

Under review



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Deliverable D2.4 - Report on co-designed and co-created local climate adaptation solutions for the four pilot cases

WP2 – Co-Design and Co-Creation of Innovative/Improved Tools/Actions for Local Communities Engagement

HORIZON-MISS-2021-CLIMA-02-05 - Local engagement of citizens in the co-creation of societal transformational change for climate resilience



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Partners short names / Legal name

APRE	Agenzia per la Promozione della Ricerca Europea
ATC	Athens Technology Center S.A.
BSC - CNS	Barcelona Supercomputing Center - Centro Nacional De Supercomputacion
FONDAZIONE CIMA	Centro Internazionale di Monitoraggio Ambientale - Fondazione CIMA
FONDAZIONE CMCC	Fondazione Centro Euro-Mediterraneo sui Cambiamenti Climatici
ECSA	Verein der Europäischen Bürgerwissenschaften - ECSA e.V.
IBE	Fundación IBERCIVIS
ICLEI EURO	ICLEI European Secretariat GMBH (ICLEI EUROPASEKRETARIAT GMBH)
IIASA	Internationales Institut für angewandte Systemanalyse
SEI HQ	Stiftelsen The Stockholm Environment Institute
SEI OX	Stockholm Environment Institute, Oxford Office Limited
SEI TAL	Sihtasutus Stockholmi Keskkonnainstituudi Tallinna Keskus
UNIGE	Universite de Geneve



1. Executive Summary

The deliverable D2.4 of the Adaptation AGORA project, titled “Report on co-designed and co-created local climate adaptation solutions” presents the outcomes of participatory activities carried out in four European pilot regions (Dresden, Malmö, Rome, and Zaragoza) to co-design and co-create soft climate adaptation solutions tailored to local vulnerabilities as well as stakeholders and citizen’s needs.

Building on the outcomes of Tasks 1.3, 2.1, and 2.3, this deliverable documents how the project engaged key citizen target groups (namely engaged youth, workers, multicultural communities, and vulnerable populations) through structured focus groups and multi-stakeholder co-creation workshops. These activities were underpinned by a shared engagement protocol to ensure methodological consistency and comparability across the four pilot regions while allowing for contextual adaptation.

The report synthesises the soft adaptation measures co-created with participants, such as climate education initiatives, inclusive communication strategies, enhanced access to public drinking water, climate shelters or safe indoor public spaces during extreme heat, urban or community gardens, and local early warning systems. These solutions emerged from local experiences and were co-designed with a strong emphasis on equity, feasibility, and climate justice.

Beyond describing the activities and proposed solutions, this deliverable reflects critically on the co-creation process itself, its strengths in fostering inclusivity and collective ownership, as well as its limitations in terms of institutional uptake and cross-group alignment. It offers strategic insights into transferability and feasibility, contributing to Adaptation AGORA’s broader objectives: empowering communities and incorporating their feedback when assessing climate vulnerabilities and shaping responses, informing regional climate action, and supporting the EU Mission on Adaptation through citizen-led transformation. Ultimately strengthening the capacity of European communities to co-develop actionable and locally meaningful adaptation pathways.



2. Introduction

2.1. Project Background

This deliverable is part of the Adaptation AGORA project - A Gathering place to co-design and co-create Adaptation, funded by the European Union's Horizon Europe initiative within the Mission on Adaptation to Climate Change. Adaptation AGORA's overarching goal is to foster European climate resilience through innovative mechanisms and inclusive approaches that engage citizens and stakeholders actively in transformative adaptation processes. The project is structured around innovative, problem-oriented climate adaptation solutions co-designed and co-created (see Glossary of “co-” terms developed within Adaptation AGORA in Annex 1) through the active engagement of a diverse range of citizens and stakeholders, including civil society organisations, academia, experts, policymakers, and entrepreneurs. Recognising that no universal adaptation strategy exists, Adaptation AGORA engages citizens and stakeholders to develop and implement tailored, context-specific solutions that address unique regional challenges.

Adaptation AGORA operates in four key pilot regions (Aragón, Dresden, Malmö, and Rome) serving as practical arenas to test and implement co-production processes, allowing for comparative learning and ensuring relevance and scalability of adaptation solutions. Through activities such as structured focus groups and co-creation workshops, the project systematically evaluates innovative citizen engagement mechanisms and fosters the co-design, co-development, and co-implementation of climate adaptation solutions.

At the heart of the Adaptation AGORA project are the digital tools, including the Agora Community Hub, the Adaptation AGORA-Quiz mobile app, the digital academies and the digital handbook, empowering citizens and stakeholders by providing tools, resources, and information necessary to navigate climate adaptation challenges. The Agora Community Hub serves as a platform for enhancing citizen engagement and supports stakeholders in understanding, accessing, and navigating climate data and adaptation options, thus strengthening local adaptive capacities.

Ultimately, Adaptation AGORA aims to deliver a roadmap for transformational change, highlighting effective policy instruments and collaborative decision-making processes that integrate diverse types of knowledge and facilitate widespread adoption of successful climate adaptation initiatives across Europe.



2.2. Aim

This Deliverable (D2.4) documents the activities and outcomes related to the Task 2.4 of the Adaptation AGORA project, specifically dedicated to the co-design and co-creation of innovative soft climate adaptation solutions. It presents a detailed account and assessment of participatory processes carried out in our four pilot regions (Dresden, Malmö, Rome, and Zaragoza) to actively engage citizens and local stakeholders. The deliverable captures how these co-design and co-creation activities were tailored to distinct local vulnerabilities, social contexts, and the lived experiences of various target groups, including engaged youth, working population, multicultural communities, and vulnerable citizens.

Building on insights and working in synergy from previous and parallel project tasks (notably Tasks 1.3, 2.1, and 2.3), the idea of Task 2.4 was to bring forward climate adaptation priorities identified by local actors and channels them into the co-creation process. This task applied participatory, inclusive, and iterative methods to translate locally identified climate concerns into tangible adaptation solutions. Citizens and the diverse stakeholder groups mentioned above were engaged in structured focus groups and co-creation workshops. These interactions supported the development of adaptation solutions that were locally relevant, socially accepted, and practical, based on shared knowledge and principles of climate justice.

Beyond simply reporting the activities in Task 2.4, the deliverable also evaluates the effectiveness and inclusiveness of the participatory methodologies employed and the co-creation of soft adaptation solutions. It provides context-sensitive recommendations aimed at supporting the wider replication and scaling-up of the co-creation of soft adaptation strategies across Europe. The findings are intended to help improve future participatory processes and vulnerability/risk assessment so as to support the adaptation of citizen-informed approaches in a way that fits different local settings.

The outcomes of Task 2.4 contribute directly to several cross-cutting project components, including the Adaptation Community Hubs (WP3), the capacity building activities (WP4), the peer-to-peer learning activities (WP5), and the Adaptation AGORA Digital Handbook (Task 6.2). In this way, this deliverable advances Adaptation AGORA's broader mission of strengthening community resilience through co-produced climate action and ensuring that innovative soft solutions are embedded in inclusive governance processes and accessible to a wide range of actors.



3. Background and Rationale

3.1. Climate change adaptation in Europe and the Adaptation AGORA pilot regions

Climate change presents a profound and escalating threat across Europe, affecting human life and health, natural ecosystems, built infrastructure, public health, and socio-economic systems. Observed changes include rising temperatures, shifting rainfall patterns, retreating glaciers, and increased frequency of extreme weather events such as heatwaves, floods, and droughts (Bednar-Friedl et al., 2022). Even with effective global mitigation efforts, significant climate change impacts are already locked in due to historical emissions and systemic inertia. Therefore, adaptation is not optional but imperative.

The EU has responded with the 2013 EU Adaptation Strategy encouraging countries and cities to develop adaptation plans, mainstream climate considerations into policymaking, and foster innovation and knowledge exchange. The updated 2021 EU Adaptation Strategy aims to make adaptation actions smarter and more systemic, with the goal of achieving climate resilience by 2050. This strategy emphasizes improving knowledge of climate impacts, accelerating adaptation planning, and integrating adaptation into all relevant policy areas.

To support these objectives, the EU has also established the Climate-ADAPT platform, managed by the European Environment Agency (EEA) and serving as a comprehensive knowledge hub, providing access to data, tools, and case studies to aid adaptation planning across Europe. Moreover, recognizing the need for robust risk assessments the European Climate Risk Assessment (EUCRA) provides a comprehensive evaluation of major climate risks facing Europe. The assessment aims to help policymakers identify priorities for adaptation in climate-sensitive sectors during the next EU policy cycle.

Despite the EU's comprehensive policy framework for climate adaptation, significant gaps persist in implementation, particularly concerning local engagement, social inclusion, and responsiveness to vulnerable communities. In the long run, adaptation must be rooted in local realities, responsive to specific vulnerabilities, and co-designed with affected populations to promote long-term sustainability (IPCC, 2023). Recognising these challenges, the EU launched the Mission on Adaptation to Climate Change, aiming to support at least 150 European regions and communities in becoming climate-resilient by 2030. This Mission emphasises place-based adaptation by actively engaging a wide range of local and regional actors, acknowledging that climate change impacts vary across different regions, sectors, and societal groups.

It is within this context that the Adaptation AGORA project was conceived, aiming to bridge the gap between top-down policy frameworks and bottom-up, community-driven initiatives. Participatory



approaches were carried out in four pilot regions (Dresden, Malmö, Rome, and Zaragoza) and contexts, with citizens and local stakeholders co-creating soft adaptation solutions tailored to local needs and vulnerabilities.

3.1.1. Climate change impacts and adaptation in the four pilot regions

The city of Dresden

Located in eastern Germany, **Dresden** is increasingly exposed to rising temperatures (see Figure 1), drier summers, wetter winters, and more frequent extreme weather events. The city is experiencing a steady increase in hot days (>30°C) and tropical nights (>20°C), with urban heat island effects intensifying overheating in densely built districts (LHD, 2025). Flash floods and water infrastructure overloads are becoming more common due to intense rainfall and rising groundwater levels, pushing the Elbe River and urban drainage systems to their limits (Franke, 2015; City of Dresden, 2019). Urban expansion and extensive soil sealing have diminished the natural water retention capacity, highlighting the need for more green infrastructure and decentralised rainwater management (REGKLAM, 2013).

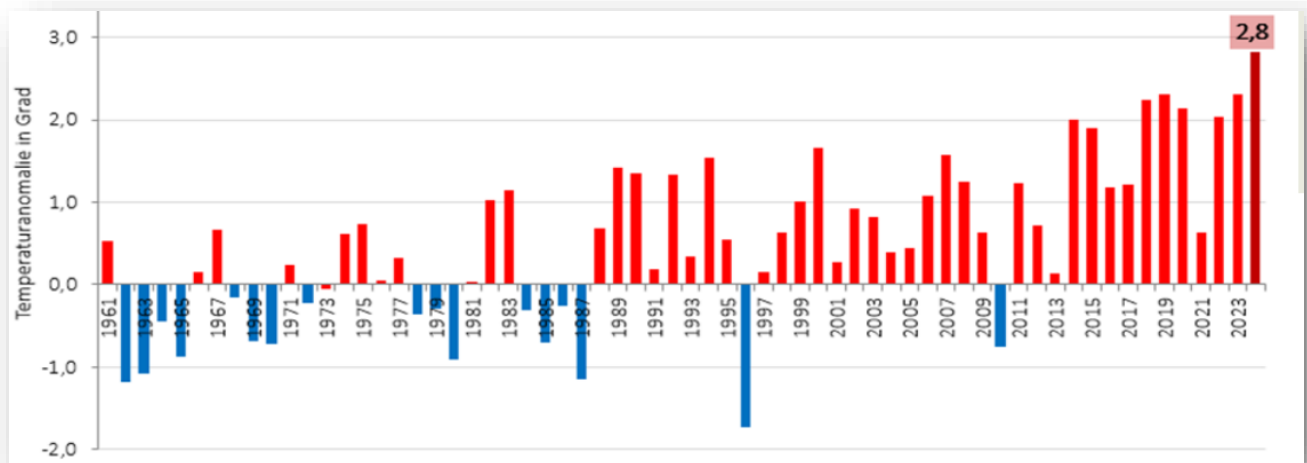


Figure 1: Deviation of the annual average temperature compared to the climate reference period 1961–1990 in Dresden (+2.6 °C increase estimated by 2050, source: German Weather Service)



Vulnerability in Dresden is shaped by rapid urbanisation, population growth, and socio-demographic factors such as ageing residents. While surrounding agricultural areas face drought-related crop loss and rising irrigation demands, past forestry practices have left regional woodlands ecologically fragile, increasing susceptibility to droughts, wildfires, and pest infestations (Franke, 2015).

Dresden faces significant adaptation challenges across infrastructure, governance, and the economy. Energy systems, transport networks, and tourism infrastructure remain vulnerable to climate-induced disruptions (TU Dresden, 2013a; 2013b). The construction sector struggles with cost pressures and inadequate adaptation of buildings, while cleanroom-reliant high-tech industries face operational instability under temperature extremes (TU Dresden, 2013c; 2013d). Outdoor workers and those in poorly cooled facilities are increasingly exposed to heat-related health risks (TU Dresden, 2013e). Despite significant and widespread adaptation efforts (such as the “Schwammstadt Projekt”, which adopts the “sponge city” approach to enhance Dresden’s climate resilience), progress toward adaptation is slowed by fragmented governance, ageing building codes, and constrained spending. Public-private partnerships and stronger community engagement are needed to build resilience, while coordinated planning and updates to existing regulations are crucial to address current challenges (LHD, 2025; REGKLAM, 2009; 2013).

The city of Malmö

Malmö is situated in Scania, one of the regions at the most risk to the impacts of climate change in Sweden (Brink & Wamsler, 2018). The city of Malmö, more specifically, is experiencing growing climate risks including rising sea levels (exposing its coastline to flooding), extreme precipitation, and intensifying heatwaves. Extreme rainfall events are becoming more frequent and intense, overwhelming in occasions the city’s stormwater system (City of Malmö, 2023). Malmö is also projected to experience more frequent and intense heatwaves, with urban heat island effects contributing to higher temperatures in densely built-up areas (City of Malmö, 2024a).

Vulnerability in Malmö is closely linked to its demographic composition. About 22% of residents live under low economic standards, and foreign-born populations face disproportionately high poverty risks (City of Malmö, 2019; 2024b). Moreover, vulnerability is further shaped by an ageing population, population growth, and a built environment characterised by heat-retentive structures and extensive hard surfaces ill-suited to divert heavy rainfall (City of Malmö, 2023).

Among the key adaptation challenges, Sweden’s national adaptation policies lack clear legal and financial frameworks to support effective municipal action, and heatwaves are not yet addressed through binding legislation (Swedish Expert Council for Climate Change Adaptation, 2022). In Malmö, these gaps are reflected in limited resources and unclear responsibilities. Moreover, social vulnerability and justice are insufficiently integrated into local adaptation planning, with most efforts still in early, exploratory phases and broader issues of inequality largely overlooked (Barquet et al. 2023).



The City of Rome

Rome is increasingly exposed to climate risks including extreme rainfall, urban flooding, heatwaves, and coastal erosion. Several neighbourhoods are already situated in high-risk areas for heavy rainfall and flooding, and projections indicate that without intervention, the impacts of climate change could significantly exacerbate existing socio-economic inequalities (Strategia di Adattamento Climatico, 2024). The urban heat island phenomena is a growing concern during the summer season, while the Roman coastline faces escalating risks of erosion and saltwater intrusion. Heatwaves are contributing to increased mortality, particularly in low-income areas with limited access to cooling systems, while nearly 400,000 residents live in water-related risk zones, including areas exposed to river flooding and flash floods.

Vulnerability in Rome is strongly tied to both socio-economic and environmental factors. The city's eastern districts are disproportionately affected by heat-related health risks, air pollution, and poor urban infrastructure. These neighbourhoods often house senior citizens living alone or families without adequate means to adapt to extreme weather events.

Rome's climate adaptation strategy, approved in early 2025, emphasises nature-based solutions and urban greening, yet major gaps remain in implementation. Key challenges include outdated infrastructure, limited integration of risk mapping into planning, and inadequate early warning and emergency response systems. The city's water infrastructure requires urgent adaptation, with a focus on water conservation, rainwater harvesting, and reduced groundwater extraction. Furthermore, climate risks are increasingly affecting economic sectors particularly linked to outdoor activities and labour (which are highly exposed to prolonged heat), such as tourism, agriculture, and construction (Strategia di Adattamento Climatico, 2024).

The Aragón region

The **Aragón** region, located in northeastern Spain, is increasingly exposed to rising temperatures, prolonged droughts, and more frequent wildfires. The region's semi-arid conditions and geographic diversity (spanning from the Pyrenees to the Ebro Valley, see Figure 2) make it particularly vulnerable to water scarcity, biodiversity loss, and environmental degradation.



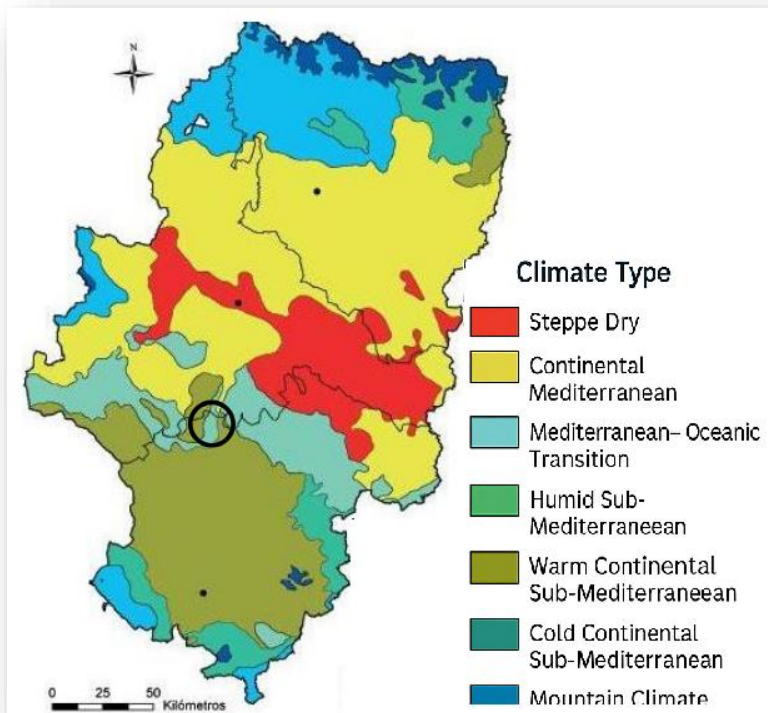


Figure 2: Map of climatic division of Aragon (translated from Cuadrat et al., 2007)

Projections indicate a marked increase in heatwaves and desertification risk, particularly in lowland agricultural areas where crop yields and livestock productivity (e.g., pig farming) already suffer from heat stress and irrigation demands. On the other hand, urban centres like **Zaragoza** (where most activities within the pilot took place), are experiencing intensified urban heat island effects and greater flood risks from extreme rainfall events (Gobierno de Aragón, 2019).

