

Task 3.1 Identify and assess options for adaptation pathways

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What is this task about?

This task consists of identifying a wide array of potential adaptation options that can be used to reduce risks and contribute to achieving the envisioned outcomes and delivering the identified outcomes from Task 2.4.1. It involves researching best practices from similar contexts or regions, as well as engaging with stakeholders to gather ideas, insights, and interests. It is important to consider a diverse range – or portfolio – of options, recognising that singular solutions are likely to be insufficient given the complexity and uncertainties involved in addressing climate challenges and building broad-based systemic resilience. The key is to identify a portfolio of multiple options that will provide you with sufficient flexibility to adapt to the evolving circumstances.

By exploring the available options (technological, informational, nature-based, community-based, financial, governance, behavioural, structural) at different levels (e.g., from individual to regional, national, European) and across various sectors, you will better understand the landscape of possible interventions for your region. This will help to identify those options that can best address the targeted climate risks assessed in the CRA (Task 1.3.1), and includes the following principal activities:

- Research potential interventions
- Stakeholder consultation
- Co-creation workshops
- Screening and broad categorisation



Food for thought: As part of this task, it is crucial to ensure that the collected adaptation options reflect a diverse and sufficient range of possibilities to address various future scenarios. Refine your search for adaptation options by thinking about non-conventional alternatives or areas that have not been explored so far. Also, adjust your stakeholder engagement strategies to capture additional perspectives that may lead to more innovative and transformative ideas.

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Why is it important?

Identifying a variety of possible interventions for adapting and transforming towards climate resilience is critical for assembling the possible steppingstones for the climate adaptation pathways. There will be multiple ways to bring about the necessary changes to help you achieve your vision and the agreed changes that will have to happen to achieve it. Identifying options provides you with a comprehensive understanding of the various adaptation approaches, and actions available to your region. The comparative strengths and weaknesses of these options can then be assessed for inclusion in your adaptation pathways. Identifying options of the Climate Resilience Strategy. It also encourages exploration of more innovative and novel solutions that may be more effective than traditional grey solutions at building sustainable resilience to climate change.

Thorough exploration also seeks to capture localised knowledge and expertise and create stakeholder buy-in through meaningful engagement and consideration of their preferred options. The latter is particularly crucial for the success of your Climate Resilience Strategy. Overall, this task helps you to build a broad portfolio of diverse adaptation options to address the multi-faceted effects of climate change comprehensively – from managing and mitigating climate impacts to tackling their underlying risk and vulnerability drivers.

How can you complete it?

- **Research potential interventions:** Study existing climate risk management plans and adaptation strategies from similar contexts or regions experiencing similar climate risks to your region. Look at the empirical evidence of successes and failures in existing catalogues of good adaptation practices, case studies under similar conditions, scientific research, and other reports and resources. Analyse these for their, as well as the replicability and scalability to your own context. Find initial inspiration in the Pathways2Resilience Catalogue of Innovative and Transformative Options.
- **Co-creation with stakeholders:** Based on your stakeholder engagement strategy (Task 2.1.2), involve relevant stakeholders, including local communities, industry experts, sectoral representatives, scientists and researchers, and policymakers, to gather a broad perspective on possible adaptation options. Both stakeholder groups impacted by climate risks as well as those impacted by the adaptation options should be included in this process. Facilitate co-creation workshops (e.g., brainstorming sessions) with them to generate a range of innovative and transformative solutions.

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Insight: Narrow down the broad list of potential adaptation strategies to a more manageable and relevant set of options. To do so, you need to consider several factors: consistency with the framed problem (Task 1.1.2), local capacities and adaptation needs (Task 1.3.2), alignment with the priorities, dynamics, and conditions of your region (Task 1.2.1), as well as the shared vision and Theory of Change (Tasks 2.3.1 & 2.4.1), and stakeholders' input gathered during the co-creation activities in this task and the rest of the journey. This facilitates a detailed analysis and further prioritisation in subsequent tasks.

