological work of the consortium with actual user needs and expectations.

First link of the plan was to **WP1 Regional CC-resilience background, challenges, and expectations**. WP1 has established the Regional Communities of Practice (CoPs) in the five ClimEmpower regions, and activated regional stakeholders to investigate local background, challenges, expectations and develop a common understanding of the baseline regional needs, capabilities, gaps, and barriers for CC adaptation/mitigation. These activities continue in 4 out of the 5 tasks of **WP4 Empowering the regions**:

- **Task 4.1 Provide educational materials and interactive tools** – provides educational materials and interactive tools to enhance regional resilience by increasing stakeholder awareness, knowledge, and capacity in climate change, disaster risk reduction, adaptation, community resilience, and funding opportunities.
- **Task 4.2. Involve and empower regional actors** ensures the functioning of the CoPs at the local/regional level where knowledge-exchange and co-design activities take place. Based on the initial set-up phase devoted to consolidating the CoP concept and its structure in WP1, **task activities will be anchored to WP2 and WP3 key topics** and include expert and non-expert sessions to ensure the broadest feedback on ClimEmpower solutions.
- **Task 4.3 Co-design of tools, services and trials for increased regional resilience** will occasionally consult the CoPs and define the way how CoP members will be involved in validation of the project results through trials.
- **Task 4.4 Regional trials and community validation** will execute the trials and use the CoPs to validate the project outcomes.

CoP activities also include training, capacity-building and knowledge transfer from scientific experts and other European regions (related to task 4.1 Provide educational materials, executed in task 4.2), to activate and enhance the potential of local/ regional actors for addressing the climate change challenges.

One of the most important aspects of stakeholder engagement is its role in identifying the specific needs of different regions, particularly regarding local data, available tools, services, and knowledge gaps. That supports **WP2 – Addressing Climate Change (CC) data and knowledge gaps** and ensures that project outcomes are aligned with the challenges faced by stakeholders. Stakeholders provided insights that contributed to the analysis of available data, and climate services. Stakeholder feedback guided the selection of relevant indicators that capture the specific climate-related risks and challenges faced by each region.

Stakeholder engagement plan and events report v2 directly *supports WP3 – User-Centric Climate Change (CC) Resilience Enhancing Services* by helping and contributing (with inputs from CoP meetings and workshops) that developed resilience tools and services are designed in response to stakeholder needs.

This plan is also linked to *WP5 Enhancing the Outreach and Impact* especially with *D5.1 Dissemination and communication plan v1* and *D5.3 Dissemination and communication plan v2* because dissemination and communication activities are directed towards various types of stakeholders. Dissemination and communication plan determined the main guidelines for dissemination and communication activities, deadlines, connection with project deliverables and milestones, communication channels and Key Performance Indicators (KPI) for measuring the effectiveness of those activities.

D5.7 Stakeholder Engagement Plan and Events Report v2 is centred on direct stakeholder involvement, detailing strategies, events, and activities that facilitate active participation, collaboration, and knowledge exchange among key regional actors. While both deliverables contribute to the project's impact, D5.3 emphasizes external communication and visibility, whereas D5.7 prioritizes engagement mechanisms that ensure stakeholders contribute meaningfully to project outcomes.

This document goes beyond in following topics:

- Support in the organization of communities of practitioners (CoP)
- Expectations and methodology of CoP's meetings
- Ensure and support knowledge transfer
- Testing and validation workshop activities
- Support in planning, execution and evaluation of regional trials and mini-trials
- Establishing connection with regions followers

2.3 Data, security, and ethics

2.3.1 Data interoperability

Some of the data used to write this deliverable builds upon previous and ongoing EU-funded projects, such as DRIVER+ (DRiving InnoVation in Crisis Management for European Resilience), BINGO (Bringing INnovation to onGOing water management), ESPREsSO (Enhancing Synergies for Disaster Prevention in the European Union), ICARIA (Improving Climate Resilience of Critical Assets). These projects provided insights and methodologies relevant to stakeholder activities and engagement.

2.3.2 Data accessibility and reuse

Primary data sources used in the preparation of the D5.7 deliverable consist of the ClimEmpower GA and the deliverables quoted in

Table 1.

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Table 1. Data used in preparation of ClimEmpower deliverable D5.7

Data set name	Format	Size	Owner & re-use conditions	Potential Utility within and outside	Unique ID
ClimEmpower Grant Agreement	PDF	5,2 MB	Sensitive	Grant Agreement is a legally binding contract between the consortium and the EC. Document is available from SyGMA	<ul style="list-style-type: none"> GA number 101112728 On SyGMA
Deliverable D1.1 Community of Practice organisation and expectations	PDF	10,19 MB	Sensitive	Document is available on Projects' document repository, in "Project Outputs" directory.	<ul style="list-style-type: none"> On Teams (Project Outputs)
Deliverable D5.2 Dissemination and communication plan v1	PDF	6,02 MB	Public	Document is available on Projects' document repository, in "Project Outputs" directory. Document will be made available on CORDIS after the M18 (Feb 2025) project review	<ul style="list-style-type: none"> On Teams (Project Outputs) CORDIS link N/A yet
Deliverable D5.3 Dissemination and communication plan v2	PDF	3,73 MB	Public	Document is available on Projects' document repository, in "Project Outputs" directory. Document will be made available on CORDIS after the M18 (Feb 2025) project review	<ul style="list-style-type: none"> On Teams (Project Outputs) CORDIS link N/A yet
Deliverable D5.6 Stakeholder engagement plan and events report v1	PDF	5,29 MB	Sensitive	Document is available on Projects' document repository, in "Project Outputs" directory.	<ul style="list-style-type: none"> On Teams (Project Outputs)

2.3.3 Security and Ethics

This document is considered sensitive of confidential information about stakeholders. It may contain details of interactions with stakeholders, including their roles, jobs, interests and relationships with the project, and communication strategies. To ensure the confidentiality and integrity of the stakeholder engagement process, the dissemination of this document is limited to project team members and EU services.

Several ethical challenges are closely related to interactions with the stakeholders, from handling of climate change denial, over informing the stakeholders of side effects of both action and inaction and promoting the principles and values of Just Transition, to providing a confidential environment in which stakeholders can communicate without fear or restraint.

To meet these challenges, the project ensures transparent communication by providing scientifically grounded information, creates secure environment for open dialogue and fosters inclusive participation by engaging diverse stakeholders. In the context of ClimEmpower, Just Transition principles emphasize stakeholder inclusion, transparency, and equitable climate adaptation measures, ensuring that climate resilience strategies benefit all communities, particularly those included in the project. Training and capacity-building efforts will help counter misinformation, enhance climate literacy and support collaborative decision-making.

3 ClimEmpower Regions

Detailed information on ClimEmpower trial regions and the follower regions is included in deliverable D5.6 “Stakeholder engagement plan and event report v1”. A summary thereof is included hereafter.

3.1 ClimEmpower regions and background

ClimEmpower focuses on five south-European regions highly vulnerable to climate change due to their low adaptive capacity and significant socio-economic and environmental challenges. These regions—**Andalusia (Spain), Osijek-Baranja County (Croatia), the Region of Central Greece (Greece), Sicily (Italy), and the Troodos Mountain Range (Cyprus)**—were selected based on their economic vulnerabilities, exposure to climate risks and the need for adaptation strategies. A more detailed description of the regions, problems and expectations can be found in D1.1 and in D5.6.

3.1.1 Andalusia, Spain

The Western Costa del Sol (WCDS) in Andalusia, Spain, is a highly touristic Mediterranean coastal area with 11 municipalities. The region faces severe climate-related threats, including **water scarcity, extreme heatwaves, wildfires, floods, and coastal erosion**. Seasonal variations in population because of tourism place additional pressure on water and energy infrastructures, worsening existing vulnerabilities. Rapid land-use changes, including urban expansion and increased need for irrigation due to altered climate conditions significantly impact water resources. The region requires integrated climate resilience strategies, including better water management, improved land-use planning, and stronger climate risk policies.

Identified key stakeholders for Andalusia are listed in the Table 2.

Table 2. Identified relevant stakeholders in Andalusia

Stakeholder	Description	Expected inputs
Municipalities of Estepona, Marbella, Mijas, Istán, Ojén, Benalmádena, Torremolinos, Casares, Fuengirola, Manilva, Benahavís	Government bodies of the different municipalities that comprise the case study.	The municipalities have information about drainage networks and available elements, among other. The tools developed are aimed at local technicians for planning purposes, so it is essential the co-design of the solutions considering their needs, problems, insights, etc.
Junta de Andalucía: Consejería de Sostenibilidad, Medio Ambiente y Economía Azul	Andalusian Regional Government's Ministry of Sustainability, Environment, and Blue Economy	The Andalusian Regional Government plays a fundamental role within the project. In this case, the Department of Sustainability will be directly responsible for coordinating between entities, supporting permit requests, providing direct assistance to the Work Packages in terms of resource provision, training and educational materials, provision of regional climate tools, etc.

Stakeholder	Description	Expected inputs
Oficina Andaluza de Cambio Climático (OACC)	Administrative body within the Ministry of Sustainability dedicated to addressing climate change issues, developing strategies, and implementing policies to mitigate and adapt to climate change impacts in the region	It's a department within the Ministry of Sustainability specifically dedicated to climate change, so they have the same roles as the Ministry of Sustainability. Additionally, it will strive for closer engagement with the public and it will participate in workshops and meetings
REDIAM (Environmental Information Network of Andalusia)	It is an environmental information system in the Andalusian region of Spain. REDIAM collects, manages, and provides environmental data and information	Can provide datasets and environmental and climate information. Moreover, it will carry out tasks to promote awareness of the services and tools developed for the region.
Agencia de Medio Ambiente y Agua (AMAYA)	Environmental and Water Agency. Body attached to the Andalusian government responsible for environmental and water-related matters in the Andalusian region of Spain.	It is linked to the Department of Sustainability with a focus on water issues. They take an active role in the project representing the region, participate in the WPs, provide information, and permits, and engage in dissemination and engagement tasks.
Consejería de Agricultura, Pesca, Agua y Desarrollo Rural	Andalusian Regional Government's Ministry of Agriculture, Fisheries, Water, and Rural Development	Its participation in the project allows for a multidisciplinary and holistic approach to climate change issues, as this Department focuses on some of the most vulnerable sectors in the region to climate hazards. Their needs, expectations, and dangers will be heard, and support from this department will be available.
Diputación Provincial de Málaga	Provincial government of Málaga, which typically focuses on provincial matters such as infrastructure, social services, tourism promotion and cultural activities within the province.	The provincial council is responsible for the development of strategic regional plans in rural areas, so the materials derived from the project will be used by this department to consider the climate perspective in future regional strategies.
Hidralia	Spanish company that specializes in water management and environmental services. It provides water supply, wastewater treatment, and environmental management solutions for municipalities and industries.	They can provide information about the drainage networks and their elements in some municipalities of the Case Study.
Aguas de Torremolinos	Water utility responsible for managing water supply and distribution in the municipality of Torremolinos	They can provide information about the drainage networks and their elements in the municipality of Torremolinos

Stakeholder	Description	Expected inputs
Asociación de Jóvenes Agricultores ASAJA (Association of Young Agriculturists)	ASAJA is an agricultural organization in Spain established to represent, manage, defend, and promote the professional interests of the agricultural sector and its member organizations, adhering strictly to democratic principles.	Involving stakeholders from a farmers' organization is crucial for understanding societal needs. They have practical insights into the challenges faced by this sector and can offer perspectives on how resilience can be enhanced in agricultural practices.
Universidad de Málaga (UMA)	Public University of Malaga	It is important for providing expertise in research activities and can help expand existing knowledge on climate tools, resilience improvement, tools, activities, etc.