Aragón’s key vulnerabilities lie in its strong dependence on water-intensive agriculture, alongside demographic changes such as rural depopulation and ageing populations in isolated communities. These trends further limit the adaptive capacity of local economies and heighten the risk of social inequality. Low-income and elderly populations in both rural and urban settings are especially exposed, often lacking access to adequate cooling systems, infrastructure, or economic means to implement adaptation measures (Gobierno de Aragón, 2019). Despite having a strong climate strategy aligned with national and EU policies (heavier on the mitigation side), Aragón faces persistent challenges in local implementation, requiring better coordination, funding, and regulation.

3.2. Soft vs. hard climate adaptation

In Task 2.4, as detailed below, for the co-creation and co-design processes with citizens and stakeholders, the scope was deliberately limited to **soft adaptation solutions**, rather than considering the full range of potential adaptation options or measures. This distinction is important to clarify the scope of the co-creation activities and to explain why soft adaptation was prioritized. Soft climate adaptation solutions refer to non-structural measures aimed at enhancing the adaptive capacity of communities without relying on physical infrastructure. These measures focus on behavioural, institutional, and policy changes that help communities adapt to local climate variability and change (Keller & Birchall, 2023, Walawalkar et al., 2023). Examples include public education campaigns, early warning systems, land-use planning, and the development of insurance schemes. Soft adaptation is often more flexible and cost-effective, allowing for adjustments as conditions evolve. According to the Intergovernmental Panel on Climate Change (IPCC), soft adaptation measures encompass social and institutional adaptations (Noble et al., 2014) or "institutional, behavioural, and cultural options" (O'Neill et al., 2022) that can be implemented to reduce vulnerability to climate change impacts. These measures are particularly valuable in contexts where financial and technical resources are limited, and they often serve as a foundation for more comprehensive adaptation strategies.

On the other hand, **hard climate adaptation solutions** involve structural or physical interventions designed to reduce exposure to climate hazards through engineered solutions. These measures include the construction of infrastructure, subdivided in technical or "grey" infrastructure and ecological or "green" infrastructure (European Commission and European Environmental Agency n.d.) such as sea walls, flood barriers, resilient buildings, and diverse nature-based solutions (NbS). Hard adaptation is typically capital-intensive and requires significant planning and investment and can provide immediate and tangible protection against specific climate risks. While effective in certain scenarios, hard measures can be less flexible and may not address the underlying social and behavioural factors contributing to vulnerability.

3.3. Rationale for prioritising soft adaptation solutions

The Adaptation AGORA project deliberately centred its co-creation and co-design efforts around soft adaptation solutions. This focus was chosen since the beginning both strategically and pragmatically. Infrastructure-intensive solutions such as seawalls or green engineering require substantial investment and political commitment, which lie beyond the scope and resources of the Adaptation AGORA project. Instead, Adaptation AGORA targeted non-structural, low-cost, and more feasible measures that strengthen community resilience through behavioural, institutional, and



informational change. Soft adaptation pathways better align with the broader mission of enhancing participatory governance, citizen engagement, and local ownership in climate adaptation. This reflects a conscious shift away from externally designed solutions toward inclusive, bottom-up strategies co-developed with the people most affected.

Soft adaptation solutions, such as early warning systems, community awareness programmes, and participatory planning, are not only more cost-effective but can also prove more sustainable and equitable than hard interventions (Turek-Hankins et al., 2021; Rutherford et al., 2020). Moreover, soft adaptation can better respond to socio-cultural contexts and shifting climatic uncertainties, offering flexibility and continuous adjustability (Hallegatte & Dumas, 2008). By contrast, hard adaptation solutions may ‘lock in’ certain patterns of development, influencing both urban form and resident behaviour for decades (Hassler, 2009; Cole et al., 2010).

This does not imply that soft adaptation measures are always (in every context) preferable or more cost-effective than hard measures, rather, they might remain undervalued in discussions of climate policy. No universal formula for building adaptive capacity exists, and a combination of both soft and hard adaptation may be necessary depending on the local needs and conditions (Sovacool, 2011).

The rationale is further supported by evidence from the IPCC (O'Neill et al., 2022), which highlights the importance of education, behavioural change, and social capital in adaptation planning. Educational initiatives and public engagement, for example, contribute to building the social infrastructure necessary for climate resilience (Eilam, 2022). Within Adaptation AGORA, the emphasis on participatory co-design fosters inclusiveness, enhances local relevance, and encourages experiential learning through real-time engagement. Soft adaptation solutions co-created with communities often result in higher acceptance and implementation commitment (Turek-Hankins et al., 2021).

3.4. From top-down to co-produced adaptation measures

Top-down approaches frequently overlook local nuances, risk maladaptation and exacerbating existing inequalities by further marginalising vulnerable groups. Traditional top-down approaches to climate adaptation have often failed to deliver locally relevant, inclusive, and sustainable outcomes (Rahman et al., 2023). While these expert-led processes are efficient for technical planning, usually lack the participatory elements needed to support community engagement and contextual relevance in diverse socio-cultural contexts (Barth et al., 2023). In contrast, the Adaptation AGORA project adopts co-production and co-creation as useful approaches to support the development of context-specific, bottom-up adaptation solutions. This approach reflects the



understanding that adaptation not only consist of technical challenges, but also social, cultural and institutional ones.

Participatory processes allow communities to express their priorities and perceived vulnerabilities, which can contribute to outcomes that are better aligned with local contexts and cultural practices (Sartorius et al., 2024). This approach can also contribute to social learning, support local knowledge systems, and build adaptive capacity over time (Ziervogel et al., 2022; Galan et al., 2023). In Adaptation AGORA, these co-creative processes have played a role in addressing the social aspects of resilience, with particular attention to including the perspectives of specific target groups (with a particular focus on underrepresented and vulnerable groups).

Participatory co-creation processes can also support resilience by encouraging behavioural change and strengthening social networks. They may help identify existing community assets and facilitate new forms of collaboration (Terrado et al., 2024). In contrast, traditional hard adaptation measures, such as large infrastructure projects, require specialised technical knowledge and significant capital, making them less accessible for citizen engagement and often inflexible in the face of evolving climate risks (Huynh et al., 2024). As Berrang-Ford et al. (2021) argue, a more people-centred adaptation agenda requires recognising and supporting autonomous and collective forms of adaptation, particularly through behavioural, cultural, and informal systems. Adaptation AGORA's design explicitly reflects this paradigm, enabling citizens to co-develop locally meaningful solutions, while also embedding mechanisms (e.g., through approaches such as citizen science) for mutual learning, reflection, and institutional feedback.

4. Methodology

4.1. Approach and process of stakeholder and citizen engagement

4.1.1. Development of a shared engagement protocol

To ensure coherence and comparability across the four pilot regions (Aragon, Dresden, Malmö, and Rome), a joint stakeholder and citizen engagement protocol was co-developed for Tasks 2.3 and 2.4. This protocol was initiated during the WP2 parallel sessions at the project's Kick-Off Meeting early 2023, where key barriers to citizen and stakeholder engagement were identified. These included stakeholder fatigue, fragmented approaches to community outreach, and the risk of low comparability across pilots. For a comprehensive description of this process, please refer to Deliverable 2.3.



In response, partners agreed on the need to develop a common, and replicable (so that the approach can be adapted and applied in other regional contexts), engagement protocol that is both, flexible enough to be adapted to each pilot's local context and keeps a shared basic structure across regions. This included the definition of common citizen target groups to be engaged in each pilot, and a focus on shared climate hazards (such as heatwaves and hydrological extremes like heavy rainfall or water scarcity). Lastly, partners agreed on the importance of coordinating the timing of activities across pilot regions to facilitate mutual learning and support smoother collaboration, improving the overall alignment. This helped to adjust emerging issues gradually as needed, thus addressing the challenge of limited synergies among pilots and allowing for more consistent implementation of shared steps.

In WP2 we defined three core citizen **target groups** to be consistently involved across all pilots: **youth engaged in climate action** (between 15 and 24 or 18-24 depending on the age of consent in each country where Pilot activities are being held), **working population** (approximately aged 25 to 62), and **multicultural communities** (or multi-ethnic minorities; to capture diverse perceptions shaped by distinct socio-cultural backgrounds and communities, issues of migration, integration, and alternative, even unconventional, climate knowledge from different cultural backgrounds were considered relevant). In some pilot regions, a fourth group, the vulnerable citizens, such as seniors and individuals with disabilities and chronic illnesses, was also included (see Deliverable D2.3 for more detail). The selection of these groups aimed to ensure inclusivity and representativeness in the co-design of soft adaptation solutions, while also allowing for a better understanding of the types of soft adaptation solutions prioritised or considered relevant by different demographic, socio-economic, and cultural groups across the pilot regions.

This protocol for citizen and stakeholder mapping and engagement drew inspiration from the MapStakes tool (Barquet et al., 2022), which provides a structured five-step approach to identifying, classifying, and prioritising stakeholders for participatory processes, as well as elements from the initial steps of the Guidelines of the Tandem Framework, developed by as part of the SEI initiative on climate services (Daniels et al., 2019; Bharwani et al., 2024; see Deliverable D2.3). In short, Tandem is structured around four iterative phases each divided into three elements: 1) scope and review risks, vulnerability, and impacts (scope risks, vulnerability, and impacts, identify stakeholders, and engage stakeholders), 2) co-explore (challenges and goals, governance context, and information needs), 3) co-design (co-design solutions, co-explore and identify solutions, and appraise solutions), and 4) integrate new knowledge and partners (monitoring, evaluation, and learning).



4.1.2. Stakeholder mapping and initial involvement strategies

The “Scope, Identify and Engage” phase launched the engagement process by setting the system boundaries in each pilot, guided by five dimensions: temporal, jurisdictional, institutional, sectoral, and conceptual. The stakeholder mapping phase began with a thorough review of local vulnerabilities and existing adaptation gaps, followed by the identification of relevant stakeholders across a broad range of sectors, institutions, and community groups.

The outreach was tailored to each context and included personalised invitations via email, phone calls, joining existing communities (e.g., Telegram channels), and bilateral meetings. As a result, a total of 93 stakeholders in Aragon, 256 in Dresden, 112 in Malmö, and 105 stakeholders in Rome were originally identified. Along with additional individuals reached through snowball sampling, collaboration with local partners, and participation in events, several of the identified stakeholders were contacted and actively engaged. This approach enabled each pilot to expand and refine its network as new relevant actors emerged.

Initial efforts to foster meaningful involvement, mainly through bilateral meetings, aimed to build trust, clarify the project’s goals, pilot activities and expectations, and promote open and transparent communication. Efforts were made to ensure broad representation across public authorities, local communities, civil society organisations, academia and research institutions, the private sector, and the media. Annex 2 provides an example of these early efforts from the Rome pilot to identify and engage a diverse range of stakeholders. The process sought to reflect the diversity of local contexts and perspectives in order to contribute to a more comprehensive view of climate risks and the different adaptation needs present in each pilot region.

4.1.3. Inception workshops as a bridge from vulnerability assessment to co-design

The inception workshops, as outlined in Deliverable D2.1 and Milestone MS8, served as a basis for the activities in Task 2.4. While their primary aim was to assess local vulnerabilities and adaptation gaps, these workshops also helped clarify the specific engagement needs of different citizen groups and helped strengthen local networks through the involvement of key individuals, who proved valuable contacts for the identification of suitable participants for the focus groups on co-creating soft adaptation solutions. By bringing together a diverse set of stakeholders (including local government representatives, academic institutions, private sector, and civil society organisations),



the inception workshops provided a space for early co-exploration of the social and climatic contexts in each pilot region.

Participants discussed on the main adaptive gaps and elements of vulnerability related to different climate hazards, such as heatwaves, flooding, drought, and hydrological hazards and reflected on their differentiated impacts across sectors and social groups (e.g., agriculture, tourism, infrastructures, etc.). Participatory methods, such as world café sessions, problem tree analysis, role-playing, and prioritisation exercises, enabled an in-depth assessment of local adaptation needs. These also helped reveal challenges and strengths related to adaptive capacity and inclusion.

Most importantly for Task 2.4, the inception workshops provided a useful opportunity to explore and gather context-specific insights, identify relevant topics and entry points for the upcoming focus groups (see Annex 3), and, in some cases (e.g., in Dresden), refine inclusive engagement strategies. This helped to ground the co-creation of soft adaptation solutions in local understandings of vulnerability, supporting a more informed transition from the mapping to the co-creation phase.

4.2. Co-creation through focus groups

The co-creation of soft climate adaptation solutions in Task 2.4 was carried out through a series of focus groups conducted across the four pilot regions. These focus groups were designed as participatory sessions to gather locally relevant ideas and priorities from a diverse range of citizens representing the identified target groups. The methodological approach was co-developed by all pilot leads and built upon preparatory work carried out during the inception workshops, stakeholder meetings, WP2 meetings, and the “Zaragoza engagement lab” (see Deliverable D2.3), ensuring coherence across the project while allowing for contextual flexibility.

The content focus of each session, such as heatwaves, flooding, and droughts, was selected based on the vulnerabilities identified in each pilot during the earlier inception phase. Across all pilots, efforts were made to ensure accessibility and inclusivity, including choosing convenient locations, scheduling sessions outside of typical working hours, and adapting facilitation strategies to the needs of the specific target groups.

Each focus group session opened with a brief preparatory phase aimed at setting a common understanding of the session’s purpose and creating a comfortable environment for participants (see focus group protocols available in the project’s website: for [multicultural communities](#), [working population](#), and [engaged youth](#)). After arrival and registration, facilitators provided a short overview of the Adaptation AGORA project and the reasons for engaging citizens in local climate adaptation. To introduce the topic, the sessions included locally relevant examples of previously selected climate risks based on findings from earlier literature review and the vulnerabilities identified in the



inception workshops. In the case of Rome, the focus was intentionally kept on areas (see Annex 3) that formed the basis of the city's forthcoming Climate Change Strategy (the fact that the strategy was under development at the time provided a timely opportunity to integrate outcomes from the Adaptation AGORA pilot directly into this evolving policy framework). This introductory segment also helped to clarify key terms like "soft adaptation", "climate risks", or "citizen engagement", outlined the objectives of the focus group, and set expectations. Participants were invited to actively contribute their perspectives and experiences to help inform future adaptation solutions. In some pilots, creative techniques like the use of drawing, storytelling or informal dialogue were used to support early engagement and encourage open conversation.

All focus groups were facilitated by trained personnel who had participated in expert-led capacity building sessions on participatory techniques and group dynamics. Facilitators in the four pilot regions followed a common protocol (see an example of the focus group protocol adapted for multicultural communities in Annex 4 or additional ones in the [project outputs](#)), which included a structured agenda with an introductory round, the two participatory steps, and a concluding evaluation component. In addition, facilitators submitted structured reports using a standardised template (see Annex 5), ensuring consistency and comparability across regions.

The preparatory phase was followed by the main co-creation phase, during which participants took part in a structured process to, given the identified local climate-related concern, suggest potential soft adaptation measures. While a variety of facilitation techniques were suggested and discussed before the events (including the training sessions with a facilitation expert), most facilitators across the four pilot regions made use of either the "Nominal Group Technique", a structured brainstorming and ranking process (Hugé & Mukherjee, 2018), or the "Think-Pair-Share" method during this phase. The "Think-Pair-Share" (very similar to the "[1-2-4-All](#)") enables participants to reflect individually, exchange thoughts in pairs or small groups, and then share insights with the larger group. These approaches supported the structured development, discussion, and prioritisation of citizen-generated solutions ideas in a format that helped to provide an equal voice to all participants. This includes contributions from quieter participants or those unfamiliar with technical discussions, thereby supporting a broader inclusion of perspectives.

In the final section of this exercise, participants took part in a collective discussion (often a guided exchange depending on the selected facilitation technique), to explore the relevance, feasibility, and fairness of the proposed solutions. Although this step was later used as a basis for the co-evaluation work under Task 2.3, the insights generated also strengthened the depth and contextual sensitivity of the co-created adaptation measures.



4.3. Brainstorming and thematic consolidation

After finishing the focus groups with citizens in the four pilot regions, pilot leaders within WP2 transitioned into a collaborative cross-pilot phase to prepare for the final co-creation workshops. This intermediate step was designed to synthesise the outputs of Task 2.4's focus groups and prepare a coherent and locally grounded framework for the design of the subsequent workshops.

To support this transition, each pilot team first documented the outcomes of their focus group sessions in detailed reports, which were then distilled into one-page summaries highlighting key citizen-generated adaptation ideas and engagement preferences. These summaries formed the basis for a series of virtual brainstorming sessions held among WP2 leads and pilot coordinators and facilitators. The objectives of these sessions were to cluster and prioritise emerging themes and soft adaptation solution areas across pilots, and to help develop a “guiding” structure for the upcoming co-creation workshops (see Annex 6 of Deliverable 2.3).

The brainstorming sessions were hosted on a shared Miro board to allow for collaborative, visual exploration of focus group findings and to encourage real-time input from partners (see Figure 3). The process began with participants posting ideas about urgent local climate issues, common citizen concerns, and possible ways to engage citizens (after reviewing inputs from the inception workshops and the individual focus groups). This process enabled participants to go beyond pilot-specific insights and recognise cross-cutting topics relevant across regions. This was supported by a voting system to prioritise proposals that were broadly relevant or of particular interest for pilot leaders. Inputs receiving multiple votes were then moved into structured clusters. Special attention was given to ensuring that the final themes aligned not only with local stakeholder priorities but also with the overarching aims of Task 2.4, namely, the co-creation of socially relevant, citizen-driven soft adaptation solutions that are feasible, inclusive, and transferable.