- **Adopt a systemic perspective:** Foster thinking of more interconnected, systemic, and multi-functional interventions aiming to address not only direct risks, but also indirect and cascading ones. Think of transformative approaches that recognise the complexity of climate change and challenge existing systems to achieve better resilience outcomes.
- **Categorisation and screening:** Develop an inventory of identified adaptation options (e.g., scale, type, sector, addressed hazards or impact, timeframe, etc.).

While some options may align with your region's social, technical, economic, environmental, and institutional capacities and conditions, we encourage you to consider also options that go beyond incremental changes and lead to profound, systemic transformation. Be sure the set of options is coherent with the outlined ambitions and Theory of Change for your region.

Further detailed technical guidance on completing this task can be found in **Appendix D11**. This step is completed in parallel with Task 3.1 of the Adaptation Investment Cycle guidance.



Green public transport in Reșița. © West Region, Romania

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What are key inputs for the task?

- Updated problem framing (Task 1.1.2)
- Systems mapping (Task 1.2.1)
- Stakeholders mapping (Task 1.2.2)
- Climate Risk Assessment (Task 1.3.1)
- Capabilities assessment (Task 1.3.2)
- Shared vision for climate resilience (Task 2.3.1)
- Theory of Change (Task 2.4.1)

You may also wish to draw inspiration from other areas such as Pathways2Resilience's Catalogue of Innovative and Transformative Options and its additional resources, work underway by other regions in the Pathways2Resilience Innovation Practice Groups², as well as examples from the MIP4Adapt Platform, ClimateADAPT, and similar adaptation repositories.

What are the expected outputs?

The key output from this task is a preliminary list of adaptation options consisting of various types of measures across multiple sectors and at different scales, classified according to key relevant considerations.



Before moving on, have you...

- ☐ Developed a comprehensive and diverse list of adaptation options to address the targeted climate risk(s) and resilience needs?
- ☐ Engaged multiple stakeholders, including actors from various sectors and community members affected by both climate risks and adaptation process, to identify and select adaptation options for your region?
- ☐ Aligned the adaptation options with the results of the climate risk assessment and co-created shared vision?

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Explainer: Nomenclature of adaptation action

In the context of climate risk management and adaptation, several key terms are frequently used to describe the actions employed to address climate risks. These include:

- Adaptation option: referring to the array of strategies and measures available and deemed appropriate to meet the needs of addressing climate risks (IPCC, 2014).
- Adaptation measure: referring to the full range of actions and techniques available to reduce the damage and disruption caused by extreme climate events (AIDR, 1998).
- Adaptation strategy: referring to a structured organisation of prioritised and necessary measures that are logically connected to achieve specific outcomes related to climate risk management (Walz et al., 2021).
- Intervention: referring to human-induced change processes (adapted from Fekete et al., 2022) consisting of multiple actions and supporting or enabling activities implemented on the ground that focus on helping people adapt to identified climate risks (adapted from GIZ et al., 2020).
- Approach: referring to the method or means used to implement one or more actions (i.e., measures, interventions, strategies), guided by specific goals such as enhancing resilience (Walz et al., 2021).
- Response: referring to the actions taken before, during, and immediately after a disaster strikes to minimise its effects and ensure that those affected receive prompt relief and support (IDRM, 2019).

More recent terms that have also become associated with adaptation action include:

- Adaptation solutions: referring to technologies, products, or services that can help manage or transfer physical climate risks and their impacts (adapted from Trabacchi et al., 2019)
- Adaptations: referring to initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects (<https://pedrr.org/glossary/>).

The similarities between these terms are self-evident. In practice, they are often applied interchangeably, or their use can depend on the specific discipline or context being discussed. This is in addition to other often used terms, such as adaptation practices, technologies, and policies; risk reduction, mitigation, prevention or treatment; or prevention, preparedness, and control activities.

All these terms essentially describe actions to take to build resilience to climate change. Regardless of the terminology used, we recommend focussing on every option that contributes to your overall goals, namely, to enhance resilience to the impacts of climate change.

