



# STAKEHOLDER ENGAGEMENT PLAN AND EVENTS REPORT V1

ClimEmpower Work Package 5, D5.6, v1



Project ClimEmpower: User Driven Climate Applications Empowering  
Regional Resilience

Work package 5, Deliverable D5.6

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# List of Acronyms

<b>AIT</b>	Austrian Institute of Technology GMBH
<b>ANDALUS</b>	Consejería de Sostenibilidad, Medio ambiente y Economía Azul
<b>ANET</b>	Anaptixiaki eteria kinotiton periochis troodoys ltd
<b>AMAYA</b>	Agencia de Medio Ambiente y Agua de Andalucía (Water and environment public agency in Andalusia)
<b>AQUA</b>	AQUATEC – Proyectos para la gestión del agua
<b>BINGO</b>	Bringing INnovation to onGOing water management (H2020 program, Grant agreement ID: 641739, 2015-2019; <a href="https://cordis.europa.eu/project/id/641739">https://cordis.europa.eu/project/id/641739</a> )
<b>CC</b>	Climate Change
<b>CCA</b>	Climate Change Adaptation
<b>CERTH</b>	Ethniko kentro erevnas kai technologikis anaptyxis
<b>CET</b>	CETAQUA -
<b>CIC</b>	Climate Interaction Context
<b>CoP</b>	Community of Practice
<b>CS</b>	Case Study
<b>CSF</b>	Case Study Facilitator
<b>DANA</b>	Depresión Aislada en Niveles Altos (Isolated Depression at High Levels)
<b>DRIVER+</b>	DRIVER+project - DRiving InnoVation in crisis management for European Resilience, 2014-2020 (FR7 programme, Grant agreement ID: 607798, 2014-2020; <a href="https://www.driver-project.eu/driver-project/">https://www.driver-project.eu/driver-project/</a> )
<b>DRR</b>	Disaster Risk Reduction
<b>DSS</b>	Decision Support System
<b>ECMWF</b>	European centre for medium-range weather forecasts
<b>ESPRESSO</b>	ESPRESSO project - Enhancing Synergies for disaster PRevention in the EurOpean Union (H2020 program, Grant agreement ID: 700342, 2016-2018; <a href="https://cordis.europa.eu/project/id/70034">https://cordis.europa.eu/project/id/70034</a> )
<b>EU</b>	European Union
<b>FAIR</b>	Findable, Accesible, Interoperable and Reusable
<b>FER</b>	Sveuciliste u Zagrebu Fakultet Elektrotehnike i Racunarstva
<b>FRC</b>	Frederick Research Center
<b>FUA</b>	Functional Urban Area
<b>GDPR</b>	General Data Protection
<b>GPD</b>	Gross Domestic Product
<b>ICARIA</b>	ICARIA - Improving ClimAte Resilience of crltical Assets (HORIZON-MISS-2021 program, Grant agreement ID: 101093806, 2023-2025; <a href="https://cordis.europa.eu/project/id/101093806">https://cordis.europa.eu/project/id/101093806</a> )
<b>IPCC</b>	Intergovernmental Panel on Climate Change

<b>KPI</b>	Key Performance Indicator
<b>MUs</b>	Mission Users
<b>OBZ</b>	Osiiek-Baranja County (Osjecko Baranjska Zupanija)
<b>OBZ-AZP</b>	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)
<b>PLINIVS</b>	PLINIVS
<b>PNACC</b>	National Climate Change Adaptation Plan approved by the Italian Government
<b>PSTE</b>	Periferia Stereas Elladas
<b>RAs</b>	Regional Authorities
<b>REDIAM</b>	Red de Información Ambiental de Andalucía (Environmental Information Network of Andalusia)
<b>SAIH</b>	Sistema Automático de Información Hidrológica (Automatic System of Hydrologic Information)
<b>SECAP</b>	Italian Action Plan for Sustainable Energy and Climate
<b>SHIELD</b>	Framework designed in ESPRESSO project that stand for “Sharing knowledge, Harmonizing capacities, Institutionalizing coordination, Engaging stakeholders and Leveraging investments”
<b>SICILY</b>	Sicily Region
<b>SMART</b>	Specific, Measurable, Achievable, Reasonable and Time-bound
<b>SO</b>	Strategic Objective
<b>SSH</b>	Social Sciences and Humanities
<b>TGM</b>	Trial Guidance Methodology
<b>TIM</b>	Trial Integration Meeting
<b>WCDS</b>	Western Costa del Sol
<b>WP</b>	Work Package

# Glossary

<b>Climate impacts</b>	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)
<b>Community of Practice</b>	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
<b>Case Study Facilitator</b>	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.
<b>Quadruple helix model of innovation</b>	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
<b>Stakeholder</b>	A person with an interest or concern in something

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## Executive summary (publishable)

Stakeholder Engagement Plan and Events Report (Plan) is a document that determines strategy for engaging stakeholders, dialogue and knowledge exchange in the project and supports all activities and events related to stakeholder engagement. This document is important because it provides structure and guidance for successfully managing stakeholder relations, enabling project consortium members to maintain transparency, collaboration and achieve project goals.

Stakeholder engagement plan and event reports will define the strategy of stakeholder engagement in the ClimEmpower's case study regions and goals related to stakeholder engagement, communication and interaction with different stakeholders such as local authorities, scientific institutions, industry, and civil society organizations, and communities affected by climate change.

Through these components, Plan outlines the methodology for establishing, overseeing, and implementing Communities of Practice (CoPs) in the case study regions (Troodos, Osijek-Baranja County, Region of central Greece, Sicily and Andalusia), enables the successful management of relations with stakeholders, ensures support in the decision-making process and ensures that the interests of stakeholders are adequately represented and considered in the implementation of the project. It also explains the connection between local CoP's and trials and mini trials that will be conducted through the project as part of WP4 activities.

In every ClimEmpower's trial regions, a simplified versions of the trial scenarios will be developed to enable exchanges with follower regions, to ensure the replication potential of the proposed solutions.

Based on the Dissemination and Communication plan, Plan will support planned communication activities with stakeholders, including CoP's meetings, workshops, public discussions, distribution of informational materials and use of digital platforms for communication, and especially final workshops and regional trials. It will also include all events and activities for stakeholder engagement, such as regional workshops, meetings with local authorities, testing and validation and presentation of results. Each stakeholder engagement event or activity will include information about participants, expected results, contributions, discussion topics, conclusions, and next steps.

The stakeholder engagement plan and events report will contain elements of analysis of stakeholder involvement in the project's activities and analyse their level of engagement, enabling the project to adjust its activities to better respond to stakeholder needs.

# 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).

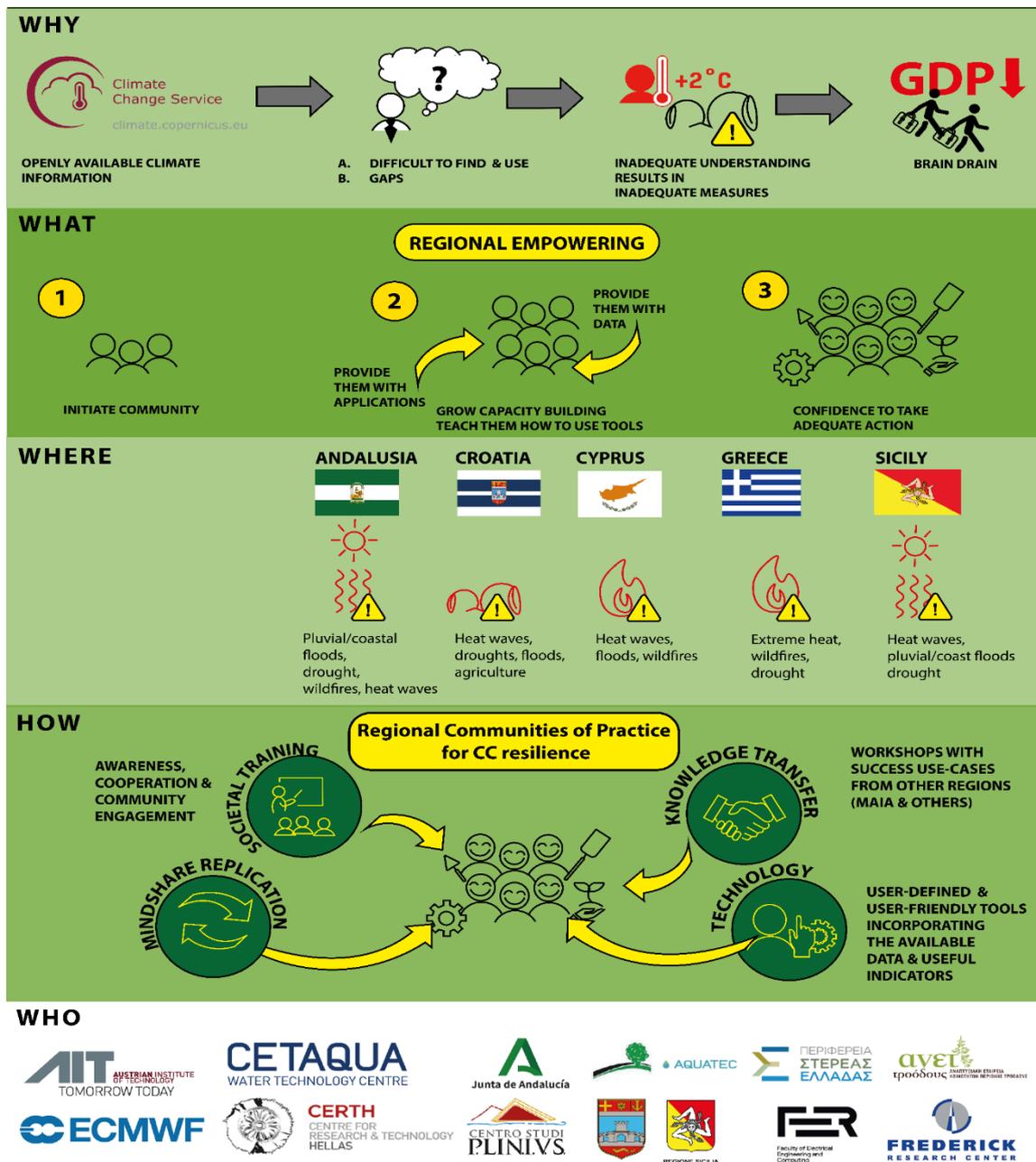
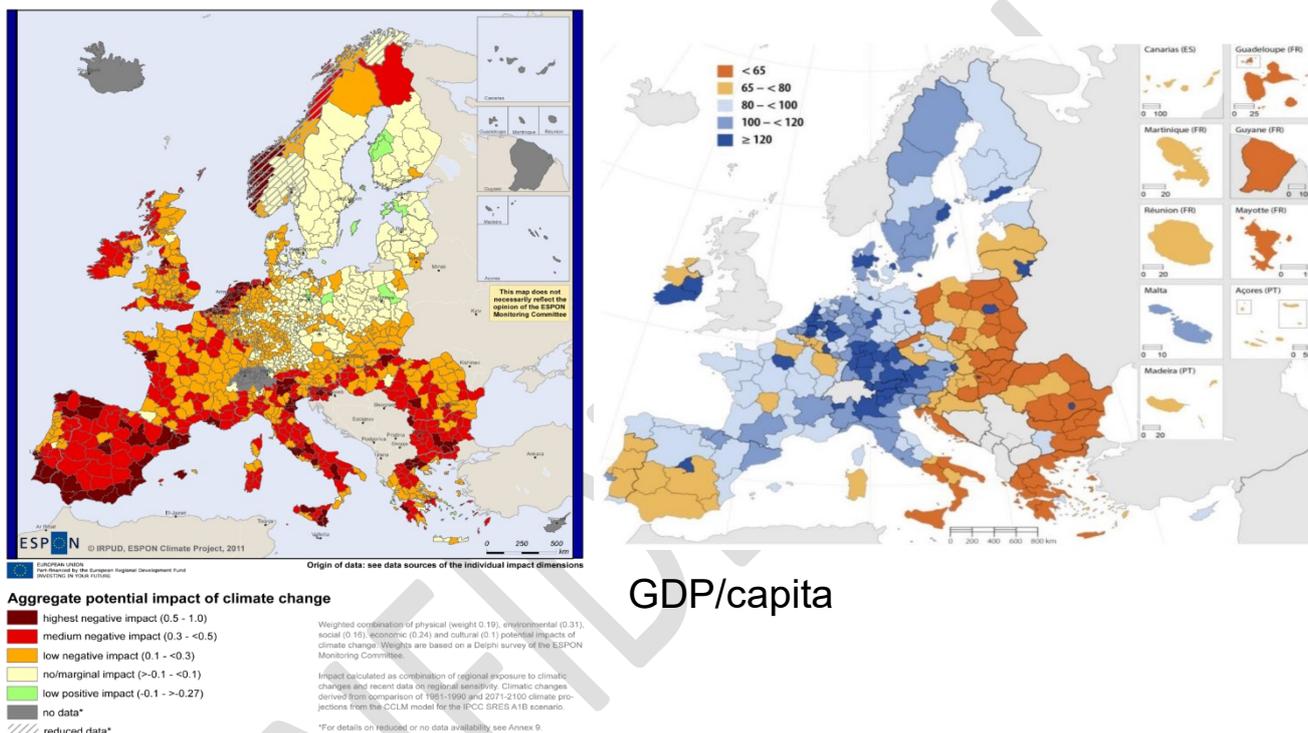


Figure 1: ClimEmpower at a glance: why, what, where, how and who.

# 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 SMART<sup>2</sup> 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.

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<sup>2</sup> 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 part of WP5 *Enhancing the Outreach and Impact* and describes the strategy and activities for involving relevant stakeholders in the project to achieve objectives and successfully implement 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.

This document is **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 and follower regions. 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.

Main goal of this deliverable is to outline a plan for cooperation between the scientific community and institutions and entities that implement plans, programs, and strategies for climate change resilience. This interaction will be realized through the local communities of practice<sup>3</sup>(CoPs) which have been formed for each of the five case-study regions (Troodos, Osijek-Baranja County, Region of central Greece, Sicily, and Andalusia) at the project start. ClimEmpower aims to advance understanding of climate change risks and long-term resilience planning practices through CoPs activities. Therefore, the CoPs represent a key instrument for ensuring that project results are relevant and useful for end users.

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<sup>3</sup> A Community of Practices (CoP) is a 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 (Wenger-Trainer, 2015)

## 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 and meetings with stakeholders not included in CoP's are of great importance for other work packages in the ClimEmpower project because they anchor the scientific and technological work of the consortium with actual user needs and expectations (Table 1).