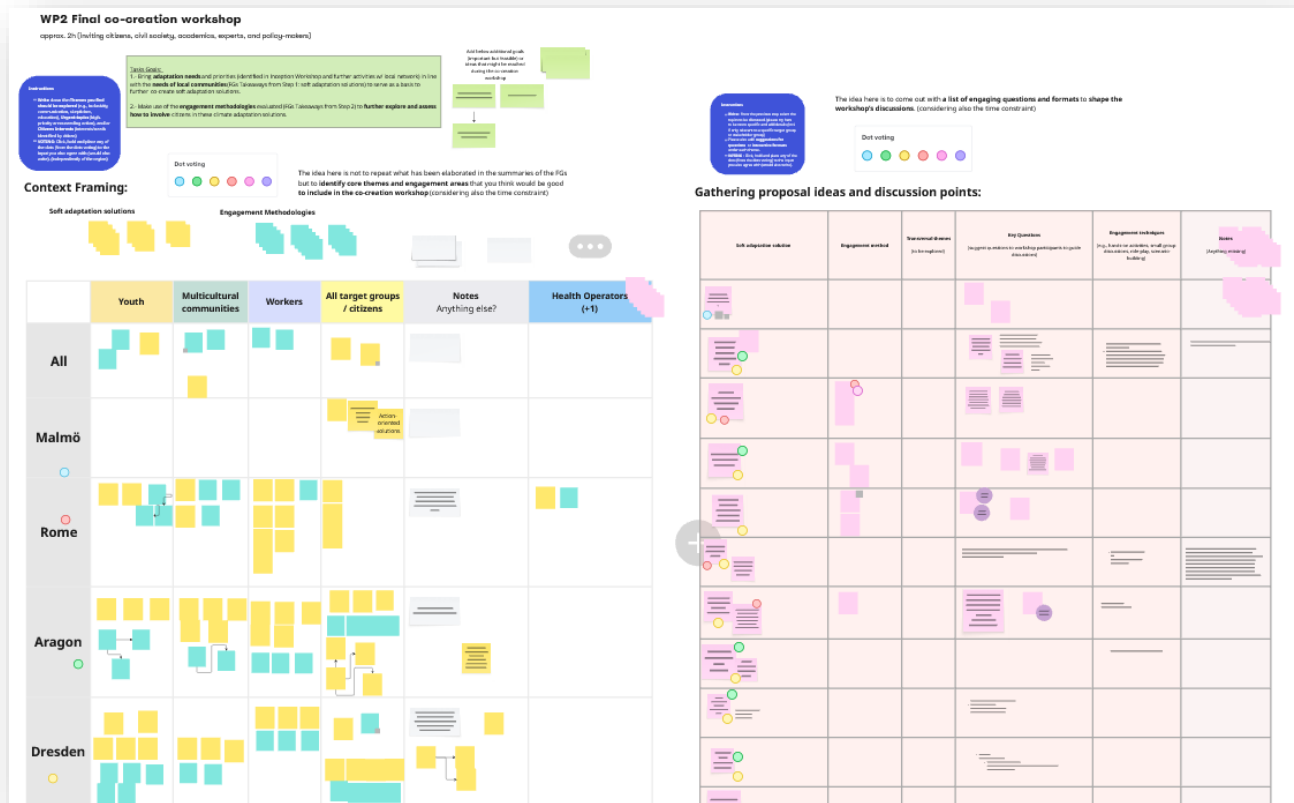


Figure 3: Miro board - Internal brainstorming session for final co-creation workshops

The second half of the brainstorming sessions focused on developing practical suggestions for workshop design. For each prioritised theme, participants proposed guiding questions, engagement tools (e.g., citizen storytelling, debate formats, participatory mapping), and examples of how different target groups might be involved. Throughout the brainstorming phase, coherence with both Tasks 2.3 and 2.4 was maintained by using shared categorisations of soft adaptation types and engagement mechanisms. The process itself exemplified the project’s iterative and collaborative approach: ideas from diverse regions and stakeholders were integrated and refined through open exchange, mutual learning, and joint decision-making. This phase helped clarify what content to include in each of the pilots’ final co-creation workshops.

4.4. Final co-creation workshops

The final step in Task 2.4 involved the organisation of co-creation workshops across all four pilot regions. These workshops were designed to build on the outcomes of the focus groups by creating participatory spaces where citizens, civil society actors, public authorities, researchers, and the private sector could collaboratively refine and prioritise soft climate adaptation solutions. While each event was adapted to its local context, all workshops shared a common purpose: to work on citizen-generated ideas from previous phases, evaluate their feasibility and relevance, and identify meaningful strategies for their implementation through inclusive engagement methods.

Each pilot followed a standard but flexible workshop structure (see the four final co-creation workshop agendas in Annex 6). Sessions typically began with brief institutional or expert presentations, setting the stage by reconnecting participants with the broader aims of the Adaptation AGORA project and summarising key findings from earlier engagement steps. This introduction helped place the co-creation work in a broader context and recognised participants' contributions throughout the process.

The core co-creation phase in each workshop was organised through thematic group activities. Participants were divided into break out groups, each centred around a soft adaptation solution or thematic cluster that had emerged as a priority during the focus groups. In all cases, participants were invited to engage not only with the solution content, but also with the question of how citizen and stakeholder groups should be involved in their implementation. For example, a common topic across pilots was “communicating climate adaptation” (e.g., through the co-creation of communication strategies and/or tailored communication and inclusive strategies). Facilitation methods combined participatory techniques that had proven effective in previous stages, especially the “Think-Pair-Share” approach (and, in addition for the Dresden pilot, the sociocratic [participatory proposal writing](#) approach). These methods were widely appreciated across pilots for promoting balanced participation and thoughtful deliberation, especially in mixed stakeholder settings.

To deepen the process, pilots employed additional tools adapted to their thematic needs. In Zaragoza and Rome, for example, participants used visual “solution cards” and infographics summarising the main proposals from the focus groups, which were then discussed and prioritised through voting. These exercises supported collaborative decision-making while making visible the range of opinions in the room. In Dresden, thematic sub-workshops were organised around four adaptation topics (communication, digital tools, education, and financing), each with its own facilitator and note-taker. Participants worked on refining solutions and identifying pathways for action, including responsible actors, funding strategies, and implementation barriers. Malmö used a series of thematic discussion tables, integrating earlier inputs into structured templates that participants used to document challenges, responsibilities, and next steps. Finally, plenary sessions were held in all workshops to synthesise the results of small-group work.



In most cases, participants who had attended previous events, i.e. the inception workshop and focus groups, were among the main invitees to the co-creation workshops, to ensure a coherent and empowering engagement process for citizens and stakeholders. However, the event was also open to new stakeholders and citizens who had not attended earlier events but had engaged with the project in other ways (e.g., through bilateral conversations or by promoting the focus groups). This approach aimed to keep the network open and accessible during its formative phase.

The final co-creation workshops acted also as a bridge between the project's co-creation phase and future local implementation of adaptation measures. Participants were encouraged to see their role not just as contributors to a one-off event, but as potential partners in continuing local adaptation efforts. In some cases, the workshops even laid the groundwork for future collaboration ideas, or links with municipal strategies (such as the Rome Climate Change Adaptation Strategy).

5. Results

5.1. From vulnerability assessment to co-creation: outcomes of the inception workshops

As outlined in the methodology, inception workshops were held in each pilot region as a preparatory step for the co-creation process, to reflect on local climate vulnerabilities and gaps related to the adaptive capacity of different population groups and sectors. These workshops build on the findings of earlier vulnerability assessments (literature review) by identifying locally relevant priorities in each pilot region, which in turn informed the focus and entry points for the subsequent co-design and co-creation activities reported in this deliverable (for more detail see [Deliverable 2.1](#)).

The inception workshop in **Dresden** explored key climate-related risks, with heatwaves and heavy rainfalls and floods considered as the primary hazards of concern. Participants discussed how these risks affect the urban environment, including impacts on infrastructure, housing, and individual well-being. While both hazards were acknowledged, heatwaves emerged as a particularly pressing issue due to their increasingly frequent and prolonged occurrence in recent years.

A central focus of the workshop was on how social vulnerability intersects with climate risks. Participants reflected on the fact that adaptation needs and capacities vary significantly across population groups. For example, senior residents and people with chronic illnesses or disabilities were seen as particularly at risk, especially when living in poorly adapted housing or alone, with limited access to information or support. Discussions also addressed economic vulnerability, such as limited access to air conditioning or other coping resources.



From an inclusion and capacity perspective, the workshop highlighted several barriers to adaptation. These included limited public awareness, lack of institutional coordination, and insufficient representation of vulnerable communities in climate planning processes. At the same time, existing civil society initiatives, community-based networks, and the city's infrastructure for public engagement were mentioned as potential assets for supporting local adaptation responses.

The inception workshop in **Malmö** provided a critical foundation for the co-creation of soft adaptation solutions phase of this WP2 by framing heatwaves as one of the city's most urgent climate risk and linking them to social vulnerability. Participants emphasised that vulnerability is not merely physiological but socially constructed, shaped by factors such as income, housing conditions, and access to public infrastructure. Key insights emerged around the differentiated impacts of heat across population groups, particularly highlighting that those most exposed (like senior citizens, people with chronic illness, socially isolated individuals, and the homeless) often have the fewest means to adapt. Many of these individuals lack access to cooling solutions, are excluded from public cooling spaces, or are overlooked by institutional safety nets. This highlighted the need to understand vulnerability as an intersection of environmental exposure, social position, and systemic barriers.

The workshop also identified specific gaps in Malmö's adaptive capacity, which later informed the structure and focus of the local co-creation activities. Participants called attention to the absence of binding legislation (e.g., regulations on maximum indoor temperatures) alongside knowledge gaps among nationals unfamiliar with heat adaptation behaviours. The discussion emphasised the importance of inclusive, systemic responses that integrate green infrastructure, legal frameworks, and social outreach. This framing encouraged subsequent focus groups to explore adaptation measures that were not only practical but also equitable.

The inception workshop in **Rome** provided a participatory diagnosis of climate vulnerabilities and adaptation needs across the city. A wide array of climate risks was acknowledged, including water scarcity, coastal erosion, urban flooding, and extreme heat. Participants identified specific population groups as disproportionately vulnerable to these hazards, including elderly residents, people with chronic illnesses, pregnant women, migrants, and homeless. These groups often face compounded challenges due to poor housing conditions, lack of access to early warning systems, and social or linguistic isolation.

Participants mentioned a lack of awareness and coordination across sectors, noting that available climate services were often underused or communicated in inaccessible formats. This was especially relevant for multicultural and migrant communities, where language barriers further reduced access to crucial information such as heat alerts. Beyond these, sector-specific issues were also highlighted. In health, participants mentioned the need for improved training and awareness around heat-related illnesses and better early warning mechanisms for at-risk groups. In the urban context, problems such as overcrowding, inadequate urban planning, and poorly connected public



transport were also mentioned. Coastal and agricultural areas were noted to be under threat from erosion, saline intrusion, and unsustainable land-use practices, while the cultural heritage sector faced risks from neglect and direct exposure to extreme weather.

Despite these challenges, the workshop also surfaced important assets that could be leveraged to support adaptation. These included existing social networks, educational institutions, and environmental initiatives already active in the city. Participants stressed the importance of integrating environmental education into schools, fostering citizen engagement in planning processes, and expanding community-based adaptation strategies. Climate risks were seen as amplifiers of existing social divides, making it essential to prioritise inclusive solutions that actively reach and involve those most exposed and least equipped to respond.

Two inception workshops took place in the **Aragón** region, one in Valderrobres (major town of the comarca of Matarraña) and one in **Zaragoza** (capital city of Aragón and where most activities within the pilot were focused). These served as an initial participatory diagnosis of the region's exposure to climate change. During the Zaragoza inception workshop, the most frequently cited climate risks included desertification, water scarcity, extreme temperatures, and the broader impacts of climate change on health and social inequalities. These were identified as priority concerns in the region through participatory activities such as impact identification, topic prioritisation, and SWOT analysis.

Among the most relevant entry points for the co-creation activities were social inequality and water-related vulnerabilities. Participants highlighted urban-rural disparities, aging populations, and concentrated vulnerable communities, as well as a lack of political commitment in environmental and water management. Challenges such as energy poverty, mental health deterioration, and population displacement due to climate impacts were discussed, indicating that climate adaptation in Zaragoza must also address wider socio-spatial injustices.

Participants recognised the presence of youth mobilisation, community and neighbourhood networks, and robust public health services as assets for adaptation. The workshop concluded with a shared understanding that critical themes such as social inequality, health, and water poverty should serve as priority focus areas. These were later explored through co-creation with citizens and stakeholders in the Adaptation AGORA focus groups, especially within the multicultural communities' target groups (as later detailed).



5.2. Detailed results by target group

5.2.1. Engaged youth

5.2.1.1. Introduction to the focus groups

Engaged youth (Dresden)

Location: **Bürgerlabor (Citizens' Lab), Dresden**

Date: **May 30, 2024, 5:00 PM**

Participants: **4 youths (16–24 years)**

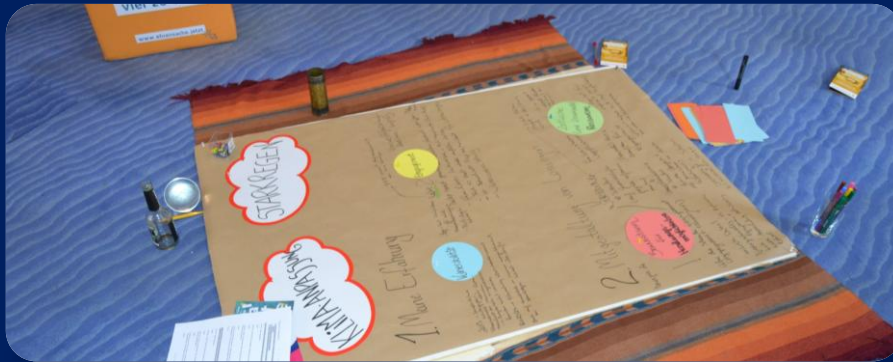


Figure 4: Engaged youth focus group in Dresden

Engaged youth (Malmö)

Location: **Bergsgatan, Malmö**

Date: **July 8, 2024, 2:00 PM**

Participants: **18 youths (15-19 years)**



Figure 5: Engaged youth focus group in Malmö

Engaged youth (Rome)

Location: **WWF Italia ETS, Rome**

Date: **9:00 AM–12:45 PM**

Participants: **7 (university students, young professionals)**



Figure 6: Engaged youth focus group in Rome

Engaged youth (Zaragoza)

Location: **University of Zaragoza**

Date: **June 12, 2024, 10:30 AM**

Participants: **6 (students, youth activists)**



Figure 7: Engaged youth focus group in Zaragoza

5.2.1.2. Co-created soft adaptation solutions

In all four pilot regions, young participants demonstrated a strong engagement with the co-creation process and co-created a variety of soft adaptation measures. These solutions reflected their climate risks’ awareness and a commitment to inclusive and socially embedded responses. Their ideas highlight a generational concern not only for the environmental consequences of climate change but also for the need to reframe communication, education, and participation also as part of adaptation efforts.

In **Dresden**, the youth focus group brainstormed a school-based awareness campaign proposal on climate adaptation. The campaign was designed to take place during school hours to encourage participation without interfering with students’ free time. It was conceived as an interactive learning programme that could feature activities such as citizen science projects, workshops on nature-based solutions, and community clean-up events. The aim was to promote interest in climate adaptation by combining learning with social and enjoyable field experiences.



The use of peer-to-peer communication and word-of-mouth to expand the reach among students was also supported. Activities were intended to be easy to join, with no special requirements, and students could choose where to participate in based on their interests.

Participants also discussed about communication channels that would include internal channels (e.g., between local authorities, stakeholders and the school) for the coordination and preparation of such activities and through school newsletters, social media, and advertisements in public spaces to help make the campaign more visible and accessible.

In **Malmö**, the youth group focused on the everyday impacts of heat on comfort and wellbeing. Participants suggested a range of adaptation measures aimed at reducing heat stress in both indoor and outdoor settings. A key proposal was the creation of shaded, cooler outdoor areas for socialising and relaxation. At the same time, participants recommended improvements to housing, such as better insulation and upgraded windows to address indoor heat.

An early warning system was identified as a priority, as it could support timely behavioural changes and institutional preparedness ahead of heat events. This was viewed as a practical and implementable option. Additional suggestions included providing electric fans to those unable to afford them and installing air conditioning in public transport and commercial spaces to offer accessible relief from heat. While green spaces were considered helpful, the group recognised their limited role in mitigating indoor temperatures.

In **Rome**, the youth focus group proposed a range of ideas to address the city's climate challenges. Participants emphasised the importance of tailoring awareness campaigns to different age groups, for example, using games and digital tools for children, subject-specific environmental activities for students, debates and workshops for adults, and for senior citizens, by engaging community spaces such as churches. Another supported proposal was to introduce mandatory weekly education programmes on climate change and sustainability in schools, which participants viewed to encourage climate-aware behaviour from an early age.

Participants also supported flexible working arrangements to lower emissions, reduce commuting-related stress, and support public health. Other suggestions included encouraging sustainable consumption through environmental volunteering, creating interactive climate-focused museums, and promoting decentralised tourism to reduce pressure on heavily visited areas. Additional ideas involved tax incentives for sustainable practices, a point-based system for waste separation, and participatory digital platforms where citizens could suggest and vote on environmental initiatives. A proposal was also made to adjust food sector tax policies to encourage plant-based diets and environmentally responsible food choices.

In **Zaragoza**, the youth co-creation session focused on practical, socially oriented responses with participants identifying improved working conditions as a key adaptation priority, especially for individuals in precarious employment. They also discussed the potential of strengthening urban-rural connections, including policies to support young people in reconnecting with or relocating to



smaller villages, where climate pressures might be lower and more sustainable lifestyles could be encouraged.

The idea of creating designated climate shelters in urban areas received particular attention, with participants viewing them as a practical response to the growing frequency of heatwaves. These shelters would serve as accessible and safe spaces for all, particularly for vulnerable groups. Additionally, they emphasised the importance of improving climate communication by promoting more positive and motivating narratives that encourage young people to engage without feeling overwhelmed.

5.2.1.3. Key considerations and reflections on feasibility, inclusivity, and innovation

In **Dresden**, the youth group centred their co-creation around education-based adaptation, with a focus on school-based experiential learning. They felt that for engagement to be effective, it should be enjoyable, accessible, and voluntary. The group expressed a preference for approaching them more informally, noting that young people are often already managing academic and social needs and are less likely to participate in activities that feel like additional obligations.

Participants also viewed peer influence as more effective than institutional messaging. They described a “snowball effect,” where participation spreads informally through social networks, as a more promising approach. This was based on the idea that interest and trust are more likely to develop through peer-to-peer interaction.

To support this, participants proposed a decentralised, low-threshold model that would be flexible and easy to join, considering youth is often confronted with limited time, interest, or resources. This approach, considered innovative by encouraging engagement beyond traditional educational formats, was seen as a way to reach students who may not engage in more formal or extracurricular initiatives, offering them voluntary and accessible opportunities to participate. In this context, the use of playful, hands-on learning was also considered a way to sustain engagement and make adaptation feel relevant and approachable.

Finally, the group noted that youth often lack time, financial means, and influence to engage meaningfully in long-term adaptation activities. Their proposals were based on the belief that adaptation must meet young people where they are, offering opportunities for participation that require minimal commitment and resources, yet still allow them to feel part of a collective solution.

In **Malmö**, focus group participants approached adaptation from a practical perspective, shaped by their day-to-day heat-related discomforts and own limited ability to make structural changes. A key point was the usefulness of early warning systems, which allow individuals to adjust their plans or



seek cooler environments before conditions become unbearable. The rationale was based in their observations that information alone does not help unless it comes early enough to influence decisions.

They also highlighted the limitations of individual coping strategies, particularly when these depend on access to resources like fans or air conditioning. This reinforced participants' concern that too much emphasis was being placed on personal behaviour change, while institutional action remained limited. They pointed out that many soft adaptation measures require institutional support to be effective and fair, and preferred more systemic interventions. In their view, public authorities should take the lead in ensuring equitable access and preparedness, rather than relying on individuals' initiatives. Finally, while participants recognised the value of green spaces and shaded outdoor areas, they felt these did not fully address the issue of indoor heat, especially at night.

In **Rome**, young participants emphasised the importance of age-appropriate approaches climate engagement noting that communication and educational strategies should be tailored to different age groups. They pointed out that a uniform approach to awareness-raising may not be effective as people of different generations process and respond to information differently. While feasibility and inclusivity were not addressed as standalone topics, some of the proposals (such as tailoring formats to different age groups and using art or interactive methods) reflected an intention to reach socially and culturally diverse audiences and promote intergenerational inclusion.

