

# ADRIADAPT

## Toolbox for adaptation in coastal areas

Deliverable 4.4.2

Work Package 4  
Activity 4.4

PAP/RAC

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## 1 Purpose of the document

The main purpose of this document is to present the structure, process of development and contents of the Toolbox for adaptation in coastal areas, as presented at the knowledge platform [www.adriadapt.eu](http://www.adriadapt.eu) and as foreseen by the Adriadapt application form.

## 2 Background information

Adriadapt – a resilience information platform for Adriatic cities and towns, is a collective effort of 6 Italian and 5 Croatian partners aiming to promote local and regional resilience by developing the knowledge base required to identify suitable climate adaptation and planning options, thereby enabling local authorities to respond to policy needs related to climate action in urban and coastal zones of the project area.

The goal of the project was supported by four actions:

- produce high-resolution datasets and projections that provide detailed and reliable information on climate-related impacts in the regions;
- create a climate information system or knowledge platform for the Adriatic region containing best practices, guidance documents, legal frameworks and climate and vulnerability studies;
- test and integrate the knowledge platform in select Italian and Croatian pilot cities and extended urban areas where adaptation and resilience plans will be designed;
- maintain and disseminate the information.

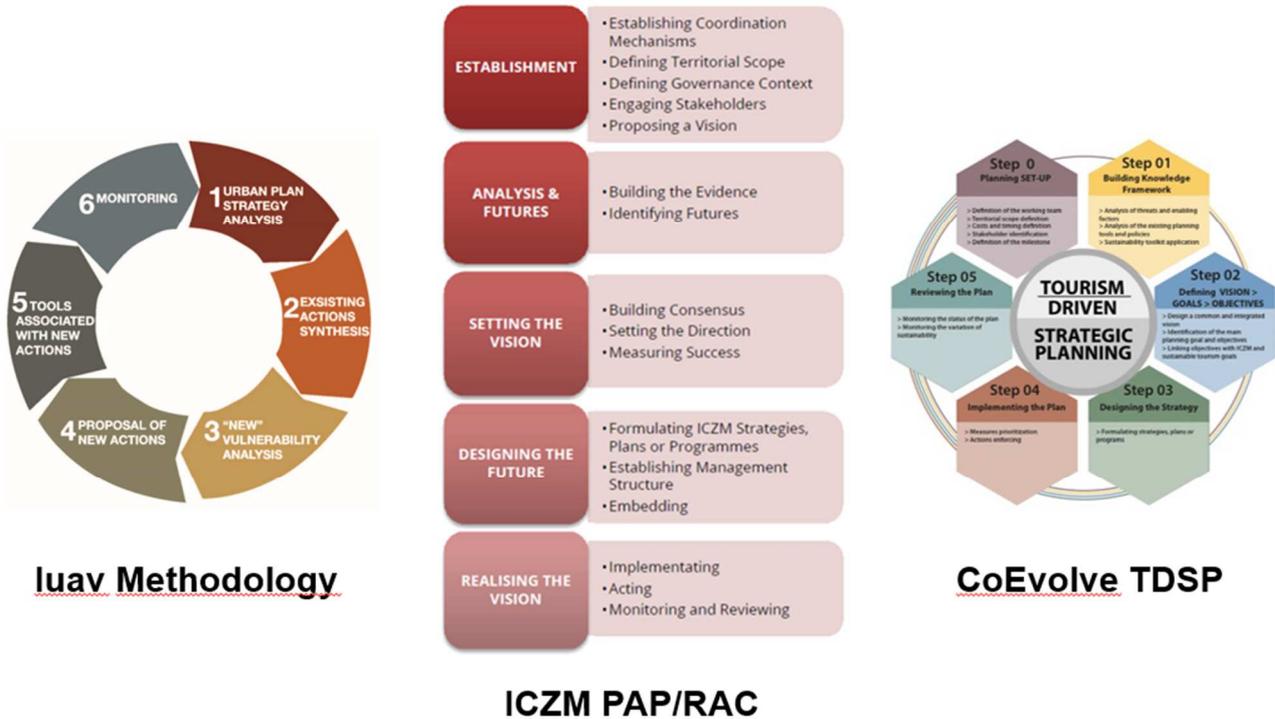
This project has received funding from the European Union's Interreg V A Italy Croatia Cross-border Cooperation Programme 2014-2020 under subsidy contract No. 10045081, and Adriadapt platform is co-financed by the Government of Republic of Croatia Office for Cooperation with NGOs.

## 3 Process of development of the Toolbox

Development of the Toolbox started early in the project, since it was decided that the steps of the planning process will be the main axes of the Toolbox, as well as of all key outputs and of the knowledge platform itself.