3.1.2 Osijek-Baranja County, Croatia

Located in eastern Croatia, Osijek-Baranja County is the most important agricultural area with extensive fertile lands, rich biodiversity, and significant wetlands. Climate change threatens its agricultural productivity, ecosystems, and water resources. The county has experienced **extreme weather conditions**, including **floods, prolonged droughts, heat waves and temperature fluctuations**, impacting both **biodiversity and food production**. The County faces demographic decline and economic stagnation which presents strong socio-economic challenges. Addressing these risks requires sustainable water management, improved flood defences and climate-smart agricultural practices.

Identified key stakeholders for Osijek-Baranja County are listed in the Table 3.

Table 3. Identified relevant stakeholders in Osijek-Baranja County

Stakeholder	Description	Expected inputs
Croatian Water Management	Manages waters along the Danube and the Upper Drava (in Osijek-Baranja County) which includes the security of dams, barriers and embankments along these rivers.	The Croatian Water Management can provide us with detailed information about floods and low river level through a period of 20-50 years as a comparison to the current situation. This information could be useful for creating models for floods and water management in Osijek-Baranja County.
Croatian Agricultural Chamber	The Agricultural Chamber supports the agronomists, guides them in developing according to EU strategies and aids them in applying for projects related to agriculture.	The Agricultural Chamber can provide us with a list of agronomists that could also be future stakeholders and share the necessary information the project partners need to develop appropriate models.
Croatian Agency for Agriculture and Food	The Agency deals with the development and quality of food, agriculture and rural development. They control the whole process and production of food before it arrives on the shelves of stores for consumption.	The Agency has provided many useful materials concerning the impact of climate change on food, vineyards, and agriculture in general. They will also take part in education and workshops during the project.

Stakeholder	Description	Expected inputs
OSPERA	Ospera gathers experts and amateurs interested in permaculture. They organise educational programs and teach individuals how to grow their own garden, consult them and follow strategies and methods used worldwide, which they transfer to their members.	Ospera has taken part in our workshops and will also be active in the future concerning all our activities. The civil society is willing to share data related to permaculture and offer advice to other stakeholders doing similar activities.
PPK VALPOVO	A group (concern) for Agriculture and Food that produces food from the process of crops, livestock farming, ecological production and foodstuff. It is one of the largest such industries in the region.	This concern gathers many small farms and can offer useful solutions concerning issues due to climate change. It can also provide information and data about statistics and changes during the last 20-30 years in agriculture.
Faculty of Agrobiotechnical Sciences	The Faculty is focused on sustainable development through high quality and sufficient education based on contemporary results of learning and on the concept of life-long learning. The faculty enables students to gain competences based on contemporary scientific cognition through the transfer of knowledge and technology, active cooperation with the economy. The main fields that they cover are biotechnology, rural development, environmental protection, agro ecology, phytomedicine, renewable energy in biotechnology, plant and animal production.	The faculty has many plans and strategies previously prepared through other projects and can share some of them that could complement ClimEmpower. What is even more important, is that they have a very rich database collected for decades. This data could be very useful for inputs before creating models via the ClimEmpower project.
Department of Biology and Chemistry	These two departments as part of the Josip Juraj Strossmayer University provide higher education in the field of biology and chemistry having high quality equipment for research in all fields that cover these two extremely important branches in natural sciences.	The two departments can take part in several workshops, conferences and meetings of other purpose, provide useful data for the project and consult us with the necessary information needed to describe climate-related changes.

3.1.3 Region of Central Greece, Greece

The Region of Central Greece (PSTE) is one of the most mountainous areas in Greece, with a diverse landscape that includes wetlands, agricultural zones, and industrial hubs. Key economic activities include metal production, food processing, and agriculture. The region faces climate challenges such as **wildfires, floods, droughts, heatwaves, and water contamination**, impacting food production and industrial productivity. Limited tourism development, despite regional potential, represents a missed opportunity for sustainable economic growth. The focus in this region is on enhancing resilience through climate-adapted agricultural practices, sustainable water management and fostering climate-smart solutions.

Identified key stakeholders for the Region of Central Greece are listed in the Table 4.

Table 4. Identified relevant stakeholders in Region of Central Greece

Stakeholder	Description	Expected inputs
University of Thessaly – Department of Computer Science and Biomedical Informatics	Promotes research and innovation. Directly linked to development and research in the IT industry. Contributes to understanding climate patterns and trends through collaboration. Engages in interdisciplinary discussions and offers solutions to environmental challenges.	The University of Thessaly's Department of Computer Science and Biomedical Informatics is a crucial stakeholder due to their expertise in assessing the epidemic impact of hazards. Their contributions enable a deeper understanding of these impacts, leading to enhanced resilience strategies and expanded knowledge in addressing climate-related challenges.
Forest Research Institute	The Forest Research Institute plays a pivotal role as a stakeholder in our project focused on climate resilience and stakeholder cooperation. Leveraging its expertise in terrestrial ecosystems, including forests and rangelands, the Institute contributes invaluable research insights and methodologies. Its involvement enhances our understanding of climate risks and resilience assessment, fostering effective stakeholder collaboration and informed decision-making.	Through their expertise in multifunctional forest management, they can provide integrated methodologies to increase ecosystem resilience and community preparedness to natural disasters. Also, insights into geospatial data technologies for post-disaster management.

Stakeholder	Description	Expected inputs
Cooperative of STEVIA Hellas	<p>The Cooperative of STEVIA Hellas is an agricultural collective dedicated to the cultivation of stevia. Through sustainable farming practices and collaboration among members, the cooperative aims to promote stevia cultivation in Greece while fostering economic development and environmental stewardship.</p>	<p>As an important participant representing sustainable agriculture the Cooperative of STEVIA Hellas is essential to the initiative. Their knowledge of growing stevia in an eco-friendly manner provides important information about how to modify agricultural practices in response to climate change. Considering the cooperative's dedication to environmental stewardship and the significance of agriculture to the local economy, their involvement enhances the project's attempts to promote sustainable development and resilience in our community.</p>
Civil Protection Agency of Municipality of Voiotia	<p>The Civil Protection Agency of the Municipality of Voiotia is a local government organization tasked with safeguarding the lives, property, and well-being of residents in the Voiotia region in Greece.</p>	<p>They can bring their expertise in risk assessment (specialized knowledge and tools if any), data about past disaster events in the region. Also, they could encourage public participation and facilitate community outreach efforts.</p>
Farmers' Cooperative of Orchomenos	<p>The Farmers Cooperative of Orchomenos is a vital institution for region, providing essential support to local farmers through consultations, seminars, and training. Beyond guidance, offer agricultural services, promote agritourism, and provide technological tools, enriching the farming community and sustaining our agricultural heritage.</p>	<p>Farmers cooperatives are directly affected by natural disasters. Their knowledge in agriculture and their needs can give important inputs to the project. Agricultural lands are especially vulnerable to extreme weather occurrences (floods, droughts) so both the cultivation method and the farmed species must be designed to withstand and protect.</p>
Thermopylae Museum	<p>The museum is a cultural institution and serves historical artifacts.</p>	<p>The Thermopylae Museum serves as a significant stakeholder in the ClimEmpower project, representing the cultural domain. Its importance lies in preserving and promoting historical heritage, which contributes to national identity and attracts tourists to the region. By engaging with the museum, the project can leverage cultural resources to enhance community resilience and promote sustainable tourism practices in the face of climate change impacts.</p>

3.1.4 Sicily, Italy

Sicily, Italy's largest island, faces some of the most severe climate threats, including **heat-waves, urban flooding, wildfires and biodiversity loss**. Urban areas are confronted with severe heatwaves, temperatures reaching record highs (48.8°C in August 2021). Rising temperatures, prolonged droughts, and irregular precipitation patterns severely impact agriculture, biodiversity and urban sustainability. The island's economy, heavily reliant on agriculture and tourism, is increasingly threatened by climate instability. Improving water management, strengthening climate risk policies, climate proofing and integrating nature-based solutions are the most important resilience strategies for the region.

Identified key stakeholders for Sicily are listed in Table 5.

Table 5. Identified relevant stakeholders in Sicily

Stakeholder	Description	Expected inputs
Regional Department of Environment,	The Department of Environment plays a key role in shaping environmental policies and strategies at the regional level. It is the department in charge for the Climate Change Adaptation Strategy	As a stakeholder the Dep. is important because of their knowledge about current risks and the future trajectories to adapt. The Dep could also prioritize the climate service that are useful at regional level.
Regional Department of EU Fund Programming,	This Dep. is the one in charge of allocating resources within the region. As a stakeholder, it plays a crucial part in planning, implementing, and overseeing projects funded by the EU	Its responsibilities include assessing regional needs, identifying funding opportunities, drafting strategic plans, coordinating with other stakeholders, monitoring project progress, and ensuring compliance with EU regulations and objectives. Additionally, it may serve as a liaison between local authorities, EU institutions, and project beneficiaries, advocating for regional interests and optimizing the impact of EU funding on local development and cohesion, especially in the field of CC.
Regional Department of Civil Protection	it plays a crucial role in safeguarding the safety and well-being of communities in the face of various hazards, including natural disasters, industrial accidents, and public health emergencies.	The department plays a key role in raising public awareness about disaster risks, preparedness measures, and response protocols. It conducts educational campaigns, training sessions, and community outreach programs to empower residents with the knowledge and skills needed to protect themselves and their communities during emergencies. The Dep. collect an huge amount of climate data that are useful for the CoP work.

