

D.5.3.1. Report describing the methodological framework for the elaboration of climate change adaptation plans

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Interreg Italy-Croatia: AdriAdapt

AdriAdapt is a project funded under the European programme Interreg Italy-Croatia and its objective is the improvement of the capacity of the urban and coastal areas of the Adriatic area to respond to the effect of climate change at local level and the implementation of the resilience of the territory.

The project has developed a set of operational tools to help cities to increase knowledge of climate phenomena at European level, regional and local, and to be able to plan and develop climate adaptation plans and actions that contain concrete and integrated actions to combat climate change. The project aims to improve local climate change adaptation capacity in Adriatic region by creating an information platform that provides access to guidance, data and tools that will help local authorities to take adequate policy measures and develop plans to increase resilience in urban and coastal areas.

The project has four major actions. The first is the improvement of available climate-related knowledge and the production of dataset and projections for detailed information on climate-related impacts in the Adriatic pilot areas. These knowledges are very important for decision making process.

The second is the elaboration of a climate information system and a knowledge platform for the Adriatic region. The system and the platform include best practices, guidance documents, legal frameworks and climate and vulnerability studies.

The third is the test-integration of the knowledge platform in Croatian and Italian pilot cities and urban areas, where adaptation and resilience plans will be designed.

The fourth is the dissemination phase of the information contained in knowledge platform. It has to be considered as a region-specific repository for climate policy and plans and it provides support and locally relevant data for follower cities.

The partnership of the project has been able to pool all skills and competences of relevant institutions in order to achieve the set of project results, having the capacity to create strong links to target groups addressed by the project.

This document is the deliverable D.5.3.1. Report describing the methodological framework for the elaboration of climate change adaptation plans and shows how the methodological framework, described in the D.5.4.1 Report on strategic guidelines for climate policies in Adriatic cities, has been followed and applied practically by the pilot areas within the project.

Introduction

This document is a final-overall report of the pilot areas experiences within the Adriadapt project.

To enrich the elaboration of the guidelines for the planning for adaptation to the climate change, the 5 pilot areas have been asked to fill a report on the experience and the process carried out inside the Project. The guidelines describe the methodology of the integrated adaptation planning and should be the address document for future actions towards climate change adaptation and at the same time describes the main outcome of the project. We believe that these experiences can be highly relevant to help the building of parts of the guidelines and to complete this report document.

The present document represents the final report of each pilot area and is meant to describe its experience along the project as well as expected future actions from next adaptation planning developments. More specifically, the report shall describe what each pilot areas have developed in different phases of the adaptation process, including study and analysis, planning, implementation, and monitoring. The description shall also include main results achieved. The information gathered by this document will be helpful for the drafting of the final guideline.

The report-layout was a guidance, and it could be adapted, expanded, integrated, re-modulated, according to the specific information of each pilot area. The report is organized along the 5 steps (and sub-steps) of the Integrated Adaptation Planning Tool. Each step has been filled with the required information by the pilot areas (if possible).

The stepwise approach (figure 1) has been developed by the Adriadapt project to guide and support local and sub-national authorities in their pathway toward climate change adaptation. This approach is deeply explained in the [D.5.4.1. - Guidelines – Planning for adaptation in Adriatic region](#) and it is structured into 5 steps which are rarely implemented sequentially. Indeed, these steps are mutually interrelated and overlap, often implying parallelized implementation of several aspects. The stepwise approach is completed by stakeholder engagement: given its relevance for the whole process this activity is cross-cutting all the five steps.

As most policy processes, also climate change adaptation is based on a progressive and adaptive approach. Monitoring and reviewing the work done (as foreseen by step 5) is essential to highlight strengths and weaknesses of the process and to assess whether the evolution of the system is the desired one, and therefore, if needed, to re-start the process and review the adaptation strategy or plan. Adaptation planning is not linear but requires the adoption of a circular process, bringing to continuous improvement.

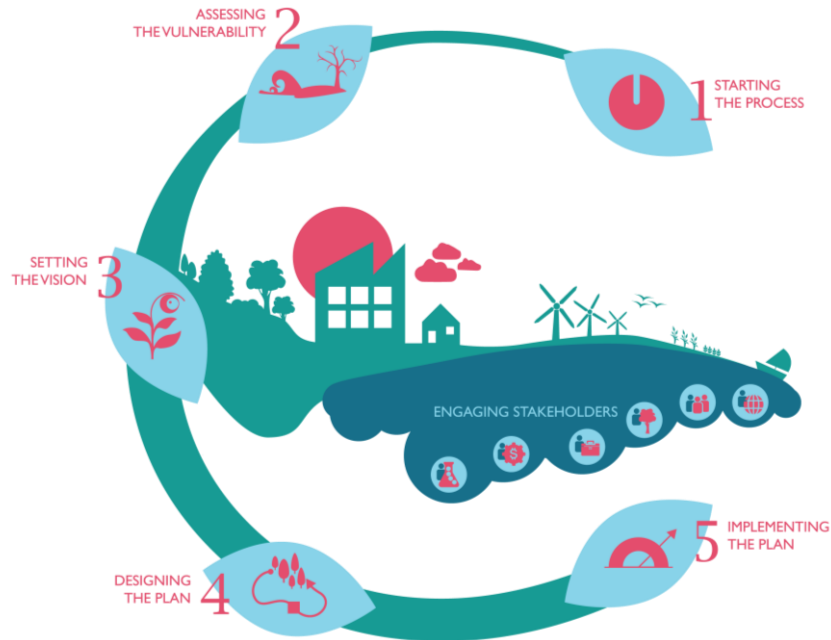


Figure 1. The AdriAdapt Integrated Adaptation Planning Tool

Integrated planning is a core ingredient of adaptation. 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 possible to reach maximal benefits with minimum costs, taking into account jointly the 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 additional multiple benefits (e.g. protection of citizens' health, recreational opportunities, preservation of natural habitats and biodiversity, etc.). In this perspective, adaptation is expected to contribute to the overall transition of the society to sustainability.