Discussions were initiated during the first Expert meeting held in Split on 12-13 June 2019. when representatives of CMCC, PAP/RAC, IUAV, THETIS, as well as DHMZ and ARPA-E and the PAP/RAC team of experts met to discuss key strategic outputs and outcomes of the project. During the meeting the discussions were held on harmonizing strategic outputs of the project, but also on harmonizing or

integrating different approaches to planning. Three methodologies initially presented at the expert meeting are presented at the following image:

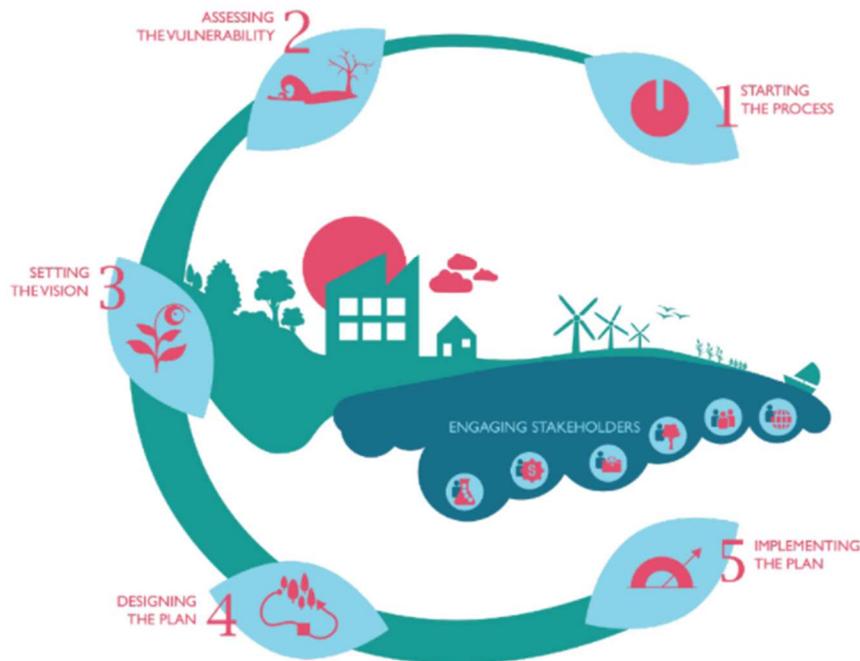


Discussions on the common presentation of the adaptation planning process continued during the project implementation. Several on-line meetings were held during second half of 2020, resulting with the initial proposal of steps, finally developed using the G-drive for exchange of files and comments of all involved partners.

Once finalized process presented on the Toolbox was translated into two remaining languages and profred by the technical experts. Process served as a backbone for the production of video, as well as for several other outputs of the Adriadapt project.

Process was finally presented in the following graphical form:

## Integrated Adaptation Planning Tool



### 4 Presentation of the integrated adaptation planning tool

#### Introduction

The best time to start planning adaptation to a changing climate is already in the past. The second-best time is now. The impacts of today's climate extremes and of future climate changes are not waiting for you to get prepared.

Cities and regions prepared for climate change will increase the safety of their citizens, territory and assets. Improved resilience and strengthened adaptation capacity will reduce the potential costs and damages of climate change impacts. By using an integrated approach, cities and regions can, at the same time, improve the quality of life of their citizens and visitors, and pursue the path to sustainability.

Adaptation is hardly possible without integrated planning. A city or a region may initially focus on a specific adaptation measure to start with, but an overall integrated adaptation plan is indispensable to deal with the complex nature of climate changes and their effects. A sector-based approach can improve adaptation for a specific issue but may increase climate change risks for other sectors or areas. In addition, an integrated approach to adaptation can make it possible to reach maximal benefits with minimum costs, jointly taking into account resilience to climate change (adaptation), the reduction of the contribution of a city or a region to the problem (mitigation), and a wide range of co-benefits (e.g. protection of citizens' health, recreational opportunities, preservation of natural habitats and biodiversity, etc.). To be sustainable, adaptation should contribute to the overall process of climate change mitigation, providing measures that reduce greenhouse gas emissions and increase carbon sequestration, as with ecosystem-based adaptation options.

Deciding on adaptation solutions and preparing adaptation plans is not simple. For such a challenging process, you need a new form of governance for climate action. Although governance is the capacity of governing institutions to respond effectively to changing conditions and problems that may occur, it is not only a government-led process. In order to achieve social unity in a climate solution, cities and regions need wide support from as many social groups as possible. Therefore, governance for climate action requires that all stakeholders who act as key players in local and regional societies and economies are on board. Good governance is a long-term process: building trust, relationships and support from the communities lay in its very core. New forms of multi-party agreements among all stakeholders are crucial for efficient governance for climate action.