**Table 1: WP's specific expectations from stakeholder engagement**

Inputs from Stakeholders (Meetings/workshops)	WP	Inputs used for:
Starting point for identifying the main hazards of the regions.	WP1 Regional CC-resilience background, challenges, expectations	<ul style="list-style-type: none"> <li>• A common understanding of the local/regional backgrounds, context, needs, challenge, gaps, and barriers for adaptation/mitigation.</li> <li>• Tailored scenarios for each ClimEmpower region</li> </ul>
Identification of the specific needs of the regions, including local data tools, services, and gaps.	WP2 Addressing the CC data and knowledge Gaps	<ul style="list-style-type: none"> <li>• Analysis of available data, indicators, and climate services.</li> <li>• New tangible indicators built upon existing ones or newly defined to enable regions to understand and better grasp the problems they are facing.</li> </ul>
Identification of needs for data-centric climate data processing and indicator services (with WP2).	WP3 User-centric CC-resilience enhancing services	<ul style="list-style-type: none"> <li>• Feasible data services for the region, aligning with the expectations and needs of the stakeholders.</li> </ul>
Providing support to the holding of CoP meetings and the building of the stakeholder community tree. Creation of educational materials and interactive tools based on the needs of the regions. Trials and mini trials.	WP4 Empowering the regions	<ul style="list-style-type: none"> <li>• Establishment a continuous feedback loop with WP2 and WP3,</li> <li>• ensuring that project outcomes answer regional needs as defined in WP1 and WP4, and finally validate them from a community perspective.</li> </ul>
Stakeholder's feedback.	WP5 Enhancing the Outreach and Impact	<ul style="list-style-type: none"> <li>• Adjusting Dissemination and communication plan</li> <li>• Adjustment of dissemination and communication activities</li> </ul>

First link of the Plan is 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 and expectations and develop a common understanding of the baseline regional needs, capabilities, gaps, and barriers for CC adaptation/mitigation. These activities continue in **WP4 Empowering the regions**:

- **Task 4.2. Involve and empower regional actors** will ensure 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 4.3 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.

This Plan is also connected with **D5.1 Dissemination and Communication plan** (v1 was published in m6) because dissemination and communication activities are directed towards various types of stakeholders. D5.1 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. This document goes beyond D5.1 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

**No (new) data sets relevant for ClimEmpower Data Management Plan were used or produced in preparation of this deliverable.**

### 2.3.1 Security and Ethics

This is a sensitive document because of confidential information about stakeholders. It contains 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, this document is considered an internal document and is shared only with relevant project team members.

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.

# 3 Regions

## 3.1 ClimEmpower regions and background

*ClimEmpower will empower **five south-European regions with high Climate Change (CC) risk and exceptionally low adaptive capacity** to enhance their CC-resilience, establish the regional Communities of Practice (CoP) and co-create the resilient development strategies adapted to the regional needs and potentials.*

To decide which regions to include, project consortium started with ESPON 2012 map of regional coping capacity, which indicated that **coping capacity is lowest in the south- and east- EU states**, scales roughly in line with their respective GDP per capita PPP ten years ago. Since the “new EU” States that joined EU in 2004 and 2007 have all experienced a decade of exceptionally high development, we have decided to concentrate on Mediterranean members, where the Great Recession of 2007-2009 had the largest and most lasting negative socioeconomic impacts. Moreover, these are also the **regions with highest aggregated potential CC impact in Europe**.

Within these states, project consortium identified several **regions with exceptionally low regional GDP per capita (PPP), stagnant economy, negative demographic development, and high unemployment**. Final choice of regions was made by accounting for geography and expertise, to assure a **balanced mix of coastal, insular, continental, and mountainous regions** as well as to ensure that each region can be paired with one of the technical, scientific, and cross cutting (TSCC) partners (from the same EU state).

### 3.1.1 Andalusia, Spain<sup>4</sup>

The Andalusia case study for ClimEmpower will be made up by the sub-region called “Western Costa Del Sol (WCDS)”. The study area comprises 11 municipalities (Estepona, Marbella, Mijas, Fuengirola, Torremolinos, Benalmadena, Manilva, Casares, Benahavis, Istan and Ojen) on the Spanish Mediterranean coast in Malaga Province, termed here the ‘Costa del Sol’.



Figure 3.: Western Costa del Sol, Andalusia

<sup>4</sup> ClimEMpower D1.1 Community of practice organisation and expectations, ClimEmpower consortium, 2024.

This area is one of the primary tourist destinations in Europe (with a record of 13 million tourists in 2019 and an economic impact of 14.442 M€) and expected to be the one most impacted by global warming. These municipalities have a total permanent population of 579.350 inhabitants (2022), with the largest urban centres (Estepona, Marbella, Mijas, Fuengirola, Torremolinos, Benalmadena) accounting for 92% of the total. In common with many other Mediterranean coastal areas, the permanent population is more than doubled in summer months by tourism (1.200.000 inhabitants). the WCDS is a region highly vulnerable to global change impacts, because of the interaction of:

- 1) An **extremely variable seasonal water demand** arising from the major tourist industry, with significance socio-economic risks related to **water scarcity** (e.g., water scarcity cost)
- 2) A **drought-prone climate** with **global warming** potentially impacting the area preferentially and resulting in increasing frequency of heatwaves and wildfires with the corresponding impacts on human lives and water infrastructure (impacts on drinking water quality). The wildfire risk is also influenced by the variability on seasonal population. The higher the human exposure, the higher risk.
- 3) Disruption in rainfall patterns which lead to **heavy rainfall** and causes **floods**. Combined with other compound events (**storm surge**) due to sea level rise, aggravate the consequences of this flooding episodes.
- 4) **Rapid land-use change** on the coastal plain which forms the recharge area of local aquifers, with variable impacts from the urbanization of previously arable land and the large number of golf courses irrigated partly with treated wastewater.

Figure 4 summarises the main findings of the first CoP Meeting in Andalusia and indicates the key needs and expectations of the region.

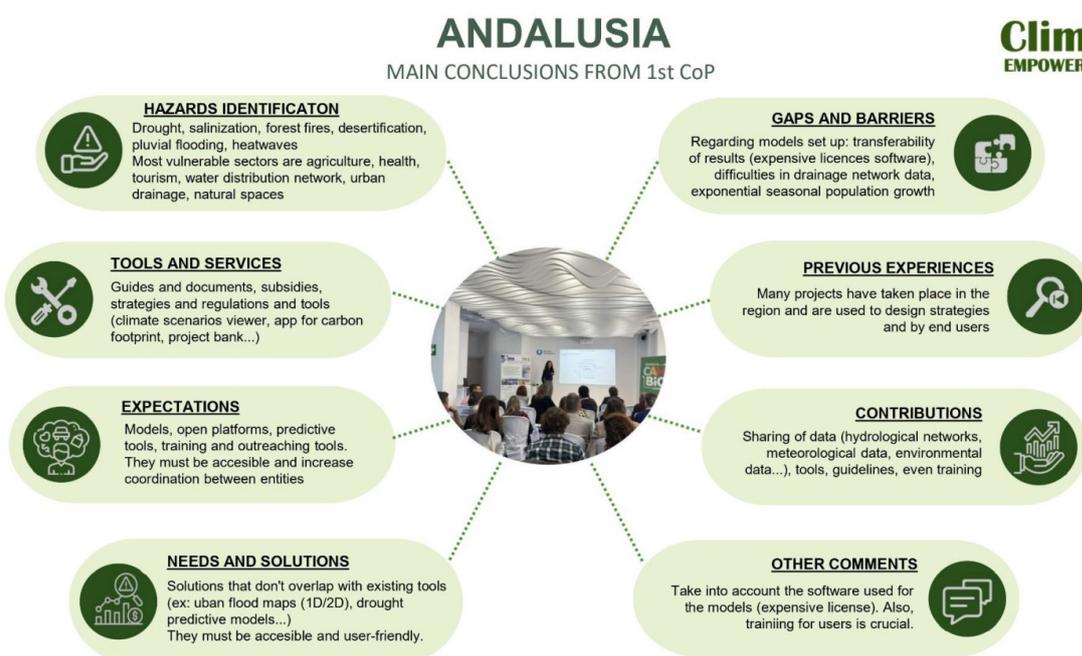


Figure 4.: CoP Meeting summary, Andalusia, from ClimEmpower D1.1

### 3.1.2 Osijek-Baranja County, Croatia<sup>5</sup>

Osijek-Baranja County is one of the largest counties in Croatia. It is located in Eastern Croatia and covers a surface of 4.149 km<sup>2</sup>, which makes up 7.3 % of the total area of the Republic of Croatia. According to Croatian Bureau of statistics, the population of the Osijek-Baranja County has peaked at 367.193 inhabitants in 1991 and has been continuously losing population ever since: 330k in 2001, 305k in 2011 and 259k in 2021.

The County borders with Hungary to the north and Serbia to the east. It is mainly a lowland surrounded by rivers (especially two very important rivers - the Drava and the Danube), wetlands, and forests (covering 87,885 ha), which created an abundance of reserves, parks, lakes, and ponds that later became protected areas, declared by the Government. Due to this ecosystem, the agricultural land is also extremely fertile, making this county one of the most important agricultural areas in Croatia. It has 212,673.75 ha of arable land; therefore, the main economic branch has been food production and agriculture for many decades.

With the development of a rich natural heritage and fertile arable land, eco-tourism, wine tourism, rural tourism, family farms offering homemade products, accommodation in authentic households and many other forms of tourism and activities have developed, from which the local communities have certain benefits.



Figure 5.: Osijek-Baranja County, Croatia

One of the particularities of the region is that certain micro-locations need special water conditions for the animal and plant life, with not too scarce and not too extreme water waves. Similarly, for the agricultural land, the crops need rainfall but not severe rainfall, whereas droughts can also have negative impact both on the crops and the surrounding environment. Since the area is surrounded by water, as mentioned above, the extreme water levels due to climate change do not only affect the plant and animal life or agricultural land, but also the security of the inhabitants.

<sup>5</sup> ClimEMpower D1.1 Community of practice organisation and expectations, ClimEMpower consortium, 2024.

Figure 6 summarises the main findings of the first CoP Meeting in Osijek-Baranja and indicates the key needs and expectations of the region.

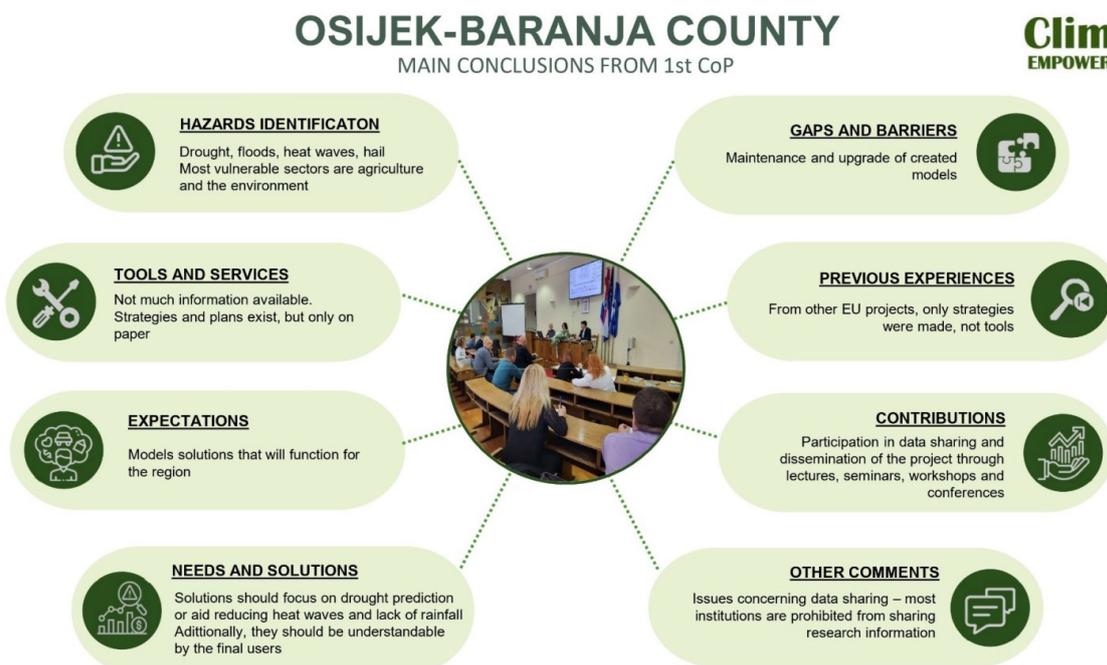


Figure 6.: CoP Meeting summary, Osijek-Baranja County

### 3.1.3 Region of central Greece, Greece<sup>6</sup>

The Region of Central Greece (Perifereia Stereas Elladas-PSTE) is the second largest administrative region in Greece in total area (15,549.31 km<sup>2</sup>), with a population of 555,960 inhabitants (5.2% of the country's population). It accounts for 4.7% (€8.767bn) of the country's GDP while the regional GDP per capita in PPS was €19,300 in 2018 (EU28 average €31,000). More than half of the region is composed by mountains, followed by lowland and semi-mountainous terrain.

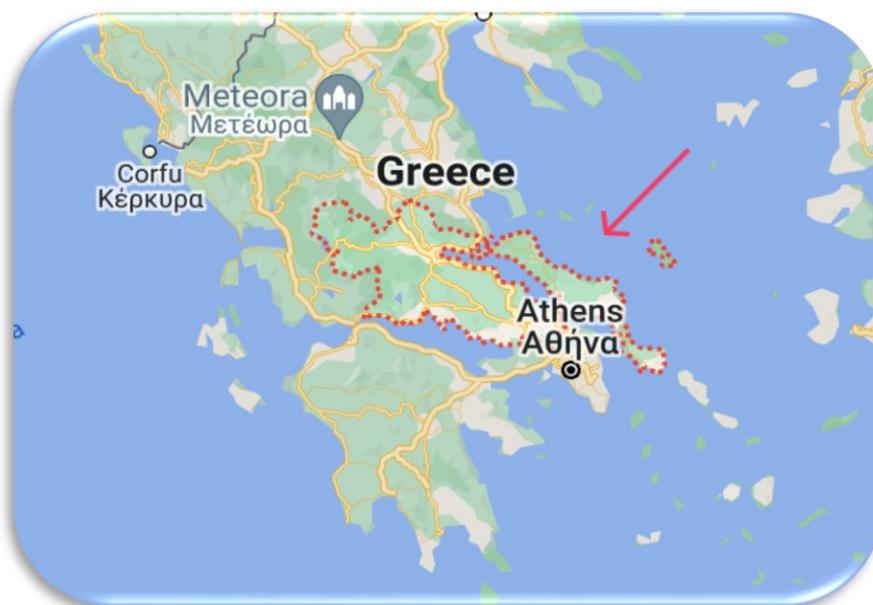


Figure 7.: Region of central Greece, Greece

PSTE is one of the most mountainous in Greece, having some of the highest elevations in the country, and wetlands such as Copais lake and water resources that are mainly used for the food production and the metal industry. PSTE is dominated by the manufacturing sector – with a prominent sector of metal – which has developed mainly due to its proximity to the capital city of Athens. The region is also an important agricultural centre (11 PDOs & 18 PGIs) while the sectors of tourism and services are underdeveloped despite the regional potential.

<sup>6</sup> ClimEMpower D1.1 Community of practice organisation and expectations, ClimEmpower consortium, 2024.

Figure 8 summarises the main findings of the first CoP Meeting in Central Greece and indicates the key needs and expectations of the region.



Figure 8.: CoP Meeting summary, Region of Central Greece

### 3.1.4 Sicily, Italy<sup>7</sup>

Sicily, the largest island in Italy, encompasses an area of 25,832.39 square kilometres and a population of 4,782,457 inhabitants as of 2022. Significantly, Sicily's regional gross domestic product (GDP) contributes 5% to the national GDP, primarily propelled by the key economic sectors: agriculture, industry, and tourism.