Participants also noted that adults (especially older generations) can be more difficult to engage in climate-related topics. This was linked to a perceived gap in communication strategy and opportunity structures, where older people may not be exposed to adaptation topics in more accessible contexts (socially relevant to them). Institutions such as religious communities were seen as potential partners for outreach, given their trusted role among older adults.

Another key point was the call for structured climate education within the school system. Participants viewed this as a necessary part of long-term civic learning, as climate literacy should be developed over time to support informed responses to environmental challenges (not merely as an optional activity). Finally, although implementation aspects were not explicitly discussed, youth in Rome reflected on the psychological and behavioural dimensions of adaptation, particularly in relation to entrenched adult habits. This led to suggestions for using creative formats (such as art and activism) as engaging and accessible tools to encourage reflection and broaden participation where traditional awareness campaigns might have limited impact.

In **Zaragoza**, participants discussed a range of connected issues regarding working conditions, rural-urban dynamics, and youth engagement in climate action. One recurring topic was the vulnerability of young people in outdoor or service-based employment to the impacts of extreme heat. Their focus on work-related adaptation reflected personal experiences of limited ability to influence working conditions and a lack of adequate protection under extreme heat.



Participants also considered that adaptation efforts could contribute to social cohesion which was reflected in suggestions to strengthen ties between youth and rural areas. They felt that smaller towns could offer more comfortable living conditions during periods of extreme heat and provide opportunities to support more sustainable ways of living. The suggestion to strengthen urban–rural connections also reflected a broader aim to promote more sustainable and equitable population dynamics.

In addition, participants noted a gap between climate communication efforts and people’s everyday experiences. They observed that older adults, including those in decision-making positions, did not always view adaptation as a priority, thus advocating for communication approaches that focus on positive and constructive and action-oriented messages, rather than emphasising urgency or risk alone. They also highlighted the importance of communication strategies that are accessible across different educational levels and age groups, noting that people without formal education or older adults may engage with climate issues in different ways.

5.2.2. Working population

5.2.2.1. Introduction to the focus groups

Working population (Dresden) - 1

Location: **Dresden City public hospital, Dresden**

Date: **October 2, 2024, 12:00 PM**

Participants: **5 health professionals, mostly nursing staff**



Figure 8: Working population focus group 1 in Dresden



Working population (Dresden) - 2

Location: **Dresden City public hospital, Dresden**

Date: **September 17, 2024, 12:00 PM**

Participants: **5 health professionals, mostly nursing staff**



Figure 9: Working population focus group 2 in Dresden

Working population (Malmö) - 1

Location: **Spånehusvägen 62E, Malmö**

Date: **July 25, 2024, 1:30 PM**

Participants: **3 (aged 28–31, working in a school, summer camp, climbing gym, and dance school)**



This image is for illustration and does not represent the actual focus group

Figure 10: Working population focus group 1 in Malmö



Working population (Malmö) - 2

Location: **Malmöhusvägen, Malmö**

Date: **September 10, 2024, 12:30 PM**

Participants: **12 park workers**



Figure 11: Working population focus group 2 in Malmö

Working population (Rome) - 1

Location: **Uni Roma3, Rome**

Date: **5:00–8:00 PM**

Participants: **7 female workers**



Figure 12: Working population focus group 1 in Rome

Working population (Rome) - 2

Location: **Department of Epidemiology, ASL Roma 1**

Date: **5:00–7:30 PM**

Participants: **5 health professionals**



Figure 13: Working population focus group 2 in Rome

Working population (Zaragoza)

Location: **LAAAB, Zaragoza**

Date: **June 17, 2024, 4:30 PM**

Participants: **6 workers**



Figure 14: Working population focus group in Zaragoza

5.2.2.2. Co-created soft adaptation solutions

Co-creation activities involving the working population were carried out in all four Adaptation AGORA pilot cities. In Rome, Malmö, and Dresden, this engagement was expanded through two separate focus group sessions held in each pilot. Participants contributed practical, experience-based insights, highlighting how climate impacts are already influencing their work environments, daily routines, and overall wellbeing. Across cities, workers proposed a range of soft adaptation measures that addressed structural, behavioural, and organisational aspects of climate resilience.

In **Dresden**, two focus groups were conducted with professional caregivers working in a public hospital. The first group proposed introducing a flexible work clothing system, with breathable, seasonally appropriate uniforms (that could be centrally cleaned and distributed). One additional co-created solution was a heat stress reporting system that would trigger specific protective measures when indoor temperature thresholds were exceeded. They also suggested adjusting work schedules, including more hydration breaks. Another idea that was discussed, as part of the co-creation process, was the use of mobile air conditioning units in high-risk areas such as medication storage rooms and patient wards, accompanied by ventilation guidelines and staff training to ensure effective use. However, it ended up being dismissed as it was considered by participants as not feasible.

The second group echoed many of these ideas and contributed further suggestions. They proposed engaging student assistants to support care staff during heatwaves (so that work schedules can be better adjusted) and recommended making more accessible cold beverages and chilled fruit for staff during the summer. They also suggested developing simple, easy-to-understand communication materials for patients, explaining and encouraging them to follow specific heat protection practices (e.g., clear guidelines on how to ventilate a room, when to open windows, and when to keep them closed to prevent indoor temperatures from rising). Across both groups, the focus was on clear, health-oriented strategies and the conditions required to implement them (e.g. institutional support as well as widespread engagement from individuals or employers to drive meaningful change).

In **Malmö**, two focus groups were held. The first group focused on how heat affects daily routines, including work, rest, and physical activity. Participants proposed the development of a community-based early warning system to support planning and preparation ahead of heat events. Other suggestions included distributing fans to vulnerable individuals or workers and increasing public access to cooled spaces, such as transport and commercial centres. They also highlighted the need for building improvements, particularly better insulation and windows, to reduce indoor overheating in both homes and workplaces.



The second group, consisting of municipal outdoor flower maintenance workers, proposed several workplace-specific adaptations. These included access to cold drinks and fresh food, use of cooling vests and breathable uniforms, and flexible work hours such as earlier start times or reduced shifts during high heat. They also recommended creating shaded workspaces. Participants mentioned that a maximum workplace temperature limit should be implemented, recognising heat as a workplace safety concern.

In **Rome**, two separate focus groups were held. The first involved women workers and commuters from a variety of sectors, including public administration, NGOs, freelance work, and research institutions. Participants described how climate change is already affecting their professional and daily lives, particularly through extreme heat, sudden flooding, and unreliable or inaccessible transport systems. Key concerns included poor indoor climate conditions in workplaces, rigidity in work schedules, and the lack of affordable, sustainable mobility options. Participants proposed soft adaptation measures such as promoting flexibility in work hours and locations, improving communication on transport incentives, enhancing economic accessibility, and raising awareness across sectors. They also stressed the need for institutional support, smart building design, and inclusive planning. The most widely shared measure was community-based awareness-raising to encourage collective responsibility and foster adaptable responses to climate risks.

The second focus group engaged professionals from the healthcare sector, including physicians, epidemiologists, and health system planners. Discussions focused on the growing impacts of climate change on public health, especially for vulnerable groups like children and low-income populations, and on the preparedness of health services. Participants highlighted the need to improve health literacy on climate risks, integrate climate change into professional training and public communication, and promote adaptive practices in healthcare settings (e.g., passive communication materials, guidance during heatwaves, and outdoor activities for children). The group co-created the idea of flexible, sector-specific adaptation and mitigation policies embedded into local health strategies. For engagement, participants prioritized mentorship programmes with digital components, viewing them as scalable, inclusive tools to support long-term behavioural and institutional change.

In **Zaragoza**, workers proposed a range of soft adaptation measures aimed at enhancing resilience to rising temperatures and improving both physical and organisational working conditions. Co-created solutions included the adaption of work environments to cope with extreme heat and strengthening the city's resilience through improved public services and institutional planning. Further proposals addressing the built environment included the suggestion of adapting schools and high schools by increasing green areas in playgrounds, creating cooler and more comfortable outdoor environments for students. They also proposed design adjustments in housing, ensuring homes are better equipped to handle heatwaves.



5.2.2.3. Key considerations and reflections on feasibility, inclusivity, and innovation

In **Dresden**, both focus groups consisting of professional caregivers brought attention to the dual challenge of safeguarding their own wellbeing while also ensuring the wellbeing of their patients. A key concern was that heat affects not only physical comfort but also the safety and effectiveness of care. Participants noted that high temperatures can first affect caregivers' physical wellbeing, leading to fatigue, reduced concentration, and lower performance. This, in turn, makes it more challenging to manage the increased demands that heat places on patient care, such as ensuring proper medication storage and responding to worsened health conditions, further adding to caregivers' workload. As a result, proposals such as heat-triggered protocols and more flexible work schedules were seen as necessary for both protecting health and supporting care standards. Participants also observed that existing conditions (such as labour agreements and staffing constraints) limit the feasibility of implementing shorter shifts or more frequent breaks, even though such measures could help reduce heat-related strain. These reflections demonstrated a clear understanding of the structural challenges involved in moving from ideas to implementation.

Alternative options, such as revamping voluntary workers (e.g., student assistants) to provide additional support during heatwaves, were also proposed as more feasible interim solutions. A key challenge that emerged was the lack of inclusive decision-making processes regarding climate adaptation (and other) measures in the hospital, with limited input from those most directly affected by these decisions. One group recommended involving staff more directly in adaptation planning. There was also an emphasis on improving communication with patients, particularly when implementing changes during heatwaves, with clear explanations to support understanding and cooperation. In terms of innovation, one group proposed a "heat protection plan" triggered by specific indoor temperature thresholds. This was viewed as a practical and structured approach that could fit within current operational routines and could clarify responsibilities and ensure more consistent institutional responses, reducing the reliance on informal or ad-hoc decisions. The discussions in Dresden pointed to the importance of developing adaptation measures that reflect everyday working conditions. Participants stressed that workplace resilience efforts should be practical, inclusive, and based on input from those most affected.

In **Malmö**, two focus groups contributed complementary perspectives based on different work experiences. The first group, made up of general workers, focused on the need for clear and practical information. While weather warnings were available, participants felt they were often too general or unreliable, which sometimes led to confusion instead of preparedness. They expressed concern about the heavy reliance on individuals to interpret and respond to climate-related



information, emphasising instead the need for institutional support and accessible measures that do not place the burden solely on personal initiative. The early warning system was therefore considered the most feasible and actionable proposal, as it could be implemented relatively easily and support both individuals and municipal services in making timely adjustments. Participants viewed it as a practical and effective solution compared to other measures requiring broader systemic change. Feasibility was understood in concrete terms (what could work in their daily context), and inclusivity was addressed through reflections on financial constraints, household responsibilities, and age-related limitations, all of which affect people’s ability to respond.

The second group, which included municipal outdoor flower maintenance workers, based their input on daily experiences with heat exposure. Participants described symptoms such as fatigue, dehydration, and difficulty recovering from physically demanding work in high temperatures. They suggested that climate adaptation should be treated as part of occupational health and safety rather than solely an environmental or behavioural issue. Proposals such as cooling vests, shaded work areas, and adjusted schedules were informed by observations of when and how heat had the greatest impact. These measures were viewed as realistic and appropriate to their work environment, provided there was sufficient support and investment from management. The group also raised concerns about the gap between on-the-ground needs and institutional decision-making (expressing distrust toward upper management, referencing dismissive responses), highlighting a broader issue of communication and representation for workers in less visible roles.

In **Rome**, participants from both focus groups emphasized how climate change exacerbates pre-existing structural and social vulnerabilities in urban contexts. Workers highlighted a perceived disconnect between citizens lived experiences and institutional responses, especially in relation to mobility, infrastructure, and public services. For example, extreme weather events like floods or heatwaves were reported to disrupt daily routines not just through direct exposure, but through cascading effects on commuting, caregiving responsibilities, and workplace accessibility, often without adequate contingency measures in place. Health professionals echoed these concerns, noting that climate risks compound systemic issues in the healthcare system, such as staff shortages and bureaucratic delays.

Reflections on feasibility further highlighted the tension between awareness and implementation, particularly when adaptation measures require coordination across different levels of governance. Participants from both focus groups emphasized that while many soft solutions (such as flexible work schedules, improved communication, or better public infrastructure) are conceptually simple, their uptake is hindered by institutional rigidity, fragmented responsibilities, and uneven access to resources. For instance, workers noted that even basic provisions like shaded waiting areas or functioning air conditioning were inconsistently applied in public offices.

Importantly, both groups pointed to a lack of inclusive planning processes, where citizen or frontline worker insights are solicited but rarely integrated into decision-making. This led to the call for more



participatory and transparent governance, with a focus on continuity (e.g., strengthening the role of existing local representatives rather than introducing temporary solutions). From the health sector, participants stressed that training and communication tools could be created and distributed at low cost but would require stronger mandates and interdepartmental collaboration to be effective. Innovative ideas, such as embedding climate messaging into routine health check-ups or everyday urban elements like signage or hydration points, were considered both novel and feasible.

Additionally, climate adaptation was seen not just as a technical issue, but as deeply entangled with questions of equity, care, and social cohesion, calling for measures that are co-developed, accessible to all, and embedded in long-term visions of urban wellbeing. To this end, inclusivity was a central concern, with a strong emphasis on reaching those who face structural or informational barriers (such as migrants, caregivers, low-income commuters, and people with disabilities) through multilingual communication, targeted outreach, and community partnerships. Participants across both groups expressed that inclusive adaptation cannot rely solely on individual initiative but requires a systemic shift toward equity-driven planning and sustained institutional commitment.

In **Zaragoza**, workers highlighted the need to adapt both work and urban environments to rising temperatures (see Figure 15). Their proposals aimed also to reduce the burden on lower-income and outdoor workers, thus promoting fairness. The group discussed climate communication, emphasising the importance of messages that are constructive, supportive, and accessible to all social groups (e.g., seniors) in order to foster a more positive and inclusive public discourse around climate adaptation. Although the feasibility of proposals was not systematically assessed, the urgency of some measures, such as the creation of climate shelters, was tied to their immediate relevance and impact.



Figure 15: Temperature changes in Zaragoza



5.2.3. Multicultural communities

5.2.3.1. Introduction to the focus groups

Multicultural communities (Dresden)

Location: **Zukunftsgestalten (“Shaping the Future”) office, Dresden**

Date: **September 15, 2024, 2:00 PM**

Participants: **8 participants (Argentina, Brazil, Colombia, Cuba, India, Niger, Peru)**



Figure 16: Multicultural communities focus group in Dresden

Multicultural communities (Malmö)

Location: **Malmö City Library, Språkfika**

Date: **September 10, 2024, 5:00 PM**

Participants: **4 participants (Iraq, Afghanistan, Peru, China)**



Figure 17: Multicultural communities focus group in Malmö

Multicultural communities (Rome)

Location: **CSV Lazio ETS, Rome**

Date: **2:00–5:30 PM**

Participants: **6 participants (Cameroon, Congo, Peru, French Antilles, Philippines)**



Figure 18: Multicultural communities focus group in Rome

Multicultural communities (Zaragoza)

Location: LAAAB, Zaragoza

Date: June 24, 2024, 4:30 PM

Participants: 6 participants (Venezuela and Chile)



Figure 19: Multicultural communities focus group in Zaragoza

5.2.3.2. Co-created soft adaptation solutions

The participants from multicultural communities across the four pilot cities co-created a number of soft adaptation solutions based in their lived experiences and cultural perspectives. These showed a common focus on inclusive communication, access to information, environmental education, and the mobilisation of traditional and local knowledge.

In **Dresden**, participants proposed several soft adaptation measures that drew on traditional knowledge from their countries of origin and were adapted to the local setting. One key suggestion was the use of community gardens, not only for growing food but also as spaces for learning, social connection, and the exchange of sustainable practices. These gardens were envisioned as inclusive, intercultural places that could support local resilience while fostering community interaction.

Participants also suggested passive cooling techniques such as using stored rainwater to water rooftops during heat events (a practice which is common in some tropical countries). Additional ideas for building-level adaptation included installing external window shades and green roofs.



Behavioural adjustments were also discussed, such as wearing long-sleeved clothing, drinking warm beverages, and avoiding outdoor activity during peak heat hours, practices that reflect cultural habits for coping with high temperatures.

Other proposals included local wildfire prevention initiatives that could benefit from knowledge sharing with countries experienced in managing fire risks. The group also recommended using storytelling-based education in schools and awareness campaigns rooted in intercultural narratives to make adaptation messages more accessible and engaging.

In **Malmö**, the multicultural focus group suggested a range of soft adaptation measures based on everyday experiences and practices drawn from different cultural contexts. As in Dresden, while some participants with multicultural background may be relatively accustomed to heat, adaptation needs still exist mainly for vulnerable populations such as seniors in Sweden. Participants also noted that while individual behavioural adjustments are common, rising air conditioning use and associated costs point to emerging inequalities in access to cooling. The group's proposals highlighted the value of combining individual actions with accessible public resources to support climate adaptation.

Participants emphasised the importance of behavioural strategies during heatwaves, such as limiting outdoor activity during peak heat hours, using shaded green spaces, and maintaining social connections to support vulnerable individuals, particularly seniors. Drawing on international examples, the group proposed school-based programmes on sustainability having students involve their parents (families) to help share knowledge across generations and cultural backgrounds. They also discussed practical ventilation methods (including curtains, opening windows strategically, and electric fans) as well as identifying accessible public cooling spaces like parks and swimming areas.

In **Rome**, among the adaptation proposals developed during the co-creation session, participants proposed multilingual information campaigns using clear, accessible language and visual formats such as infographics to reach a wider audience, including those with varying literacy or language backgrounds. One suggestion was to involve community-specific representatives to help convey messages more effectively within different cultural groups.

Participants also proposed incorporating environmental topics into educational programmes starting from primary school and continuing through vocational or work-study pathways. These efforts aimed to raise awareness over time and strengthen climate literacy. For younger audiences, the group recommended the use of digital platforms and media formats that align with their communication preferences.

Other proposals included multilingual early warning systems for extreme weather events, improved management of urban green spaces (e.g., maintenance), and the development of support networks among migrant groups to encourage both integration and environmental engagement. The idea of linking sustainability to economic opportunity was also discussed, such as promoting



environmentally responsible businesses and including sustainability criteria in public procurement processes.

In **Zaragoza**, the multicultural focus group proposed adaptation measures that linked environmental goals with broader social considerations. One suggestion was to promote reforestation as a nature-based approach to improving local climate conditions, such as regulating temperatures and supporting rainfall patterns. Participants also called for clearer and more accessible renewable energy policies, with the aim of making sustainable energy options more inclusive, particularly for marginalised communities.

Another area of focus was the inclusion of gender considerations in climate migration policies, to ensure that different experiences and vulnerabilities are taken into account. The group also supported the development of energy communities as a way to manage energy use collectively and address energy-related inequalities. Infrastructure along the Ebro River was highlighted for conservation and adaptation to help reduce heat stress. Lastly, participants stressed the importance of education and critical thinking in supporting more informed public understanding and engagement with climate adaptation.