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Research potential interventions:

To steer the exploration of adaptation options, you should account for your region's context and conditions, particularly climate risks identified in Task 1.3.1 and local capabilities from Task 1.3.2. Considering those helps you determine not only the adaptation needs, but also the geographical, sectoral, and thematic scope of your exploration. The shared vision of your climate resilience transition (Task 2.3.1) can also aid in deciding whether the focus is on a specific neighbourhood, population (e.g., elder, women, youth), sector (e.g., agriculture, water resources), or type of measure (e.g., structural, institutional, technological).

As a starting point, you can review past or ongoing adaptation efforts that could be improved, replicated, scaled-up or further complemented with other options. Also, you can look for existing adaptation strategies, initiatives, case studies from other regions under similar conditions. This may include academic papers, official reports, NGO publications, catalogues of good adaptation practices, and other analogue resources from organisations working on adaptation and resilience. Pathways2Resilience's Catalogue of Innovative and Transformative Adaptation Options can provide inspirational examples and novel approaches for your region. The purpose of this process is to collect evidence on what has worked well and what challenges were encountered from previous adaptation efforts and identify those options that may work for your region's climate challenges.

Co-creation workshops:

original and unconventional ideas, which might not have been produced through traditional planning processes, may emerge through co-creation as alternatives to address complex and evolving climate challenges. To do that, you can use different engagement approaches for co-creation such as participatory workshops (e.g., brainstorming sessions, world café, charrettes), open forums, or even, online platforms (e.g., crowdsourcing, social media). To encourage a creative and innovative process, include diverse groups of stakeholders (identified in Task 1.2.2 and 2.1.2) with different backgrounds, sectors, communities, governmental bodies, and expertise. This should include both those stakeholder groups impacted by climate risks as well as those which adaptation options could impact, so the creative process is more representative and meaningful. Importantly, ensure that their insights, ideas, priorities, and concerns are considered, not only because it increases social acceptance and ownership of the adaptation process, but also because these groups have valuable knowledge of effective adaptation practices and can offer novel approaches to address climate risks and vulnerabilities.

Adopt a systemic perspective:

A systems thinking approach in exploring adaptation options allows for generating innovative and transformative ideas for adaptation. This consists of revisiting the systems mapping from Task 1.2.1 to focus on alternative or novel ways to harness the system's interconnectedness, relationships, and dependencies to address risks more comprehensively. This includes interventions that can address direct and indirect risks, as well as their cascading, compounding, and interacting effects within and across systems. For example, a systemic focus aids in identifying those options that can perform better at the system level, not only by interrupting chains

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of climate impacts and risk propagation mechanisms but also by leveraging them to distribute benefits across the system. Also, it helps generate multi-functional adaptation options, addressing either various risks or contributing to the advancement of different development objectives and priorities beyond risk reduction. Moreover, a systemic perspective realises the complementarity and synergies between adaptation options and, even, with other climate actions or development initiatives.

Categorisation and screening:

collect and compile all the adaptation options generated from the literature review and co-creation workshops. Organise the options into categories based on, for example, their type (e.g., structural, technological, community-based, institutional, nature-based, hybrid), scale (e.g., building, neighbourhood, regional), KCS (e.g., ecosystems, water, critical infrastructure), addressed hazards (e.g., drought, flood, extreme heat), management set-up (e.g., government-led, community-led, public-private partnership), adaptation level (absorptive, adaptive, transformative) and time-frame. Develop an inventory of identified adaptation options that later facilitate a detailed analysis and further prioritisation.

As part of this process, it is crucial to ensure that the collected adaptation options reflect a diverse and sufficient range of possibilities. Refine your search for adaptation options by thinking about non-conventional alternatives or areas that have not been explored so far. Also, adjust your stakeholder engagement strategies to capture additional perspectives that may lead to transformative ideas. For instance, encouraging the participation of artists and people from other disciplines not yet involved or trying different ways of engagement (e.g., gamified challenges, community projects, art

groups, pop-up events, creativity festivals, cultural exchanges). This approach contributes to ensuring that you are not overlooking innovative adaptation options that could be critical in addressing ongoing and future challenges.