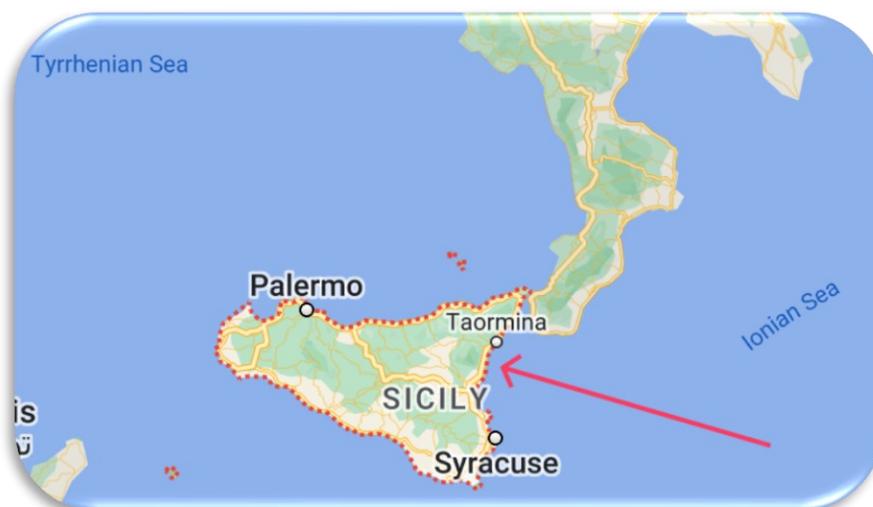


Figure 9.: Sicily, Italy

Sicily is increasingly susceptible to the adverse impacts of climate change, particularly evident in its urban area. Urban areas emerge as focal points of vulnerability, marked by heightened exposure to climate change-induced hazards. Instances of severe heat waves, exemplified by a noteworthy temperature of 48.8°C recorded in August 2021, as well as pluvial and coastal flooding events, evidenced by precipitation levels ranging from 150 to 300 millimetres in 2021, underscore the pronounced vulnerability of Sicily's urban landscape to climate change. The magnitude and frequency of extreme temperatures and precipitation events have increased in recent years and are expected to further aggravate in the future.

The irregularity of rain precipitation and the persistence of prolonged drought conditions, compounded by heightened evapotranspiration rates resulting from extreme heat events, imply significant and adverse impacts on Sicily. Furthermore, these climatic stressors critically affect the irrigation demands of urban green spaces and agricultural areas.

<sup>7</sup> Ibid.

Figure 10 summarises the main findings of the first CoP Meeting in Sicily and indicates the key needs and expectations of the region.



Figure 10.: CoP Meeting summary, Sicily

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### 3.1.5 Troodos Mountain Range, Cyprus<sup>8</sup>

The Troodos area is situated in central Cyprus and covers around 137,000 hectares (1,370 square miles), which accounts for 45% of the total area of the Troodos Mountains and 15% of the total area of Cyprus (Figure 11). The area is divided into three districts - Nicosia, Paphos and Limassol - and ranges in altitude from 300 metres to the highest peak, Mount Olympus, which stands at 1,952 metres above sea level. The region comprises 110 communities with a total population of approximately 25,000. It combines significant geological interest with the unique natural environment of Troodos, a rich history of human settlement, and the local customs and traditions of the people.

The Troodos Mountain range is an ophiolite, a term used to describe a group of igneous rocks which make up the oceanic crust. Troodos is part of a very ancient fragment of oceanic crust which was uplifted to its present position due to the collision of the African and Eurasian Tectonic Plates and the subduction of the former beneath the latter. It is considered the most complete and best-studied ophiolite in the world.

The impressive topography created by the uplift of the Troodos Mountain range had a direct influence not only on the natural environment but on every aspect of life and culture in Cyprus. Naturally, the presence of the mountains affects climate conditions, in particular the rainfall. Specifically, on the top of Troodos the average annual rainfall exceeds 1,100mm, while on the island's plains it is just 300mm.



Figure 11.: Troodos, Cyprus

The tectonic movement that accompanied the uplift of Troodos caused intensive fragmentation of the rocks and made them permeable, resulting in the percolation of large volumes of water to great depths along fault lines, the creation of aquifers and the discharge of springs at various altitudes. These springs have played a crucial role in the development of adjacent settlements, both in antiquity and in recent times since they supplied water all year round, in a country without rainfall for the greater part of the year.

<sup>8</sup> ClimEMpower D1.1 Community of practice organisation and expectations, ClimEmpower consortium, 2024.

At the same time, in normal winters, most of the island’s large rivers have a relative flow of water while during the dry months the water comes mainly from the springs to the river basins. The months with the highest rainfall are December and January while the period May-September is usually rainless but with occasional storms that often bring heavy rain. At altitudes of more than 1,000 metres above sea level, it snows every year, and the snow may last for 2-3 months at heights of up to one metre (maximum 3 metres).

Highest temperatures occur in July and August when at lower altitudes the maximum is 40°C while at higher altitudes it reaches 35°C (average daily temperature 24.5°C). Similarly, the lowest temperature is observed at night in January and February when at lower altitudes it may fall below zero (- 3°C) while at higher altitudes, night temperatures from December-February are below 0°C (absolute lowest of -15°C and an average daily temperature of 0.5°C in February).

A major part of the Troodos area is covered by forests and dense natural vegetation. It is by no coincidence that the area contains the island’s most noteworthy forests, including the Adelphi and Papoutsia Forests, the Troodos National Forest Park and the largest part of the Paphos Forest. It is state-owned land for the most part but there are significant privately-owned wooded areas which alternate with cultivated farmland and residential areas, thus creating unique sites of exquisite beauty and high ecological value.

Figure 12 summarises the main findings of the first CoP Meeting in Troodos and indicates the key needs and expectations of the region.

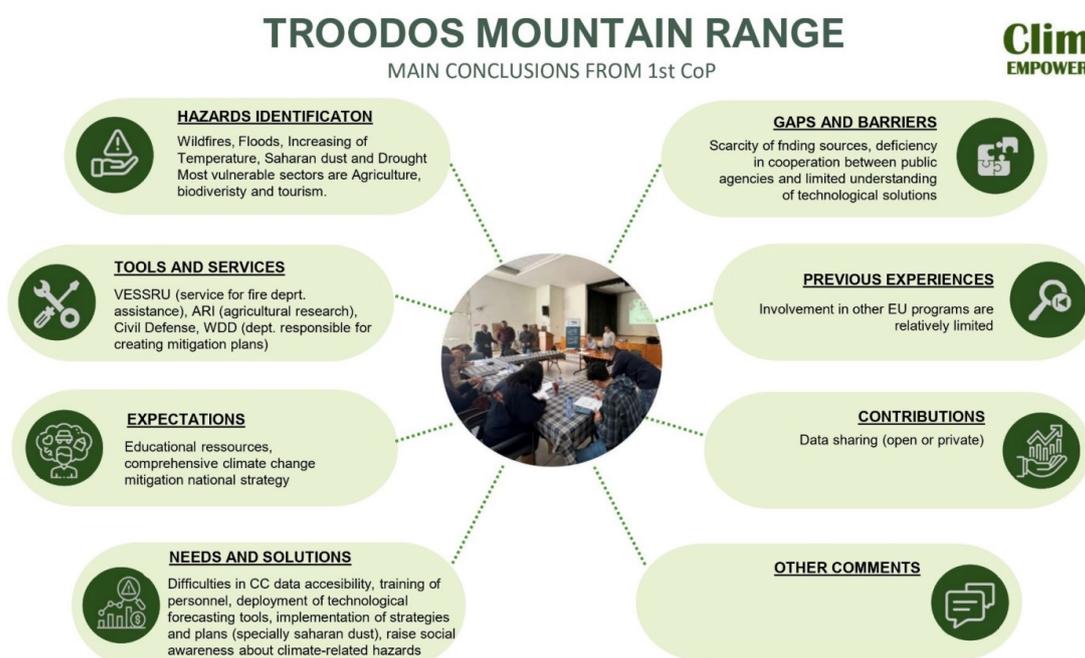


Figure 12.: CoP Meeting summary, Troodos

## 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 trials 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 2.

**Table 2.: ClimEmpower regions and their follower regions (Status 05/2024)**

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)

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.
- 

Following sections, describe the follower regions of the ClimEmpower regions.

### 3.2.1 Metropolitan area of Granada, Spain

Table 3.: Granada - follower region of Andalusia

Region	Country	Background	Geographical context	Socio-economic background	Climate hazards and needs
Metropolitan Area of Granada	Spain	<p>The Granada Metropolitan Area ("Área Metropolitana de Granada") is made up of the city of Granada and 34 surrounding municipalities. Its water utility is EMASAGRA, a mixed public-private water company.</p> <p>Granada and the Costa del Sol share some common characteristics, owing to their geographical proximity and political background within the same autonomous community. The selection of this area as a follower region can foster coordination among administrations, and also potential replication of ClimEmpower solutions in a different water scarcity context and hydrological conditions.</p> <p>Both regions boast significant populations (more than 550.000 inhabitants in the Granada Metropolitan Area) and are key tourist destinations in Spain, with an important agricultural activity in the proposed follower region.</p>	<p>It consists of the area of the city of Granada and 34 neighbouring municipalities. Granada is known for its historic neighbourhoods and serves as the hub of the region. Historically, the surrounding municipalities were more rural, but they have experienced population growth and increased urbanization in recent years, leading to the loss of fertile soils. Currently, the area exhibits a high degree of urbanization.</p> <p>The area is formed by the Genil River and its wide floodplain, and it is also crossed by the Darro River. It is also bordered by several mountain ranges, including the Sierra Nevada (National Park and Biosphere Reserve), which stands out not only for being a natural protected area but also for offering recreational opportunities for winter tourism.</p> <p>Lastly, although the selected area does not have a coastal zone, it is relatively close to the Mediterranean Sea, which moderates the local climate.</p>	<p>The number of inhabitants is comparable in magnitude to that of the Costa del Sol, with over 500,000 inhabitants, but with less seasonal population. Among the economic activities carried out, agriculture stands out, with the presence of irrigated land called 'Vega Baja de Granada'; industry and construction are also prominent. However, the main driver of the area is tourism and services, accounting for approximately 70% of the population, especially in hospitality and retail.</p> <p>The region faces challenges such as unemployment, particularly among young people, as well as the need to improve infrastructure and mobility due to numerous traffic congestion issues.</p>	<p>The main climate risks in the Granada Metropolitan area are high temperatures (heatwaves), drought, the proliferation of wildfires, and flooding. Several areas of potential significant flood risk ("ARPSIS" in Spain) have been identified. While these ARPSIS do not directly harm the environment or cultural heritage, they could cause economic damage and even impact health.</p> <p>This can be exacerbated by the poor conservation of blue infrastructure (riversides, channels, aquifers...) and scarcity of green areas. The reduction of snowmelt coming from Sierra Nevada is also a crucial climate hazard, due to its contribution to the total streamflow upstream 'Canales Reservoir' (used for drinking water production)</p>

### 3.2.2 Campania, Italy

**Table 4.: Campania region - follower region of Sicily**

Region	Country	Background	Geographical context	Socio-economic background	Climate hazards and needs
Naples, Metropolitan City of Naples, Campania Region	Italy	<p>The Campania region, with Naples as its regional capital, was selected as a follower region for Sicily due to their shared characteristics and challenges. Located in South Italy, both regions have significant concentrations of population and economic activities in their main coastal cities. With populations exceeding 5 million people, they face similar pressures associated with urbanization, with population densities significantly higher in urban areas. Moreover, both regions experience similar challenges related to the dependency of people on these main coastal cities, leading to increased strain on infrastructure and resources. Naples, like Sicily, grapples with issues such as traffic congestion, pollution, and pressure on natural resources. Additionally, both regions confront challenges associated with frequent urban floods and heatwaves, which pose significant risks to their communities and infrastructure.</p>	<p>In the main city area of Naples, around 80% is urbanized, surpassing the 60-80% range of the three Sicilian cities. Additionally, we have other similarities such as the presence of significant concentrations of population and economic activities in the main coastal cities, challenges related to traffic congestion, pollution, and pressure on natural resources, and facing risks associated with frequent urban floods and heatwaves. Similarly, the metropolitan city of Naples, like the one of Catania, Palermo, and Messina in Sicily, is characterized by its proximity to mountainous and/or volcanic systems. Moreover, it has experienced a significant increase in impermeable surfaces due to massive urbanization in the second half of the twentieth century, as well as the diversion of rivers and waterways within urban areas. The combination of these factors has led to the presence of multi-risk conditions in urban areas.</p>	<p>Internal migration towards major cities such as Naples and emigration towards northern regions is a common trend in Southern Italian regions, including Campania and Sicily, illustrating broader socio-economic disparities between Northern and Southern Italy. In terms of present-day well-being, Campania and Sicily exhibited low to medium-low performance across 70% of Italy's Equal and Solidarity well-being indicators for the year 2023. The predominant socio-economic challenges encompass a range of issues, including a high NEET (youth not in education or employment) rate exceeding 20% in both regions, a significant percentage of elderly individuals, unemployment concerns, and the deterioration of urban infrastructure.</p>	<p>The region faces significant challenges in integrating climate planning into broader development strategies, often due to perceived conflicts with social and economic priorities. Management of flood risks and heat islands tends to be reactive, primarily addressed during emergencies rather than through proactive planning. Despite ongoing efforts across various levels of governance, persistent barriers impede the development of a cohesive, coordinated approach. The City of Naples has actively participated in European projects focused on climate-related urban challenges, including multi-risk scenarios, such as the Horizon Europe KNOWING Project and the previous CLARITY Horizon 2020 project. Additionally, the city is currently developing its Sustainable Energy and Climate Action Plan. The ClimEmpower trial will support the integration of climate data and services into planning and projects for urban infrastructures, particularly in areas with significant concentrations of vulnerable populations.</p>