Stakeholder	Description	Expected inputs
Urban Functional Area Officers	UFAs are regions characterized by interconnected urban centres, infrastructure, and economic activities that function as integrated units. Officers work closely with local governments, urban planners, developers, and community stakeholders to ensure that development plans align with regional goals, land use regulations, and sustainability objectives	UFAs typically encompass densely populated urban centres with significant infrastructure, including buildings, transportation networks, and utilities. These areas are highly vulnerable to climate change impacts such as extreme weather events, sea-level rise, heat-waves, and urban flooding. UFAs must adapt their infrastructure and systems to withstand these impacts and protect residents and assets. Due to their significant exposure to climate risks, UFAs can contribute to build climate-resilient cities.

3.1.5 Troodos Mountain Range, Cyprus

The Troodos Mountain Range in Cyprus covers 15% of the island's landmass, featuring high-altitude forests, natural springs, and a complex hydrological system. The region **experiences extreme temperature variations**, ranging from **very hot summers to very cold winters**. Climate change impacts include decreased water availability, changing precipitation patterns, and biodiversity loss. Since Troodos is an ecologically sensitive region, climate resilience efforts will focus on forest conservation, water resource management, and climate-smart rural development.

Identified key stakeholders for Troodos are listed in Table 6.

Table 6. Identified relevant stakeholders in Troodos

Stakeholder	Description	Expected inputs
Energy Service	<p>The mission of the Energy Service is to formulate and implement the Government's policy in the energy sector. Its strategic goals are the creation of a sustainable and competitive energy market, the exploitation of the national energy savings potential and the promotion of domestic renewable energy sources.</p> <p>One of the Service's main activities is the implementation of funding programmes for households and businesses, regarding energy saving and/or the use of RES.</p>	<ol style="list-style-type: none"> 1. They have energy related datasets 2. They are willing to contribute (not to sensitive data) 3. They have valuable scientific personnel 4. Energy plan 5. Develop Energy Policy

Stakeholder	Description	Expected inputs
Civil Defence	<p>The Cyprus Civil Defence is a Department of the Ministry of Interior whose main mission is the protection of the population. It is responsible for taking measures in response to natural or man-made disasters, potentially threatening human life and welfare, or even extensively damaging the island's environment and natural resources. It is also responsible for protecting the civilian population during periods of armed conflict. The measures taken by the Cyprus Civil Defence include a series of actions regarding disaster prevention, preparation, response, strategic planning, education, mitigation and rehabilitation at the aftermath disasters.</p>	<ol style="list-style-type: none"> 1. Holds pivotal position because they are the entity who are being held to develop response plans concerning the natural hazards. 2. Coordination of all actions on the field. 3. Coordination of other entities (e.g. fire station department etc.) 4. Implementation of response management plans.
Meteorology	<p>The Cyprus Department of Meteorology of the Ministry of Agriculture, Rural Development and Environment is mainly responsible for matters related to the weather and climate of Cyprus. The Department is providing services and information relevant to the weather and climate aiming the well-being of the people of Cyprus and the protection of their life and property.</p> <p>For the achievement of the above objectives, the Department of Meteorology collects and uses the meteorological information over the Cyprus domain effectively and properly and shares this information with other National Meteorological Services and the World Meteorological Organization (WMO).</p>	<ol style="list-style-type: none"> 1. Datasets on biodiversity 2. Datasets on climate
Department of Environment	<p>The Department of Environment acts as a Regulatory Authority i.e. adopts, implements controls, and monitors development activities which could affect the environment. It also monitors and evaluates the parameters that make up the upgrading of environmental quality. The Department's scope of areas of concern also includes the protection of nature and biodiversity as a main natural capital, pollution control and waste management in the context of their use as resource of circular economy, as well as the reduction of greenhouse gas emissions and adaption to climate change.</p> <p>They work closely with other departments such as the Department of Forestry, the Department of Fisheries and Marine Research, the Game and Fauna Service and the Town Planning and Housing Department, for a comprehensive approach to multilateral environmental issues. They are also in constant contact with the European Commission as well as with non-governmental organizations, which are an important link to express opinions on various issues.</p>	<ol style="list-style-type: none"> 1. Datasets on biodiversity 2. Datasets on nature 3. Information of on agricultural/industry activities

Stakeholder	Description	Expected inputs
Water Development Department	<p>The Water Development Department is responsible for the protection and sustainable development as well as the rational management of the water resources of Cyprus, in accordance with European and National legislation and within the framework of the Government water policy in force from time to time. The Department is invited to fulfil a number of objectives covering a wide spectrum of actions whose main axes are the following: ensure the maximum possible satisfaction of water requirements for all uses; encourage the effective use of water resources and secure the quality and protection of water sources and the water environment.</p>	<ol style="list-style-type: none"> 1. They have a lot of data available to such topics as hydrology, water management etc. 2. They are responsible to develop management plans, watersheds etc.
Cyprus Energy Agency	<p>The Cyprus Energy Agency [CEA] is an independent, non-governmental, non-profit organization, founded in 2009. CEA was co-funded by the European Commission, through the Programme “Intelligent Energy for Europe” and by the Cyprus Union of Communities, for its establishment and first three years of operation.</p> <p>CEA has become an information point for the local society, providing education and vocational training. It participates in projects in partnership with local, European, and international organisations, contributing to innovation, research, and sustainable development.</p> <p>It enhances the role of local authorities in sustainable energy planning, providing technical support for developing and implementing actions to mitigate and adapt to climate change. It supports the Covenant of Mayors for Climate & Energy initiative, and it has a vision of a just, inclusive, and climate resilient Cyprus, governed by the principles of sustainability.</p>	<ol style="list-style-type: none"> 1. Experience – Implementing European projects 2. Consulting activity on the fields of climate change, environment, education and awareness etc. 3. Strong scientific and applied knowhow.
Agricultural Research Institute	<p>The Agricultural Research Institute conducts research aiming to create and transfer knowledge for the development of the primary sector and to solve problems at the farmer’s level. The research results are transferred to stakeholders through modern educational programs and dissemination tools. Its research activity strengthens rural development and contributes to the adoption of a sustainable rural policy and innovation offer.</p>	<ol style="list-style-type: none"> 1. A Research Institute for Government 2. Specialized scientific expertise related to climate change, agricultural activities, and biodiversity. 3. Datasets related to the topics.

Stakeholder	Description	Expected inputs
Department of Forests	<p>The Department of Forests has to promote the sustainable forest management, as well as to improve the urban green areas through the:</p> <ul style="list-style-type: none"> · development and implementation of Forest Policy and Legislation, · protection of forests from fires, climate change and other factors, · enhancement of forest protection functions, · protection of biodiversity, · enhancement of forest recreation and · production of forest products. 	<ol style="list-style-type: none"> 1. Biodiversity datasets 2. Land Cover 3. They have valuable scientific personnel 4. Information about the road networking forest areas (dead roads, access points and paths)
Volunteer Emergency Search & Rescue Unit	Volunteers that assist in the implementation of hazard response plans	<ol style="list-style-type: none"> 1. Pragmatic knowledge of what happens during a catastrophic event on the island

Each ClimEmpower region presents distinct climate risks, socio-economic challenges, and environmental vulnerabilities, requiring region-specific adaptation strategies. Through Communities of Practice (CoPs), stakeholder engagement, and tailored resilience measures, ClimEmpower seeks to **co-develop and implement effective climate adaptation solutions** that strengthen regional capacities and ensure long-term sustainability.

3.2 Follower regions

In the final stage of the project, ClimEmpower will concentrate on investigating the transferability of results achieved in one region to the others and assessing socioeconomic effects of climate change and regional CC-resilience strategies. Each of the trial regions will develop a simplified version of the trials² as a demonstrator to engage with (at least) one follower region and determine the level of replicability in a broader context at EU level. Follower regions and their primary partner regions are summarised in Table 7.

The basic parameters for the identification of the follower regions were:

- proximity to the ClimEmpower region,
- similar CC problems,
- similar geographical conditions,
- similar socio-economic conditions,
- similar climate hazards,
- similar potential needs as ClimEmpower regions.

These criteria ensure that the knowledge, tools, and methodologies developed in ClimEmpower’s case study regions can be effectively **transferred and scaled** to other regions facing comparable challenges.

Table 7. ClimEmpower regions and their follower regions (Status 02/2025)

ClimEmpower region	Follower region
Andalusia (Spain)	Metropolitan Area of Granada (Spain)
Osijek-Baranja County (Croatia)	Vukovar-Syrmia County (Croatia)
Sicily (Italy)	Naples, Metropolitan City of Naples, Campania Region (Italy)
Region of Central Greece (Greece)	Region of Western Greece (Greece)
Troodos mountain area (Cyprus)	Crete (Greece)

Main goal of interactions with the follower regions is to validate the implementation, replicability, exploitation plans, tools and training materials developed by extending the project’s participatory process beyond the borders of the five case study regions.

To achieve these goals, follower regions are included in the work of the CoPs, mainly as observers of trial preparation and execution. Later in the project, each of the trial regions will

² In the context of the ClimEmpower project, a “trial” refers to a structured process of testing, validating, and refining climate resilience strategies, data services, and adaptation tools within real-world settings. These trials will be conducted in the project’s case study regions—Andalusia, Osijek-Baranja, Central Greece, Sicily, and Troodos—to assess the applicability, usability, and effectiveness of proposed climate solutions. The trials engage regional stakeholders, including policymakers, researchers, industry representatives and local communities, to ensure that solutions are tailored to their needs, scientifically robust, and practically implementable. By following the Trial Guidance Methodology (TGM), these trials will provide empirical insights to the project consortium. Trial execution and more detailed plan will be given in D4.5 ClimEmpower application and trial specifications (M24).

develop a simplified versions of the trial scenarios as “mini trials”, to enable exchanges with follower regions and validate the replication potential of the proposed solutions. Five mini trial workshops will be primarily used to assess the level of interest of various stakeholders from the case study region and follower regions and used as input to the project’s sustainability and exploitation strategy. D4.5 ClimEmpower application and trial specification [M24] will provide more detailed plan about trail and mini-trial execution.

The consortium will seek opportunities for engaging with additional potential replicators beyond already defined follower regions, e.g. with the regions participating in related projects.

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4 Stakeholder engagement plan and progress

This section is a follow-up of the stakeholder engagement section from the D5.6 “Stakeholder engagement plan and event report v1”. It clarifies some aspects of the engagement plan that have been further developed during the project and summarises all the activities since the project start. Activities that were already mentioned in D5.6 are only shortly summarised in section 0. More detailed description of the activities that were executed after the publication of D5.6 is provided in section 4.6.

Stakeholders are essential contributors to the ClimEmpower project, offering valuable insights and support in various ways. Stakeholders share their needs and expectations related to climate change adaptation, which contribute to the identification of relevant indicators, services, and the development of tools in WP3. Stakeholder engagement is a two-way process, where researchers gain valuable insights from stakeholders while providing them with knowledge and tools to enhance their capacity for climate adaptation. They actively participate in co-creating tools and services tailored to address their specific needs and challenges (CoP meetings and workshops) and in validation process through trials and mini trials.