These contributions across pilots highlighted how multicultural communities can support local climate adaptation through both practical suggestions and culturally informed approaches that promote inclusion, knowledge exchange, and community engagement.

5.2.3.3. Key considerations and reflections on feasibility, inclusivity, and innovation

In **Dresden**, participants drew on traditional knowledge from their home countries and discussed ways to adapt these practices to the local context of Dresden. Cultural familiarity with techniques such as clothing adjustments, daily routines, and passive cooling methods was seen as a practical and low-cost resource for building resilience. Additional suggestions included practices such as watering rooftops, drinking warm beverages to regulate body temperature, and rain-fed agriculture, illustrating how cultural exchange can contribute meaningfully to local adaptation strategies. Participants also emphasised the value of community-led initiatives, suggesting that adaptation efforts are most effective when informed by the experiences of those directly impacted.

They further highlighted the potential of intercultural education and storytelling to strengthen social ties and improve awareness across diverse groups. Rather than focusing only on technical solutions, participants supported approaches that also promote social connection and mutual learning. The use of community gardens was also proposed not only as a practical cooling measure but also as a shared space for learning and dialogue between groups. Ideas such as community gardens and



storytelling-based campaigns reflected this, highlighting collaboration and shared understanding as important components of local adaptation.

In **Malmö**, participants shared perspectives based on their own adaptation practices and cultural backgrounds. Many had previous experience with high temperatures in their countries of origin, which influenced their understanding of and approach to heat in Sweden. This background contributed to their focus on behavioural strategies (such as avoiding outdoor activities during the hottest hours) and highlighted the role of strong community ties as a source of informal support during heat events. Their reflections also highlighted how cultural knowledge can serve as a practical resource for adaptation, pointing to the importance of recognising and incorporating diverse experiences into inclusive climate strategies. Additionally, participants identified seniors in Sweden as a population group that may benefit from more targeted adaptation information and support, reflecting an awareness of differing levels of vulnerability within communities.

Although participants generally felt capable of adapting, they also pointed to economic limitations, particularly the rising cost of air conditioning. This led to concerns about dependence on landlords for implementing structural changes in housing. The challenge, in their view, was not a lack of knowledge but rather limited control over their living conditions, which shaped their expectations for how and where adaptation measures should be introduced.

In the **Rome** focus group, participants highlighted the importance of making climate adaptation communication and education more inclusive and culturally accessible. A key concern was the linguistic diversity within migrant communities, as many official announcements (including extreme weather alerts) are only available in Italian, limiting access for non-Italian speakers. To address this, participants emphasised the need for multilingual campaigns and accessible formats. The group also noted that trust and relatability play an important role in community engagement. In this context, involving community-specific representatives (e.g., individuals who share the cultural background) in outreach efforts was seen as a practical way to improve both the clarity and credibility of climate-related messaging.

Another key point raised by participants was the role of education in supporting long-term environmental awareness and behaviour change. They recommended starting environmental education at the primary school level and continuing it in an age-appropriate manner throughout the education system. The view was that climate awareness is more likely to take root when it is introduced early and reinforced over time. This emphasis on early and sustained learning, particularly through schools and youth-focused initiatives, reflects a commitment to building inclusive and lasting engagement. Although feasibility and innovation were not explicitly discussed, the tailoring of communication strategies to different age groups suggested attention to context and emerging forms of engagement. The group also discussed the link between environmental adaptation and economic opportunity, encouraging businesses that align with sustainability goals



and incorporating environmental criteria into public procurement were seen as ways to combine environmental action with social equity.

In **Zaragoza**, the focus group presented their proposals targeting the social dimensions of climate adaptation, particularly issues of inequality and limited institutional responsiveness. Participants emphasised that effective adaptation should be supported by education activities that not only raises awareness but also strengthens critical thinking. They felt that this approach could help counter misinformation and promote more informed engagement. In this context, education was viewed as a tool for promoting both social inclusion and active participation. Participants also called for climate narratives that move away from fear-based messaging in favour of approaches that are constructive and motivating. The aim was to reach a wider audience, across age groups and education levels including individuals with limited formal education, through more accessible and engaging communication, reflecting an inclusive approach.

Participants also discussed the need to address inequalities in energy access and policy. They noted that renewable energy initiatives can unintentionally reinforce existing inequalities if not planned with inclusive frameworks. As a result, they supported approaches such as energy communities, which allow for shared management and were seen as more accessible and community driven. The group also highlighted the importance of considering gender in adaptation planning, especially in relation to climate-related migration. They pointed out that people experience risks and challenges differently based on their backgrounds, and adaptation strategies should reflect this diversity. These perspectives were informed by personal experiences and observations of unequal impacts during migration processes.



5.2.4. Vulnerable groups

5.2.4.1. Introduction to the focus groups

People with disabilities and chronic illnesses (Dresden)

Location: **Bürgerlabor (Citizens' Lab), Dresden**

Date: **May 27, 2024, 5:30 PM**

Participants: **4 participants**



Figure 20: People with disabilities and chronic illnesses focus group in Dresden

Seniors (Dresden)

Location: **Neue Volkshaus Cotta, Dresden**

Date: **September 24, 2024, 9:30 AM**

Participants: **6 participants**



Figure 21: Senior focus group in Dresden

Senior women (Santa Maria Capua Vetere)

Location: **Santa Maria Capua Vetere, Province of Caserta**

Date: **March 27, 2024**

Participants: **4 women aged 65 and over**



Figure 22: Senior women focus group in Caserta, Italy

Senior women (Aragón region)

Location: **Matarraña, Aragón region**

Date: **June 5, 2024**

Participants: **18 women aged 65 and over**



Figure 23: Senior women focus group in Matarraña, Aragón

5.2.4.2. Co-created soft adaptation solutions

In the Adaptation AGORA pilot activities, informal sessions targeting senior women were held in both Fabara de **Matarraña (Aragon region)** and **Santa Maria Capua Vetere**, in the Caserta province (**Italian pilot**). These sessions did not follow a structured co-creation process but instead offered open conversational spaces where participants could share personal stories (like memories of past heatwaves) and coping strategies (such as the use of frozen water bottles to cool indoor spaces). The discussions also touched on experiences of intense rainfall with several participants in Zaragoza pointing out the need for improved maintenance of riverbeds to help reduce the risk of flooding. Moreover, participants also expressed their concerns related to the prolonged droughts, and regarding misinformation and the politicisation of climate change in the media. These insights, while less formalised, contributed to a broader understanding of the lived realities and perceptions shaping adaptation needs among senior women in the two cities.

Additionally, in **Dresden**, the co-creation process within the target group of vulnerable populations was specifically addressed through two separate focus groups: one with seniors and another with people with disabilities and chronic illnesses. Each group contributed to the development of soft



adaptation measures that reflected their specific needs and experiences, particularly in relation to extreme heat. The proposals focused on themes such as accessibility, communication, community support, and everyday behavioural strategies.

The focus group involving people with disabilities and chronic illnesses developed a set of measures that prioritised inclusive and accessible approaches to climate resilience. A key proposal was the creation and use of a digital application (and in printed form) with a city map identifying locations places that provide drinking water (including private and public infrastructures), combined eventually with other information such as toilet facilities, shade, and areas with cooler temperatures. This tool would combine citizen science (with citizens gathering data) and adding these to existing data to support safer city navigation during heatwaves and help highlight areas where further interventions might be needed. The group saw potential for the map to also function as an advocacy tool, and suggested it be open-source and co-designed through a participatory process, aligning with citizen science principles. To ensure broader access, they recommended that information from the platform also be made available in printed form, such as brochures or on public notice boards.

Another proposal involved designing a barrier-free awareness campaign focused on the health impacts of heat and practical protective actions. Participants emphasised the importance of inclusive formats (including audio descriptions and simplified language) to ensure that information reaches people with different communication needs. They also highlighted the value of using clear, positive and encouraging language rather than alarmist messaging. The group discussed the role of early warning systems, recognising their usefulness but also noting that they may not fully meet the needs of the most vulnerable. They proposed enhancing the personalisation and accessibility of such systems and suggested that direct, face-to-face contact (e.g. through neighbours, volunteers, or institutional networks) could complement digital alerts for maximum outreach.

The senior participants from the second Dresden focus group suggested a number of adaptation measures more focused on their daily routines and improvements to the urban environment they were frequently exposed to. One of the main proposals was to introduce more flexibility into daily schedules (also but not only in the elderly care institutions), particularly during the summer. This could include planning outdoor activities during the cooler morning and evening hours to help residents avoid exposure to peak heat. Participants also supported the use of community centres and shaded public spaces as informal gathering areas.

Another key area of focus was improving public information on heat-related risks. Participants suggested placing clear and engaging reminders (such as short messages in public transport or on local radio) about hydration and heat protection. These should be intended to raise awareness in a non-patronising way. They also recommended increasing the number of public drinking fountains. Within care facilities, participants also emphasised the need for schedule adjustments that better reflect residents' comfort and routines during periods of high temperature.



5.2.4.3. Key considerations and reflections on feasibility, inclusivity, and innovation

Participants living with disabilities and chronic illnesses provided practical reasoning for their suggested adaptation measures, based on their everyday experiences during periods of extreme heat. They emphasised the importance of designing adaptation measures that are inclusive from the outset. A key point was that any measure should be designed to be barrier-free to be genuinely effective, mostly given the wide range of disabilities and barriers people may face (including visual, auditory, cognitive, and mobility-related challenges) and the resulting need for multiple communication formats to meet diverse needs. Participants noted that information is only helpful if it is delivered in accessible ways, such as through audio descriptions, sign language, or simplified language formats. The discussion highlighted that accessibility should not be treated as an optional feature but rather as a fundamental design principle in adaptation efforts.

Another key rationale was the need for inclusive design that does not rely solely on digital access. Participants pointed out that not everyone has access to or is comfortable using smartphones or apps, making printed materials and physical information stands important alternatives. Their suggestions aimed to reduce the risk of excluding people who may already face social or physical isolation (that might be most at risk).

Participants also noted that current awareness campaigns tend to have limited impact within their communities. They discussed the importance of understanding why such campaigns fall short and proposed that future efforts be developed in closer collaboration with target groups. This approach would involve combining communication strategies with feedback and ongoing adaptation, allowing inclusivity to be treated as an evolving process rather than a fixed outcome.

For example, when discussing communication strategies, participants expressed concern over alarmist or risk-centred language, which they felt could alienate or discourage engagement. Instead, they called for positive, motivational messaging that focuses on protective actions and empowerment. The rationale behind this was mainly to ensure engagement from groups who may already be overwhelmed (e.g. by health issues) or marginalised.

Another consideration was the importance of interpersonal communication through trusted channels. Participants acknowledged that digital warnings and media campaigns often lack impact due to low credibility or desensitisation (e.g., message fatigue). In contrast, personal outreach (such as home visits by volunteers or information shared through social service networks) was seen as far more effective, because it is rooted in trust, respect, and relational understanding.



They also pointed out that behavioural advice must be practical, leading to a broader recommendation that communication should be accompanied by supportive infrastructure and services.

In the group with seniors, most key co-created solutions were reflecting their health considerations, such as adjusting care home schedules to avoid peak heat hours, which is based on the understanding that older people are more vulnerable to midday (higher) temperatures during heatwaves. Participants also proposed using community centres as cooling areas and highlighted the value of small, low-cost changes, such as placing benches in shaded areas, to improve comfort and wellbeing in everyday settings. These ideas reflected a preference for solutions that consider individual needs and daily routines, rather than applying uniform approaches.

Participants also emphasised the importance of respectful communication. This was seen as more effective for individuals who may be less receptive to standard public health messages. They suggested that humour or light, indirect messaging (such as through radio or public signage) might support engagement more effectively than direct or overly instructional communication. This approach aims to promote awareness in a way that feels respectful and relatable, particularly for those who may not respond well to top-down messaging.

5.3. Overview of co-created soft adaptation solution types across target groups and pilot regions

The matrix below provides a cross-regional and cross-target group overview of the main types of soft adaptation solutions co-created in the focus groups.

Table 1: Matrix of co-created soft climate adaptation solution types by target group and pilot regions (Highlighted in light green = widely shared solutions; Highlighted in soft orange = locally unique solutions)

Solution Type	Rome	Zaragoza	Malmö	Dresden
Climate education	Youth, Multicultural	Multicultural	-	Youth, Multicultural, Workers
Urban greening / community gardening	Multicultural	Workers, Multicultural	-	Multicultural, Vulnerable (seniors)
Workplace adaptations	Workers	Workers	Workers	Workers



Solution Type	Rome	Zaragoza	Malmö	Dresden
Cooling infrastructure	Workers	Workers, Youth	Youth, Workers	Workers, Vulnerable (seniors, people with disabilities and chronic illnesses)
Awareness campaigns	Youth, Workers, Multicultural	Youth	-	Youth, Vulnerable
Community-based adaptation	-	Multicultural	Multicultural	Multicultural, Vulnerable
Early warning systems	-	-	Youth, Workers	Vulnerable (people with disabilities and chronic illnesses)
Public participation tools	Youth, Workers	-	-	Vulnerable (people with disabilities and chronic illnesses)
Digital / analogue access tools	Workers, Multicultural	-	-	Vulnerable (seniors, people with disabilities and chronic illnesses)
Sustainable behaviour incentives	Youth, Workers	-	-	-
Citizen science / participatory mapping	-	-	-	Youth, Vulnerable (people with disabilities and chronic illnesses)
Transferable traditional / cultural practices	-	-	-	Multicultural
Tourism (decentralisation / mobility) management	Youth	-	-	-

Legend (for types of solutions):

- ❖ Climate education: School-based, lifelong learning, citizen science.
- ❖ Urban greening / community gardening: Parks, tree planting, community gardens.
- ❖ Workplace adaptations: Scheduling, uniforms, cooling gear, hydration.
- ❖ Cooling infrastructure: Climate shelters, A/C access, fountains, shading.
- ❖ Awareness campaigns: Posters, radio, peer-to-peer messaging.



- ❖ Community-based adaptation: Storytelling, knowledge exchange, cooperatives.
- ❖ Early warning systems: SMS alerts, heatwave preparation.
- ❖ Public participation tools: Voting platforms, online surveys, participatory budgeting.
- ❖ Digital + analogue access: Digital apps (multilingual) + printed material, signage, brochures.
- ❖ Sustainable behaviour incentives: Tax reliefs, point systems, eco-consumption.
- ❖ Citizen science / participatory mapping: school-based activities, co-created city maps, open data tools.
- ❖ Transferable traditional / cultural practices: Practices informed by heritage-based knowledge and local experience (e.g., wearing long-sleeved clothing, drinking warm beverages).
- ❖ Tourism (decentralisation / mobility) management: decentralising hotspots, promoting low-impact travel behaviour.

This illustrates both recurring patterns (such as workplace adaptations and inclusive awareness campaigns) as well as context-specific approaches like community gardening (across multicultural communities) and analogue access tools (within vulnerable groups in Dresden or among target groups in Rome). Overall, the table shows how different target groups responded to shared climate challenges with solutions tailored to their local contexts, while still revealing areas of overlap across pilot regions.

5.4. Additional findings from final co-creation workshops

In **Dresden** the final co-creation workshop was designed to carry over the findings of the earlier focus group sessions, particularly those related to inclusive communication, access to cooling (to water and shade), the value of traditional knowledge and intercultural exchange. Discussions also covered specific workplace challenges (more specifically in public hospitals) and highlighted the importance of strengthening social infrastructure, and community support.



Final co-creation workshop (Dresden)

Location: **4transferLab, Dresden**

Date: **February 4, 2025**

Participants: **13 participants**



Figure 24: Final co-creation workshop in Dresden

To ensure continuity, the final workshop consolidated the co-created soft solutions into key four areas namely, effective climate communication, participatory city design (including digital tools), educational initiatives in schools, and financing climate adaptation. These served as the basis for collaborative refinement, enabling participants to explore how these ideas could be made more concrete and actionable at the local level.

In the area of communication, participants proposed shifting from fear-based to inclusive messaging, using humour, storytelling, and multi-sensory formats such as Braille and audio prompts. For the participatory city design (with digital tools), they focused on improving existing platforms (like Dresden's topic city map, see Figure 25) by integrating accessible mapping of water and toilet facilities and shaded areas, co-created with the help of youth through school-led OpenStreetMap projects. The education group designed a school-based awareness campaign that combines hands-on learning activities, intergenerational storytelling, small-scale adaptation projects led by students, with support from teachers, local organisations, and municipal staff. In the financing group, participants discussed ways to integrate adaptation efforts into existing city budgets, focusing on how to combine internal and external funding sources to invest on climate adaptation measures within both public and private infrastructures. In the final plenary session, participants exchanged thoughts on the next steps for turning these ideas into actionable strategies, including how coordination could be improved going forward, and the potential roles for local adaptation coordinators or citizen-led platforms.



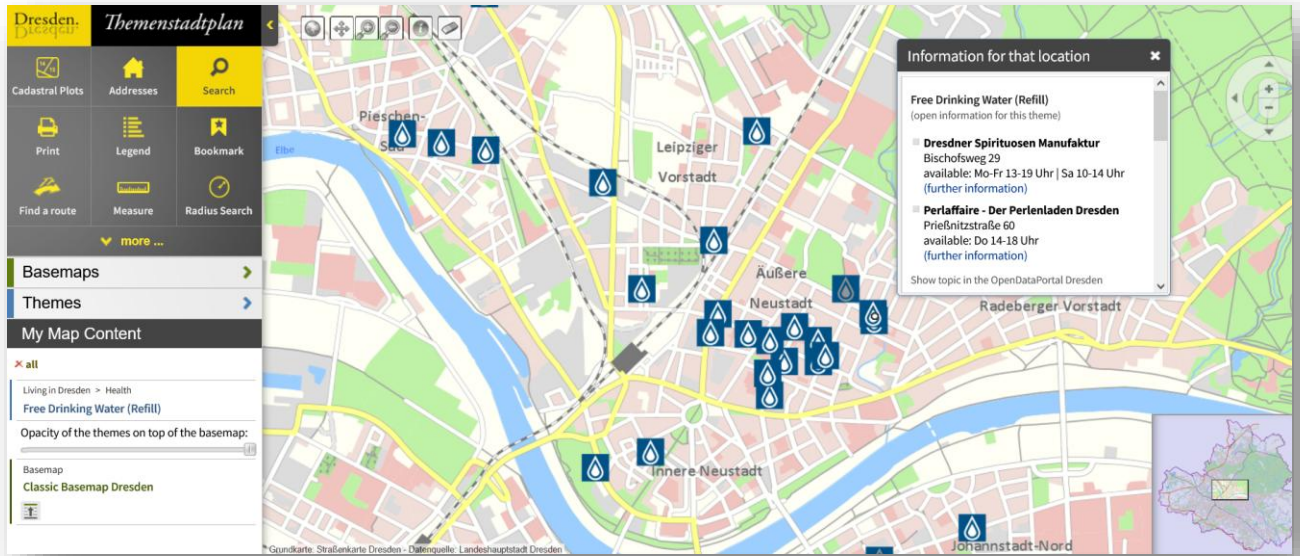


Figure 25: Topic city map depicting the free drinking water availability in Dresden

The final co-creation workshop in **Malmö** integrated some of the findings of earlier focus groups, all of which having heatwaves as a key climate concern. These groups pointed to gaps in institutional coordination, unequal access to cooling infrastructure, and the need for clearer, more inclusive communication about climate risks. The themes raised in the final co-creation workshop, especially those related to heat vulnerability, social equity, and communication, shaped the facilitators' decision to structure the workshop around five predefined topics. These thematic areas covered new and existing buildings (both indoors and outdoors) as well as communication.