### 3.2.3 Vukovar-Syrmia County, Croatia

Table 5.: Vukovar-Syrmia County - follower region of Osijek-Baranja County

Region	Country	Background	Geographical context	Socio-economic background	Climate hazards and needs
Vukovar-Syrmia County	Croatia	<p>Vukovar-Syrmia County is the easternmost Croatian county and is located on the territory of eastern Slavonia and western Syrmia. Important international land (road and rail) and river routes (Danube and Sava) pass through the county. According to the structure of agricultural land in the county, arable land, vineyards, orchards, and forests predominate. Arable land has about 150,000 ha (very fertile land), and the most fertile land is on the Vukovar plain. The arable land has been meliorated and compacted and enables machine processing and high yields. Wheat, corn, sugar beet and tobacco are mostly produced, and in the area from Vukovar to Ilok special emphasis is placed on viticulture and winemaking. Along with the food industry, agriculture is the most important activity with a dominant role in the overall economic structure. Vukovar-Srijem County is very similar to Osijek-Baranja County in terms of its natural characteristics, economic and climate problems, and the county would benefit from the results of the ClimEmpower project in multiple ways. Their role will be to validate and test ClimEmpower results.</p>	<p>Agricultural areas occupy 150,856 ha or 61.8% of the County's area, of which 93% are arable land and gardens, while the remaining 7% are pastures, meadows, vineyards, and orchards. 58% of agricultural land is privately owned, and the remaining part of the former social sector is owned by the state.</p> <p>Agricultural production is focused on traditional agricultural crops such as wheat, corn, sugar beet, soy, sunflower and barley, while livestock production is dominated by pig farming and cattle breeding with noticeable development, in recent times, of sheep and rabbit breeding.</p>	<p>The existing structure of the economy, which previously ranked the County among the most economically developed parts of the Republic of Croatia, as well as underutilized opportunities and global development trends, which inevitably accompany this economy, are a good assumption for overall future development. The entire period from the independence of the Republic of Croatia to the present is a period of war events and a parallel process of privatization and restructuring of economic entities. In such circumstances, it is clear that the overall social and economic life took place with difficulty and reduced intensity, and the transition processes that had begun were often directed in the wrong direction. All of this resulted in a decline in economic activity, a very low level of utilization of installed capacities, the loss of a large part of traditional markets, the closure of a part of production capacities, redundant employees, great damage to economic potential, especially in the area of the Croatian Danube region.</p>	<p>The area of Vukovar-Syrmia County has a moderately continental climate. Summers are sunny and hot, and winters are cold. The average annual temperature is around 11°C with an average warmest maximum of 29.9°C and an average minimum of 12.2°C. The amounts of rain move in a relatively narrow range. They are lowest in the far eastern part, where they amount to about 650 mm, and towards the west, the value of average annual precipitation gradually increases to 800 mm. The most rainfall occurs in spring and mid-summer, which favours crops. The average relative humidity is 79%. Vukovar-Syrmia County is a neighbouring county with Osijek-Baranja County and its geographical location is subject to the same climate risks as Osijek-Baranja County: droughts, floods, heath waves, hail.</p>

### 3.2.4 Crete, Greece

**Table 6.: Geoparks of Crete - Follower regions of Troodos Mountain area**

Region	Country	Background	Geographical context	Socio-economic background	Climate hazards and needs
Crete (Sitia Geopark)	Greece	<p>Municipality of Sitia, with a total area of 715,154 km<sup>2</sup>, is the largest municipality in Crete and the most southeastern point of the Greek territory. The municipality includes the city of Sitia, coastal areas and rural villages. Sitia is located at the intersection of the axis along the northern coast of Crete and its maritime connections with the Dodecanese, the Cyclades, the North Aegean, Cyprus, and the coast of Asia Minor. The municipality of Sitia belongs to the Lassithi regional unit. The permanent population of the municipality is 20,020 inhabitants. The area of Sitia is considered to be the most arid region of Greece and for this reason it tries to mitigate the effects of climate change by cooperating with other regions facing similar problems. It participates in collaborations with other research projects with similar interests, such as the LIFE - AgrOassis project on combating desertification and protecting agriculture from climate change, and the Regions4Climate project, which aims to develop a socially equitable transition to climate resilience.</p>	<p>The geophysical topography of the land is very diverse, which affects not only the spatial and settlement structure, but also the economic development of the municipality. Region is characterised by mountainous and semi-mountainous areas, small plateaus, lowlands, and coastal areas. The presence of rich natural formations (mainly gorges and caves), combined with the steepness of the terrain attracts many visitors. Geopark harbours many endemic flora and fauna species, making the area one of the most ecologically important in the whole of Crete and the wider Mediterranean region. The dominant ecosystems in the area are scrubland with toadflax and aromatic plants. Large forest ecosystems (or stands of trees) do not exist, except in the Phoenician forest, where Phoenix theophrasti dominates. Prehistoric trees, plane trees and carob trees are found mainly in gullies and ravines. The habitats (included in the Natura 2000 sites) are concentrations of junipers in coastal sand dunes, such as in the area of Golden Sand in Vai and Katsounaki beach in Xerocampos. 13.6% of the total area of the Geopark are Nature 2000 sites.</p>	<p>The productive structure of the municipality of Sitia is mainly based on the tertiary sector, which employs 63.08% of the workforce, followed by the primary sector, which employs 23.15%, and the secondary sector, which employs approximately 13.77% of the population. The primary sector incorporates olive oil production and viticulture and, to a lesser extent, livestock and bee-keeping. Despite the structural problems it plays a vital role in Sitia's economy in terms of output and employment. 283 companies in the secondary sector are small family enterprises with local focus, low level of organisation and low innovation potential. They suffers from high transport costs, lack of qualified personnel and limited incentives for the development of the area. The tertiary sector dominates the local economy, in particular retail trade (33%), accommodation (12%) and restaurants (18%)<sup>29</sup>. A total of 837 businesses operate in the municipality, with the majority (85%) concentrated in the district of Sitia.</p>	<p>Geopark is characterised by a dry and thermal climate with very mild winters and hot summers. Marked decrease in rainfall has been witnessed in recent years, leading to a prolonged period of water scarcity. The winds blow mainly from the north-west, between 4 and 4.5 on the Beaufort scale, with very strong winds in places, especially in the coastal areas of the Geopark during the summer months (August winds). As a result, northern and central parts feature up to 5°C lower average summer temperatures than the eastern and southern parts of the region. The lack of rainfall in recent years is a major concern for both residents and stakeholders, who are talking about a three-year drought. All this is a cocktail of climate crisis with direct effects on the natural environment and loss of biodiversity, in the primary sector with a reduction in production, but also social changes with land abandonment, mainly due to lack of water. Institutional and political changes are needed, especially to counteract the effects of the coming and spectacular climate crisis</p>

### 3.2.5 Region of Western Greece

Table 7.: Western Greece - Follower region of Region of Central Greece

Region	Country	Background	Geographical context	Socio-economic background	Climate hazards and needs
Region of Western Greece	Greece	<p>The Region of Western Greece is located in the NW part of the geographical division of the Peloponnese and the Western edge of the geographical division of Central Greece. Population of 648.220 (2021 census), lives in urban agglomerations and the interjacent rural areas,</p> <p>The region has an diversified landscape, which is dominated mainly by contrasted coastal areas, mountain ranges, and fertile plains. And features various agricultural, touristic, and other economic activities.</p> <p>It shares many common challenges with the region of Central Greece, including the high pressure on infrastructure and population caused by floods, fires, and heatwaves. Two regions have already collaborated on research projects (LIFE- IP AdaptinGR) for the benefit of protection and mechanisms of building resilience to climate change and anticipate exchange of best practices, cross-sector cooperation and support in replicating good strategies for resilience in climate change.</p>	<p>Western Greece includes the following three regional units: Achaia, Iliia, and Aitolokarnania. From a geomorphologic point of view, there is a 45.3% mountainous area, 25.6% semi-mountainous area, and a 29.1% of lowlands. The altitudes range from 0 to 2,374 meters.</p> <p>Climatically, the region is characterized by mild winters and warm summers in the lowlands, and cold winters and cool summers in the mountains. Area hosts one of the largest ports in the country and various natural components, such as mountains, rivers, lagoons, NATURA 2000 protected areas, and natural monuments. Significant rivers, for example, Alfeios and Pinios, cross the region, form small coastal lagoons and important wetlands, as in the place of Strofilia and Caiaphas. Archaeological sites include the Ancient Olympia – a birthplace of the Olympic Games, which hosts about 1,000 visitors per day.</p> <p>Over the last years, the area has been considered under the threat of fires during summer, facing the side effect of the danger of flooding due to heavy rainfalls following the fires.</p>	<p>The Region constitutes an amount of just 6.3% of the total country population. The proportion of economically active population is estimated to be about 39%, and it is placed at number 6 in the regions of Greece. One regional unit, Achaia, is the most densely populated and hosts the biggest industrial tradition. It is regarded as an industrial and research centre for the rest of the Region. On the other hand, Etoloakarnania and Iliia are chiefly occupied by agricultural activities. However, all units throughout the region attract all visitors from all over the county during the summer and winter periods. The tertiary sector employs most of the working population of the region, followed by the primary and secondary sectors. The region faces unemployment in the municipality, which is high and majorly affects the age groups of young people in the area. The region also faces high rates of seasonal work, mainly because of the tourist influx. Features that are visible in Achaia are intra-regional disparities. This can be associated with the fluctuating level of economic activity between seasons.</p>	<p>West Greece is prone to hazardous wildfires during the dry summer season due to high temperatures and dry vegetation. The region's diverse landscape, including mountains, forests, and rural areas, provides fuel for wildfires. Wildland-Urban Interface areas increase the risk of fires spreading to populated regions, posing threats to communities, infrastructure, and ecosystems. Following wildfires, the region is vulnerable to floods during the rainy season. Soil erosion and lack of vegetation increase the risk of flash floods and mudslides, which can destroy property, agriculture, and infrastructure, complicating disaster response and recovery. Climate-related disasters have socio-economic impacts, including displacement, loss of livelihoods, and service disruption, disproportionately affecting vulnerable populations. Addressing wildfires and floods requires a holistic and integrated approach.</p>

# 4 Stakeholder Analysis

Stakeholders are essential contributors to the ClimEmpower project, offering valuable insights and support in various ways. Firstly, they disclose their needs and expectations related to climate change adaptation, informing the project's objectives. Additionally, stakeholders provide support for policy development and assist in adapting to climate impacts across different sectors, enhancing the project's effectiveness. Moreover, they actively participate in co-creating tools and services tailored to address their specific needs and challenges (CoP meetings and workshops). Finally, stakeholders are involved in project validation through trials and mini trials.

Identifying the right organizations and groups for project involvement 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 must be practical about space and resources. Another challenge is making sure CoPs are diverse. The goal was to have mix of people from different backgrounds. This diversity helps to understand different viewpoints and perspectives.

Identified stakeholder types and their relation to the ClimEmpower project are summarised in Table 8.: Quadruple helix Stakeholders

**Table 8.: Quadruple helix Stakeholders**

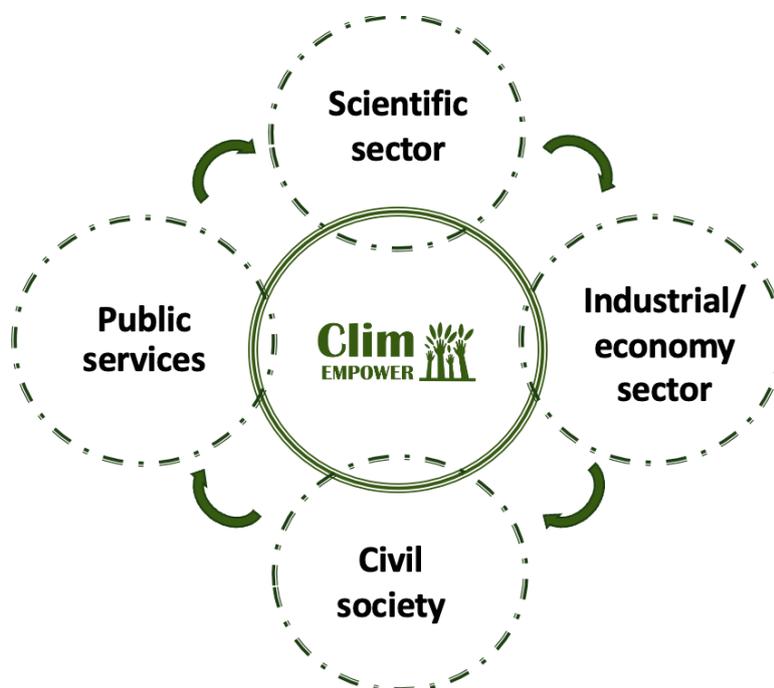
Stakeholder type	Who	Potential needs
Public services	Regional administration Government Officials	<ul style="list-style-type: none"> <li>effective implementation of climate change resilience strategies,</li> <li>to integrate climate-resilient strategies into policies at the regional level,</li> <li>to align development strategies with the needs of adaptation to climate change,</li> <li>development of climate-resistant services that can withstand the impacts of climate change.</li> </ul>
Academia and scientific sector	Faculties, Research institutions, R&D departments	<ul style="list-style-type: none"> <li>scientific basis and expertise in the development of climate change adaptation strategies,</li> <li>networking and collaboration,</li> <li>sharing resources and expertise,</li> <li>identifying common goals and priorities.</li> </ul>
Industrial/economy sector	Agricultural and food producers, farmers	<ul style="list-style-type: none"> <li>to align climate-resilient strategies with economic goals and promote sustainable practices.</li> </ul>
Civil society	Various experts gathered in civil society associations	<ul style="list-style-type: none"> <li>active participation in the development of society and engagement of the community.</li> </ul>
General audience	Social media and Internet users	<ul style="list-style-type: none"> <li>to become aware of climatic dangers, to know the possibilities of adaptation.</li> </ul>
Climate projects and associations	KNOWING, MAIA, ICARIA, CLARITY, VALORADA	<ul style="list-style-type: none"> <li>to exchange best practices and successful strategies with other projects of the same or similar topic in order to ensure efficiency, connection and joint action, and thus a wider impact of all projects.</li> </ul>

## 4.1.1 Stakeholder management

Stakeholder management was the first and most important step in creating a stakeholder engagement plan. The project consortium defined eight key steps of stakeholder management:

- 1) Identifying all stakeholders who may be affected by or have an interest in the project:

- Internal stakeholders: members of ClimEmpower consortium and employees within the ClimEmpower organizations
- External: public services, scientific sector, industrial/economy sector, and civil society



**Figure 13.: Quadruple helix framework**

- 2) Climate projects and associations, general audience – representatives of climate related projects, NGO, civil associations, general public.
- 3) Creating Stakeholder database (initial, updated) with stakeholder's names, institutions, email. When creating stakeholder's database, ClimEmpower team prepared privacy policy informative form to be signed.
- 4) Analysing the interests and potential impact of and for each stakeholder on the project which enables to tailor adequate engagement strategies.
- 5) Defining stakeholder engagement potential objectives to ensure they are actively involved, informed and, at the end of the project empowered. Objectives need to be validated during interactions. Some biases lead us to take for granted issues that are not relevant to others and vice versa. Developing plan for engaging with stakeholders:
  - Dissemination and communication tools and materials,
  - CoP workshops and other CoP meetings (joint WP4/WP5 activity)
  - EU-level workshops (WP5)
- 6) Establishing communication channels to keep stakeholders informed about project progress, updates, and decisions:
  - Newsletter
  - Website
  - Social media channels
  - Promo materials (leaflets, infographics, videos)

- 7) Seeking feedback and input from stakeholders to ensure their perspectives are considered and adjusted to their needs to validate the research questions (*TGM, Six step – Research questions*):
- 8) Monitoring stakeholder engagement activities, setting the metrics and evaluating their effectiveness (*TGM, Six step, Evaluation approaches and the metrics*):
  - Ad-hoc mini-surveys (e.g. menimeter)
  - Structured Questionnaires/surveys (online or offline)
  - Focus groups (qualitative methods)
  - Debriefings
- 9) Quantitative monitoring:
  - Number of visitors/followers (website, social media channels)
  - Number of participants (workshops, CoP Meetings)
  - Number of followers

Following sections summarise the stakeholders that were identified and selected for closer collaboration in each of the ClimEmpower regions, as of 05/2024. These tables help the project team to understand who is involved or affected by the project and why and direct their dissemination and communication activities accordingly. Stakeholders lists expected to grow during the project in accordance with the needs identified in the future project work.