Identifying the right organizations and groups to be included in CoPs has been a team effort. Focus was on those dealing with climate challenges and adaptation strategies in our Case study regions. One of the main challenges was to define the size of the groups (number of participants). It was important to have enough diversity to cover different perspectives but also no to go too wide. Another challenge was making sure CoPs are diverse. The goal was to have mix of people with different backgrounds who are also members of Quadruplex helix. This diversity helps to understand different viewpoints and perspectives. Another big challenge was to motivate stakeholders to participate in the CoPs and workshops and to keep their motivation and engagement throughout the project’s lifetime.

4.1 Objectives of Stakeholder Engagement

Main objectives of stakeholder engagement are to ensure that stakeholders are actively involved, informed, and empowered throughout the project lifecycle.

To achieve the given objective, the project team has planned following activities:

Table 8. Steps to achieve objectives.

Activity	Rationale	Instrument	Who	Status
Stakeholder identification	The most important step is to define those stakeholders who can really benefit from the project results.	Local survey, desk-top research	CSF, RA	✓
Stakeholder list	Stakeholders are identified based on what they can offer us in terms of information we need to bridge the gaps, and in relation to the benefits that the stakeholders can achieve in the project, based on their needs.	Desktop research, meetings	CSF, RA	🔄
Defining stakeholder needs and expectations	Through the CoP's meetings, the project team gained insights into their needs, expectations, concerns, and perspectives related to the project.	CoP Meetings, questionnaires	CSF, RA	✓
Building relationships with stakeholders	Building relationships with stakeholders to maintain and encourage interest in the project and the use of ClimEmpower results.	CoP Meetings, Workshops, follow-up letters, promotional materials, newsletters, leaflets, infographics	All partners, especially CSF and RA	🔄
Involving stakeholders in co-creation process	In a co-creation process, each CoP established the baseline understanding of regional "needs, gaps, and barriers" with respect to data, services, understanding of current regional CC risks and future impact scenarios, the regions' preparedness, and opportunities for increasing the regional CC-resilience.	CoP Meetings, Workshops	CSF, RA	🔄

Activity	Rationale	Instrument	Who	Status
Facilitating communication	Effective communication helps stakeholders stay informed about project developments, objectives, and outcomes, enabling them to contribute to the project, it builds trust and relation between the project team and stakeholders, which leads to enhancing engagement.	CoP Meetings, Workshops, follow-up letters, promo materials, newsletters, leaflets, infographics, website, social media	All partners, especially CSF and RA	
Regional trials and community validation	Ensuring that ClimEmpower data and tools meet technical quality and usability standards with respect to requirements defined by the regional authorities and other local stakeholders.	Validation questionnaires, structured interviews, final trial demonstration / final CoP workshop	CSF, SSH, RA, ex-perts	
Mini trials	Simplified versions of the trial scenarios will be developed to enable exchanges with follower regions, to ensure the replication potential of the proposed solution.	Validation questionnaires, structured interviews, final trial demonstration / final CoP workshop	CSF, SSH, RA, ex-perts	
Maximizing Project Impact	Five follower regions (third parties) adjacent to the five case study regions will participate in the work of the CoPs and thus be the first candidates for replication beyond the project.	CoP Meetings, Workshops	CSF, RA, all partners	
Dissemination and communication activities	Dissemination and communication activities help ensure that project outcomes reach the intended audiences, maximize impact, and contribute to long-term sustainability	Promo materials, website, social media, workshops	All partners	

		
Done	Work in progress	Future activities

4.2 Stakeholders' engagement strategies and methods

The most important method of engaging stakeholders is through CoP meetings and workshops. CoP organization in this project is based on previous experiences with other related European Projects, where best practices have been taken. BINGO “Bringing INnovation to onGOing water management - a better future under climate change” and ESPREsSO - “Enhancing Synergies for disaster PREvention in the EurOpe Union” provide recommendations for CoPs and workshops to conduct interactive meetings and foster participation.

Communities of Practice (CoPs) bring together stakeholders facing similar climate-related challenges, offering them a platform for mutual learning and knowledge exchange. The core principle of CoPs is fostering peer-to-peer interaction, allowing stakeholders to share experiences, insights, best practices – to learn of each other’s. It is important to have diversity in the composition of the community to arrive at co-developed solutions that are accepted and useful to all partners. Diversity and different backgrounds are needed to enable a better comprehension of different perspectives and points of view, and to share knowledge. Collaboration fosters stakeholder engagement and knowledge transfer and ensures that the interests of all parties are met in the development of the outcomes.

The creation of the Community of Practice started in the first days of the project by defining the key stakeholders and the stakeholder base. By M3, an initial base of key stakeholders has been created, but it is a living group? that grows during the duration of the project in parallel with the growth of the CoPs.

4.3 CoP Workshops

Stakeholder engagement activities can take different forms, from informal meetings with CoP members, to organisation of the regional conferences (see D5.3 Dissemination and Communication plan v2). CoP Workshops are key tools for facilitating exchange and dialogue between different stakeholders with common interests. Workshop activities will be tailored to each region while adhering to a general engagement methodology. CSF plays an important role in selecting the most effective tools for managing group dynamics and interactions. This workshop plan helps to ensure that the workshops are aligned with the overall work plan of the ClimEmpower project, including the necessary inputs and outputs to validate the methodologies and activities.

ClimEmpower Grant Agreement specifies that the project will organise:

- six workshops per each included region (6x5), three of them public (3x5), and
- three public EU workshops.

Moreover, it specifies that these Workshops will be face-to-face, online or hybrid, depending on circumstances outside of the project. Consortium members will invite their partners, potential users of the project results, press and general public to final regional and EU events. The final EU event will be hybrid, if possible.

An overview of all the planned workshops and their relations to project progress and achievements (deliverables) and WPs is presented in the Table 9.

Please keep in mind that all regional workshops are organised in five locations, leaving us with a grand total of $6 \times 5 + 3 = 33$ Workshops. Out of these, *first 15 workshops are limited to project team and CoP members. Starting from WS3, the workshop invitations will be gradually extended to additional stakeholders, related projects, and additional regions beyond the five ClimEmpower follower regions. An overview of the planned workshops is shown in Table 11.

Table 9. CoP Workshops – topics and relation to work performed in different WPs

Workshop	Themes	Inputs/deliverables to present, evaluate and validate	Related deliverables that can benefit from stakeholders' evaluation and feedback
WS2	Indicators Trial inputs	D2.2 Indicators D2.3 Downscaling & data fusion D2.4 Measures & strategies D3.1 Libraries & tools	D2.4 Measures & strategies D4.3 Resilience recommendations D3.2 Libraries, services, data, indicators D4.5 Trial application & specification
WS3	Trial implementation	D2.4 Measures & strategies D3.2 Libraries & tools	D3.3 Libraries, services, data, indicators D4.6 Community testing and validation report D4.7 Sustainability and exploitation plan v1
WS4	Mini trials	Also in regional context1!!	
EWS-1-3	EU-level multiplication	D4.7 Sustainability and exploitation plan v1 (11/25) WS4, WP5	D4.8 Sustainability and exploitation plan v2 (D5.8 Stakeholder engagement plan and events report v3

So far, first two CoP workshops were organised in all regions. In addition, the indicators were already thematised on the CoP workshop in Andalusia region.

4.4 Roles and responsibilities

According to the ClimEmpower DoA, validation of the project's results by stakeholders will be performed by CoPs, following the Trial Guidance Methodology (TGM - Fonio et al., 2020). As a part of the work on aligning the CoP and TGM methodologies, the roles and responsibilities of the project partners and stakeholders in TGM have been mapped to the roles and responsibilities in CoPs, resulting in "ClimEmpower role" in Table 10.

Table 10. Roles and responsibilities of CE case study

TGM role	ClimEmpower Role	Organisations	Responsibilities
Trial owner	Problem owner	Sicily Region (IT), Osijek-Baranja County (HR), Andalusia Region (SP) Troodos Mountain Range (CY), Region of central Greece (GR)	They direct project solutions and ensure that their needs are expressed and considered.
Technical coordinator	co- Technical and cross cutting partner (TSCC) and Social Sciences and Humanities (SSH)	AIT (AT), AQUA (ES), CET (ES), PLINIVS (IT), FER (HR), ECMWF (INT), CERTH (GR), FRC (CY)	Ensures that developed solutions are well understood and properly integrated into the trial. Oversees the technical integration, training, and execution of the trial.
Evaluation coordinator	co- Evaluation coordinator	AIT (AT) & Plinivs (IT)	Ensures that the evaluation forms are adequate, that they include all the questions to which we want answers, that the data is collected correctly

			and later analysed in the correct way.
Practitioner coordinator	Case Study Facilitator (CSF)	CET (ES), PLINIVS (IT), FER (HR), CERT (GR), FRC (CY)	It ensures that CoP members are involved in the trial preparation phase (co-design) and in the implementation phase.
Crisis Management practitioners (CM practitioners)	Community of Practice (CoP)	5 regional CoP's	They represent the needs of all stakeholders, not only those involved in the 5 trial regions. They should be involved in the trial preparation, execution and evaluation phase.
Solution providers	Technical and cross cutting partner (TSCC) and Social Sciences and Humanities (SSH)	AIT (AT), AQUA (ES), CET (ES), PLINIVS (IT), FER (HR), ECMWF (INT), CERTH (GR), FRC (CY)	They present potential solutions, gathering initial feedback and impressions, analysing to conclude which solutions can address the gaps.

4.5 Creating CoPs and initial CoP meetings (before m9)

At the project start, WP1 engaged with regional stakeholders in 5 CS regions through tasks **1.1 Activate regional stakeholders** and task **1.2 Build a common understanding**. Regional Communities of Practice (CoPs) were established, and initial CoP meetings organised to 'set the scene' ensuring that relevant stakeholders are engaged in each region.

To ensure collaboration, the launch of the CoPs was organized as a face-to-face workshop, in local languages and with interactive tools to improve communication and encourage stakeholder involvement to ensure that outcomes meet local priorities, needs and expectations of participants.

Main objectives of the stakeholder engagement are:

- Establishing a basic understanding of existing regional tools, services and strategies, assessing their relevance and reusability for ClimEmpower,
- Encouraging understanding of CC challenges, needs, gaps, barriers and previous experiences, to foster risk perception and awareness,
- Stakeholder participation in data collection and addressing data gaps, including them in final solutions,
- Promoting the co-creation of resilient customization solutions that meet their needs and expectations,
- Incorporating the end-user perspective throughout the design process to improve the usability and effectiveness of tools and methods,
- Designing educational and training materials to empower users, improve their understanding and capacity to effectively address climate change,
- Sharing and exchanging knowledge,
- Networking and building relationships among stakeholders to foster partnerships and joint action.