Final co-creation workshop (Malmö)

Location: **Malmö**

Date: **January 28, 2025**

Participants: **40 participants**



Figure 26: Final co-creation workshop in Malmö

During the workshop, which involved around 40 participants (primarily from public authorities) several soft adaptation measures were co-created. These included communication strategies such as integrating heat alerts into familiar digital tools (like transit apps or school platforms), while also expanding analogue outreach via pharmacies and libraries to reach digitally excluded groups. Tailored messaging was proposed for specific demographics, including senior citizens and parents of young children, supported by trusted intermediaries like social workers.

Suggestions for institutional support ranged from establishing cross-departmental coordination mechanisms to learning exchanges with heat-adapted cities. Thematic discussions on buildings included suggestions such as providing planning guidance at the municipal level, involving housing associations early in the development process, and offering training for care staff to support indoor heat management. In schools and public spaces, participants suggested involving children in the co-design of shaded outdoor areas and emphasised the value of maintaining mature trees. They also discussed social approaches such as encouraging senior cohousing and peer learning among tenants as ways to support community resilience and reduce isolation.

In **Rome**, the final co-creation workshop built upon the insights from previous focus groups and meetings, bringing together a diverse group of 33 stakeholders to refine and operationalise soft adaptation solutions. Four key thematic areas emerged during the sessions: education in schools, community awareness, inclusive engagement methods, and practical implementation tools. In the



area of education, participants co-developed proposals to integrate climate topics across school curricula, emphasizing hands-on, age-appropriate activities linked to local climate impacts. These initiatives were seen as long-term investments in resilience, aiming to activate students as multipliers of climate awareness within their families and communities.

Final co-creation workshop (Rome)

Location: **Casa delle Tecnologie Emergenti, Tiburtina Station, Rome**

Date: **January 17, 2025**

Participants: **33 participants + 11 from the consortium (CMCC and APRE)**



Figure 27: Final co-creation workshop in Rome

In terms of community engagement, participants prioritized awareness-raising through public events, citizen learning circles, and mentorship programs, with a clear focus on reaching underserved or marginalized groups. Inclusivity was central to the discussion, with specific attention to linguistic and cultural accessibility, as well as the need to collaborate with local networks and organizations to strengthen participation. On the implementation side, participants stressed the importance of practical skills training (particularly in schools and community settings) as a feasible and scalable method for fostering behavioural change and local action. The use of digital tools was seen as complementary, especially for reaching younger and more digitally connected audiences. Finally, participants reflected on how these ideas could be institutionalised and scaled, suggesting links with existing municipal programs, involvement of sustainability managers in workplaces, and the activation of co-financing opportunities through European funds. Overall, the workshop in Rome

highlighted the potential of local approaches with a strong focus on education and socially inclusive to deliver meaningful adaptation outcomes.

Finally, in **Zaragoza** the final co-creation workshop was also built directly on the local concerns, vulnerabilities, and proposals co-developed by citizens, using the focus groups outcomes as a basis. During the focus groups, themes such as urban heat, social inequality, rural-urban disconnection, and working conditions were highlighted. The need for public infrastructure that supports resilience (e.g., climate shelters), for improving the working conditions during heatwaves, and for inclusive public awareness strategies, were part of the discussions. These insights were not only taken forward as topics during the final co-creation workshop but also helped shape its structure, which was devised to refine, prioritise, and further co-create solutions around these citizen-identified needs.

Final co-creation workshop (Zaragoza)

Location: Centro de documentación Agua y Medio Ambiente, Zaragoza

Date: February 11, 2025

Participants: 31 participants



Figure 28: Final co-creation workshop in Zaragoza

There, participants engaged in exercises to refine collaboratively (and prioritise) eight soft adaptation solutions initially identified during the earlier focus groups. These included climate shelters, urban-rural reconnection, workplace heat adaptation, neighbourhood resilience partnerships, emissions reduction, reforestation, equitable renewable energy policies, and education to counter misinformation.



Participants explored these topics in four small roundtable groups and categorised each solution by whether its implementation should focus on education, communication, or both. The two solutions receiving the most support were reducing emissions and promoting critical education to challenge climate denialism. Deliberations revealed a strong emphasis on inclusivity, fairness, and systemic approaches, such as participatory budgeting, shared public spaces, and intergenerational learning.

6. Lessons learned and strategic considerations

6.1. Cross-regional and cross-target group insights: Patterns observed across different groups and cities

The table below summarises the soft adaptation measures that were most commonly co-created across the four pilot regions.

Table 2: Most common co-created soft adaptation solutions across pilot regions

Soft adaptation measure	Pilot cities where endorsed	Target groups
Climate education (in schools)	Rome (youth and multicultural), Dresden (youth, workers, and multicultural), Zaragoza (multicultural)	Engaged youth, working population, multicultural communities
Early warning systems for heat	Malmö (youth and workers), Dresden (vulnerable)	Engaged youth, working population, vulnerable groups
Accessible, multilingual awareness campaigns	Rome (youth, multicultural, and workers), Dresden (youth and vulnerable), Zaragoza (youth)	Engaged youth, multicultural communities, working population, vulnerable groups



Soft adaptation measure	Pilot cities where endorsed	Target groups
Urban or community gardens as social and cooling spaces	Rome (multicultural), Dresden (multicultural and seniors), Zaragoza (multicultural and workers)	Multicultural communities, working population, vulnerable groups
Workplace adaptations (schedules, uniforms, hydration)	Rome (workers), Dresden (workers), Malmö (workers), Zaragoza (workers)	Working population
Cooling infrastructure (climate shelters, safe indoor public spaces for heat events)	Rome (workers), Dresden (workers and vulnerable), Malmö (youth and workers), Zaragoza (youth and workers)	Engaged youth, working population, vulnerable groups
Enhance access to public drinking water	Dresden (seniors and people with disabilities and chronic illnesses)	Vulnerable groups

This highlights how proposals that were co-created independently in multiple contexts and target groups reflect shared priorities and recurring needs across diverse urban settings and target groups. These measures indicate citizens’ collective emphasis on education, communication, workplace adaptation, accessible infrastructure, and inclusive support during extreme weather events.

The co-creation process across the four pilot regions revealed both locally specific and widely shared priorities in terms of soft climate adaptation. A number of recurring patterns emerged across both regions and target groups. One of the most prominent patterns were the solutions linked to education and awareness-raising, particularly among the engaged youth and multicultural communities’ groups. In Rome, Dresden, and Zaragoza, participants proposed or endorsed climate education (in schools) either as mandatory lessons or embedded awareness campaigns. This reflects a shared understanding that early and sustained exposure to climate knowledge is the basis for cultivating long-term adaptive behaviours.

A second major insight across pilots was the need for inclusive and accessible communication. Participants in Rome (youth, workers, multicultural communities), Dresden (youth, vulnerable population), and Zaragoza (youth) called for multilingual and barrier-free awareness campaigns. These solutions were not only appreciated for the dissemination of understandable information, but also for reaching socially marginalised or linguistically diverse communities. The desire for



inclusive messaging strategies also intersected with the goal of promoting equity and collective responsibility.

A third recurring measure was the development of early warning systems for heatwaves. These were mainly endorsed in Malmö recognizing their practicality and effectiveness. Discussions around these systems often extended beyond technical feasibility, touching on emotional response, trust in public information, and preferred communication channels.

Urban and community gardening was proposed by multicultural communities across several pilot regions (including Rome, Dresden and Zaragoza), in addition to some other population groups. Engagement through these activities was seen as more than environmental measures, they were valued as inclusive social spaces that foster intercultural exchange, food autonomy, and mental well-being. Gardening was thus recognized across regions as a practical entry point for both green infrastructure and socially rooted adaptation strategies.

Furthermore, workplace-oriented adaptations emerged consistently across the working population groups. These included proposals for revised schedules, climate-appropriate uniforms, hydration protocols, and cooling infrastructures. What united these discussions was a shared demand for systemic rather than individual responses, with participants often highlighting occupational health and fairness as core concerns.

Finally, the need for cooling infrastructure in public spaces (e.g., through climate shelters and/or access to public drinking water) was addressed by the working population across the four pilots, the youth groups in Malmö and Zaragoza and the vulnerable groups in Dresden. These ideas offer practical responses to heat stress and highlight the importance of ensuring adequate access to cooler (safe) spaces.

These patterns suggest that while local context shapes the form and emphasis of adaptation solutions (as described below), some of the citizen priorities appear consistently across Europe. These include the promotion of lifelong climate literacy, inclusive and responsive communication systems, safe and fair working conditions, and the collaborative development of inclusive public services. These findings may help guide the scaling of adaptation strategies and inform the design of participatory processes in other regions.



6.2. Regional context as a driver of focus, shaping feasibility and innovation

Dresden's context, characterised by ageing infrastructure, and urban growth, influenced a practical, institutionally focused approach to soft adaptation. For example, workers prioritised solutions such as flexible work arrangements, mobile cooling units, and health protocols triggered by temperature, aligning with the operational needs of care services and public institutions. In many cases, participants' proposed innovation focused on procedural improvements rather than new technologies, aiming to enhance the effectiveness of existing systems.

Social factors (e.g., difficulties in reaching marginalised groups) also influenced the results, i.e., with participants highlighting the importance of analogue communication, inclusive messaging, and easily accessible forms of participation. These measures were viewed as both practical and helpful in strengthening public engagement, and with their feasibility depending more on social acceptance than on technical capability.

In **Malmö**, the co-creation of soft adaptation solutions was influenced by the city's Urban Heat Island effect, socio-economic disparities, and the complexity of local adaptation governance. Given challenges such as older housing stock and uneven access to cooling infrastructure, participants focused on practical and inclusive measures, like early warning systems and shared cooling spaces. These solutions were viewed as achievable within current institutional settings.

Malmö's multicultural residents (with experience in warmer climates) were recognised as an adaptive strength rather than a barrier. Contributing with insights that supported proposals including non-digital communication tools and community-based awareness efforts. In this context, innovation was associated with shared responsibility between institutions and individuals, and with incorporating local knowledge into formal planning processes.

In **Rome**, the co-created soft adaptation solutions were shaped by the city's fragmented governance, socio-spatial inequality, and rich cultural heritage. Participants focused on interventions that could be implemented within existing public infrastructures (such as schools and community spaces reflecting a preference for accessible, low-barrier solutions that might show more effective. Educational initiatives, multilingual awareness campaigns, and community-based engagement were selected as feasible ways to address communication and inclusion gaps. The city's cultural and environmental complexity also influenced the types of proposal, often leading to proposals that were more sensitive to local values, such as decentralised tourism management and intergenerational learning.

In **Zaragoza**, regional factors such as water scarcity, desertification, and a focus on the urban vs rural divide influenced the co-creation of soft adaptation solutions. Participants often connected climate risks with broader structural challenges, including depopulation, land degradation, and uneven



access to resources. As a result, many proposals focused on improving rural–urban linkages, supporting reforestation, and strengthening community-based adaptation efforts with both environmental and social benefits. A general sense of political disengagement and perceived gaps in governance also shaped views on what was considered feasible. Here participants also tended to favour low-cost, community-led initiatives (such as climate education, inclusive communication, and participatory planning) as practical ways to build trust and engagement. In this context, innovation was associated less with technology and more with enabling participation, promoting fairness, and integrating adaptation into daily civic life.

6.3. Feasibility and transferability of co-created soft adaptation solutions

The co-creation activities carried out in Task 2.4 generated a variety of soft adaptation solutions that reflect the specific vulnerabilities and contexts of each pilot region. While the proposals varied in form and thematic focus, their feasibility, degree of innovation, and transferability across contexts provide key insights for future participatory adaptation processes.

Feasibility as perceived by participants

Participants typically assessed feasibility based on the institutional capacity to act, the resource requirements, and social acceptance. Solutions requiring limited administrative or financial adjustments (e.g., flexible work schedules, climate education initiatives, or non-digital awareness-raising) were generally seen as more achievable.

In Malmö, for example, integrated early warning systems were considered feasible “quick wins” due to existing digital infrastructures at the municipal level, while indoor cooling (e.g., air conditioning or insulation) measures were seen as more complex due to legal gaps (no specific legislation requiring landlords to ensure indoor temperature control) and market constraints (energy costs and lack of subsidies). In Rome, participants highlighted the potential of using existing civic infrastructure like schools and cultural institutions for adaptation outreach and trust-building. In Dresden, several proposals focused on practical implementation by drawing on existing municipal practices and public (hospital) structures, such as developing heat protocols in healthcare settings. In Zaragoza, feasibility was often associated with community-level implementation, with climate shelters and energy communities seen as potentially scalable through local collaboration, even in settings with limited political engagement.



Innovative solutions

Innovative proposals included intercultural and intergenerational storytelling campaigns in Dresden and intergenerational school initiatives in Rome. These solutions were not novel in a conventional sense, but they proposed new ways of organising existing resources and relationships (i.e., a way of reframing adaptation through social processes), to help communities respond more effectively to climate risks while reinforcing social cohesion.

Across pilots, innovation emerged often as institutional reconfiguration rather than invention: adjusting protocols, reframing roles, or introducing procedural safeguards (e.g. temperature-triggered actions, multilingual communication standards). These proposals demonstrate how process innovation can contribute to more inclusive and equity-focused approaches to climate adaptation.

Transferability across regions and target groups

While co-creation was highly sensitive to the local context, several solution types appeared across multiple pilot cities and target groups, indicating a degree of intrinsic transferability. One such solution was multilingual and inclusive communication strategies, which were widely endorsed in Dresden, Malmö, Rome and Zaragoza. These were seen as essential not only for timely and effective climate communication, especially during heat events, but also for ensuring that vulnerable and linguistically diverse populations could access and act on adaptation information.

Similarly, climate education was prioritised in Dresden, Rome, and Zaragoza, mostly by multicultural communities and youth, who viewed it as foundational for developing long-term adaptive behaviours. The idea of workplace adaptation protocols including adjusting work schedules, climate-appropriate work clothing, and hydration practices were supported across the Dresden, Malmö, and Zaragoza pilots.

Urban greening and community gardening were also a suggested solution co-created by participants in Dresden, Rome, and Zaragoza (mainly among multicultural communities, workers, and vulnerable groups). Although the motivations varied from cooling and local food security to intercultural connection, this solution type can be applied or adapted across different contexts because it addresses shared themes, especially when adaptation needs intersect with social cohesion.

Cooling infrastructure came out as a solution across all four pilot cities and different target groups, despite differing local contexts, with participants identifying solutions such as climate shelters, shading, hydration points, and workplace cooling measures as essential to addressing heat-related vulnerability, underscoring (e.g., in Malmö) that access to safe, cool spaces should not depend on income, housing status, or employment conditions.



Despite these commonalities, participants often noted that solutions should be adapted to the specific characteristics of each local context. This highlights the importance of calibrating adaptation solutions to fit the cultural, institutional, and language features of each locality.

Implications for future uptake

Overall, the co-created solutions reflect practical feasibility and creativity, based in the everyday experiences of diverse citizen groups. Their value (transferability) does not lie in directly replicating the solutions themselves, but rather more in replicating the co-creation approach that made them possible. Municipalities, local stakeholders, and future projects may find it useful to draw on both the ideas and the participatory methods used to develop them. Furthermore, the alignment of these solutions with EU Mission Adaptation goals (such as equity, system transformation, and decentralised governance) points to their broader policy relevance.

6.4. Reflections on the co-creation process

The co-creation process in Task 2.4 proved to be an effective and context-sensitive method for designing soft climate adaptation solutions that are both locally relevant and socially inclusive. The preparatory work carried out in the pilot cities played a key role in guiding the co-creation of soft adaptation solutions. This effort included several foundational steps: a literature review on the local context, stakeholder mapping, and initial engagement through bilateral meetings. These were followed by vulnerability assessments conducted during the inception workshops. Together, these activities ensured that the co-creation process was based in the local context, enhancing both the relevance and inclusivity of the overall engagement strategy.

The participatory methodologies applied across the four pilot regions enabled citizens and stakeholders (especially those from underrepresented and vulnerable groups) to meaningfully engage in climate adaptation discussions (see outcomes from Deliverable 2.3 regarding the evaluation of methodologies). While the process achieved notable successes in generating diverse and actionable proposals, it also revealed critical limitations that should inform future participatory adaptation planning.



6.4.1. Strengths: Inclusivity and collective ownership

One of the core strengths of the co-creation approach used in Task 2.4 was its inclusive framing, which deliberately involved a wide range of citizens (target groups) including youth, workers, multicultural communities, and vulnerable populations such as seniors and people with disabilities and chronic illnesses. Through facilitation methods like “Think-Pair-Share” and “Nominal Group Technique” (for more details see Deliverable 2.3), participants were encouraged to contribute regardless of their prior knowledge, helping the sessions reflect a range of experiences and viewpoints. These methodologies supported more balanced participation and helped reduce power asymmetries typically present in expert-led adaptation planning.

A meta-method review by Sartorius et al. (2024) also cautions that participation must move beyond tokenism to be effective, calling for deeper engagement with critical perspectives on community, power, and intra-community differences. Without such depth, co-creation may (inadvertently) reproduce inequalities or become co-opted by dominant interests. WP2 addressed this by tailoring engagement strategies to different target groups, thereby reducing barriers to inclusion and elevating diverse knowledge contributions.

Moreover, Adaptation AGORA’s co-designed soft adaptation solutions approach aligns with key principles that prioritise systemic relevance, low-regret character, and institutional fit (Higuera Roa et al., 2025). This strategy reduces the risks of maladaptation and enhances the likelihood of successful implementation.

In addition, these events encouraged a creative, iterative exchange of ideas, resulting in a range of solutions focused on behavioural change, institutional practices, knowledge exchange, and cultural expression. The proposed solutions reflected both an understanding of local climate challenges as well as the ability to imagine social approaches to resilience. Another strength of the process was the sense of collective ownership it supported. Especially when they were involved in earlier phases (e.g., inception workshops or focus groups), participants were more confident and interested in shaping outcomes. This highlights the value of continuity in participatory processes and suggests a potential approach for maintaining community involvement in long-term climate planning.

Co-production not only leads to better policy fit but also ensures a more equitable distribution of adaptation benefits. As the recent Climate Adaptation Research and Innovation Framework (HM Government, 2025) highlights, meaningful and inclusive engagement is a critical research and innovation need in ensuring effective and just adaptation responses. WP2 reflected this imperative by embedding participatory methods across its pilot regions, tailoring activities to local communities, and drawing from both scientific expertise and local experience.