AdriAdapt provides a simple, stepwise approach, which can lead you along the process of preparing a local or regional adaptation plan. Such an approach is further detailed in the "Strategic guidelines for climate policies in Adriatic cities".



The Coastal Plan for the Šibenik-Knin County was awarded as the best climate change adaptation project in the Mediterranean, ECCA 2019, Lisbon

## 4.1 Starting the process

### Step 1. Establishing the ground for adaptation and starting the process

The process of adapting is long and articulated; at the same time action is needed now, as the effects of a changing climate are already visible. Approaching this complex challenge calls for proper and timely preparation. Notwithstanding its importance, the effort required in this step is often underestimated. Indeed, enough time and resources should be secured to establish the ground for adaptation and run the following actions.

- Obtaining high-level support and setting the governance

High-level political support for adaptation is a prerequisite for the successful design and implementation of adaptation actions. Obtaining and securing this support is essential from the beginning of the process and if possible should be formalised in a policy document or by joining a structured adaptation initiative (e.g. [Covenant of Mayors](#) or Coastal plan founded on the “[ICZM Protocol for the Mediterranean](#)”). Political support can be triggered by top-down and bottom-up drivers, for example the first consisting of legal requirements or recommendations at the national or sub-national level, and the second of initiatives promoted by the civil society or the private sector, also in reaction to the consequences or impacts from extreme events (e.g. flooding).

The political support must be reflected into a transparent and inclusive governance for climate action. This phase is expected to identify public authorities and other private stakeholders to be involved. Uncertainty intrinsic to climate change and adaptation to it requires the best of our knowledge. Therefore, it would be great to get local scientists on board, possibly by creating a science-policy interface supporting the entire adaptation process. Once actors are identified, their respective roles shall be clarified: who drafts the plan, who expresses opinions and evaluates the plan, who approves the plan, who implements the plan, who monitors the plan implementation, etc. The definition of a core team (not necessarily formed only by representatives of the public authorities) within the overall governance scheme can highly improve the coordinated management of the adaptation process. Depending on the local context, this could be a newly established team or an existing working group.

- Organizing the process leading to the plan

Based on the received mandate, the core team shall transparently define its role, the way of interacting with other actors involved, and the roadmap (activities, timing and milestone) of the process of plan elaboration. The level of human and technical resources needed for adaptation is a critical factor that must be carefully estimated, based on the process’ ambitions and goals. The availability of these resources depends on the characteristic of the local context (e.g. whether experts are already assigned to roles dealing with climate change or sustainability in general), but is also strongly influenced by the availability of financial resources. This step of the process shall secure needed funds for the plan design. In the context of restricted budgets, resource needs can be reduced through various actions, e.g. building upon other initiatives already in place, mainstreaming adaptation

into other (planning) processes, participating in support networks and initiatives, cooperating with the private sectors, collaborating with universities, etc. Moreover, all possible sources of funding shall be explored at this stage, including national ones and EU funding programmes such as LIFE, INTERREG, and Regional Development and Cohesion Funds.

- Planning stakeholder engagement

Adaptation is a cross-cutting, cross-sectoral and multi-level process and is of relevance for a wide, diversified range of stakeholders. Since the beginning, it is important to map the key actors to be involved and understand what their interests, responsibilities and positions toward climate change issues are. This initial activity shall lead to a well-designed stakeholder engagement process, to gain the most from their participation. In parallel, a communication strategy, supporting stakeholders' engagement and awareness raising activities shall be developed, identifying communication objectives, target groups, communication means, modalities and timing.

- Identifying strategic goals of the adaptation process

Adaptation is aimed at improving the response capacity and the resilience of a territory and its community to the present and future effects of climate change. Within this overall scope, different adaptation goals can be identified, ranging from the design of measures aiming to solve specific climate-related problems to the systematic transformation of the territory and its communities into a new resilient and sustainable system. The strategic adaptation goals must be identified and agreed on by the stakeholders at the very start of the process, as they orientate the successive steps and in particular the formulation of the future vision (step 3). They need to be coherent with existing overarching goals as those set by national or regional adaptation strategies and plans or policy documents at all levels, including the local one addressing the wider context of sustainability (including SGDs). This phase shall also make the expected co-benefits of adaptation explicit.

**Outcomes of step 1:**

- Policy document or statement supporting the adaptation initiative
- Governance context defined
- Roadmap of the adaptation process, identifying human resources, roles, activities, timing and milestones
- Secured funding sources
- Stakeholder analysis, engagement strategy and communication plan
- Strategic goals of adaptation and expected co-benefits

**Tools:**

RESIN – Actor Analysis for Urban Climate Adaptation – Guidelines for how to analyse and select stakeholders and involve them in the whole adaptation planning process.