Droughts, heat waves, storm surge, floods and forest fires were identified as hazards that are common to all regions.

Data collection has been identified as one of the key challenges for the further work. Some of the regions are facing difficulties in data sharing.

Most of the regions agree on the need for training and capacity building among the users and other interested parties.

Another debate that emerged after the CoP meetings is on **transferability of results**. In this regard, one of the main problems identified is the lack of technical experience among the users, which results in a limited capacity to implement strategies and planning. Addressing this issue requires providing **targeted training programs** that enhance the technical skills and knowledge of the users. Moreover, the results, should be freely accessible, to maximize the uptake.

Results of the 1st CoP meetings in the ClimEmpower regions are described in more detail in D1.1 **Community of Practice organisation and expectations**.

4.6 Activities performed between m10 and m18

After the establishment and initial development of CoP's in WP1, their further work and development continued in WP4, specifically within task **4.2. Involve and empower regional actors** (CoPs). A series of regional CoP meetings and workshops will be organised and facilitated by their respective **CFs** (*Case Study Facilitators - project partners responsible for coordination, managing and supporting Communities of Practice (CoP)* (PILINIVS; CERTH; AQUATEC; CE-TAQUA; FER; FRC). Each workshop will be themed around important issues related to project objectives and emerging needs. **CSF** and **RA** (*governmental or administrative bodies in ClimEmpower regions responsible for climate adaptation, environmental protection, urban or rural planning, emergency management or sustainable development at the regional level*) may also organise additional teleconferences and bilateral meetings between formal CoP meeting and workshops, to keep the regional stakeholders engaged and facilitate knowledge transfer and empowerment. The main goals of all CoP interactions are:

- encouraging the joint creation of the process by means of inclusion tools and exercises to identify gaps and needs,
- achieving a better understanding of risk perception and awareness,
- confirming local experiences with potential adaptation solutions, and
- ensuring that project outcomes are in line with local priorities, needs and expectations.

Cooperation in the CoP enables an interdisciplinary approach that increases the possibilities of relevant solutions, the development of more effective and efficient solutions specific to individual regions and encourages the engagement of stakeholders.

Focusing on local challenges, gaps and obstacles is important because it gives relevance to a specific local community. It addresses the local challenges and priorities, empowers and involves relevant stakeholders, supports policy and decision-making on local level, and contributes to sustainable long-term changes.



Figure 3. CoP's structure and relationship to different WPs

After the initial formation and first meetings of the CoPs under WP1, their continued development and activities have been integrated into WP4. With CoPs now established and actively functioning, the organization of the **second CoP meetings** became a key task for WP4 leaders, in coordination with Case Study Facilitators (CSFs) and Regional Actors (Ras).

The work of Communities of Practice (CoPs) follows a similar structure across all ClimEmpower regions, ensuring consistency in stakeholder engagement and knowledge exchange. Before each CoP meeting or workshop, Case Study Facilitators (CSFs) convene to develop an initial agenda, aligning discussions with project objectives while considering regional priorities. Due to the specific contexts of each region, CSFs have the flexibility to decide on some aspects, such as whether the meeting will be held online or in person, its duration and whether they organise a single large meeting or multiple bilateral sessions. This adaptive approach allows CSFs to tailor interactions in a way that maximizes stakeholder participation and effectiveness in each region.

Next sections provide insights from the **second CoP meetings and workshops** held in the ClimEmpower regions.

4.6.1 2nd CoP meeting – Andalusia, Spain

The **2nd CoP Meeting for Andalusia** took place on **December 11, 2024**, in an **online format via Google Meet**, with **27 participants** attending. The meeting was facilitated by **AQUATEC** and **CETAQUA**, focusing on sharing progress across work packages (WPs), introducing the Trial Guidance Methodology (TGM), and collecting feedback from stakeholders on indicators and educational materials. Additionally, the meeting served to introduce the follower region (Granada) and further refine local challenges and resilience strategies.

Meeting Objectives and Key Discussions

The main goals of the meeting included **providing updates on project achievements, engaging stakeholders, and validating regional climate risks and sectoral needs**. Discussions were structured around:

- Presentation of ClimEmpower's progress across WP1-WP5.
- Introduction to the Trial Guidance Methodology (TGM), allowing stakeholders to evaluate the applicability of research outcomes.

- Interactive feedback collection via Mentimeter, focusing on **climate risk indicators** and educational material needs.

ClimEmpower Achievements Presented

During the session, project facilitators outlined key advancements in each work package:

- **WP1:** Summary of the **previous CoP meeting findings**, validation of risks, and preliminary climate risk assessments.
- **WP2:** Data collection updates and **indicator prioritization**.
- **WP3:** Demonstration of the **platform mock-up and progress on climate models** (drought, wildfire, heatwave, and flood modeling).
- **WP4:** Collection of **educational materials** and assessment of stakeholder needs.
- **WP5:** Overview of **publications, conferences, and the introduction of the follower region**.

Regional Climate Challenges and Priority Needs

Stakeholders confirmed **high awareness of climate risks**, particularly in the public and business sectors. The meeting confirmed four primary risks affecting the region:

- Forest fires
- Drought
- Heatwaves
- Flooding (pluvial, fluvial, and compound flooding risks)

Additionally, key knowledge gaps were identified, with all participants agreeing on the necessity of:

- Spatial distribution of wildfires
- Identifying and mapping high drought-risk areas
- Estimating the impact of heatwaves on public health
- Enhanced flood risk assessment (particularly pluvial floods in urban areas)

Stakeholders emphasized the need for risk maps incorporating future climate change projections, as existing models do not fully account for the compound impacts of multiple hazards.

Existing Climate Services and Gaps

Andalusia benefits from **REDIAM** (Andalusian Environmental Information Network), but stakeholders identified several limitations in the available services, including limited pluvial flood mapping for urban areas, lack of comprehensive compound flooding risk models and insufficient coordination between municipalities for data sharing.

Prioritized Climate Indicators

Stakeholders ranked the **most critical indicators** for the region, highlighting the following as highest priority:

- **Number of heatwaves per year** (9.7/10)
- **Flood risk for the population** (9.5/10)
- **Maximum rainfall intensity** (9.3/10)
- **Highest annual temperature** (9.1/10)

- **Groundwater overexploitation** (8.7/10)
- **Investment in climate resilience infrastructure** (8.3/10)

Additionally, stakeholders suggested **new indicators** related to:

- **Recovery time following extreme events**
- **Diversity of water resource mix**
- **Investment in adaptation**
- **Coordination between public administrations**
- **Lessons learned from past extreme climate events**

Adaptive Capacity Needs

Stakeholders identified several barriers to strengthening climate resilience in the Andalusia region. The most pressing issues include:

- Insufficient flood mapping
- Fragmented data-sharing among municipalities
- Lack of integration of future climate projections into risk assessments
- Need for financial and policy support for implementation of adaptation strategies

ClimEmpower Tool and Educational Materials

Educational material needs identified:

- Technical reports for professionals
- Awareness-raising materials
- Educational videos
- Courses and tutorials for capacity building

Stakeholders requested **access to Zenodo** to review available materials.

Collaboration and Stakeholder Engagement

In Andalusia, a strong consensus was reached among stakeholders on regional adaptation priorities. The interactive workshop format was well received as it allowed for continuous stakeholder engagement and feedback. Stakeholders in Andalusia also emphasised the benefits of face-to-face meetings to strengthen connections and informal discussions, while acknowledging that the online format allowed for broader and easier participation.

The second CoP meeting for Andalusia concluded with several important follow-up actions and next steps aimed at advancing regional climate resilience efforts.

AQUATEC will begin to refine flood models, validate sewer networks in drainage models and conduct initial simulations of coastal models. CETAQUA will focus on heat wave modelling methods and initial simulations of forest fire and drought models. The next CoP meeting is planned for 4 to 5 months from now.

Discussions emphasised the importance of ensuring the availability of results, especially regarding flood model results. Stakeholders expressed their interest in reviewing the educational materials once they are available on Zenodo. The interactive activities were well received and encouraged engagement, highlighting the need for similar workshops at future meetings. While the virtual format ensured broad participation, face-to-face meetings continue to be valuable in fostering closer connections and informal discussions. Stakeholders also suggested

defining common goals for the CoPs to improve cooperation and knowledge sharing between regions. The meeting confirmed the main climate risks in Andalusia, including floods, droughts, heat waves and forest fires, and confirmed the prioritisation of indicators that are crucial for monitoring these hazards. Future efforts will focus on advancing model development, improving educational resources, engaging the region's supporters and increasing stakeholder participation through interactive digital tools.

4.6.2 2nd CoP meeting - Osijek-Baranja County, Croatia

The second Community of Practice (CoP) meeting for Osijek-Baranja County took place on November 26, 2024, in a physical format at the County Chamber in Osijek. The meeting gathered a diverse group of stakeholders, including representatives from government agencies, academia, civil society, and nature conservation organizations. The primary goal was to present ClimEmpower's progress, discuss Trial Guidance Methodology, and explore best practices in climate resilience.

Meeting Objectives and Key Discussions

The primary goal of the meeting was to expand the **Community of Practice (CoP)** in the Osijek-Baranja region, ensuring continuous engagement with stakeholders and fostering long-term communication. Participants were introduced to the **Trial Guidance Methodology (TGM)** and updated on ClimEmpower project progress. The meeting also served to gather stakeholder feedback on climate challenges, educational needs, and collaboration between sectors.

The discussion focused on three key areas:

- Presentation of ClimEmpower results, including progress across work packages (WP1-WP5).
- Best practices using digital and smart devices, such as wetland monitoring with acoustic technology, bee monitoring as a climate resilience tool, and advancements in smart agriculture (projects *Tech4All - WatchOut - Monitoring wetlands and wild animals by using technology and acoustics*, *Bee Scales as a Tool for the Resilience of Climate Change in Apiculture* and *Smart agriculture were presented*)
- Stakeholder discussion on climate challenges, capacity needs, and next steps.

ClimEmpower Achievements Presented

The session provided an update on each work package:

- **WP1:** Summary of the first CoP meeting findings and validation of climate-related risks.
- **WP2:** Data collection updates.
- **WP3:** Demonstration of the platform mock-up.
- **WP4:** Assessment of educational material needs.
- **WP5:** Overview of dissemination activities and introduction of the follower region.

While stakeholders acknowledged the presented information, no major discussion took place regarding these achievements.