All stakeholders identified in the project can contribute to the quality of project results with the data and experience they have, which will help create relevant project results. Thus, it was important to include stakeholders from the public administration who are in charge of designing and implementing policies in the field of climate resilience, stakeholders from public companies who have data on a specific area, stakeholders who are directly affected by climate change such as farmers and civil society associations whose activities are related with climate challenges and who can convey the results of the project to the smallest units which they can reach through their work.

## 4.1.2 Stakeholder database (v2, 05/2024)

### 4.1.2.1 Croatia

Table 9.: Identified stakeholders in Croatia

Stakeholder	Description	Expected inputs	Category
<b>Croatian Management</b> <b>Water</b>	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.	Public services
<b>Croatian Agricultural Chamber</b>	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.	Public services
<b>Croatian Agency for Agriculture and Food</b>	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.	Public services
<b>OSPERA</b>	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.	Civil society
<b>PPK VALPOVO</b>	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.	Industrial and Economy
<b>Faculty of Agrobiotechnical Sciences</b>	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.	Scientific
<b>Department of Biology and Chemistry</b>	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.	Scientific

#### 4.1.2.2 Cyprus

**Table 10.: Identified stakeholders in Cyprus**

Stakeholder	Description	Expected inputs	Category
<b>Energy Service</b>	<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"> <li>1. They have energy related datasets</li> <li>2. They are willing to contribute (not to sensitive data)</li> <li>3. They have valuable scientific personnel</li> <li>4. Energy plan</li> <li>5. Develop Energy Policy</li> </ol>	Public Services
<b>Civil Defence</b>	<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"> <li>1. Holds pivotal position because they are the entity who are being held to develop response plans concerning the natural hazards.</li> <li>2. Coordination of all actions on the field.</li> <li>3. Coordination of other entities (e.g. fire station department etc.)</li> <li>4. Implementation of response management plans.</li> </ol>	Public Services
<b>Meteorology</b>	<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"> <li>1. Datasets on biodiversity</li> <li>2. Datasets on climate</li> </ol>	Public Services
<b>Department of Environment</b>	<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"> <li>1. Datasets on biodiversity</li> <li>2. Datasets on nature</li> <li>3. Information of on agricultural/industry activities</li> </ol>	Public Services

<b>Water Development Department</b>	<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"> <li>1. They have a lot of data available to such topics as hydrology, water management etc.</li> <li>2. They are responsible to develop management plans, watersheds etc.</li> </ol>	Public Services	
<b>Cyprus Agency</b>	<b>Energy</b>	<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 &amp; 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"> <li>1. Experience – Implementing European projects</li> <li>2. Consulting activity on the fields of climate change, environment, education and awareness etc.</li> <li>3. Strong scientific and applied knowhow.</li> </ol>	Civil Society
<b>Agricultural Research Institute</b>	<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"> <li>1. A Research Institute for Government</li> <li>2. Specialized scientific expertise related to climate change, agricultural activities, and biodiversity.</li> <li>3. Datasets related to the aforementioned topics.</li> </ol>	Public Services	
<b>Department of Forests</b>	<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"> <li>· development and implementation of Forest Policy and Legislation,</li> <li>· protection of forests from fires, climate change and other factors,</li> <li>· enhancement of forest protection functions,</li> <li>· protection of biodiversity,</li> <li>· enhancement of forest recreation and</li> <li>· production of forest products.</li> </ul>	<ol style="list-style-type: none"> <li>1. Biodiversity datasets</li> <li>2. Land Cover</li> <li>3. They have valuable scientific personnel</li> <li>4. Information about the road networking forest areas (dead roads, access points and paths)</li> </ol>	Public Services	
<b>Volunteer Emergency Search &amp; Rescue Unit</b>	<p>Volunteers that assist in the implementation of hazard response plans</p>	<ol style="list-style-type: none"> <li>1. Pragmatic knowledge of what happens during a catastrophic event on the island</li> </ol>	Civil Society	

#### 4.1.2.3 Greece

**Table 11.: Identified stakeholders in Greece**

Stakeholder	Description	Expected inputs	Category
<b>University of Thessaly – Department of Computer Science and Biomedical Informatics</b>	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.	Scientific
<b>Forest Research Institute</b>	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.	Scientific
<b>Cooperative of STEVIA Hellas</b>	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.	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.	Industrial and Economy
<b>Civil Protection Agency of Municipality of Voiotia</b>	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.	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.	Public services
<b>Farmers' Cooperative of Orchomenos</b>	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.	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.	Industrial and Economy
<b>Thermopylae Museum</b>	The museum is a cultural institution and serves historical artifacts.	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	Public services (Cultural organization)

community resilience and promote sustainable tourism practices in the face of climate change impacts.

#### 4.1.2.4 Italy

Table 12.: Identified stakeholders in Italy

Stakeholder	Description	Expected inputs	Category
<b>Regional Department of Environment,</b>	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.	Public Services
<b>Regional Department of EU Fund Programming,</b>	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.	Public Services
<b>Regional Department of Civil Protection</b>	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.	Public Services
<b>Urban Fuctional Area Officers</b>	UFAs are regions characterized by interconnected urban centers, 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, heatwaves, 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.	Public Services

#### 4.1.2.5 Spain

Table 13.: Identified stakeholders in Spain

Stakeholder	Description	Expected inputs	Category
<b>Municipalities of Estepona, Marbella, Mijas, Istán, Ojén, Benalmádena, Torremolinos, Casares, Fuengirola, Manilva, Benahavís</b>	Government bodies of the different municipalities that comprise the case study.	The municipalities will help manage permits, provide information about drainage networks and available elements, among other things. Additionally, the tools developed are aimed at local and provincial technicians for planning purposes, so it is essential the co-design of the solutions considering their needs, problems, insights, etc.	Public services
<b>Junta de Andalucía: Consejería de Sostenibilidad, Medio Ambiente y Economía Azul</b>	Andalusian Regional Government's Ministry of Sustainability, Environment, and Blue Economy	The Andalusian Regional Government will play 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.	Public services
<b>Oficina Andaluza de Cambio Climático (OACC)</b>	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 it will undertake 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	Public services
<b>REDIAM (Environmental Information Network of Andalusia)</b>	It is an environmental information system in the Andalusian region of Spain. REDIAM collects, manages, and provides environmental data and information	It will 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.	Public services
<b>Agencia de Medio Ambiente y Agua (AMAYA)</b>	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.	Public services
<b>Consejería de Agricultura, Pesca, Agua y Desarrollo Rural</b>	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.	Public services
<b>Diputación Provincial de Málaga</b>	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.	Public services
<b>Hidralia</b>	Spanish company that specializes in water management and environmental services. It provides water supply, wastewater treatment, and environmental management solutions for municipalities and industries.	It will provide information about the drainage networks and their elements in some municipalities of the Case Study.	Economy/Industry
<b>Aguas de Torremolinos</b>	Water utility responsible for managing water supply and distribution in the municipality of Torremolinos	It will provide information about the drainage networks and their elements in the municipality of Torremolinos	Economy/Industry
<b>Asociación de Jóvenes Agricultores ASAJA</b>	ASAJA is an agricultural organization in Spain established to represent, manage, defend, and	Involving stakeholders from a farmers' organization is crucial for understanding societal needs. They can provide practical insights into the challenges faced by	Civil Society

**(Association of Young Agriculturists)** promote the professional interests of the agricultural sector and its member organizations, adhering strictly to democratic principles. this sector and 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. Scientific

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## 4.2 Objectives of Stakeholder Engagement

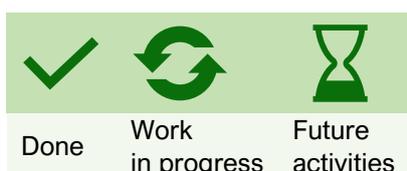
Main objectives of stakeholder engagement are to ensure that stakeholders are actively involved, informed, and empowered throughout the project lifecycle.

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

Table 14.: Steps to achieve objectives.

Activity	Rationale	Instrument	Who	Status
<b>Stakeholder identification</b>	The most important step is to define those stakeholders who can really benefit from the project results.	Local survey, desktop research	CSF, RA	
<b>Stakeholder database</b>	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	
<b>Defining stakeholder needs and expectations</b>	Through the CoP's meetings, the project team aims to gain insights into their needs, expectations, concerns, and perspectives related to the project.	CoP Meetings, questionnaires	CSF, RA	
<b>Building relationships with stakeholders</b>	Building relationships with stakeholders to maintain and encourage interest in the project and the use of ClimEmpower results.	CoP Meetings, Workshops, follow-up letters, promo materials, newsletters, leaflets, infographics	All partners, especially CSF and RA	
<b>Involving stakeholders in co-creation process</b>	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	
<b>Facilitating communication</b>	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	
<b>Regional trials and community validation</b>	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, RA, SSH experts	
<b>Mini trials</b>	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, RA, SSH experts	

<b>Maximizing Project Impact</b>	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	
<b>Dissemination and communication activities</b>	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	



## 4.3 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 relevant stakeholders to develop an understanding of climate change. It is essential 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 not only stakeholder engagement and knowledge transfer, but also 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 to define the key stakeholders and the stakeholder base. By M3, initial database of key stakeholders has been created, but it is a living document that grows during the duration of the project in parallel with the growth of the CoPs (Table 9, Table 10, Table 11, Table 12 and Table 13)

Key roles in CoPs communities:

- CSF – Case Study Facilitators
- RA – Regional Authorities
- Stakeholders

To develop stable and useful CoP's, in the preparation phase included in WP1, following steps were taken:

- Creating stakeholder database
- Define Initial action plan
- Sending Proposal Letter

After the preparation phase, next steps included:

- Scheduling 1<sup>st</sup> CoP's Meeting (during November, December 2023. and January 2024.)

- Extracting key points
- Defining main hazards
- Work on common understanding
- 

### 4.3.1 Initial Stakeholder engagement

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.

The starting point for establishing a CoP is a group of individuals who share the same concern. 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**. CoPs bring together relevant stakeholders to develop an understanding of climate change. Diversity in their composition ensures that different perspectives and points of view are represented in the project and encourages the exchange of knowledge.

Main objectives of initial stakeholder engagement were:

- 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**. The regions, whose domain includes several municipalities, are facing difficulties in data sharing within most of the case studies; in some cases, this issue is severe.

Another common concern is that **most regions agree on the need for training and capacity building among the users and other interested parties**. This is essential to ensure a comprehensive understanding of the future solutions developed through the project. Training and formation play a crucial role in empowering the regions and enabling Regional Authorities (RAs) to make informed climate change decisions.

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 free access, to maximize the uptake**.

### 4.3.2 Future engagement with the CoPs

After the establishment and initial development of CoP's in the WP1, their further work and development will continue in WP4, specifically in task 4.2. Involve and empower regional actors (CoP's). Wherever possible, interaction with the CoPs will be in local languages, to encourage participation and facilitate dialogue by avoiding communication barriers.

CoPs will organize a series of regional workshops, facilitated by their respective CFSs. Each workshop will be themed around important issues related to project objectives and emerging needs (table 15). CoPs may also organise additional teleconferences and meetings between these 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.

**Table 15.: Topics and themes for engagement with the CoPs**

Meeting	Potential topics of interest	To be discussed:
1 <sup>st</sup>	<ul style="list-style-type: none"> <li>• Regional Climate Scenario in Agriculture and Nature Protection</li> <li>• Regional priorities (local needs) for climate resilience / Project overview and resilience framework</li> <li>• Regional Climate Scenario and the ERDF 2021-27 Program of the Sicilian Region</li> <li>• Regional Climate Adaptation and Mitigation Strategies</li> </ul>	<ul style="list-style-type: none"> <li>• Floods, Heatwaves, Drought, Hail, disappearance of protected areas, especially wetlands (disappearance of certain plant and animal species), less crops means less food - subsequently the food production industry is also affected.</li> <li>• Regional scenarios involving key regional hazards and elements at risk</li> <li>• Climate impact in region (specific climate change impacts that are affecting or are projected to affect the region, such as extreme weather events, sea level rise, changes in precipitation patterns),</li> <li>• Vulnerability infrastructures/ ecosystems (Explore methods for assessing the vulnerability of communities, ecosystems, and infrastructure to climate change impacts, including exposure, sensitivity, and adaptive capacity),</li> <li>• Climate risk reduction,</li> <li>• Knowledge related to climate resilience (importance of knowledge sharing, including best practices and lessons learned).</li> <li>• A Multi-Scale Approach to Floods and Heatwaves (Main Hazards); ERDF 2021-27 Program of the Sicilian Region and Investments for Infrastructures</li> <li>• Investigate regional resilience scenarios using local data and stakeholder insights.</li> </ul>
2 <sup>nd</sup>	<ul style="list-style-type: none"> <li>• Climate scenario analysis at regional level and resilience framework</li> <li>• Resilient Infrastructures and Climate-proofing at the regional scale</li> </ul>	<ul style="list-style-type: none"> <li>• Climate scenarios for region, potential changes in temperature, precipitation, extreme weather events and how these scenarios could help in resilience framework and planning. Discuss strategies for climate proofing in different sectors (agriculture, tourism, healthcare, urban planning), climate resilience indicators.</li> </ul>

- Regional Climate Adaptation and Mitigation Strategies
- Resilient urban systems and the future Regional Climate Change Adaptation Strategy.
- Revisit regional scenarios using information provided through the ClimEmpower project.

3 <sup>rd</sup>	<ul style="list-style-type: none"> <li>• Enhancing Application Usability and Stakeholder Involvement: effective use and adoption of application</li> <li>• Resilient Infrastructures and Climate-proofing in Urban Projects</li> <li>• Co-Designing Solutions for Climate Challenges</li> </ul>	<ul style="list-style-type: none"> <li>• Identify stakeholders' training and support needs related to using the application (user manuals, tutorial), previous experience, opinions about user interface (easy to use) test the application, stakeholder expectations.</li> <li>• Climate-proofing in the framework of urban resilience (IPCC - AR6).</li> <li>• Educational approaches for increased regional resilience.</li> </ul>
4 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Designing a User-Centric Application for Regional Resilience</li> <li>• ClimEmpower Platform</li> <li>• Engaging Public and Professionals in Climate Action</li> </ul>	<ul style="list-style-type: none"> <li>• Application adapted to the needs of region / stakeholders, discuss user experience (simplicity, responsiveness), customization and flexibility according to varying needs and preferences and maintaining consistency and usability.</li> <li>• Platform trial and its use for the project of the built environment.</li> <li>• Presentation of the project outputs.</li> </ul>

Organization and specific objectives to be addressed by CoPs will be further refined according to the specific needs and characteristics of each region.

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.

CoPs will identify the specific needs of the regions, including any local data tools, services, and gaps. This information will be vital for **WP2 Addressing the CC data and knowledge Gaps**. WP2 will focus on **bridging the gap** between available data (climate, socio-economic, ...), services and the needs of RAs and other stakeholders. Further, training material on how to use existing tools as well as the information needed to develop the toolbox within ClimEmpower will be set-up in cooperation with **WP4** and **tested** within the **task 4.3. Co-design of tools, services and trials for increased regional resilience**.

Based on the expectations and type of data compiled by WP2, **WP3 User-centric CC-resilience enhancing services** will focus on developing feasible data services for the region, aligning with the expectations and needs of the stakeholders.