URBINAT – Strategic design and usage of participatory solutions and relevant digital tools in support of NBS uptake  
MASTER ADAPT – Policy Guidance for setting adaptation objectives, a step-by step guidance for setting adaptation objectives.

MASTER ADAPT – Policy Guidance for setting adaptation objectives, a step-by step guidance for setting adaptation objectives.

## 4.2 Assessing the vulnerability

### Step 2. Assessing climate change vulnerability and risks

Climate change will generate a multitude of impacts on the Adriatic communities. Not only extreme events (e.g. heatwaves, extreme precipitation, flooding, wildfire) are intensifying in magnitude and frequency, but also slow-onset changes (e.g. increase in temperatures, change in precipitation patterns, sea-level rise) are occurring, which will mostly bring unfavourable climatic conditions with consequent damages and losses. Understanding the present and future vulnerabilities to climate hazards is essential to design responses and actions aiming at strengthening the society's resilience and adaptation capacity. A community is not isolated from the surrounding regions. Climate change hazards that do not directly impact a considered territory can still have severe repercussions on areas providing essential services for that territory. *Vice versa*, climate impacts occurring in a given community can affect the surrounding areas. Thus, the vulnerability and risk assessment calls for an integrated approach and requires looking at the interfaces with neighbouring areas.

- Identifying and assessing the current and future climate hazards

No assessment can cover all climate hazards in equal detail. A selection and prioritization of those relevant for the considered local context can help focusing the assessment efforts and matching the overarching adaptation goals set in step 1. Once identified, the relevant climate hazards need to be analysed in terms of the past trends, current status and expected future changes. Although the direction of the global climate change is doubtless, the extension and details of the change are not completely certain, in particular at the local scale. Climate scenarios help describe possible future climate conditions with differences depending on different rates of increase in global greenhouse gas emissions. Such climate scenarios are developed taking into account global conditions, and can be “translated” (downscaled) to the specific local or regional conditions. The analysis of the current and future climate hazards relevant for the local context is an activity which requires a high level of scientific expertise. Usually, this is not available in the administrations in charge of adaptation. Collaboration with universities and research centres, as well as synergies with climate analysis initiatives taken at a larger scale (e.g. climate change scenarios and projections developed for a Regional or National Adaptation Strategy or Plan) can help in this regard. Scenarios do not provide climate predictions; they rather represent possible evolutions of the climatic system. Therefore, regardless of who deals with their evaluation, it is of paramount importance that climate change

scenarios are provided with the ancillary information needed for their understanding and correct use (spatial resolution, baseline period of reference, projections timeframe, underpinning greenhouse gas emission scenarios, uncertainties, etc.).

- Selecting priority impacts of the climate change

Once the relevant climate change hazards have been identified, it is recommended to focus the successive vulnerability and risk assessment on their major direct and indirect impacts. Priority impacts are those expected to significantly affect the considered territory as a whole (e.g. a flooding impacting settlements and affecting their residents, services and infrastructure) or several of its natural and artificial elements and human activities (e.g. agriculture, forestry, biodiversity, buildings and infrastructure, energy systems, transport, tourism, marine habitats, fisheries and other marine activities, water management, etc.). As for the previous sub-step, the collaboration with universities and research centres, as well as the wider discussion with all stakeholders (see Governance AO for more details), can support the prioritization exercise.

- Assessing vulnerability and risks to the climate change

For each relevant climate change impact, vulnerability and risks shall be evaluated to provide the needed information for the identification of long-term adaptive response actions. In the context of the climate change, according to the IPCC, vulnerability can be defined as the degree to which a territory, its community and activities are unable to cope with the adverse effects of the climate change, including climate variability and extremes. The assessment of the vulnerability of a system requires therefore the study of its exposure and sensitivity to a given climate change hazard and of its already acquired adaptation capacity. The combined assessment of the vulnerability, the magnitude of the climatic hazard and the value of the most exposed receptors provides an estimation of the climate risk associated with the considered hazards and territory. A great variety of methods are available to assess vulnerability and risks to the climate change. These can be roughly categorised as top-down and bottom-up approaches. Top-down assessments are usually based on data and use mapping and other quantitative tools to assess socio-economic and environmental data. For example, they can provide damage estimations expected for the entire territory or for parts of it. Bottom-up assessments generally rely on the local knowledge and are qualitative in nature. They often rely on the involvement of local stakeholders. A combination of the two approaches is recommended, whenever possible.

- Transferring the results to the visioning and planning steps

The assessment of the climate change vulnerability and risks requires the digestion of a rich and wide variety of data and information. Adaptation can only succeed if the environment is able to provide ecosystem services; therefore assessment of the major risks for sustainable development should also be done. It is of great importance that the results of such analysis are smoothly transferred to the visioning (step 3) and the planning phases (step 4) of the adaptation process. To this regard, data and information must be condensed in the knowledge to be promptly and properly used for the identification, design and implementation of adaptation measures. This sub-step implies the adoption

of a simple approach for the communication of the step 2 results to a wide audience, also highlighting the related assumptions and uncertainty.