Regional Climate Challenges and Priority Needs

Stakeholders confirmed a **high level of awareness** of climate change risks in the Osijek-Baranja County, with **floods, prolonged droughts, heatwaves and temperature fluctuations** identified as primary concerns.

Key insights included:

- Lack of interest from certain sectors, particularly the private sector.
- Education emerged as the top priority challenge, as improper implementation of adaptation strategies is often due to a lack of knowledge and expertise.
- Existing climate services - there is no tool or model specifically tailored to the region's needs.

Adaptive Capacity Needs

The meeting highlighted critical **gaps in data, tools, and services** needed for climate adaptation:

- Lack of region- and sector-specific data.
- Information must be presented in a way that is both understandable and practical for end-users, including local administrations and farmers
- Insufficient engagement from policymakers and private stakeholders.
- Need for stronger coordination and cooperation between the public and private sectors.

Stakeholders pointed out that **technical, financial, policy, and data-related support** is required to build climate resilience in the region. While some national-level climate strategies exist, stakeholders called for more **long-term and regionally tailored strategies**.

Educational and Capacity Building Needs

Education and training emerged as **the most urgent need** in the region.

- While specific **educational materials** were not discussed, stakeholders pointed out the importance of training for all sectors involved.
- Best practices from other **regional projects** were presented and considered transferable, particularly in agriculture and nature protection.

Collaboration and Stakeholder Engagement

Stakeholders **agreed that training and education should be the top priority** for adaptation efforts.

- The academic sector highlighted the urgent need for more professional education.
- The public sector, responsible for providing education, reported a lack of time and resources to offer adequate training.

The second Community of Practice (CoP) meeting in Osijek-Baranja County was a collaborative and engaging event where there was a clear consensus that training and education should be a top priority in climate change adaptation efforts. Stakeholders from different sectors actively participated in the discussion, with the academic sector highlighting the urgent need for more professional training, both in the field of climate resilience and agriculture. Representatives of the public sector, which could provide education, acknowledged that they lack the time and capacity to offer structured and appropriate programs. This discrepancy between the

need for specialized training and the ability to provide it was identified as a major challenge that requires urgent attention. The meeting concluded that training initiatives need to be developed and implemented for all actors involved in climate resilience, regardless of their sector. Although no specific timeline was set, it was agreed that the next step would be to organize smaller working groups instead of large CoP meetings. This approach would allow for a more detailed insight into the challenges of each group. Furthermore, it was strongly recommended to actively involve the private sector, especially larger companies that have so far been reluctant to participate in discussions on climate adaptation and resilience.

No new solutions were proposed during the meeting, indicating the need for further reflection and knowledge sharing at future meetings.

The ClimEmpower conference on February 6 and 7 2025. served as a platform for stakeholder engagement. This event brought together a diverse group of participants to present their efforts and projects connected to climate change, discuss the opportunities and collaboration strategies for further activities. The conference provided an opportunity to refine existing ideas, gain insights from a wider audience, discuss other topics and take concrete steps to strengthen climate resilience in Osijek-Baranja County.

4.6.3 2nd CoP meeting – Region of Central Greece

The second Communities of Practice (CoP) meeting for the Region of Central Greece took place on December 5, 2024, in a physical format at PSTE, Greece. The meeting was facilitated by CERTH and included participants from government institutions, academia, business, and civil society.

The **2nd CoP Meeting for the Region of Central Greece** focused on presenting the progress of ClimEmpower in its first year, discussing local climate challenges, and gathering stakeholder feedback on the **ClimEmpower tool and its application for resilience planning**. The session also provided an opportunity to introduce the **Trial Guidance Methodology (TGM)** and to discuss **data and functionalities** that would enhance the effectiveness of the project.

The primary objective of the meeting was to validate stakeholder concerns regarding floods, encouraging stakeholder collaboration for resilience planning. The discussion also aimed to assess the usability of the ClimEmpower platform, explore the availability of climate services, and address **gaps in data and adaptation strategies**.

ClimEmpower Achievements Presented

During the meeting, project progress was shared with stakeholders, focusing on:

- **WP1:** Resilience assessment and overview of key challenges.
- **WP3:** Demonstration of the Graphical User Interface (**GUI**) for the ClimEmpower application, with discussions on how stakeholders can interact with the platform.
- **WP4:** Presentation of **educational materials** and discussion on the role of training in climate adaptation.

Stakeholders provided **positive feedback** on data-driven approaches but raised concerns about **accessibility for non-experts**. They emphasized the need for **localized climate data** and requested additional **training to enhance the usability of ClimEmpower tools**, particularly in educating local communities about climate hazards.

Regional Climate Challenges and Priority Needs

Stakeholders confirmed that **floods, flash floods, drought, and wildfires** remain the most significant climate hazards in the region. There was broad agreement that **agriculture is the most vulnerable sector**, given its economic significance and susceptibility to extreme

weather events. **Tourism and healthcare were also noted as priority sectors requiring protection.**

A major challenge identified was the **lack of immediate flood protection infrastructure and tools**. Stakeholders pointed that flood mitigation strategies must be prioritized, especially since the region's economy heavily relies on agriculture. Furthermore, there is **little public awareness about flood risks and prevention**, which adds to the vulnerability of communities.

Existing Climate Services and Gaps

Stakeholders were presented a list of **hazard, exposure, and vulnerability services** available in the region. However, most attendees admitted that these services are **not frequently used in their daily operations**. While they occasionally refer to them when needed, there is a lack of active integration into resilience planning.

The following gaps were identified:

- Lack of high-resolution climate data for regional assessments.
- Limited cooperation between relevant stakeholders, particularly in public administration.
- Deficiencies in training and knowledge transfer for better use of climate services.

ClimEmpower Tool and Stakeholder Feedback

The **ClimEmpower architecture application (GUI)** was introduced for the first time, but stakeholders did not provide extensive feedback due to its early-stage development. However, they **highlighted key data needs**, including:

- Historical flood records and high-risk flood zones.
- Climate adaptation interventions in burned areas to prevent further damage.
- Detailed meteorological data (regional and local levels).
- Data on cultivated areas affected by previous floods.
- Air quality, population, fauna, and flora datasets.

Stakeholders emphasized that **the usability of the platform should be a priority**, ensuring that data is accessible to both **technical and non-technical users**.

Adaptive Capacity and Resilience Needs

Several gaps in adaptive capacity were identified, including:

- **Lack of high-resolution spatial data** for local climate assessments.
- **Insufficient technological training** to support data use and interpretation.
- **Poor collaboration between institutions and policymakers**, reducing the effectiveness of climate adaptation strategies.

The **Strategic Environmental Impact Study for the Regional Climate Change Adaptation Plan (PESPKA)** was identified as the only comprehensive adaptation plan currently available.

Stakeholders agreed that a combination of technical, financial, policy, and data-driven solutions is necessary to strengthen adaptive capacity.

Educational and Capacity-Building Needs

Educational materials were briefly presented in tabular form, but there was limited discussion on their application. Stakeholders noted that **capacity-building is essential for public services**, particularly for those responsible for disaster response and planning.

Collaboration and Stakeholder Engagement

There was **consensus among stakeholders** regarding adaptation priorities, particularly concerning **flood risks and their impact on agriculture and urban areas**. Participants actively contributed to discussions, and some referenced **a new document prioritizing mountainous catchments based on their erosion and flood potential**.

In terms of follow-up actions, stakeholders indicated they were waiting for the next steps from the ClimEmpower team, including educational events and further input on platform development. However, no specific timeline was set for these actions. The meeting reinforced the importance of continued engagement, with stakeholders seeking more detailed demonstrations of the platform and its services. Future CoP meetings should prioritize showcasing the practical applications of ClimEmpower tools, providing training opportunities, and addressing the identified gaps in data accessibility and usability. The session concluded with a commitment to maintaining an open dialogue and ensuring that stakeholders receive the necessary resources to enhance their adaptive capacity. Supporting materials, including the agenda, presentation, and report, have been uploaded for reference.

4.6.4 2nd CoP meeting – Sicily, Italy

The second CoP meeting for Sicily was held on November 27, 2024, in a hybrid format, with participants joining both in person in Palermo and online via Zoom. The meeting brought together key stakeholders from government institutions, academia, and research organizations. The session was facilitated by Plinivis ETS and focused on reviewing ClimEmpower's progress, discussing regional climate challenges, and strengthening stakeholder collaboration for climate adaptation.

Meeting Objectives and Key Discussions

The primary objectives of the meeting were to review ClimEmpower progress, assess available climate services, and discuss the integration of methodologies and digital tools for climate impact analysis. The meeting also aimed to validate existing climate risk models, identify challenges and adaptation needs, and gather stakeholder feedback on ClimEmpower tools.

A key emerging objective was to **strengthen institutional coordination** to improve adaptation measures and ensure that **climate data is more accessible and usable for local planning**.

ClimEmpower Achievements Presented

The meeting featured presentations on the **progress of ClimEmpower** in regional climate impact modeling, including:

- The development of a **climate resilience evaluation system**, integrating **environmental and socio-economic factors**.
- The compilation of **educational materials (D4.1)** for stakeholders.
- The introduction of the **Climate Proofing Toolkit** and its role in climate adaptation.

Stakeholders **recognized the project's progress** and emphasized the need for **user-friendly tools** that integrate **local-scale data** and align with existing **strategic planning frameworks**.

Regional Climate Challenges and Priority Needs

Participants confirmed their **high awareness** of climate risks, particularly among institutional stakeholders. However, there is a **need for greater engagement with non-institutional actors**, including **local businesses and civil society**.

The key **validated climate risks** for the region included:

- **Heatwaves** – increasing in frequency and intensity.
- **Urban flooding** – exacerbated by rapid urbanization and poor drainage infrastructure.
- **Droughts** – affecting both water supply and agriculture.
- **Coastal erosion and extreme weather events** – emerging as critical challenges.

Stakeholders emphasized that **agriculture and water management** are the most vulnerable sectors, as they are highly sensitive to climate variability. They highlighted the need for **urban resilience planning**, focusing on infrastructure improvements and disaster risk reduction strategies.

Defining a Local Challenge

Several **priority challenges** were identified:

- **Water scarcity and drought management** at the regional level, requiring long-term adaptation strategies.
- **Urban flooding**, particularly in cities like Catania and Messina, with a need for storm-water management improvements.
- **Climate data accessibility**, with a demand for more localized, high-resolution data to support climate-informed planning.

Existing Climate Services and Indicators

Stakeholders **acknowledged** the available climate services but emphasized **the need for improved real-time climate data access**. They expressed interest in user-friendly climate adaptation toolkits, providing clear guidance and practical solutions for non-experts.

Additionally, there was a request for an interactive GIS-based climate risk visualization platform, allowing users to assess climate risks dynamically.