Figure 14.: CoP's structure and relationship to different WPs

### 4.3.3 Follower regions and beyond

Main goal of interaction with the follower regions is to validate the implementation replicability and exploitation plans of the projects by extending the project's participatory process beyond the borders of the five case study regions.

To achieve these goals, follower regions will be integrated in the work of the CoPs, mainly as observers of trial preparation and execution. In addition, each of the trial regions will 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.

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 (see section 4.3.5).

### 4.3.4 EU-level Workshops

ClimEmpower will organise three EU-level workshops (organised by WP5). Topics covered in these workshops will include:

- "Understanding climate change and its impacts,"
- "Your role in combating climate change,"
- "Utilizing climate change data effectively," and
- "Recommended adaptation strategies".
- These workshops will be organised in the final project year (earlier if opportunistic), potentially in collaboration with other projects, and their planning will be announced in v2 of this deliverable (m18).

### 4.3.5 Synergies with other EU projects

Synergies with related projects supports knowledge exchange, sharing best practices and innovative solution. Joint activities (e.g. cross-project participation in regional workshops, co-organisation of joint workshops, joint publications...) allow pooling of resources and maximisation of the impacts of projects dissemination and communication activities. Collaboration with similar projects can also enhance both the scientific and technological work and the project's stakeholder engagement efforts. Being part of larger network increases credibility which can ensure additional support and stakeholder engagement.

Some of these synergies will arise through cross-project activities organised by the commission and dedicated CSA projects. Other may arise through personal contacts of the project partners and involvement of the project partners in similar projects. This includes the following projects:

#### **ICARIA - Improving ClimAte Resilience of critical Assets**

[www.icaria-project.eu](http://www.icaria-project.eu)

Project ICARIA - Improving ClimAte Resilience of critical Assets (HORIZON-MISS-2021 program, Grant agreement No. 101093806) will use asset-level modelling to understand climate-related direct and indirect impacts provoked by complex, compound and cascading disasters and the risk reduction that suitable, sustainable, and cost-effective adaptation solutions provide. The project focuses on critical assets and infrastructures not designed to consider potential changes to climate, as well as on housing and natural land areas. ICARIA will implement and replicate innovative methods and multi-risk assessment approaches in the Barcelona Metropolitan Area, the South Aegean archipelago, and the Salzburg region in Austria. The project will assist risk owners in assessing adaptation solutions' costs and benefits.

*ICARIA is led by AQUATEC and several ClimEmpower project partners are also part of ICARIA consortium (including AIT). They also share similarities in methodology, modelling approach and technologies. Operative synergies between two projects at the level of algorithms, data, and technology still need to be assessed. See also section 5.1.3*

#### **KNOWING (Framework for defining climate mitigation pathways based on understanding and integrated assessment of climate impacts, adaptation strategies and societal transformation)**

[www.knowing-climate.eu](http://www.knowing-climate.eu)

KNOWING project (HORIZON-CL5-2021-D1-01, Grant agreement No.1011056841) will develop a modelling framework to help understand and quantify the interactions between the impacts and risks of climate change, mitigation pathways and adaptation strategies. Currently, there is a need for research that furthers our understanding of past, present, and expected changes in climate and their implications on ecosystems and society. There is also a lack of knowledge of the Earth system and the ability to predict and project its changes under different natural and socio-economic drivers. This is why a holistic, system-aware and behaviour-centred approach is needed to identify and implement realistic climate mitigation pathways.

*KNOWING is also coordinated by AIT and the two consortia share several other project partners. It follows a very different modelling approach to those used in ClimEmpower and ICARIA and concentrates on system level models and development pathways rather than on geographic data and decision support. Learning about this complementary approach could be of interest to ClimEmpower stakeholders / CoPs.*

## **MAIA (Maximising the impact and accessibility of European climate research)**

[www.maia-project.eu](http://www.maia-project.eu)

The MAIA project (European Union's Horizon Europe Research and Innovation programme, grant agreement No. 101056935) will act as an impact multiplier by providing social structures, technological and outreach activities to accompany, potentiate and help maximise the impact of climate research projects funded under Horizon Europe. MAIA constitute the response from a group of coordinators and core partners from seven H2020 precursor projects in climate change research (BINGO, BRIGAD, CLARITY, Connecting Nature, DRIVER+, PLACARD and RESCCUE). In these projects, driven by the EC's advice to identify synergies and spark collaboration, we liaised and detected a clear need for increased connectivity and a more robust approach to synergies management as means to unlock more meaningful and impact-oriented interactions. MAIA pivots around connectivity as a key enabling factor for an effective outreach. Therefore, we are envisioning specific actions for enhancing i) the connectivity of existing communities (consolidation and activation of a Pan-European community of problem owners, solution providers, and enablers); ii) the connectivity of knowledge and technological infrastructure (creation of the MAIA Portal); and iii) the connectivity of the EU climate research (coordinating an EU climate change research Cluster).

*Both AIT and AQATEC are part of the MAIA consortium, which simplifies the collaboration with this project, mainly on the topics related to ClimEmpower's impact and visibility.*

## **VALORADA (Validated local risk actionable data for adaptation)**

[www.valorada-project.eu](http://www.valorada-project.eu)

The goal of the VALORADA project (Horizon Europe Framework Programme, grant agreement No 101112837) is to empower European regions and cities to steer the upcoming societal transformation towards sustainable and climate-resilient development. The VALORADA project is in line with the EU's Adaptation Mission aiming at supporting the transformation of 150 European regions to become sustainable and climate-resilient by 2030.

VALORADA aims to raise awareness regarding the untapped potential of existing data in effectively adapting to climate change. It achieves this by integrating both technical and governance perspectives, ensuring a comprehensive approach. It also facilitates the creation of interdependencies between various types of data, bridging the gap between in-situ data and Earth Observation/Climate data. VALORADA emphasizes the importance of ground data for climate analyses, observation, and tool validation.

*ClimEmpower coordinator has recently been contacted by Valorada to evaluate potential synergies between two projects. Several opportunities for joint activities were identified and need to be further defined.*

## **CLIMAAX (CLIMAtE risk and vulnerability Assessment framework and toolbox)**

[www.climaax.eu/project/](http://www.climaax.eu/project/)

CLIMAAX is a 4-year Horizon Europe project that will provide financial, analytical, and practical support to improve regional climate and emergency risk management plans. CLIMAAX is designed to contribute to the harmonization and consolidation of the practice of climate risk assessment, leaving a legacy for upcoming European initiatives. The project started in January 2023 and runs until December 2026.

CLIMAAX Toolbox contains pan-european open data, projections and risk assessment algorithms (contained in so-called "risk workflows") designed to support the compilation of regional climate multi-risk assessments. This Toolbox is realised as open-source software and provides a set of simple GUI elements that were realised as Jupyter notebooks. These notebooks have been recognised as potential candidate for early prototypes of the CLIMAAX WP3 services.

*ECMWF serves as a bridge between two projects and the initial discussion with the project's team has been very promising, but we haven't had a chance to actually test the notebooks so far.*

# 5 Trials and mini trials methodology

## 5.1 Methodology behind CoP organisation<sup>9</sup>

As already mentioned in ClimEmpower’s deliverable D1.1 Community of practice organisation and expectations, methodology used for organization of CoP’s and stakeholder engagement builds upon the results and lessons learnt in several former EU projects, such as BINGO, ESPREsso, and DRIVER+. Very similar methodology has also been adopted by ICARIA project, which is still active and started just a few months before ClimEmpower.

### 5.1.1 BINGO

The BINGO project - Bringing INnovation to onGOing water management (H2020 program, Grant agreement ID: 641739, 2015-2019; <https://cordis.europa.eu/project/id/641739>) served as a prime example of best practices in CoP organization. The key to its success lied in engaging a wide array of stakeholders who not only contribute as data providers but also prioritize the establishment of a communication environment that enables co-creation. This diverse environment facilitates the development of empathy and the cultivation of a shared vision for desired outcomes and expectations.

The project also puts forward a range of workshops and participatory tools to be implemented during CoPs, aiming to foster trust and long-lasting relationships among participants. These proposed activities will serve as inspiration for breaking the ice among participants and extracting key insights from the initial CoP meeting in ClimEmpower.

C.A.T.W.O.E		Designorate
<b>C</b>	<b>Customers</b>	Who are the beneficiaries of the business process and how does the issue affect them?
<b>A</b>	<b>Actors</b>	Who is involved in the situation?
<b>T</b>	<b>Transformation</b>	What is the transformation that lies at the heart of the system?
<b>W</b>	<b>World View</b>	What is the big picture and what are the wider impacts of the issue?
<b>O</b>	<b>Owner</b>	Who owns the process or situation being investigated and what role will they play in the solution?
<b>E</b>	<b>Environmental constraints</b>	What are the constraints that will impact the solution and its success?

Figure 15.: BINGO CATWOE teasing exercise

1	BINGO is a EU 2020 Research Project on Climate Change and Water Systems Management	BINGO is a better future under CLIMATE CHANGE	BINGO is a better future under CLIMATE CHANGE
22	Engagement through a collaborative approach is much more than just a participatory one. By ensuring ability and relevance in the negotiation process and by creating evidence that everyone counts and brings solutions to the whole process	BINGO CoP Facilitator enabled mutual trust relations, respecting and holding the specificities of each group, helping to overcome essential constraints and creating opportunities to address specific CoP challenges	BINGO CoP Facilitator enabled mutual trust relations, respecting and holding the specificities of each group, helping to overcome essential constraints and creating opportunities to address specific CoP challenges
25	Building a community and working in a fruitful collaborative and transparent approach is actually not a short run or even faster process. It demands all sort of relational, relational and emotional skills and a great generosity from all participants	It is important for any group working together to have an after work as a basis for interaction, respect for divergences, mutual expectations clarification and trust building, ensuring an equal and fair participation	BINGO CoP collaborative workshops followed a pre-agreed set of research steps: 1) Setting the Scope; 2) Are we prepared? 3) Yes, we are; 4) Setting the priorities; 5) Starting and expanding; 6) ...And after CoP!

Figure 16.: BINGO card game

### 5.1.2 ESPREsso

The 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/700342>) aimed to establish more unified national and European approaches to Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA) and resilience strengthening enhancing risk management capabilities. By reducing the gap between science and legal/policy issues at local and national levels, the project sought to improve the efficiency in management of risk. The research conducted by Lauter et al. (2018) and Zuccaro et al. (2020) supported these goals.

The outcomes emphasized the importance of societal activities that complement and enhance traditional practices in Disaster Risk Management through Disaster Risk Governance. These activities

<sup>9</sup> ClimEmpower D1.1 Community of practice organisation and expectations, ClimEmpower consortium, 2024.

aimed to strengthen European disaster resilience by promoting collaboration among stakeholders with diverse expertise, capabilities, and needs.

The project designs the SHIELD model framework, set of recommendations for how to optimize risk management capabilities through disaster risk governance (Lauta et al, 2018). The model is divided in 6 domains that are linked to response, recovery, prevention and preparedness and involve several institutions, policies and structures.

Each chapter of the project contains some key issues, recommendations to tackle them and a follow-up question for each recommendation. These questions can be used to assess management capabilities.



**Figure 17.: ESPREsso SHIELD model framework to support integrated approaches to DRM (Luta et al., 2018)**

### 5.1.3 ICARIA

Project ICARIA - Improving ClimAte Resilience of critical Assets (HORIZON-MISS-2021 program, Grant agreement ID: 101093806, 2023-2025; <https://cordis.europa.eu/project/id/101093806>) aims to develop an asset-level modelling framework to better comprehend the impacts of climate-related disasters and identifying suitable, sustainable, and cost-effective adaptation solutions that can mitigate these risks. Seven additional follower regions will be candidates for the replication of the methodologies beyond the project. The project is implemented in three regions (Metropolitan Area of Barcelona, Archipelago of South Aegean Region, and Salzburg Region).

As seven additional follower regions will be candidates for the replication within the project, ICARIA outcomes are subjected to a testing and validation process consisting in the Trial Guidance methodology (TGM). In the first project phase, trials will test the methodologies and technical solutions developed in the project. The trials will be used to implement mini-trials and finally planned for demonstrators.

TGM was initially developed and tested by the 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/>). TGM provides a structured approach for assessing the innovative potential of novel solutions to address specific societal or organizational needs (gaps). It was subsequently used in several crisis management projects by AIT, and finally adapted to use in Climate Action domain in ICARIA and slightly later also in ClimEmpower.

The key roles explained in the Trial Guidance Methodology were extrapolated in ICARIA context, assigning a relevant role to the different entities, and a link between trials and stakeholders established through 6 CoP meetings, similarly to the way this is done in ClimEmpower.

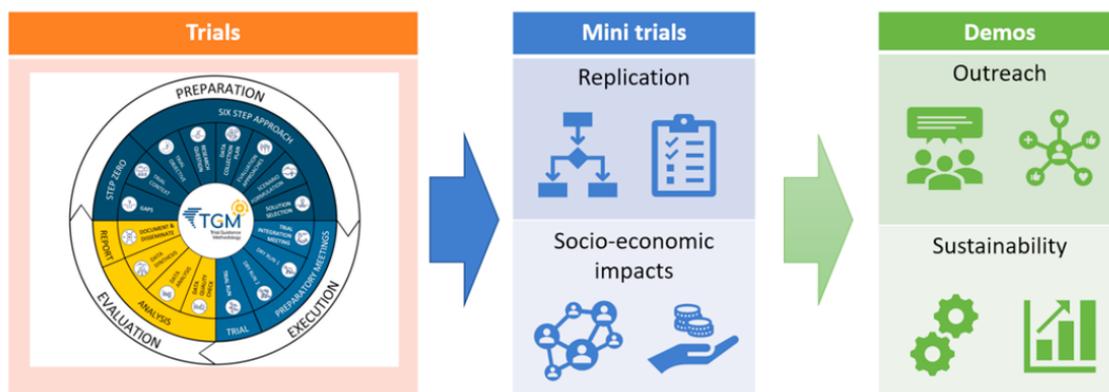


Figure 18.: ICARIA methodology for assessing the solutions developed in the project

## 5.2 Relation of CoP's and trials<sup>10</sup>

To face the problems that the five Case Studies are coping with, different types of solutions will be implemented and tested applying the Trial Guidance Methodology (TGM, Fonio & Widera, 2020) and applied in ICARIA. Trials will cover diverse types of assessment, from technological to societal, so regional stakeholders play a crucial role in the development and testing of the results in the three phases and validating the final project outcomes. Three TGM phases are shown in Figure 17.