6.4.2. Limitations

Despite these strengths, the co-creation process faced several challenges that affected the depth of its outcomes. **Time constraints** (both within individual sessions and across the broader project timeline) were a key limitation. In some cases, discussions concluded before more detailed co-development or consensus could be reached, particularly around implementation strategies and roles. As a result, some solutions remained at a conceptual level, with limited further exploration on how they might be put into practice.

Another recurring challenge was ensuring **balanced representation** across all target groups. While efforts were made to reach marginalised communities (through multilingual materials and targeted invitations) certain groups (harder-to-reach population) were less represented. This affected the ability to fully capture the range of vulnerabilities present in the local context.

Power imbalances were also noted in some settings, particularly in mixed-stakeholder formats involving both institutional actors and citizens (i.e., final co-creation workshops), as well as in relation to gender dynamics. Although facilitation helped manage this to some degree, not all participants felt equally comfortable contributing, and some discussions tended to be shaped by more outspoken individuals. This highlights the importance of preparatory measures (such as training sessions) and facilitation strategies that help maintain balanced participation throughout the engagement process.

6.4.3. Methodological process reflections

The methodology underpinning Task 2.4 was grounded in a shared engagement protocol, co-developed among pilot leads (more details are also available in the Methodology chapter of Deliverable 2.3), ensuring both comparability and contextual adaptability. The structured use of facilitation tools (e.g. visual solution cards, thematic clustering) contributed to methodological rigor and supported the emergence of cross-cutting priorities, particularly in the final co-creation workshops.

At the same time, the iterative design of the process (from inception workshops to focus groups and final workshops as well as between these events) allowed for a gradual deepening of themes. This multi-step design ensured that early insights into vulnerability and risk perception were not lost but carried forward and transformed into actionable proposals. However, given the project's nature and its inherent limitations (in terms of duration and resources), the absence of follow-up in some pilot regions may limit the future uptake of the co-created solutions unless additional engagement opportunities are created.



An external comparison with the [Regional Adaptation Support Tool \(RAST\)](#) guidance roadmap, from the [EU Mission on Adaptation](#) and [Climate-ADAPT](#), reveals interesting complementarities and contrasts. While the Adaptation AGORA's WP2 process was not directly informed by the RAST's guidance, it nonetheless mirrors many of its first 4 steps (such as the sequencing of community practice, risk assessment, and iterative stakeholder engagement). The WP2's co-creation process shares with RAST the emphasis on a phased timeline linking early-stage vulnerability diagnostics with later solution development and prioritisation workshops.

To conclude, the co-creation methodology implemented in Task 2.4 can be considered largely successful in fostering inclusive, contextually grounded soft adaptation solutions.

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8. Annexes

Annex 1: Glossary

Within Adaptation AGORA, a common Glossary is being developed by WP3 so that all key terms related to climate change adaptation are used to refer to the same concepts, and these are applied in all activities ranging from face-to-face events within the Pilot regions to all the digital tools. While this final document will be presented at the end of the project, the main concepts used throughout have been agreed upon and are a core part of the Glossary, so have been included in this document within Annex 1 to provide an overarching framework for reference.

Term	Definition
Co-Creation	Collaboratively creating outputs like tools or policy recommendations. A process that can add value and increase innovative potential through intentional experience design
Co-defined	To articulate the implicit and explicit meaning of a particular term together with one or more people, in this case climate change adaptation strategies, policies or actions.
Co-design	To create ways in which challenges can be addressed together with one or more people, implementing different methodologies and/or approaches such as lateral thinking to propose innovative solutions to current pressing climate change related issues. It may also include devising effective and sustainable problem-solving techniques and strategies directly applicable to the challenges that need to be addressed.
Co-develop	To determine the best manner to satisfy the requirements for an expected output together with one or more people or organizations. This includes evaluating baseline requirements and consider all potential alternatives to solve a particular climate risk or impact challenge.
Co-explore	Explore the perspectives of key actors within co-production processes to assess the challenges and opportunities faced, and describe this idea to capture the process through which boundaries might be actively subverted through sustained engagement between the origins of multiple, diverse perspectives.



Co-evaluation	To validate potential solutions or partial solutions to a particular challenge or issue jointly with one or more people. This implies considering available information, processes and how adequate the solution is in meeting the needs and expectations of stakeholders.
Co-production	“Iterative and collaborative processes involving diverse types of expertise, knowledge and actors to produce context-specific knowledge and pathways towards a sustainable future”.

Annex 2: Type of stakeholders (and their interests) mapped originally in the Rome pilot

Target group	Stakeholder role(s)	Key interests/ issues	Engagement	
Select among the following (see table in last sheet)	Select one or more roles (see table in last sheet)	What is important to the stakeholder?	Already contacted?	Contact channel
TG2 - Academia	<i>Providers of expert knowledge</i>	Educational Area of Cooperation and Development assets and mission	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Built Environment and Planning	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Built Environment	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Built Environment and Planning	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Built Environment and Planning	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Biodiversity and Ecosystem Services	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Agenda 2030: SDG 13	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Built Environment	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Built Environment	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Microclimatic type measurements	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Biodiversity and Ecosystem Services and energy	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Political Economy	Contacted	email



TG2 - Academia	<i>Providers of expert knowledge</i>	Water management	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Biodiversity and Ecosystem Services	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Policy evaluations	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Risk and vulnerability assessment	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Biotechnology and Agroindustry	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Health	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Agronomy	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Efficiency in the use of resources	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Biodiversity and Ecosystem Services (Environmental Biology)	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Geology, Remote Sensing, Geoinformatics (GIS)	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Geology, Remote Sensing, Geoinformatics (GIS)	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	(National) Information System	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	(National) Information System	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Risk and vulnerability assessment	Contacted	email
TG2 - Academia	Providers of expert knowledge	Geology, Remote Sensing, Geoinformatics (GIS) (environmental statistics)	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Ecosystem and Health	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Water	Contacted	email
TG2 - Academia	<i>Providers of expert knowledge</i>	Cultural Heritage and Health	Contacted	email
TG2 - Academia	Providers of expert knowledge	Health	Contacted	email
TG2 - Academia	Providers of expert knowledge	Social research and anthropology	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	Governance, Civil engineering	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	Governance	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	Governance, Civil engineering	Contacted	In person



TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	Governance, (Local) Information System	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	International negotiations and governance	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Providers of expert knowledge</i>	Health	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Providers of expert knowledge</i>	Health	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	Water, Energy and Waste	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	Energy	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	(National) Rail Transports	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	Healthcare	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	Governance, Healthcare	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	Governance, Biodiversity and Ecosystem Services	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	Governance, Monitoring and Awareness through the Involvement of schools and citizens	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	Risk prevention and management	Contacted	In person
TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	Waste management	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	Mobility	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Providers of expert knowledge</i>	Human rights (Migration)	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	Governance, innovation, credit and economic development	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	Built Environment	Contacted	email



TG3 - Governments and Decision-Makers / Authorities	<i>Implementers</i>	Built Environment	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Providers of expert knowledge</i>	GHG Emissions	Contacted	email
TG3 - Governments and Decision-Makers / Authorities	<i>Decision-makers</i>	International/National Adaptation Governance	Contacted	Phone
TG3 - Governments and Decision-Makers / Authorities	<i>Providers of expert knowledge</i>	Governance and Enterprises	Interested	email
TG4 - Civil Society	<i>Lobbyists</i>	Being promoters of change	Contacted	email
TG4 - Civil Society	<i>Lobbyists</i>	Being promoters of change	Contacted	email
TG4 - Civil Society	<i>Lobbyists</i>	Training	Contacted	email
TG4 - Civil Society	<i>Lobbyists</i>	Advocacy	Contacted	email
TG4 - Civil Society	<i>Lobbyists</i>	Advocacy and Training	Contacted	In person
TG4 - Civil Society	<i>Lobbyists</i>	Being promoters of change	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Being promoters of change	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Human rights (Gender)	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Human rights (Gender)	Contacted	email
TG4 - Civil Society	<i>Providers of expert knowledge</i>	Green Economy	Contacted	Phone
TG4 - Civil Society	<i>Providers of expert knowledge</i>	Trasport and Mobility research, management and training	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Migration	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Migration	Contacted	email
TG4 - Civil Society	<i>Providers of expert knowledge</i>	Sustainable Development	Contacted	email
TG4 - Civil Society	<i>Providers of expert knowledge</i>	Sustainable Development	Contacted	email
TG4 - Civil Society	<i>Providers of expert knowledge</i>	Human Rights	Contacted	email
TG4 - Civil Society	<i>Lobbyists</i>	Advocacy	Contacted	In person
TG4 - Civil Society	<i>Affected and/or affecting</i>	Built environment	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Health	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Law	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Engineering	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Mobility	Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>	Social services	Contacted	Phone



TG4 - Civil Society	<i>Providers of expert knowledge</i>	Technological advancement	Contacted	email
TG4 - Civil Society	<i>Lobbyists</i>	Awareness and advocacy (on environmental and ecological farming issues)	Contacted	Phone
TG4 - Civil Society	<i>Providers of expert knowledge</i>		Contacted	email
TG4 - Civil Society	<i>Affected and/or affecting</i>		Contacted	email
TG4 - Civil Society	<i>Implementers</i>	Health	Contacted	email
TG4 - Civil Society	<i>Implementers</i>	Health	Contacted	email
TG4 - Civil Society	<i>Implementers</i>		Contacted	email
TG4 - Civil Society	<i>Implementers</i>		Contacted	email
TG4 - Civil Society	<i>Lobbyists</i>	Waste management and advocacy	Contacted	email
TG6 - Investors / Private Sector	<i>Funders/sponsors</i>	Economy (national governance)	Contacted	email
TG6 - Investors / Private Sector	<i>Funders/sponsors</i>	Mobility and Transport	Contacted	email
TG6 - Investors / Private Sector	<i>Funders/sponsors</i>	Energy	Contacted	email
TG6 - Investors / Private Sector	<i>Funders/sponsors</i>	Energy	Contacted	email
TG6 - Investors / Private Sector	<i>Funders/sponsors</i>	Insurance	Contacted	email
TG6 - Investors / Private Sector	<i>Funders/sponsors</i>	Economy (EU governance)	Contacted	email
TG6 - Investors / Private Sector	<i>Coordinators</i>		Contacted	email
TG6 - Investors / Private Sector	<i>Coordinators</i>	Food	Contacted	Phone
TG6 - Investors / Private Sector	<i>Funders/sponsors</i>	Energy	Contacted	email
TG8 - Consortium Partners and EC project Officers			Contacted	Phone
TG8 - Consortium Partners and EC project Officers			Contacted	Phone
TG8 - Consortium Partners and EC project Officers			Contacted	email
TG8 - Consortium Partners and EC project Officers			Contacted	email



Annex 3: Infographics of the sectors under analysis used during the inception workshop in the Rome pilot

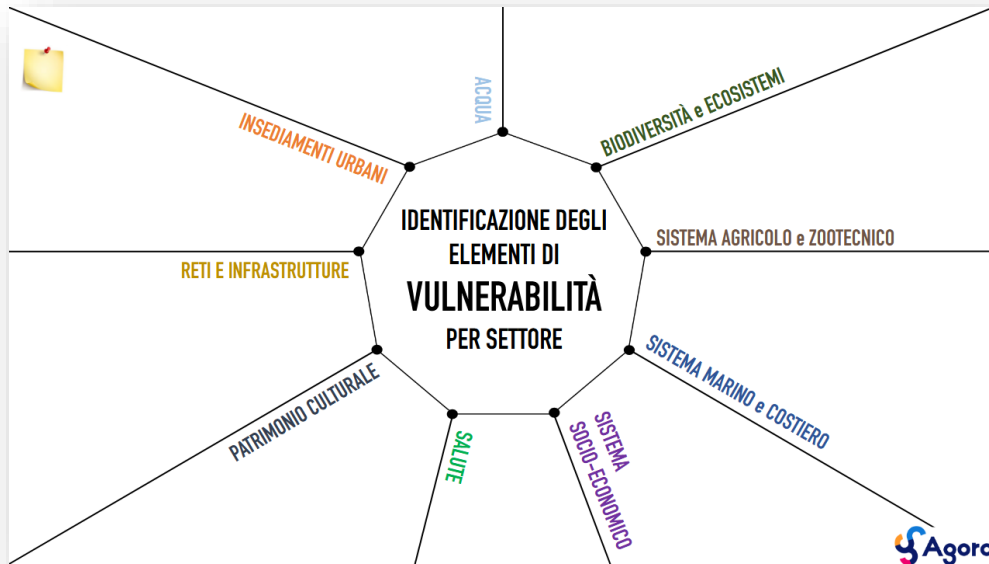


Figure 29: Infographic 1: Identification of vulnerability elements by sector



Figure 30: Infographic 2: Adaptive capacity: identification of needs and critical issues by sector

Annex 4: Focus group protocol for multicultural communities

(The focus group protocols are also available online in the Adaptation AGORA website: for [multicultural communities](#), [working population](#), and [engaged youth](#)).

Background

The present document constitutes the protocol to be followed when carrying out focus group activities with multi-ethnic minorities within the framework of climate-change adaptation processes. The focus group is framed within a set of activities with stakeholders to empower and engage citizens in the co-design and co-production processes, which have as an overarching objective to establish plans and strategies to help cities, metropolitan areas and/or regions to adapt to climate change risks that may impact that geographical area.

This is a core part of the activities developed within the Horizon Europe Adaptation AGORA project which supports the analysis of methodological tools for citizen-engagement and has tested diverse approaches that may be applicable in diverse settings. This protocol has been implemented with the specific target group in four diverse socio-economic frameworks, namely the metropolitan city of Rome, Italy; the city of Zaragoza and Community of Aragón, Spain; the city of Malmö, Sweden and the city of Dresden, Germany.

The type of climate risks each geographical area is exposed to is different; the sociodemographic reality is also unique. By testing the protocol in diverse frameworks, the methodology can confirm the reproducibility and validity of the processes involved. In the following sections, each protocol step is outlined for the in-person focus group sessions. They begin with an introductory session which includes the arrival/registration, consent, background and objective of the focus group, and then the methodologies implemented. In the next sections of this protocol, the outline and content will be explained, taking as an example the implementation in the Focus Group carried out within the AGORA project in the Rome Pilot.

Implementation of the methodology

Focus groups can provide valuable insights and allow individuals to express their views without specific limitations when compared to the implementation of other types of methodologies. It is



recommended to have pens and paper at hand to allow participants to write down their ideas and thoughts during the different activities.

Targeted Stakeholders

This focus group targets individuals who are a part of multicultural communities to obtain their perceptions of climate change, understand how its impacts affect their daily lives, and to create effective adaptation and engagement initiatives. Potential stakeholders include migrants, refugees, visa-holders, etc.

Location and challenges of face-to-face meetings

As focus group methods require the identification of individuals and their personal views, data protection becomes a key factor. Ensuring the face-to-face event will be carried out in a location that allows for the meeting to be developed in private and that all participants are respectful and aware of each other's privacy is crucial. Because of this, selecting an adequate venue and having an enclosed space dedicated to the meeting during a specific timeframe, without interruptions, is the first step to carrying out this workshop. Making sure participants are knowledgeable of the location is also highly important, particularly in large metropolitan areas such as the city of Rome, where there are large distances.

When choosing the physical space, it is also important to consider the implications that it may have for specific groups of people. Considering multi-ethnic target audiences, it is important that all individuals feel welcome. Which is why selecting a physical space that may only identify with one group or that may cause rejection from some members is not recommended. This is for instance the case of choosing physical spaces that can be identified with a particular religion. In this context, if the focus group is organized by an independent research organization, carrying it out within the premises of this institution can be a good alternative. Other options may include institutions that are not religious or apolitical and may be associated with the topic at hand such as non-governmental organizations linked with climate adaptation, biosphere conservation, etc.

It can be evaluated whether translations into other languages are necessary, depending on the level of domain that participants have of the vehicular and/or official language spoken in the city/region where the event is taking place. This also applies to the potential need for interpreters or translators, which should be addressed prior to the day of the event. When sharing the information and selecting the participants, which will depend on the scope and objective of the research, this factor would be taken into consideration. This may also determine the location, depending on these language needs.



In the case of the Adaptation AGORA Rome Pilot activities, the World Wildlife Foundation Italy premises were deemed adequate for the focus group face-to-face encounters, as it has a central location, it is an independent institution supporting the conservation of wildlife and individuals participating would feel welcome as well as it being accessible.

In this context, as individuals arrive, it is important that they feel well-received, and a good environment is created. In most cultures, a welcome coffee with some snacks can be recommended, or refreshment beverages and snacks. The combination of food and drink should be present independent of the event's timing. It is important to consider potential limitations and adequacy of the product offering, considering the audience.

For instance, it is important to consider potential food restrictions participants may have, such as intolerances, allergies, religious or personal choices. Because of this, choosing alternatives that can be a good fit-for-all such as gluten, lactose free and vegan, can be a good mix that ensures all participants will find suitable choices and feel welcome. This can be an initial subconscious first step that will make them feel welcome and willing to participate in good spirits.

Aside from the initial welcome refreshments, it is important that participants are aware of the implications of their participation, the usage of their personal data as well as how their views will be integrated into the research. As participants arrive, the registration process should include sharing with them the necessary documents and framework and signing the consent form either physically or virtually.

In the event photos will be taken before, during or after the event, it is important to specify this information in the consent document, as well as how their personal data will be treated in alignment and respect with the European GDPR. It would be positive to also take an initial photo with participants of the event (provided they have granted their consent) as some may need to leave early or right when the focus group activity finishes and therefore may not be in the picture.

Lastly, materials to carry out the focus group will include visual or physical support with guidelines for each activity, key definitions and concepts and examples; pencils/pens, sheets of paper, canvas or pre-defined tables that participants will fill out (depending on the approach).

Focus group design and general considerations

In this section, the focus group protocol will be outlined with the different sections including:

1. Introduction section
2. Activity 1: Sharing
3. Activity 2: Co-creation of soft adaptation measures
4. Activity 3: Co-evaluation of engagement methodologies



5. Closing section and Follow-up survey

Introduction session

The introductory session will include all activities carried out from the moment individuals arrive until the first activity of the focus group takes place. It will also comprise a brief presentation on the background of the focus group activity, sharing which is the purpose, who will be taking the lead, facilitators, total duration, step-by-step processes that will be carried out, how the data will be analysed and stored and who will have access to it and for what purpose. Timing for this first phase has been estimated to be a total duration of 25-30 minutes, which also allows latecomers to be present by the time the information-sharing phase starts.

The agenda for this introductory phase has been divided into three blocks, with an estimated duration included in the description below:

- **Welcome (10 minutes)**: Initial arrival, registration (including signing consents) and refreshments. If all participants are present, during this phase it would be ideal to take a group photo.
- **Meet and greet (10 minutes)**: Participants get to know one another; they should be seated in a circle or semi-circle (maintained throughout the entire duration of the event). All individuals can look at one another, generating greater trust.

Brief Round of Introduction:

Self-introduction using the following questions:

- Name and surname
- Place of origin
- What brought you to _____ (in our case, the city of Rome)
- How long have you lived here

These questions should be written, so that all participants can have a visual reference and the cards with this information should be placed in the middle of the circle. Depending on the group, a general timeframe for personal introduction can be established.