Adaptive Capacity and Needs

One of the most significant gaps identified was the **lack of localized climate data and detailed risk modeling**. While **some climate data exists**, it is often too generalized, making it difficult to assess risks for specific areas.

To address these gaps, stakeholders highlighted the need for:

- **Technical support** – to improve climate modeling tools.
- **Increased funding** – for adaptation projects, sustainable infrastructure, and early-warning systems.
- **Policy coordination** – ensuring climate resilience is integrated into decision-making processes at all levels.

EU-funded initiatives have provided valuable support, but stakeholders pointed the need for **better coordination between institutions** to ensure that adaptation strategies align with regional and national policies.

ClimEmpower Tool Feedback

The ClimEmpower architecture application was presented, but the interface is at an early stage. While they acknowledged its potential value, concerns were raised about usability, particularly for non-experts.

Stakeholders suggested the inclusion of:

- **A tutorial and user guidelines** to improve accessibility.
- **Enhanced visualization tools** for better understanding of climate risks.
- **Integration with existing climate services** used at the regional level.

Educational and Capacity Building Needs

Educational materials were **not extensively discussed**, but stakeholders showed interest in training materials related to **climate services and adaptation strategies**. They emphasized that such resources should be practical and easily accessible.

No best practices from other regions were presented, and no discussion on their transferability occurred during the meeting.

Collaboration and Stakeholder Engagement

There was broad agreement on the **need to prioritize water management and urban resilience**. Institutional participation was high, but stakeholders acknowledged the need for **broader engagement** with more **diverse actors**, including **local businesses, civil society, and community organizations**.

Several follow-up actions were agreed upon to advance regional adaptation strategies. One-on-one meetings with key stakeholders will be organized to facilitate project prioritization for climate proofing and resilience evaluation. Additionally, efforts will be made to develop regional adaptation strategy recommendations based on insights gathered during the CoP discussions. A key priority will be strengthening data-sharing mechanisms to improve climate risk models, ensuring accessibility for decision-makers. The next CoP meeting is scheduled for March or April 2025, with interim one-on-one sessions planned before the plenary meeting.

The limited involvement of non-institutional actors, including civil society organizations, was identified as a challenge, underscoring the need for targeted efforts to engage a broader audience. Strengthening climate-proofing tools was also recognized as a key necessity, with participants emphasizing the need to improve risk assessment frameworks and integrate climate resilience measures into infrastructure planning and policy development. The meeting also featured a demonstration by Pietro Colonna of the climate-proofing tool developed by JAS-PERS, which was seen as a valuable starting point for envisioning potential ClimEmpower services that could enhance regional resilience efforts.

Future CoP meetings could be improved by incorporating case studies or best practice examples from other regions to inspire actionable solutions. The strong interest in training materials on climate change services presents an opportunity to develop tailored educational resources that enhance stakeholder capacity. Additionally, the recognition of climate-proofing tools as a key area for improvement creates potential for developing standardized frameworks that strengthen resilience across multiple sectors.

4.6.5 2nd CoP meeting – Troodos, Cyprus

The second Community of Practice (CoP) meeting for the Troodos region took place on January 30, 2025, in Evrichou, Troodos, Cyprus. The meeting was held in person and was attended by 14 mayors from local municipalities, three representatives from ANET (the Development Agency of Troodos), and two members from FRC (academic sector). The meeting was

facilitated by ANET and coordinated by FRC. Discussions focused on presenting ClimEmpower's progress, identifying key climate challenges in the region, and collecting empirical data to develop climate resilience indicators.

Meeting Objectives and Key Discussions

The main objective of the meeting was to present ClimEmpower's achievements, review key project milestones, and identify primary climate hazards, vulnerabilities, and adaptation gaps specific to the Troodos region. The session aimed to collect empirical data that could serve as indicators for climate risk assessment and mitigation. Specific goals included defining the initial objectives for the Community of Practice (CoP), assessing regional needs and priorities, understanding stakeholder perspectives, identifying barriers and challenges, evaluating existing climate adaptation practices, and supporting ongoing research within ClimEmpower.

ClimEmpower Achievements Presented

During the meeting, participants were introduced to ClimEmpower's work, including project publications, the ClimEmpower website and social media engagement, data accessibility on Zenodo, and the collection of educational materials tailored for the study areas. Representatives from local communities expressed a strong interest in collaborating and actively participating in ClimEmpower initiatives. Stakeholders highlighted that their involvement in the project helped strengthen relationships between different municipalities and provided valuable insights into the climate risks facing the region.

Regional Climate Challenges and Priority Needs

Stakeholders assessed the level of awareness regarding climate change risks in the Troodos region as moderate to low. There was general agreement that the most pressing climate challenges in recent years have been wildfires, droughts, and heatwaves, all of which are becoming more severe over time. The most vulnerable sectors identified were agriculture, public health and safety, and biodiversity. Notably, most municipalities had not implemented mitigation measures against extreme weather events such as hailstorms, droughts, and wildfires, leaving communities exposed to increasing risks.

Defining a Local Challenge

Several local challenges were identified during discussions. Many municipalities lack alarm systems for extreme events such as hailstorms, wildfires, and heavy rain, and evacuation protocols are either underdeveloped or entirely absent. Citizens are largely unaware of alternative escape routes, and some areas lack designated safety zones. Local governments have not incorporated technology such as weather prediction models or satellite monitoring to anticipate and manage climate risks. The lack of financial support for adaptation measures and the absence of educational materials for public awareness were also highlighted as key gaps that need urgent attention.

Existing Climate Services and Indicators

Stakeholders discussed existing climate services but noted that they lack access to specific local data needed for accurate risk assessments. While some climate information is available at the national level, it is not sufficiently detailed or tailored to the region's unique vulnerabilities. Responses and cooperation from various national departments, including Forestry, Agriculture, Water, Meteorology, Energy, and Health and Safety, are necessary to determine missing indicators that need to be incorporated into risk assessments for Troodos.

Adaptive Capacity and Needs

Several barriers to climate adaptation were identified, including financial constraints, poor communication between government departments, and limited collaboration among

stakeholders. Participants agreed that all types of support—technical, financial, policy-related, and improved data access—are necessary to enhance the region’s climate resilience. However, financial limitations and a lack of coordination between relevant authorities were highlighted as the most significant obstacles preventing effective climate adaptation strategies from being implemented.

ClimEmpower Tool and Educational Materials

Although the ClimEmpower tool was introduced, participants did not provide detailed feedback on its usability or potential improvements, as only the mockup version was available during 2nd CoP meeting. Stakeholders emphasized the importance of accessible educational materials to improve public awareness. They specifically requested simple and clear information leaflets in Greek that could be widely distributed to local communities to enhance understanding of climate risks and adaptation measures.

Collaboration and Stakeholder Engagement

There was broad consensus among stakeholders on the urgent need to prioritize adaptation measures, particularly in wildfire prevention, water management, and emergency preparedness. The meeting successfully engaged local representatives, who emphasized the importance of cross-municipality collaboration to develop coordinated adaptation strategies. However, participants noted a lack of engagement from the private sector, which they suggested should be encouraged in future meetings.

Follow-up Actions

As a next step, the ClimEmpower team will continue refining the project’s tools and services, which will later be presented and tested in the field. Stakeholders emphasized the importance of receiving regular updates and being involved in the development of climate adaptation strategies. Future efforts will also focus on addressing identified gaps, particularly the need for improved financial support, better communication among government agencies, and the creation of educational resources tailored to local needs.

Additional Observations

The meeting highlighted the importance of strengthening collaboration between local governments, technical agencies, and policymakers to ensure that adaptation efforts are well-coordinated and effective. Stakeholders pointed the need for practical solutions, such as better early-warning systems, increased use of climate monitoring technology, and clear protocols for emergency responses.

Participants expressed a strong interest in learning from best practices implemented in other regions and suggested that future CoP meetings should include case studies demonstrating successful adaptation strategies. Additionally, stakeholders emphasized that future meetings should provide a fully functional demonstration of the ClimEmpower tool to help them understand how it can be applied in their communities.

Outcomes and Next Steps

The meeting reinforced the urgency of developing tailored climate adaptation strategies for the Troodos region, particularly in wildfire prevention, drought management, and disaster preparedness. Moving forward, the ClimEmpower team will focus on refining its climate adaptation tools, enhancing data accessibility, and developing training materials that address the specific needs of local communities. The next CoP meeting will be scheduled once the project's tools and services are ready for testing, ensuring that stakeholders can actively participate in evaluating and improving them.

4.6.6 Overall Summary of the 2nd CoP Meetings Across ClimEmpower Regions

The second round of Community of Practice (CoP) meetings across the five ClimEmpower regions—Andalusia (Spain), Osijek-Baranja County (Croatia), Region of Central Greece, Sicily (Italy), and Troodos (Cyprus)—provided deeper insights into regional climate challenges, stakeholder engagement, and necessary adaptation measures. These meetings were a platform to update stakeholders on ClimEmpower progress, validate key climate risks, assess regional adaptation capacity, and refine project methodologies and tools. While each region had unique climate-related priorities and adaptation challenges, there were significant similarities in stakeholder concerns, gaps in data availability, and the need for better institutional collaboration and engagement across sectors.

Common Themes Across All Regions:

- High stakeholder awareness of climate risks but gaps in adaptation measures:** across all regions, stakeholders demonstrated strong awareness of climate risks, with specific emphasis on heatwaves, droughts, wildfires, flooding, and extreme weather events. However, despite this awareness, adaptation strategies remain underdeveloped due to gaps in funding, lack of coordinated policies, and insufficient engagement across sectors.
- Lack of access to localized climate data and risk mapping:** all five regions highlighted the need for improved climate data availability, particularly localized risk mapping. Stakeholders frequently noted that existing climate models do not incorporate future projections or account for compound risks (e.g., wildfires increasing due to prolonged drought). In many cases, national-level climate services exist, but their applicability at the regional level is limited due to low resolution, lack of updates, or lack of awareness among local stakeholders.
- Demand for training and educational resources:** every region pointed the importance of educational materials and training programs for decision-makers, public services, and local communities. Stakeholders emphasized the need for practical, easy-to-understand educational resources, workshops, and technical training to improve knowledge on climate risks, adaptation planning, and disaster preparedness. The absence of structured climate change education for policymakers and local administrations was a widely shared concern.
- Challenges in stakeholder engagement,** particularly from the private sector: meetings revealed a lack of engagement from private-sector stakeholders, particularly in sectors such as agriculture, tourism, and infrastructure development. In some regions (e.g., Osijek-Baranja and Troodos), stakeholders from private businesses noted low interest in climate resilience, while in others (e.g., Sicily and Andalusia), the issue was fragmented collaboration between institutions, businesses, and local governments.
- Emphasis on strengthening institutional coordination:** meetings identified poor coordination between government agencies, municipalities, and sectoral institutions as a major barrier to implementing climate adaptation measures. This was particularly evident in Sicily, Andalusia, and the Region of Central Greece, where stakeholders pointed the need for better integration of climate adaptation into planning policies and the development of standardized frameworks for resilience-building.
- Need for enhanced flood management and water security measures:** while all regions identified multiple climate risks, the need for improved flood management strategies and water resilience measures was universal. Andalusia, Central Greece, and Sicily raised concerns about urban flooding, extreme rainfall events, and inadequate

stormwater drainage systems. In contrast, Troodos and Osijek-Baranja emphasized the need for better drought and water resource management. Several stakeholders called for the use of smart monitoring technologies (e.g., satellite observation, AI-based forecasting) to predict and mitigate extreme hydrometeorological events.