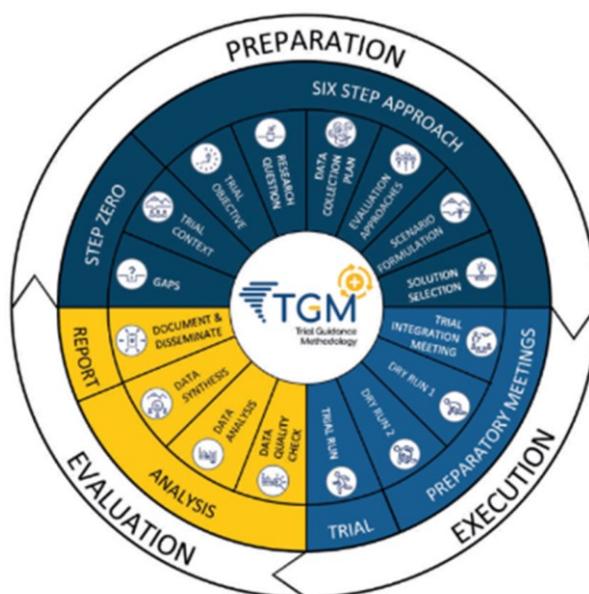
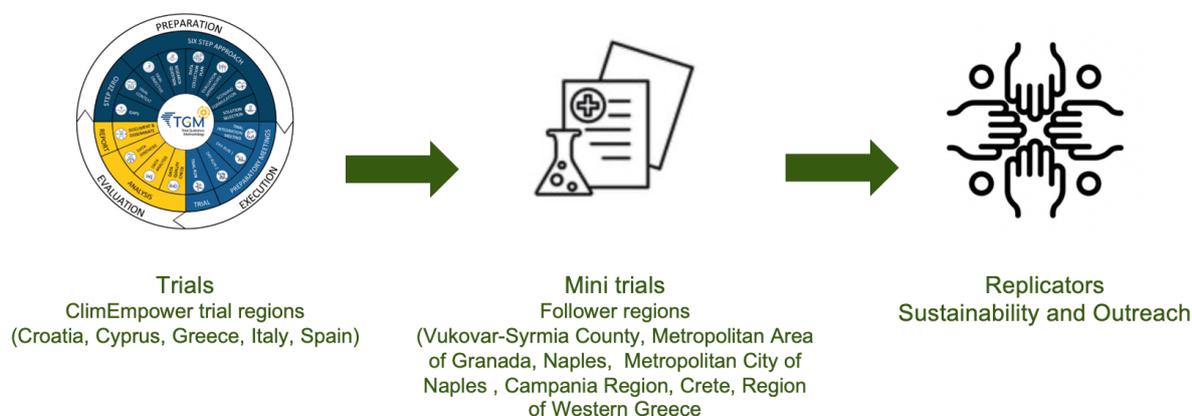


Figure 19.: Trial Guidance Methodology phases (Fonio & Widera)

In the first project phase, each of the five case study areas will be used to collect information, bridging the gaps in the existing tools and materials. Later they will be involved to test the risk assessment methodologies and the technical solutions developed in the project through trials. Lessons learnt in the trial implementation will be used to implement “mini-trials” (an extension of the original TGM methodology aiming to improve the assessment of exploitation potential of the trailed solutions) and

<sup>10</sup> ClimEmpower D1.1 Community of practice organisation and expectations, ClimEmpower consortium, 2024.

finally planned for follower regions to ensure the replication potential of the proposed solutions. Regional stakeholders represented in the CoPs play a crucial role in the development, execution, and assessment of ClimEmpower results in each of these phases.



**Figure 20.: Overarching ClimEmpower methodology for assessing the solutions developed in the project**

The methodology for development and validation of (ICARIA and) ClimEmpower case studies has been designed specifically to help the stakeholders to assess systematically how innovative solutions can help to resolve their (societal) needs and is grounded in Design Thinking, AGILE development and DRIVER+ Trial Guidance methodology - 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/>).

TGM provides a structured approach for assessing the innovative potential of novel solutions to address specific societal or organizational needs (gaps). The TGM handbook (Fonio et al., 2020) provides step-by-step guidelines for designing the trials, a list of roles and responsibilities, tools, and methods to perform a trial through a clear, pragmatic, and systematic approach, evaluate the outcomes and identify lessons learned. TGM rules and methods are strict enough to ensure appropriate replicability of the results while being flexible enough to ensure wide applicability of the methodology.

### 5.2.1 Roles and responsibilities (before Step Zero)

TGM handbook (Fonio et al., 2020) suggests key roles and responsibilities: **trial owner, technical coordinator, evaluation coordinator and practitioner coordinator.**

**Table 16.: Roles and responsibilities of CE teams**

TGM role	ClimEmpower Role	Organisations	Responsibilities
<b>Trial owner</b>	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.
<b>Technical coordinator</b>	Technical and cross cutting partner ( <b>TSCC</b> ) and Social Sciences and Humanities ( <b>SSH</b> )	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.
<b>Evaluation coordinator</b>	Evaluation coordinator	AIT (AT) & Plinivis (IT)	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.

<b>Practitioner coordinator</b>	Case Study Facilitator	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.
<b>Crisis Management practitioners (CM practitioners)</b>	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.
<b>Solution providers</b>	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.

## 5.2.2 TGM Step Zero

Step zero includes two important topics: **Trial gaps** and the **Trial context**.

Trial goals are defined through Trial Gaps and includes specific gaps and problems that we want to address with the trial. To bridge the gaps and find adequate solution we defined Trial Context.

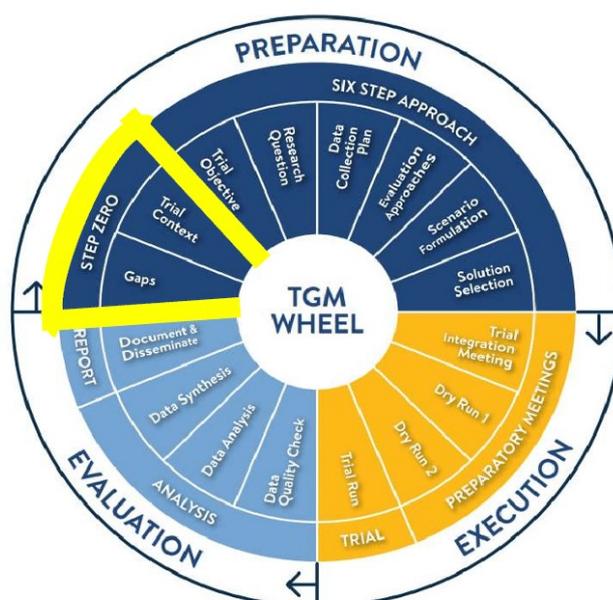


Figure 21.: TGM Step Zero

## Trial gaps

WHO: Case Study Facilitator & Community of Practice (CoP)

Identifying and evaluating an innovative solution for the gaps and the problems ClimEmpower project wants to address, in collaboration with practitioners (CoP and problem owners) starts with identifying specific gaps.

Identified gaps relevant for the ClimEmpower project are:

- Lack of comprehensive analysis of open-source data, climate services and big and diverse data sources
- Availability and accessibility of local data (climate, socio-economic, demographic)
- Usability of data and their integration into locally tailored solutions
- Lack of indicators in Trial regions
- Lack of data-centric climate data processing and indicator services

- Lack of libraries and services for climate feature extraction, data processing and indicator building
- Lack of user-centric applications
- Assessment of cross vulnerabilities

These gaps need to be reassessed and amended in a dialogue between the Trial Owners (Problem owners) and the CoP members (stakeholders, practitioners) and included in trial documents (D4.5 – ClimEmpower application and trial specifications).

## Trial Context

WHO: Case Study Facilitators & Community of Practice (CoP)

As previously mentioned, every gap depends on a role, responsibilities and the surroundings. Even when facing same gap, different stakeholders will have different perspectives and experiences, depends on their background or role. It gives a context. Trial context includes all the people who are part of the gap, equipment, and infrastructure.

Key ambition of the project is to help the regions address the CC resilience in key community systems addressed in five ClimEmpower trials by “*helping them to help themselves*”, through different mechanisms such as: mediation of the CoPs, provision of the CC-resilience training materials, as well as in provision of the user- centric data and services.

Most of the trial context is already determined by the project objectives but needs to be further clarified following the findings of D1.2.

### 5.2.3 TGM Six step approach

The second part of the rial preparation phase in TGM is the six step approach. It includes determining **trial objectives**, **research questions**, **data collection plan**, **evaluation approaches and metrics**, **scenario formulation** and **solution selection**.

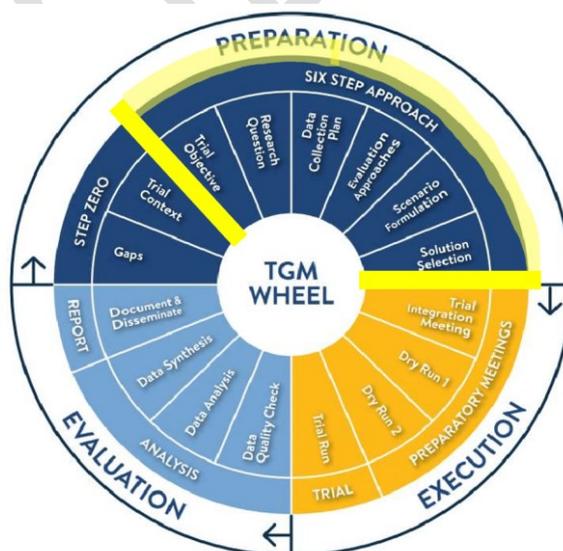


Figure 22.: TGM Six step approach

## Trial objective

The Trial Guidance Methodology Handbook recommends setting trial objectives according to the SMART formula (**S**pecific, **M**easurable, **A**chievable, **R**easonable and **T**ime-bound).

**Table 17.: Defining trial objectives**

SMART	Question to determinate objectives	Who
Specific	What are the main “problems” that project would like to resolve through this trial?	Problem owner Case Study Facilitator Evaluation coordinator Technical and cross cutting partner (TSCC) and Social Sciences and Humanities (SSH)
Measurable	Do we need to be faster? More accurate?	Problem owner Case Study Facilitator Evaluation coordinator Technical and cross cutting partner (TSCC) and Social Sciences and Humanities (SSH)
Achievable	Can we actually address that gap in a trial?	Problem owner Case Study Facilitator Evaluation coordinator Technical and cross cutting partner (TSCC) and Social Sciences and Humanities (SSH)
Reasonable	Which resources we can use for trial? Can we make a specific change in everyday crisis management that will make things better in trial regions?	Problem owner Case Study Facilitator Evaluation coordinator Technical and cross cutting partner (TSCC) and Social Sciences and Humanities (SSH)
Time-bound	Can this objective be reached within the time available for the trial?	Problem owner Case Study Facilitator Evaluation coordinator Technical and cross cutting partner (TSCC) and Social Sciences and Humanities (SSH)

Every trial region will have to determine their trial objective(s). In the end, through the execution of trials, **at least 5 trial objectives** will be set, which will be realized through the execution phase.

## Research questions

WHO: Evaluation coordinator & Problem owner

To formulate good research questions, Trial Guidance Methodology Handbook recommends following those criteria:

- Needs to be a question – so they can be answered easily
- Needs to address a distinct gap of the trial - otherwise, the team will have to go back and redefine the trial gaps, context and trial objectives
- Needs to cover the three dimensions of trials
- Trial dimension
- Crisis management dimension
- Solution dimension
- Must not be scenario-driven
- Needs to be answered and measurable by the trial

- Needs to be understood and approved by all trial stakeholders
- Scenario and evaluation are directly related to the research-question
- Can be organised in a multi-level hierarchical structure
- Is formulated simple (but is not always easy to answer)

With the support of technical experts and SSH, evaluation coordinator and problem owners will implement research questions and structured interviews to assess user feedback and address the needed improvements, targeting key aspects such as **scientific/ technical relevance, usability in operational contexts, user-friendliness, organizational innovation potential**, etc.

## Data collection plan

WHO: Evaluation coordinator, Case Study Facilitators, Technical and cross cutting partner (TSCC) and Social Sciences and Humanities (SSH), Problem owner

What data needs to be collected and how, depends on the trial objectives and research questions, but also on the characteristics of solutions and the overall trial context. Some of the data can be collected automatically, some by conducting surveys, and for some, trial team will have to observe the trial execution and report their findings.

## Evaluation approaches and metrics

WHO: Evaluation coordinator & Problem owners

It is essential to define the evaluation approaches and the metrics upfront which will use the measured data and indicators to assess the trial results and address research questions and objectives.

Defining evaluation approaches and metrics can be one of the most challenging tasks for the trial team. To define them, ClimEmpower project will:

Trial execution leader (PLINIVS) will work closely with evaluation coordinators to ensure relevance and effectiveness of the evaluation approaches and metrics.

Technical partners will become evaluation coordinators for the trial region they aren't directly participating in.

For specific questions based on KPIs, trial team will carry out a survey and use a rating scale to measure opinions (quantitative method). For more in-depth information that can be better inferred through discussions, trial team will use qualitative methods (focus groups) and appropriate techniques to analyse the data collected (qualitative data analysis software)

## Scenario formulation

WHO: Problem owner, all

The scenario is dependent on different things: gaps, available practitioners (number, role within organization etc.), available facilities and equipment. It relies on trial context, research questions and data collection plan. When determining which data we need to collect and why, the trial team needs to design specific activities in which those data can be collected – trial team needs to define who does what, when, where, with what equipment.

**Table 18.: Initial trial scenarios in ClimEmpower regions**

Country	Region	Initial trial scenario
Croatia	Osijek-Baranja County	<ul style="list-style-type: none"> <li>• <b>Hazards:</b> Heat waves, drought, river floods and pluvial floods</li> <li>• <b>Elements at risk:</b> People, critical infrastructures, agricultural areas, nature reserve.</li> <li>• <b>Impacts:</b> Loss of agricultural productivity; Biodiversity loss; Water shortages; Water transport infrastructures interruptions, Sectorial economic losses (rural tourism, agriculture).</li> <li>• <b>CC-Resilient strategies:</b> Urban/rural infrastructure development; Strategic DRR/CCA integrated planning.</li> </ul>
Cyprus	Troodos Mountain area	<ul style="list-style-type: none"> <li>• <b>Hazards:</b> Heatwaves, wildfires, pluvial/flash floods.</li> <li>• <b>Elements at risk:</b> People, buildings, critical infrastructures, forestry.</li> <li>• <b>Impacts:</b> Injured/deaths; buildings and infrastructure damages; natural resources losses; Traffic disruption; Water scarcity cost; Economic losses from tourism sector.</li> <li>• <b>CC-Resilient strategies:</b> Strategic DRR/CCA integrated planning and design (infrastructures development); Sustainable and CC-resilient forestry.</li> </ul>
Greece	Region of Central Greece	<ul style="list-style-type: none"> <li>• <b>Hazards:</b> Pluvial/flash floods</li> <li>• <b>Elements at risk:</b> Cultivated fields, underground and surface water, cultural heritage sites, critical infrastructures (transport, gas, water networks).</li> <li>• <b>Impacts:</b> Loss of agricultural productivity; Sectorial economic losses (agriculture, metal industry); Damages to critical infrastructures and cultural heritage sites.</li> <li>• <b>CC-Resilient strategies:</b> Strategic planning for CC-adaptation of critical infrastructure (transport, gas, water networks) and key economic sectors (tourism, agriculture, metal industry).</li> </ul>
Italy	Sicily	<ul style="list-style-type: none"> <li>• <b>Hazards:</b> Heatwaves, pluvial/coastal floods.</li> <li>• <b>Elements at risk:</b> People, critical infrastructures, urban areas, agricultural areas.</li> <li>• <b>Impacts:</b> Injured/deaths; Buildings and infrastructure damage; Increase in energy consumption and seasonal power outages; Transport infrastructures interruption; Natural resources losses; Sectorial economic losses (agriculture, tourism).</li> <li>• <b>CC-Resilient strategies:</b> Urban/peri-urban infrastructures development; Strategic DRR/CCA integrated planning and design.</li> </ul>
Spain	Andalusia	<ul style="list-style-type: none"> <li>• <b>Hazards:</b> Drought, pluvial/coastal floods, storm surge, sea level rise.</li> <li>• <b>Elements a risk:</b> Critical infrastructures for water pumping/allocating/treating (e.g., WTP), electrical and transport systems; urban areas (drainage).</li> <li>• <b>Impacts:</b> Sectorial socio-economic losses (tourism); Water scarcity cost, Natural resources, and biodiversity losses; Surface/water/groundwater quality deterioration; Flooding of buildings and infrastructure; Traffic disruption; Electrical system failure.</li> <li>• <b>CC-Resilient strategies:</b> Urban/peri-urban infrastructures development; Strategic DRR/CCA integrated planning and design (focus on seasonal variations, business as usual vs CC-adaptation development scenarios).</li> </ul>

## Solution selection

WHO: Problem owner, all

Once a potential set of solutions is found, the process consists of two tasks:

- to get a first impression by potential future users,
- to conclude which solutions appear to be promising to address the gaps.