**Outcomes of the step 2:**

- Extended and summary reports on the past trends, current status and future projections of the most relevant climate change hazards
- Extended and summary report of the assessment of vulnerability and risks related to major climate change impacts
- Key messages for the planning phase: most relevant climate hazards and the related vulnerability and risks

### 4.3 Setting the vision

**Step 3. Setting the vision for adaptation**

Climate change adaptation is a long-term process which, by its nature, calls for the integration among different governance levels and sectors. It cannot be done in isolation from other planning and management processes. It is of paramount importance that the adaptation to the climate change contributes to an overarching, wider vision for the territory and its community which goes beyond the pure scope of the adaptation itself.

- Contributing to the sustainable development of the society

A climate change adaptation strategy or plan is primarily expected to increase the resilience and reduce the vulnerability to the climate change impacts of a given territory or community. However, this objective must be pursued ensuring the long-term sustainable development of the society as a whole. Therefore it must be ensured that choices made for the sake of adaptation will not compromise aspects of sustainability (e.g. environment, social and economic well-being, and intergenerational equity). At the same time, investments made for adapting a community and making it more resilient should maximise synergies and co-benefits (e.g. increasing or protecting biodiversity and habitat conservation, reducing air pollution, improving health conditions, creating new job opportunities, improving the quality of life). To achieve this, adaptation shall foster a long-term transformative approach, radically changing the conditions which cause major vulnerabilities. For example, for coastal communities, the adoption of a transformative approach requires the early exploration of long-term effects of sea-level rise and change in the intensity and frequency of extreme storm surges, to keep time for solutions which might require long-term implementation. Such solutions shall consider up to which point the actual protection of coastal sites is feasible or becomes too expensive suggesting to shift towards a managed retreat of infrastructures and human activities more prone to sea-level rise and the climate change impacts. At this stage of step 3, links between adaptation and sustainable development goals in general shall be clarified and brought to the attention of those involved in the strategy or plan elaboration and implementation. Links to mitigation objectives and measures aiming at reducing greenhouse gas emissions shall also be highlighted.

- Initiating the process for the vision elaboration

A vision can be defined as an optimal desired future, illustrating what we would like to achieve with the management of a territory and its community in the medium or long term. A vision obliges to think in a long-term perspective. It might be the case that a broader, long-term sustainable vision already exists. In this case, the adaptation process is driven by the existing vision. It must be ensured that the adaptation goals do not contrast with the broader vision. This step of the process can formulate recommendations to improve coherence among the different processes and ensure that the vision can also be achieved under changing climate conditions (climate-proofed vision). In many cases a vision is not available and needs to be developed as part of the adaptation process. The initial phase of the process leading to the vision is expected to collect and systematise information on the existing relevant plans and policies, and on those under development setting the direction for the future.

- Co-creating the vision

Various visioning approaches (predictive, normative, exploratory, etc.) and tools are available ranging from those strongly relying on data and quantitative assessment (e.g. trend analysis and forecasting) to those of more qualitative nature (e.g. scenario building, strategic roadmap). Regardless of the method used, the elaboration of a vision strongly relies on a wide stakeholder involvement (see here for more information on how to organise stakeholder engagement in the adaptation process); indeed a vision is the result of a co-creation process. Considering the wide scope of the vision, stakeholder engagement cannot be confined to those strictly involved in the adaptation process, but shall be extended to a wider arena representing all the subjects dealing with planning and management. The robustness of a vision is increased by comparing different options, assessing the related trade-offs and benefits, and converging on the agreed option. The results of the co-creation process is the description of the desired sustainable future (the vision), as well as the identification of its geographic scope, timeframe, expected benefits and co-benefits, and the expected implications for the surrounding areas. To better inform the successive step of the process, it is recommended that the vision be translated into clear specific objectives for adaptation, coherent with the strategic goals set in step 1.

**Outcomes of step 3:**

- Vision for a sustainable and better adapted future
- Specific objectives of the adaptation process

## 4.4 Designing the plan

### Step 4. Assessing options and designing the adaptation plan

The previous steps are meant to provide inputs for the formulation of the adaptation plan which shall highlight the prioritised adaptation options. Adaptation options are measures aiming to reduce vulnerability to the major climate challenges and exploit new opportunities arising from the changed climatic conditions. Adaptation options can range from measures aiming to build adaptive capacity and to establish governance and supportive mechanisms to measures implemented on the ground to deal

with cross-sector or sector-specific vulnerabilities. Adaptation without sustainability would be an illusion. Therefore, when designing an adaptation plan and identifying adaptation measures a wider context of sustainability should be kept in mind.