4.6.7 Key Takeaways and Recommendations

To build stronger climate resilience across all ClimEmpower regions, **improving access to localized climate data is essential**. This means enhancing risk mapping, making forecasting more accurate, and ensuring that future climate scenarios are fully integrated into the project's data services. Equally important is public education and training for stakeholders, particularly for local governments, public services, and community leaders, who play a crucial role in climate adaptation efforts.

Better coordination between municipalities and national agencies is also needed. Stronger collaboration will help ensure that climate adaptation strategies are not only well-planned but also effectively implemented at both regional and local levels. Climate policies and planning must embrace adaptation frameworks to make resilience a key part of decision-making rather than an afterthought.

Another important aspect is increasing private-sector involvement. Businesses, farmers, and industries are on the line of climate impacts, but their engagement in climate adaptation discussions has been limited. Future CoP meetings should focus on bringing them into the conversation, making sure their concerns and perspectives are included in the strategies.

Sharing knowledge and learning from success stories in other regions is just as important. By integrating real-world case studies into future CoP meetings, ClimEmpower can highlight effective solutions and create opportunities for regions to adopt and scale best practices. Through better data, stronger collaboration, and a broader network of engaged stakeholders, ClimEmpower can drive real, lasting impact in climate resilience efforts.

4.7 Planned activities m19-m36

The planned activities for months 19 to 36 continues the framework established in the first 18 months. A series of targeted workshops and stakeholder meeting will be organised to collect the feedback, validate project tools and services and ensure practical applicability in the ClimEmpower and follower regions. Plans for the upcoming workshops are presented in Table 11. **Error! Reference source not found.** Table 11. Planned workshops M19-M36

Workshop	Tentative Timing	Context	Participants	Summary	Goals
WS2	~m20-m24	WP4	CoP & Follower	<p>Discussion and feedback on following deliverables:</p> <ul style="list-style-type: none"> • D2.2 Climate Change resilience: indicators. • D2.4 Measures and strategies for increased Climate Change resilience • D4.3 Regional CC-resilience recommendations v1 <p>Trial plan A detailed presentation of the trial implementation plan, trial objectives, roles and responsibilities will be prepared and presented to stakeholders. The workshop will facilitate a re-evaluation of the alignment between project results and CoP expectations through a participatory co-creation process using engagement tools. Stakeholders' feedback will be used to validate and improve the trial specifications (input to D4.5, which is due in m24)</p>	<ul style="list-style-type: none"> • Gather trial inputs from stakeholders, • Present and validate the trial organization and planning. • Discuss the trial objectives, specific roles of CoP members, and their role in the trial. • Discuss climate, socio-economic, governance indicators for region. • Discuss methodology of spatial data downscaling, social sensing, and fusion of different data types.

Workshop	Tentative Timing	Context	Participants	Summary	Goals
WS3	~m26-m28	WP4/WP5	Cop & Follower	<p>Trial Execution Implementation of trial scenarios and collecting data necessary for their evaluation. WS will start with an overview of the trial, objectives, research questions and scenarios, while informing stakeholders of their roles and responsibilities during the trial. The main part of the workshop will involve scenario execution, followed by a discussion on which aspects of the trial were relevant and successful for stakeholders and to what extent.</p> <p>Stakeholder feedback and collected data will be used to validate the project outcomes, to decide what and how to present on “mini-trial” WS, and to contribute to the ClimEmpower sustainability and exploitation strategy.</p>	<ul style="list-style-type: none"> • Execute the trial scenario. • Collect stakeholders’ feedback (data collection).
WS4	-m30	WP4/WP5	Public	<p>Mini-trial Each of the ClimEmpower trial regions will develop a simplified version of the trials as a demonstrator to engage follower regions and determine the level of replicability in a broader context at EU level.</p> <p>Mini-trials will be held as a workshops for (stakeholders of) the follower regions with the aim of presenting the final results achieved by the trial and validation process and the results of the participatory co-creation process in order to assess their relevance and usability. => input to sustainability and exploitation planning</p>	<ul style="list-style-type: none"> • Evaluation and transferability of ClimEmpower results. • Assessment of the socio-economic effects of the solutions.
EWS-1	~m30	WP5	Public	<p>Results applicability Educational materials ClimEmpower toolbox Outreach ClimEmpower results</p>	<ul style="list-style-type: none"> • Present the project outcomes to the wider public, • Networking • Exploitation
EWS-2	~m33	WP5	Public	<p>Results applicability Educational materials ClimEmpower toolbox Framework and user-centric applications for climate resilience Outreach ClimEmpower results</p>	<ul style="list-style-type: none"> • Present the project outcomes to the wider public, • Networking • Exploitation

Workshop	Tentative Timing	Context	Participants	Summary	Goals
EWS-1	~m36	WP5	Public	Final project demonstrator	<ul style="list-style-type: none"> • Present the project outcomes to the wider public, • Networking • Exploitation • Celebrate the project end.

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5 Risk management

In the context of the ClimEmpower project, several risks are associated with the stakeholder engagement plan and trial execution, where active participation from stakeholders is expected.

By recognizing potential risks, the trial team could react proactively and develop mitigation strategies. Some risks might lead to stakeholder disengagement if they are not properly managed, and some can have a negative impact on the project (delays, failure to meet objectives). The identification and management of risks related to stakeholder engagement contributes to better project outcomes and ensures that the project will meet its goals, offer value to stakeholders and achieve a positive and wide impact.

The most important risks, identified in this phase are connected to technology, realism of trials, engagement, communication, misalignments, and unrealistic expectations of stakeholder contribution. Brief overview of these risks and their mitigation strategies are outlined in the Table 12. As of 03/2025, the most important risk-mitigation activities relate to managing the stakeholder’s expectations (“too complex scenarios”, “misalignment of expectations”) and delays in implementation (“timing”).

Table 12. Risk overview and mitigation strategies

Risks	Mitigation strategies
Lack of stakeholder interest and engagement	Target communication Benefits of participation Detail and correctly targeted stakeholder need Tailored solutions
CM Practitioners’ interest is neglected	Check that the interests of stakeholders doesn’t get lost
Too complex and unreal trial scenarios	Scenarios should be realistic Must reflect practitioners’ reality Ask the main stakeholders for their feedback on data collection plan
Misalignment of stakeholder expectations	Meetings with stakeholders Engaging stakeholders in co-design process Including all relevant stakeholders in trial preparation
Communication barriers	Multiple communication channels with stakeholders Ensuring language and cultural aspects in communication Trials on local languages Important materials on local languages
Organisation challenges	Planning in advance Flexibility in scheduling meetings Offer hybrid or online participation
Data privacy and confidentiality	Ensuring confidentiality Ensuring safe place to discuss Establish data privacy policies
Stakeholder fatigue	Prioritize quality over quantity Integrate their inputs in trial execution
Unrealistic expectations of stakeholder contributions	Setting realistic expectations Adequate resources to facilitate their contribution Well-designed timeline Well-designed questionnaires

Timing

Be realistic when scheduling and setting deadlines
Adjust or change initial plans even in execution phase

Besides the risks associated with trial execution, the WS0, WS1 and CoP meetings revealed several challenges related to stakeholder engagement. One of the challenges identified during the initial workshops and CoP meetings is the lack of active **participation from certain stakeholder groups**. In some regions, private-sector actors, local businesses, and specific public institutions have shown lower levels of engagement, which can lead to gaps in data collection, decision-making, and project implementation. Targeted outreach efforts should be implemented, scheduling engagement activities as hybrid meetings or smaller working groups, can improve their participation.

Another significant risk is the **insufficient data and knowledge sharing among institutions**. Many stakeholders, particularly municipalities and national agencies, face challenges with fragmented communication and limited mechanisms for data exchange. Without effective collaboration, lack of the necessary information to develop well-informed climate resilience solutions may occur. To mitigate this risk, knowledge-sharing events, such as regional workshops and roundtables, can help improve communication.

A third risk is the **low awareness and capacity in climate resilience among stakeholders**. In several regions, a lack of technical knowledge and awareness about climate risks, adaptation strategies, and available tools has been reported. This limitation affects their ability to contribute effectively to the project and implement long-term climate strategies. To overcome this, region-specific educational materials and training programs should be developed, focusing on interactive workshops that build stakeholder capacity. Providing multilingual, easy-to-understand materials can accommodate different levels of technical expertise and improve accessibility. Incorporating best-practice case studies from other regions can also demonstrate successful climate adaptation strategies and encourage their adoption in different contexts.

6 Conclusion

The second iteration of Stakeholder Engagement Plan and Events Report builds upon the foundations established in the first version. Over the first 18 months, ClimEmpower has successfully established and strengthened Communities of Practice (CoP) in the five case study regions – Andalusia, Osijek-Baranja County, Sicily, Troodos Mountain area and The Region of Central Greece. CoPs are coordinating the regional stakeholders, and empowering them to collaboratively address climate resilience challenges, exchange knowledge and contribute to climate adaptation strategies. The engagement process has evolved through structured workshops, CoP meetings and bilateral discussions which ensured dialogue between researchers and representatives of Quadruple Helix.

This second version gathers stakeholder activities conducted between M9 and M18 and sets up the plans for future activities (M19 - M36). The goal is to ensure that stakeholder participation remains active, meaningful and that contributes to project objectives. Key achievements so far include the identification of the main climate hazards, assessment of regional data and services and defining regional needs – all through CoP interactions.

As ClimEmpower moves towards implementation and validation phase, the focus will be on organizing regional trials, refining requirements on decision-support tool(s) and ensuring that developed tools are in alignment with the local needs. Key aspect will be the practical application of developed solutions. Continuous stakeholder engagement will also have important role in refining policy recommendations.

Stakeholder engagement plan and events report v2 will remain a living framework, adapting to new insights and challenges while maintaining the core objective of empowering regional actors to build climate resilience through knowledge, collaboration and innovation.

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