Introduction to the Event - 5-10 minutes:

Welcome message and overview of the session, where participants will also be able to ask any doubts or questions regarding the focus group, processes, objectives and/or follow-up. Here the main climate change-related issue will also be presented.



An “Introduction Narrative” sheet should be created; this can be in a physical or a digital (e.g. slides) format depending on the type of attendees and/or physical space available. The oral explanation should be accompanied by visual elements that can allow all attendees to follow and adequately understand the event, also considering the possibility of having the information in bilingual or multilingual formats if necessary.

Activity 1: Sharing session

Estimated time: 25-30 minutes

Method: *Shared Experience*

Once the introduction section is over, and participants have been able to introduce themselves and get to know one another a bit, the first activity to follow is an exchange of personal experiences around the topic at hand. During the introduction to the event phase, the main issue is presented (which can be comprised of sub-topics or derived challenges), and participants are encouraged to provide their insights on this matter.

Introduction to Activity 1 (5 minutes approx.)

To foster the exchange, guiding questions can be created and set in writing (either in physical or digital format, following the same principles as in the introductory section). These can also help individuals focus on more specific aspects, and it can be useful to either share pens and papers or a copy of a sheet with the questions for each participant so they can write down any ideas that come to their mind before, during or after they speak and before, during or after other members of the focus group share their experiences.

Development of Activity 1 (25-30 minutes)

Participants will take rounds and have time to share their personal experiences linked to the topic at hand, they may mix information from their city/country of origin and their experiences in the city/region where they currently live and which is the subject and focus of the activity. It is important that all participants have time to share their experiences and moderators have an important role in keeping track of time. Once individual views have been expressed, an open discussion to “connect the dots” and find a comprehensive common overview of the situation is established. There should be at least 5 minutes at the end to coordinate a joint approach and have a shared understanding of the problem being analysed, with input from all participants.



Facilitators need to promote openness and respect from all individuals, and the objective is to establish a unified view on the situation at the end of this first activity. This will be the basis of the remaining activities, which is why it is highly relevant that during this first activity all members can contribute and provide their input, so the final overview truly represents the sum of the individual perceptions, experiences, and approaches.

Activity 2: Co-creation of soft adaptation solutions

Estimated time: 50 minutes

Method: *Think, Pair and Share*

After the initial experience-sharing and taking the common understanding of the problem as the baseline information for this second phase, participants will be guided through a sequence of steps to co-create potential solutions. The placement of each person partaking in this activity should be in a circle or semicircle, and they can remain in the same place as during activity 1 or they may choose to move, always remaining in a round setting where all participants can see one another.

Introduction to Activity 2 (5 minutes approx.)

Facilitators will begin this second phase by explaining the framework of climate change adaptation, which should include the difference between **SOFT** and **HARD** adaptation measures (with examples). While conducting this oral presentation, the moderator should distribute an example sheet with specific actions, policies and strategies that have already been implemented within the same region or elsewhere. Participants should have at least 2-3 minutes to read, comprehend and ask any questions they may have.

Execution of Activity 2 (35-40 minutes)

Once participants have understood the adaptation measures, the *Think, Pair and Share* method will be explained, with the sequential steps that will be followed. In this case, there will be an initial individual phase when each participant will ponder potential measures to propose, followed by a pair phase in which everyone will be sharing their views with another participant, thus forming pairs, and, finally, each pair will be explaining their views to the group and an overall co-creation process will be developed based on the different proposals.

Moderators should emphasize the relevance in identifying, prioritizing, and discussing the implications of each adaptation measure to address the impacts of climate change. The explanation sheet that was used in activity 1 can also be helpful and a guidance, although facilitators may choose



to avoid introducing that sheet at this stage to avoid participants having any baseline idea. This will depend on the effect that is intended, both being valid courses of action.

During activity 2 the sequence will be:

- Individual Reflection Activity (5 minutes): participants will work individually, writing on blank paper / using examples if necessary.
- Prioritization of the adaptation measures considered most useful (3-5 minutes)
- Pair Discussion (10 minutes)
- General Discussion (15 minutes): This aims to identify one or more crucial adaptation measures to address the impacts of climate change on multicultural communities. At this stage, the facilitator will ask the pairs for physical support (it may be post its, a blank canvas, or other formats).
- Final selection of adaptation measures (5 minutes): participants will then mark with checkmarks on a maximum of two most agreed-upon concepts.
- Identification of the most agreed-upon adaptation measure (5-10 minutes), based on the individual selection. There should be a final group discussion so that consensus is reached.



COFFEE BREAK (10 min)

Facilitators should be aware that during coffee breaks it is very common to see participants continuing the discussion. It is important to allow this process to continue in an informal setting, and during or after the coffee break to enable the selection to be reviewed if needed.

Likewise in the event the group did not reach consensus by the time the coffee break arrives; it is also valid to enable the discussion to continue during the refreshment as for some individuals this can be a better option to allow discussions to reach consensus. There are many cultures in which agreements come during informal periods, and they may feel more comfortable in this framework.

Moderators should be aware of this and consider the most important objective is not when the agreement and final list of most agreed upon adaptation measures is finalized, but to have this selection ready to begin the next activity. Hence, it can be during the coffee break that the last threads of the discussion are addressed and prior to starting the next activity, the list is finalized.

Activity 3: Co-evaluation of engagement methodologies

Estimated time: 60 minutes

Method(s): *1-2-4-All + How (simplified)*



After the coffee break and the establishment of agreed-upon adaptation measures, participants will follow through various steps to evaluate the most effective engagement methods for multicultural communities. Participants will stay in a circle where they can choose to stay in the same seat as the previous activity or to move.

Introduction to Activity 3 (3 min – in circle)

This phase of the activity begins with facilitators outlining the activity, emphasizing that participants will identify, prioritize, and discuss engagement methodologies related to the selected soft adaptation solution that was chosen in the previous activity. Facilitators should also remind participants to evaluate the options based on their preferences. Examples of engagement methods should also be provided either in presentation format or on sheets to be handed out. Providing examples will help spark inspiration for participants to develop their own engagement techniques or identify methods that they feel are most effective.

Execution of Activity (45min – 1 hr.)

After the introduction of the activity, the 1-2-4-All + How method will be explained by facilitators and the sequential steps will be conducted. With this method, an initial individual brainstorming begins with each participant thinking engagement methods, followed by a prioritization phase where participants identify an engagement method, they find most effective for their target group. Following the prioritization phase, there is the pairing phase in which everyone will share their ideas with a partner using the “How” method, then a group discussion phase, and lastly, a sharing phase in which each group will share their final thoughts on the engagement methods they identified.

Facilitators should emphasize the importance of identifying, prioritizing, and discussing the implications of each engagement methodology to promote the adaptation measure identified in the previous activity. Having an engagement methodology sheet that explains each methodology and its pros and cons could be helpful, although facilitators may decide not to share this with participants to avoid having baseline knowledge and bias. This will depend on the aim of the focus group, both being valid courses of action.

During activity 3, the sequence will be:

- **Individual Reflection (7 minutes)**: participants will work individually, writing on blank paper or using examples if necessary to identify engagement techniques that are most effective for their target group and chosen adaptation measure.
- **Prioritization of Methodologies Based on the Cards or Emergent Input (5 minutes)**: the facilitators have identified and separated 5 cards (from 1 or 2 categories when the solution



is intermediate) based on the previously selected soft adaptation solution. The facilitators then distribute the 5 cards (which have been previously explained to the participants), ensuring that each participant reads and understands the set of cards. Any questions or clarifications will be addressed at this stage. Participants will then need to select 1 methodology from the 5 proposed cards that they believe their target group would be most willing to engage with.

- **Pair Discussion and Prioritization (15 minutes):** The facilitators will divide participants into pairs and each pair will discuss how they believe the preferred engagement methodology should be applied, as well as how it can be effectively implemented (using the “HOW” method), to delve deeper into the prioritized methodologies.
 - The facilitator should provide a detailed explanation of why this methodology is considered useful. It is essential that both participants actively engage in thinking about HOW the methodology can realistically be implemented by the city administration. This approach is intended to foster empathy and enhance the collective sense of community among the participants.
- **Discussion and Prioritization in Groups of 4 (15 minutes):** Facilitators will then create groups of 4 and each group will discuss the engagement methodologies identified in the previous activity (pairing phase).
- **Sharing Discussion (15 minutes):** Participants then return to the full group to share their reflections, providing additional insights and feedback to the other groups.

At the end of this session, participants should prioritize the card or mention the methodology they prefer and, if possible, explain HOW they believe it should be implemented (from the perspective of decision-makers).

Thank you and way forward

After the event, participants filled out a follow-up survey which can be done in person, online or via email. This conclusion session should last around 15 minutes, in which the facilitator(s) make their closing remarks and distribute the evaluation survey. The facilitator(s) should re-emphasize the importance of the focus group and explain how the results will be implemented.

Annex 5: Reporting template for facilitators



Facilitators outline for reporting

Focus Group target group & rationale (includes: context and objectives)

(...)

Date, Time and Location

(...)

Number of participants, including from which Target Group

(...)

Agenda (including participation formats selected)

(...)

Executive summary

(...)

Key takeaways from step 1: Co-creation and co-design of Soft Adaptation Solution

Provide detailed insights into the main ideas and solutions proposed by participants during the co-creation and co-design process.

- What were the most innovative or **promising soft adaptation solutions identified** by participants? (describe the different **options and final co-created solution**)
- What were the key **considerations and requirements**? (please provide detailed discussion)
- **How did** participants **weigh the pros and cons of different solutions**? (please provide detailed discussion)

Key takeaways from step 2: Co-evaluating engagement mechanisms for soft adaptation solution

Explore participants' preferences and insights regarding 5 engagement mechanisms for soft adaptation solutions, starting with "open" engagement ideas.

- Did participants propose any **open mechanisms** for engagement? If yes, **please describe them**.
- When confronted with the other 5 engagement mechanisms, **which** ones did they **prefer**? (did they prefer them over their own open mechanisms?)
- What were the **main reasons behind** participants' preferences for certain approaches?
 - o Did participants identify any specific external or internal **barriers or challenges** that may hinder their engagement in these engagement mechanisms? (please provide detailed discussion)
 - o Did participants identify any specific **opportunities** that may ease their engagement in these engagement mechanisms? (please provide detailed discussion)
- Why did participants **choose not to engage** in certain mechanisms?
 - o How could these **non-chosen mechanisms be improved** to encourage participation?
- Which were the **suggestions for tailoring (improving)** engagement mechanisms to better **reflect their needs** and to **ensure more** participation?



Participants' survey: please collect and add send the survey replies.

Participant reflections: Include here **direct quotes** of participant feedback and reflections on the co-creation and co-design process, as well as their experiences with the engagement mechanisms. (To provide qualitative insights into the participants' perspectives and to add depth to the reporting).

Annex 6: Final co-creation workshop agendas in the four pilot regions

Final co-creation workshop - Dresden

Adaptation AGORA project



4 February 2025 Official start: 5 pm

(Total Duration: 3 hours, including break)

Informal gathering 2h before – (incl. activities doable by only one person; questions on pinboard to engage with (not only information).

1. Introduction & icebreaker

Warm-up activities.

Overview of the process so far, workshop's agenda and aims

Time: 30 minutes

2. Activity 1: Separate workshops

Introduction to the activity

Overview of the sub-workshops' topics:

1. *Communicating climate adaptation / How can we communicate climate adaptation measures in a positive and inclusive way?*
2. *Participatory city design / Can apps help make our city more climate-resilient?*
3. *Enhancing the sense of community through mutual learning and education in schools / Promoting mutual learning and awareness campaigns in schools*
4. *Mobilising funding climate adaptation / How can we increase financial resources for adaptation?*

Clarification questions

Time: 15 minutes

(participants divide into small groups)



Short introduction about how the idea emerged during the focus groups.

Round of reactions: what do you think of this idea?

Further co-creation...

Questions included across groups:

- Which citizens and relevant stakeholders should be involved in implementing this solution?

- Which engagement strategies are likely to be effective?

Time: 40 minutes

3. **Break time:** 15 minutes

4. **Activity 2: Open discussion**

Group Reports: Each small group representative shares key points from the discussion in small groups.

Audience Q&A and Open Discussion

Time: 50 minutes

5. **Closing remarks & next steps: introducing sociocracy and gauging interest**

Time: 30 minutes

Afterwards: social dinner

Final co-creation workshop - Malmö

Adaptation AGORA project

Heat Conference



28 January, 9:00–12:00

Agenda:

- Reporting from the AGORA project
- Presentation of HeatSafe
- Presentation of the assignment directive for managing heat in physical planning
- Presentation by Sweco on microclimate studies (Lorensborgsgatan and Smörkajen)
- Workshop
- Guest speaker(s) (TBC)

Tme	Activity
09:00 – 09:05	Welcome and overview of the day's agenda



09:05 – 9:15	Reporting from the AGORA project – Key conclusions
09:15 – 09:20	Presentation of HeatSafe – Project content and timeline, contact info for those interested
09:20 – 09:30	Presentation of the assignment directive for managing heat in physical planning – Brief overview of the purpose and structure
9:30 – 10:00	Presentation by Sweco – Microclimate studies on Lorensborgsgatan and Smörkajen
10:00 – 10:30	Guest speaker from Chalmers University – Indoor temperature research
10:30 – 10: 45	Stretch break
10:45 – 12:00	Workshop

Workshop Session

- The aim of the activity is to gather input for an upcoming heat strategy.
- Small group discussions at themed tables (e.g., communication, existing buildings, outdoor environments). Participants will have time to join two or three tables based on their interests.
- As a discussion tool, participants will fill out a flipchart template resembling a table (example to be revised).

Themes for the Different Tables

1. New Construction – Outdoor Environment
2. New Construction – Indoor Environment
3. Existing Buildings – Indoor Environment
4. Existing Buildings – Outdoor Environment
5. Communication (with vulnerable groups?)

Final co-creation workshop - Rome

Adaptation AGORA project



17 January 2025



House of Emerging Technologies

Piazzale della Stazione Tiburtina, 00162 Roma

EVENT PROGRAMM

TIME	TOPIC AND/OR ACTIVITY
10.00 – 10.15	Registration
10.15 – 11.00	<p>Institutional Welcome and Introductory Session</p> <p>Monica Lucarelli, Councillor for Productive Activities and Equal Opportunities, City of Rome</p> <p>Edoardo Zanchini, Director of the Climate Office, City of Rome – "The Climate Change Adaptation Strategy: Alignment with Local Population Expectations"</p> <p>Paola Mercogliano, Euro-Mediterranean Center on Climate Change, Head of the Regional Models and Geo-Hydrological Impacts Division – "The AGORA Project in Rome: From the Inception Workshop to Today"</p>
11.00 - 11.15	<p>Explanation of the Group Work (Start of Activities)</p> <p>Marta Ellena, Researcher at the Euro-Mediterranean Center on Climate Change – Division into working groups and introduction to the activities</p> <p>Time for questions and clarifications</p>
11.15 – 13.00	Group Work
13.00 – 14.00	Lunch Break
14.00 – 14.30	Panel Discussion: Insights from the Group Work
14.30 – 15.00	<p>Conclusions and Closing Remarks:</p> <p>"Interviews with Policy-Makers on Citizen Participation in Adaptation" (by Paola Mercogliano)</p> <p>"Next Steps with the City of Rome" (by Edoardo Zanchini)</p>



Building Climate Resilience: Community Adaptation Strategies

Final co-creation workshop - Zaragoza

Adaptation AGORA project



11 February 2025



P.º Echegaray y Caballero, 18, Casco Antiguo, 50003 Zaragoza

EVENT PROGRAM

Time	ACTIVITY
17.15 – 17.30	Arrival and Registration
17.30 – 20:00	<p>Introductory session and presentation of climate adaptation projects</p> <p>Marianna Martinez – Experiences with participatory innovation on climate change</p> <p>Nieves Ibarra – Government of Aragón and presentation of CARDIMED: Nature-based Solutions for Climate Adaptation</p> <p>Maria Luisa Campillos – City of Zaragoza, Environmental Office</p> <p>Paloma Ibarra – University of Zaragoza</p> <p>Activity #1: Climate adaptation solutions Coffee Break (19:15) Activity #2: Group sharing and discussion based on the solution cards Activity #3: Prioritisation of soft adaptation solution cards Closing Remarks</p>



Workshop outline: building climate resilience: community adaptation strategies

1. **Arrival and registration (17:15, 15 min)**
 - Informed consent: Participants arrive, register, and provide consent for documentation and photos. Informal conversation over food and drinks.
2. **Welcome and brief introductions (7 minutes)**
 - Welcome message and event agenda overview
3. **Brief presentation of AGORA, public authorities, and other projects (40 minutes)**
 - Presentations by:
 - Marianna Martinez – Participatory innovation in climate change
 - Government of Aragón – CARDIMED: Nature-based climate adaptation
 - Maria Luisa Campillos – City of Zaragoza
 - Paloma Ibarra – University of Zaragoza
 - AGORA Project Overview:
 - Presentation of the project, past activities, and results
 - Purpose of the workshop
4. **Activity #1: “Soft Adaptation Solutions” (35 minutes)**

Brief explanation (5–10 minutes)

 - At each table: A card featuring two soft adaptation solutions co-created in Aragón's focus groups. Using the "Pair and Share" method:
 - Individual reflection (3 min)
 - Pair or small group discussion (10 min)
 - Group sharing (20 min)
 - Choose one spokesperson for the next activity (Activity #2)

Discussion (on soft adaptation solutions):

- Is communication or education a priority for this solution?
- How much could it improve climate adaptation?
- Is it easy to implement?
- Who should lead the implementation (e.g., public authority, community, businesses)?
- What are the main obstacles?
- What would happen if it is not implemented?
- Who is most affected by this solution?
- How could this idea be improved?

Example solutions by target group:

Workers and Youth: Climate shelters – safe spaces designed to protect from extreme heat

Youth: Urban-rural reconnection – cooperation for sustainable resource management

Workers: Adapting working conditions to reduce heat stress – schedule/environment adjustments

Workers: Neighbourhood associations for community resilience – building local collaboration



Workers: Emissions reduction – everyday actions to lower carbon footprint

Multicultural community: Education and critical thinking to counter disinformation

Multicultural Community: Renewable energy policies to reduce energy poverty and inequality

Multicultural Community: Reforestation to stabilise local climates

5. **Coffee break (10–15 minutes)**

6. **Activity #2: Group sharing and discussion (15–20 minutes)**

- Each group presents its discussion (5 minutes per group)

7. **Activity #3: Prioritisation of Citizen Engagement Mechanisms Cards and feedback survey (10 minutes)**

- Individual voting on the cards using stickers (2 votes per participant)
- Methodology explanation (1 minute), followed by voting and observation of results (5–10 minutes)

8. **Closing remarks (10 minutes):**

Presentation of most-voted solutions

Summary: This is the final workshop in the participatory process. A comparative report of all four pilots (including analysis and recommendations) will be shared with the European Commission, the Government of Aragón, and the City of Zaragoza.

One of our goals is to build synergies among those involved in climate adaptation and give visibility to these projects.

Special thanks to all participants and contributors, especially CDAMAZ.