- Choosing the adaptation options

Developing a set of adaptation options can help systematize possible measures to reduce the vulnerability and increase the resilience of a given territory and community. The AdriAdapt platform provides its own catalogue of adaptation options, which are categorised as societal, green and grey options, together with examples of good practices of their implementation. Societal options include policy, legal, social, management and financial measures that can modify human behaviour and styles of governance, contributing to improved adaptation capacity and sustainable development. Green options utilise natural or ecosystem-like processes to improve resilience and adaptation capacity. Grey options refer to technological and engineering solutions to improve adaptation of a territory, infrastructures and people. The AdriAdapt catalogue can be used as an inspiration to design specific adaptation solutions.

- Assessing the adaptation options

Based on the strategic and specific objectives set in the previous steps 1 and 3, potential adaptation options shall be assessed according to their suitability for the local context, feasibility, effectiveness in reducing vulnerability or enhancing resilience, and wider impact on sustainability. It is very important to base the assessment of the adaptation options on shared and transparent criteria, which for example can include: preference of no-regret measures (which are worthwhile whatever the extent of future climate change will be) or low-regret ones (measures with relatively low costs and high benefits), preference of nature-based solutions (green measures), ease of implementation, high benefits-costs ratio, minimization of conflicts and negative trade-off, etc. The assessment can be supported by methodological approaches of diverse nature, including cost-benefit analysis (CBA), cost-effectiveness analysis (CEA) and multi-criteria analysis (MCA). The final result of this phase is a clear identification or priority adaptation options.

- Elaborating the plan

Once climate change risks and vulnerabilities have been assessed (step 2), a vision of the desired future has been designed (step 3) and specific objectives and policies identified (steps 1 and 3), individual adaptation measures can be agreed (step 4), and a framework for the implementation of adaptation can be developed in the form of a plan. An adaptation plan is expected to set out what needs to be done to convert the prioritized adaptation options into actions. A plan can be guided by an adaptation strategy previously developed (at the local, sub-national or even national levels), outlining the direction of actions and the expected outcomes. However, this is not always the case and the strategic objectives of adaptation can also be developed contextually with the plan. The expected contents of the adaptation plan shall be agreed among all the experts contributing to its development. An adaptation plan is not just a list of preferred adaptation measures, but a more articulated document which should contain:

- a summary of major climate change challenges addressed by the plan

- the vision and the strategic and specific objectives of the adaptation process
- details on each selected adaptation measure, including their preliminary design if needed
- costs, adaptation benefits and trade-off of the adaptation measures
- roles and responsibilities for the plan implementation, including those pertaining to coordination
- links with other strategic and planning documents not focusing on adaptation
- timeline for the implementation of the adaptation measures
- overall costs of the plan implementation
- available funding schemes
- monitoring, reporting and evaluation (MRE) system (see step 5)
- Funding the plan

Within the plan, it is recommended to identify available options for funding the implementation of the priority adaptation measures. Some of the measures can be implemented in the frame of the provisions set in other cross-sector or sector-specific planning instruments (see step 5 about mainstreaming adaptation). For others, securing dedicated economic resources is essential. EU funding programmes, such as [LIFE](#), [INTERREG](#) and Horizon Europe, can surely contribute to economically supported adaptation at the local level. The [European Green Deal](#) will give more lymph to the European funding stream. Other opportunities can derive from national and sub-national funding programmes, dedicated municipal funds, initiatives promoted by the private sector (including those of donor organisations), loans from financial institutions (as the European Investment Bank), crowdfunding, household own funds (i.e. private initiatives aiming to improve their own resilience) and sectoral funding mechanisms (in which available funds may not necessarily be labelled as “adaptation”, but can contribute to it). Flexibility and a combination of various funding and financing sources are advisable, especially in cases where dedicated municipal budget lines may be hard to secure. More about financing may be found in the Handbook on the possibilities of financing adaptation.

**Outcomes of step 4:**

- Catalogue of adaptation options
- Priority adaptation options
- Adaptation plan
- Roadmap for the plan implementation

## 4.5 Implementing the plan

### Step 5. Implementing, monitoring and evaluating the plan

When the plan is designed, most of the work towards adaptation begins. Implementation is always challenging and different constraints and obstacles are to be expected. It is important to be ready for it, to prevent the common destiny of strategies and plans which often run the risk of remaining on

paper. The approval or the endorsement of the adaptation plan is the first essential step to move towards implementation. Notwithstanding its importance, this is not sufficient and the core team in charge of the plan elaboration should also set the ground for its implementation and design the related monitoring, reporting and evaluation (MRE) scheme.