In the first phase, trial team should answer to several questions (*How does the solution contribute to crisis management?, How is it integrated into the existing crisis management operations?, How mature is the solution and has it been tested or proved?, How does the solution address problems of practitioners?, Which references on solution application exist?*) and then conclude which solutions appear to be promising to address the gaps.

In ClimEmpower, some of the solutions will be developed by the project team, but our work plan foresees the possibility of integrating the solutions that have been developed independently from the project in the trials. Which solutions to trial will depend on the interests of the trial regions and on the capability of the consortium to support trialing of these solutions.

### 5.2.4 Execution

Trial execution phase includes 4 activities – **trial integration meeting, dry run #1, dry run #2** and **trial run**.

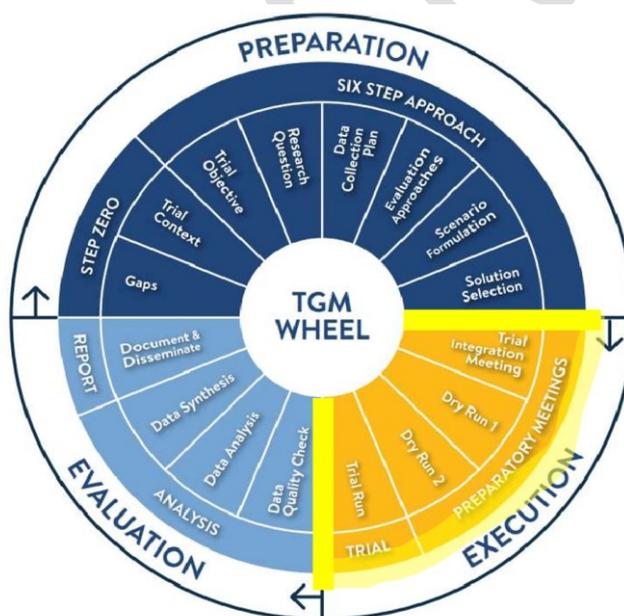


Figure 23.: Execution

### Trial integration meeting

The trial integration meeting (TIM) aligns the perspectives of the practitioners, solution providers and trial committee. This will be the first meeting where all people from entire trial team will meet. The main goal is to people included in trial understand each other's needs. Solution providers present solution, CM practitioners present gaps, processes and needs, while the trial owner and the core team present the final trial plan.

### Dry runs #1 & #2

The goals are to test the results of all six steps implemented properly and are clear for the involved people, and to ensure that all data can be collected.

## Trial run

Final event where all the people involved in the trial come together for the second time, execute the complete trial scenario, and collect the data necessary for trial assessment.

Trial run (execution) usually takes a few days to ensure everything works properly: setting and testing complete setup, training for the practitioners, obtaining, execution, trial sessions, evaluation and debriefings.

### 5.2.5 Evaluation

Evaluation includes 4 phases – data quality check, data analysis, data synthesis and dissemination of results.

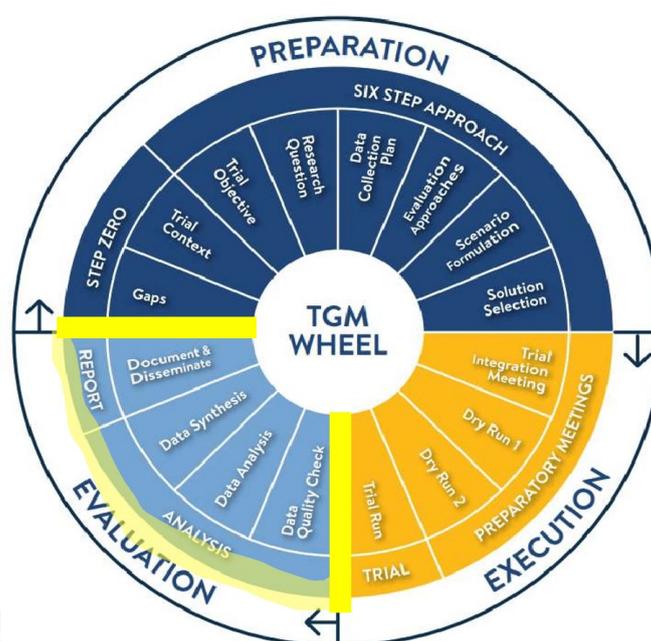


Figure 24.: Evaluation

### Data quality check

The goal is to determine if data collected according to data collection plan. First phase is to bring together all collected data and put it in the same place and in the same format. Second phase is to structure data and to find if there any missing or broken data.

### Data analysis

The goal is to structure, visualize collected data and see if there any patterns. This step includes comparison of data collection plan and KPI-s and metrics determined in previous steps.

### Data synthesis

The goal is to put analysed data into proper context. The step includes one more meeting with the problem owners to discuss results.

### Dissemination of results

The goal is to share sustainable results with broader audience. In context of ClimEmpower project, one of the dissemination activities will be conducting mini-trials in follower regions.

## 5.3 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 have proactive management 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 19. :

**Table 19.: Risks and possible mitigation strategies**

Possible risk	Mitigation strategies
Lack of stakeholder interest and engagement	Target communication Benefits of participation Detail and correctly targeted stakeholder needs Tailored solutions for specific region
CM Practitioners' interest is neglected	Check that the interests of stakeholders doesn't get lost
To complex and unreal 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

# 6 ClimEmpower workshops overview

Workshops are key tools for facilitating exchange and dialogue between different stakeholders with common interests. Each Community of Practice related to a specific case study region and its relevant stakeholders, workshop activities will be tailored to each region while adhering to a general engagement methodology. CSF will play an important role in selecting the most effective tools for managing group dynamics and interactions. These workshops will also expand the project's reach and future potential. This plan (D5.6 deliverable) 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 deliverables and WPs is presented in Table 20. 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.

**Table 20.: Workshops - data exchange with other WP's**

Workshop	Themes	Inputs/deliverables to present, evaluate and validate	Related deliverables that can benefit from stakeholders' evaluation and feedback
WS0	Establishing CoPs	Grant Agreement Initial CoP workshops	D1.1 Community of Practice organization and expectations
WS1	Scenarios	T1.2 Scenarios T2.1 Data, services, gaps	D3.1 Application architecture D4.1 Educational materials
WS2	Feedback and training	D2.2 Indicators D2.3 Downscaling & data fusion	D2.4 Measures & strategies D4.3 Resilience recommendations
WS3	Trial inputs	D2.4 Measures & strategies D3.1 Libraries & tools	D3.2 Libraries, services, data, indicators D4.5 Trial application & specification
WS4	Trial implementation	D2.4 Measures & strategies D3.1 Libraries & tools	D3.2 Libraries, services, data, indicators D4.5 Trial application & specification
WS5	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 (08/26) D5.8 Stakeholder engagement plan and events report v3

Initial workshop planning is indicated in Table 21.

**Table 21.: ClimEmpower workshop planning overview**

Workshop	Tentative Timing	Context	Participants	Summary	Goals
WS0	~m3	WP1	CoP	<p>Droughts, heat waves, storm surge, floods and forest fires were identified as hazards that are common to all regions.</p> <p>Data collection has been identified as one of the key challenges for the further work. Another common concern is that most regions agree on the need for training and capacity building among the users and other interested parties.</p>	<ul style="list-style-type: none"> <li>• Establishing a basic understanding of existing regional tools, services, and strategies, assessing their relevance and reusability for ClimEmpower,</li> <li>• Encouraging understanding of CC challenges, needs, gaps, barriers, and previous experiences, to foster risk perception and awareness,</li> <li>• Stakeholder participation in data collection and addressing data gaps, including them in final solutions,</li> <li>• Networking and building relationships among stakeholders to foster partnerships and joint action.</li> </ul>
WS1	~m12	WP4	CoP	<p>Discussion and validation of the climate resilience scenarios developed in T1.3 Develop regional scenarios and on the assessment of needs, gaps and services identified during the initial engagement of the community of practice.</p> <p><b>Collected data and input from stakeholders will be used to create relevant application architecture and educational materials.</b></p>	<ul style="list-style-type: none"> <li>• Reassess the needs, gaps and services identified at the initial CoP meeting to make the data more relevant for analysis and interpretation within WP2 and WP3.</li> <li>• Identify data/knowledge gaps and propose solutions.</li> <li>• Collect additional feedback on the needs and expectations of stakeholders.</li> <li>• Present the TGM methodology and gap assessment organization, objectives and research questions, the proposed scenario, the role of CoP stakeholders within the scenario/experiment and determine how to measure the success of the trial.</li> </ul>

Workshop	Tentative Timing	Context	Participants	Summary	Goals
WS2	~m15-m18	WP4	CoP	<p>Discussion and feedback on following deliverables:</p> <ul style="list-style-type: none"> <li>• D2.1 Climate Change resilience: identified data, services, and gaps.</li> <li>• D2.2 Climate Change resilience: indicators.</li> <li>• D2.3 Downscaling and data fusion for Climate Change resilience.</li> <li>• D3.1 ClimEmpower application architecture.</li> </ul> <p><b>Stakeholders' feedback and outputs will be used to validate the intermediate results of the WP2 and WP3 and adjust the follow-up work on developing measures and strategies and resilience recommendations in WP2 and developing the services and applications in WP3.</b></p> <p><b>WP2 and WP4 will develop training materials to facilitate the use of the D2.2 indicators.</b></p>	<ul style="list-style-type: none"> <li>• Discuss gaps in existing and useful European and region-specific data sets and services.</li> <li>• Discuss common climate, socio-economic, governance indicators.</li> <li>• Discuss methodology of spatial data downscaling, social sensing, and fusion of different data types</li> </ul>

WS3	~m19-m22	WP4	CoP Follower &	<p><b>Trial plan</b></p> <p>A detailed presentation of the trial implementation plan, including all roles and responsibilities, will be prepared and presented to stakeholders. Additionally, 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.</p> <p><b>Stakeholders' feedback will be used to validate and improve the trial specifications (input to D4.5, which is due in m24)</b></p>	<ul style="list-style-type: none"> <li>• Gather trial inputs from stakeholders,</li> <li>• Present and validate the trial organization and planning,</li> <li>• Discuss the trial objectives, specific roles of CoP members, and their role in the trial.</li> </ul>
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Workshop	Tentative Timing	Context	Participants	Summary	Goals
WS4	~m25-m27	WP4/WP5	Cop Follower &	<p><b>Trial Execution</b> 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><b>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.</b></p>	<ul style="list-style-type: none"> <li>• Execute the trial scenario.</li> <li>• Collect stakeholders’ feedback (data collection).</li> </ul>
WS5	~m28-m30	WP4/WP5	Public	<p><b>Mini-trial</b> 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><b>Mini-trials will be held as a workshops for (stakeholders of the follower regions (see section 3.2 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. =&gt; input to sustainability and exploitation planning</b></p>	<ul style="list-style-type: none"> <li>• Evaluation and transferability of ClimEmpower results.</li> <li>• Assessment of the socio-economic effects of the solutions.</li> </ul>
EWS-1	~m30	WP5	Public	To be described in v2 of this deliverable	<ul style="list-style-type: none"> <li>• Present the project outcomes to the wider public,</li> <li>• Networking</li> <li>• Exploitation</li> </ul>
EWS-2	~m33	WP5	Public	To be described in v2 of this deliverable	<ul style="list-style-type: none"> <li>• Present the project outcomes to the wider public,</li> <li>• Networking</li> <li>• Exploitation</li> </ul>

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

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## 7 Conclusion

The stakeholder engagement plan for the ClimEmpower project is designed to provide a methodology for the establishment, organization, and implementation of activities in which stakeholder engagement is expected in the ClimEmpower regions (Andalusia, Region of Central Greece, Osijek-Baranja County, Sicily, and Troodos mountain area), and explains connection between local CoPs and regional trials.

Five regions participating in ClimEmpower are among the worst positioned to address the socioeconomic challenges of Climate Change in Europe, in terms of the problem awareness, coping capacity, data availability, planning tools and strategies. Consequently, they provide an excellent opportunity to demonstrate how to empower the most vulnerable regions to address the CC challenges by improving their collective understanding of climate change risks and possibilities for increasing resilience at regional level through science- informed, evidence-based, and data-driven planning and governance.

This plan outlines strategies to establish Communities of Practice (CoPs), manage trial steps, and facilitate dialogue and cooperation among diverse stakeholders. It provides an overview of the case study regions, detailing the methods for engaging local authorities, scientific institutions, industry representatives, and civil society organizations.

The Plan has been structured around key points of stakeholder engagement:

- Overview of ClimEmpower case study regions, their location and climate hazards.
- Stakeholder analysis, to detect all relevant participant who could benefit from the project's results
- TGM methodology steps for development, execution and analysis of the regional trials to validate project results and collect necessary data.
- Stakeholder dialogue and cooperation through regional and EU-level workshops to ensure that their interests, needs, and gaps are represented and considered throughout the project and maximize the projects' impacts.

This Plan is a living document which, at this moment, has only determined the key points of stakeholder engagement. In the coming months, it will be further developed and supplemented in accordance with the related project tasks, leading to v2 of the document in m18 of the project.

# References

Fonio, C., & Widera, A. (2020). Trial Guidance Methodology Handbook.

Freitas, M.J., Muthanna, T.M., Bruggeman, A., Giannakis, E., Zoumides, C., & Andrade, R. (2018). D6.5 Guidelines designed to create, feed and enhance “win-win” collaborations between researchers and stakeholders. Bringing INnovation to onGOing water management – a better future under climate change (BINGO). Available at: <http://www.projectbingo.eu> [06/05/2024].

DRIVER+ project. Available at: <https://www.driver-project.eu/driver-project/> [14/05/2024].

Lauta, K.C., Albris, K., Zuccaro, G., & Grandjean, G. (2018). ESPREssO Enhancing Risk Management Capabilities Guidelines. Enhancing Synergies for disaster Prevention in the EurOpean Union (ESPREssO). Available at: [https://static-curis.ku.dk/portal/files/212297652/ESPREssO\\_D5.4.pdf](https://static-curis.ku.dk/portal/files/212297652/ESPREssO_D5.4.pdf) [14/05/2024].

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