Once diversity and sufficiency are ensured, conduct a preliminary screening to filter out options that are clearly unfeasible or irrelevant. To do so, you need to consider several factors:

- Context: alignment with the priorities, dynamics, and conditions of your region (Task 1.2.1), including the 'destination' or future vision of your region developed in Task 2.3.1.
- Problem: consistency with the problem framed in Task 1.1.2.
- Needs: local vulnerabilities and capacities identified in Task 1.3.2
- Stakeholders' input: ideas, concerns, perspectives, and interests gathered during the co-creation activities in this task and the rest of the journey.

Narrowing down the broad list of potential adaptation strategies to a more manageable and relevant set of options is instrumental for better appraising their effectiveness in the next step of your journey (Task 3.1.2). Document the reasons for including or excluding each option –this helps keep traceability and transparency of your screening processes. Ensure the refined list is up-to-date, comprehensive, and reflective of the latest knowledge, and that it includes also options that challenge the status quo and promote systemic changes. Such adaptation options could include strategies that break down silos and promote cross-sectoral collaboration, institutional reforms, or interventions fostering behavioural change.

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**Case studies: Identifying adaptation options****“Identifying practical adaptation options: An approach to address climate change-related health risks” (Ebi & Burton, 2008)**

The case study provides a systematic process to identify a wide range of adaptation options to mitigate health risks exacerbated by climate change. The study focuses on generating a comprehensive list of all potential adaptation measures without regard to feasibility constraints. This includes existing practices, measures used in other regions, and new or innovative ideas generated through expert consultations. The aim is to capture the full spectrum of possible interventions, from well-established practices to emerging options that could address climate-sensitive health outcomes. Through this explorative process, the case study emphasises the importance of considering both current capabilities and future potential when identifying potential adaptation options.

**“Identifying adaptation ‘on the ground’: Development of a UK adaptation Inventory” (Jenkins et al., 2022)**

This case study outlines a process used to identify and document adaptation actions within the UK to build a comprehensive adaptation inventory including both current and planned adaptation actions. The inventory was populated based on (1) a systematic review of both academic and grey literature, focusing on actions that have been implemented “on the ground”, and (2) a critical review of the Adaptation Reporting Power (ARP) reports submitted by public and private sector organisations. The ARP reports provided a wealth of data, documenting how organisations across various sectors are responding to climate risks. By focusing on actions that had been implemented, the inventory aimed to provide a baseline for understanding how adaptation is occurring across different sectors in the UK. This step helped spot those actions that demonstrated tangible progress in reducing vulnerability to climate change as well as adaptation action gaps (areas and sectors where adaptation is not occurring at the needed scale, pace and depth).

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“Application of Multi-Criteria Analysis selecting the most effective Climate change adaptation measures and investments in the Italian context” (Zucaro et al., 2021)

This case study presents a screening process focused on identifying a manageable set of adaptation options in the agricultural sector, particularly concerning water management. The process began with the collection of data on nearly 894 projects across Italy stored in a national database, DANIA. To align the projects with the adaptation goals and objectives of Italy’s Extraordinary Plan and the available funding, an initial filtering was applied considering three aspects: (i) project stage (only projects that could be quickly implemented were considered as they ensured readiness and immediate execution given the urgency of climate adaptation needs), (ii) type of intervention (only projects related to multipurpose reservoirs and water-saving measures in agriculture were prioritised because of their potential to address the dual challenges of water scarcity and increased demand due to climate change), and (iii) regional priority (only projects ranked as high-priority (level 1) by regional authorities were included in the shortlist). Using these simple screening criteria, the list of projects was reduced from the initial 894 to 55 and ensured that only the most relevant and ready-to-implement projects moved forward to the next stage of evaluation, where they would undergo more detailed analysis.



Supporting resources:

- Pathways2Resilience D6.5 – https://www.pathways2resilience.eu/images/selected-region/101093942_P2R_D6.5.pdf
- [Methods and Tools for Adaptation to Climate Change: A Handbook for Provinces, Regions and Cities](#)
- [ARCH Resilience Measure Inventory \(ARCH RMI\)](#)
- [Nature-based Solutions: Technical Handbook Factsheets](#)
- [Climate Chance’s Cartography of Action](#)