- Defining foundation elements for the plan implementation

Adaptation to climate change is a cross-sectoral, multi-level and multi-issue process that concerns all sectors of the society and requires action at multiple levels. As such, the implementation of an adaptation plan requires adequate institutional set-ups and governance frameworks to ensure effective, coherent and continued implementation. Coordination and cooperation along horizontal and vertical levels of governance are needed to integrate adaptation into all relevant policy areas and at all scales. Crucial for implementation is a dedicated team of local and sub-national leaders, supported by scientists and representatives of the local business sectors and the civil society. The establishment of this team (in the form of a committee, a board or any other option) is one of the first tasks to be done after the adoption of the plan. The implementing team can be the one in charge of the coordination of the plan design (see step 1) or a different one. Such a team is called to interact with a wide arena of subjects directly involved in the concrete transformation of the desired adaptation measures into actions. A clear policy-based mandate empowers the team coordinating the implementation phase, defining its objectives, setting the decision making process, and the rules for its functioning.

- Mainstreaming the plan in other instruments in place or to be developed

Adaptation cannot be pursued in isolation from the existing policy and planning framework, covering both cross-cutting (e.g. sustainable development strategies and plans, urban plans, integrated coastal zone management plans, marine spatial plans, etc.) and sector issues (e.g. building codes, water management plans, health protection plans, transport management plans, etc.). Some specific measures can be implemented as a direct consequence of the adaptation plan, with specifically dedicated funds. Integrating (mainstreaming) some other adaptation measures into the existing policy instruments can raise the profile of the entire adaptation process, develop synergies and reduce conflicts among policies, ensure a more efficient use of resources and maximize co-benefits. Besides plans, a broad portfolio of instruments is available to mainstream climate change adaptation, including legal (e.g. laws, regulations, soft laws such as standards), economic (e.g. funding, taxes, fees, grants, loans), partnership (e.g. Public Private Partnership Agreements, voluntary agreements) and other strategic (e.g. strategies, programs) instruments. Bridging the gap between planning and implementation therefore requires the identification of the existing instruments which can better integrate adaptation and the way they will be adjusted, if needed. This phase of the process is also useful to assess whether new instruments will be put in place to foster the implementation of the adaptation measures. The analysis of the existing and new instruments starts at the very beginning of the process (step 1); this stage aims at providing clear, operational indication about how these instruments will be used to implement the planned adaptation measures.

- Monitoring the plan implementation and the adaptation process

Monitoring and evaluation are intrinsic components of any planning process. This is particularly relevant for adaptation, considering its long-term perspective and the great uncertainty characterising the evolution of the climatic system and the related effects. These steps are essential to evaluate the progress of the planned actions and to check the actual outcomes against the objectives set to ensure that an adaptation process is effective and sustainable over time. Important elements of a monitoring and evaluation scheme include: objectives, the methodological approach, a selection of suitable indicators, and a clear indication about how to use the results of the evaluation to improve actions for the future. Three major categories of indicators can be considered:

- *Process indicators*, aiming to assess how the plan is developed, if all needed steps have been established and all needed stakeholders involved.
- *Performance indicators*, aiming to assess if and how adaptation measures are implemented, according to the plan's objectives and its implementation roadmap.
- *Impact indicators*, aiming to assess the effects of the implemented adaptation measures, in terms of reduced vulnerability and increased resilience to the climate change, as well as the reached co-benefits.

To be really useful indicators must be complemented with the related targets.

- Reviewing the plan

A good monitoring and evaluation scheme produces results useful to respond to a series of questions: Are we doing the right things? Are we doing things rightly? How is implementation progressing? Is the monitoring framework effective? Ultimately, monitoring and evaluation results can be used to revise and adjust an adaptation plan, which should actually be considered a living and evolving document.

#### **Outcomes of step 5:**

- Approval or endorsement of the adaptation plan
- Governance setup for the plan implementation
- Policy instruments to mainstream climate change adaptation
- Monitoring, Reporting and Evaluation (MRE) system of adaptation, including adaptation indicators.

An example of monitoring and evaluation:

When developing the Coastal Plan of the Šibenik-Knin County in 2015, one of the measures for introducing a management system was the establishment of the County Committee for ICZM. Members of the committee are the leaders of different county institutions and other relevant stakeholders, and the task of the Committee is to support the implementation, and to monitor and evaluate the progress of the implementation of the Plan's provisions. The County Committee meets at least once a year to discuss the progress of the implementation, the state of the coastal zone

environment, new challenges and opportunities, as well as to evaluate the success of the implementation of proposed measures.

## 4.6 Stakeholders engagement

### Cross-steps. Engaging stakeholders

Stakeholder engagement is an essential component of most policy or planning processes. This is surely true for adaptation, considering its cross-cutting and cross-sectoral nature. Engaging stakeholders in the adaptation processes holds a great value in providing an opportunity for learning about the climate change and about the need for climate action. Participating in the development of adaptation plans, or climate action plans and projects helps create a climate-literate community ready to face demanding challenges that the climate change is posing to the entire society. Adaptation is of interest to a wide range of stakeholders, which are expected to participate in the co-generation of the needed knowledge and of the decisions to be taken along the entire process. Stakeholder engagement plays an important role for all of the adaptation steps (as remarked in the description of each of the steps). However, there is a clear need to focus their contribution, in particular to get the most benefit from the engagement process. Stakeholder participation needs to be organised since the very beginning (step 1) and should be entrusted to communication and mediation experts. A well-designed engagement process is expected to pay attention to transparency, open communication, trust and relationships, clear identification of roles and responsibilities, and commitment of all participants.

- Why and when stakeholder engagement is important?

The adaptation process shall be open to stakeholder contribution in any step. However, involving stakeholders in all of the activities is hardly possible. Major benefits can be obtained by clearly defining the objectives of stakeholders' engagement and by identifying when their contribution is most beneficial for the process. The decision on when to involve stakeholders is context-specific, although we can expect this being particularly important for the following activities: sharing data and information on the climate change hazards and risks, identifying climate change impacts of priority importance, co-creating the vision driving the adaptation, setting objectives resulting from the vision, sharing experiences on adaptation options, proposing specific adaptation measures, designing the monitoring, reporting and evaluation (MRE) scheme and creating the governance scheme for the adaptation to the climate change. Stakeholder engagement does not end with the approval of the adaptation plan but is also crucial for successful implementation and monitoring phases as well.

- Who should be involved?

Stakeholder mapping and analysis aims at identifying who should be involved in the adaptation process. It is useful to inform all the participants what are the interests and positions of the stakeholders and their mutual relationships. The selection of the stakeholders has to be based on transparent criteria and aim at ensuring a balanced participation of different categories, including

administrations in charge of adaptation at different levels (from local to national, if needed), different departments of the same organisation, sectoral authorities, academia and research institutions, NGOs, other interest groups and representatives of the business sectors. There is no ideal number of people to be involved; it is recommended to balance the need to give voice to all different categories with the indication to keep this number small enough to increase efficiency of the process and commitment of people along the entire duration. Once the stakeholders have been identified, the related level of involvement has to be clarified, ranging from information, bi-directional communication, consultation, co-creation, co-decision, etc. Such level will be different for different stakeholders and can even change over the course of the process. However, defining the roles and responsibilities for each stakeholder since the beginning is essential to increase the success of the stakeholder engagement. Finally, it is recommended to make use of the existing stakeholder platforms (for example some cities may have already established a stakeholder-based process dealing with sustainable development or urban planning).

- Providing evidence of the use of stakeholder contribution.

To increase trust, stakeholders need to be regularly informed about the use of the results of their participation. Adaptation shall be a co-designed pathway, and the resulting strategy or plan a shared outcome of all involved stakeholders. Different methods and instruments can be used to document the discussion, such as minutes of the meetings, handouts, posters or infographics summarising the key results achieved, dedicated web-sites, etc. It is also important to define the required level of formalization of stakeholder inputs. When the stakeholder participation deals with sharing of knowledge and experiences in general formalization is not needed. However, when participants are expected to bring on the table their strategic interests and express the related objectives, a higher degree of formalization might be required. The decision about the level of formalization is, however, case-specific. In some contexts informal processes can be preferred to prevent blocked positions and avoid active participation being discouraged.

- Developing a communication and awareness-raising plan.

Successful communication of the climate change adaptation is often the key to ensure public support, further strengthen public participation and increase awareness about the climate change challenges and possible solutions. A robust communication plan is needed to convey major findings of the adaptation process to different target groups. Elements to be considered include the following:

- clarify the terminology; the meaning of terms such as vulnerability, risk, mitigation, adaptation may not be obvious to everyone
- shape the conveyed messages in an user-oriented way (in terms of language, contents and format) considering that different target audiences need different approaches
- together with results, communicate also the related assumptions and uncertainties (e.g. on future climate change scenarios and projections)
- focus on examples and good practices rather than on methodological and theoretical aspects

- make the best use of a mix of communication approaches (direct involvement, mass-media, internet, social media) and means (short text, graphic information, video, audio, narrated stories at meeting, etc.) to maximise the number of people you want to reach

***Outcomes stakeholder engagement:***

- Document depicting stakeholder mapping and analysis
- Document planning stakeholder engagement activities
- Documented evidence of the results of the stakeholder engagement process
- Communication and awareness-raising plan on adaptation

CASE STUDY: “Climagine” workshops from ŠKC Coastal Plan.