The 5 pilot areas' report are presented in this document following this list: Municipality of **Cervia**, **Šibenik-Knin** County, Municipality of **Udine**, **Union** of Municipalities **Valle del Savio** and Municipality of **Vodice**.

Structure of the report

The following table resume the structure of the report. It is composed by 5 steps and a final chapter on *Future actions beyond the project*. Each step consists of 3-4 sub-steps.

Step 1. Establishing the ground for adaptation and starting the process	
1	Obtaining high-level support and setting the governance
2	Organizing the process leading to the plan
3	Planning stakeholder engagement
4	Identifying strategic goals of the adaptation process
Step 2. Assessing climate change vulnerability and risks	
1	Identifying and assessing current and future climate hazards
2	Selecting priority impacts of climate change
3	Assessing vulnerability and risks to climate change
4	Transferring the results to the visioning and planning steps
Step 3. Setting the vision for adaptation	
1	Contributing to the sustainable development of the society
2	Initiating the process for the vision elaboration
3	Co-creating the vision
Step 4. Assessing options and designing the adaptation plan	
1	Choosing the adaptation options
2	Assessing the adaptation options
3	Elaborating the plan
4	Funding the plan
Step 5. Implementing, monitoring, and evaluating the plan	
1	Defining foundation elements for the plan implementation
2	Mainstreaming the plan in other instruments in place or to be developed
3	Monitoring the plan implementation and the adaptation process
4	Reviewing the plan
Future actions beyond the project	
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1 Municipality of Cervia

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

The way along the process of adaptation 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 needs 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.

n.	Action	Pilot Area Experiences/Results
1	Obtaining high-level support and setting the governance	<p><u>Municipality of Cervia</u></p> <p>The way the EU Adaptation Strategy emphasizes the need for adaptation and the Green New Deal have accelerated the awareness process of local authorities, and the opportunity to participate to European projects helped the smaller realities to have access to funds and development opportunities.</p> <p>Putting ecological transition and sustainability at the highest level of Member State governance is a clear message that the issue cannot be postponed and has to be put as a priority at all levels.</p> <p>The Municipality has always paid great attention to the environmental theme, because the ecosystem services offered by the natural elements present in the territory (sea, pinewood, salt pans) are the most important income source for Cervia: a great tourism activity has been developed through the years around them and the administration agrees with the urgency to intervene in a strategic way for their protection and to safeguard all the people and the economic activities related to the coastal zone.</p>
2	Organizing the process leading to the plan	<u>Municipality of Cervia</u>

		<p>Cervia approved the SECAP (Sustainable Energy and Climate Action Plan) in 2017, before the approval of the Regional Climate Change Mitigation and Adaptation Strategy, and the PUG (General Urban Plan) in 2018, so the city had the possibility to work on very updated urban planning documents, aimed at pursuing goals as soil protection, raising urban quality and attention to seismic and climate change risks, based on the principles of the New regional Law 24/2017 about protection and use of land strategy.</p> <p>The SECAP is updated every two years through action reports and every four years with a full report, including the emissions inventory. The first monitoring has been done in 2019 and the second one is going to be finalized.</p> <p>Within the Adriadapt project Cervia choose to implement this plan, focusing on the adaptation action, in particular ADAPT 08 concerning the protection of the coast.</p>
3	Planning stakeholder engagement	<p>Plan <u>Stakeholder engagement</u> process involves managing stakeholder expectations which influence throughout the lifecycle of the project. This process provides a plan to interact effectively with stakeholders and support projects interest. The goal is to plan these actions well that they impact the contribution of stakeholders on projects, manage their expectations and also achieve project objectives.</p> <p>The definition of the stakeholder group is aimed at the participation of all the actors somehow involved in the process: other local authorities, municipalities, regional and national services, industrial organizations, research institutes, public and community, private subjects. The training and dissemination activities has been conducted involving these groups, depending on the subject matter.</p>
4	Identifying strategic goals of the adaptation process	<p><u>Municipality of Cervia</u></p> <p>Starting from the goals designed in Cervia's SECAP and PUG (SQUEA) for the construction of a resilience territory, and considering the increasing intensity of flooding events, storm surges and downbursts and the consequent damages to things and people, the municipality focused on the goals dealing with climate change, selecting the ones that most</p>

		<p>affect Cervia's territory: salt intrusion, sea level rise, flooding/runoff, urban heat islands.</p> <p>First of all, it has been fundamental to widen the knowledge through data collection, analysis and monitoring activities, then to implement the adaptation actions designed in the SECAP putting them into practice. A great and very important dissemination activity has been done through stakeholders' engagement, to raise awareness about these issues.</p>
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1.2 Step 2. Assessing climate change vulnerability and risks

Climate change will generate a multitude of impacts on the Adriatic communities: extreme events (e.g. heatwaves, extreme precipitation, flooding, wildfire) and slow onset changes (e.g. increase in temperatures, change in precipitation patterns, sea level rise). Understanding present and future vulnerabilities to climate hazards is essential to design responses and actions aiming to strengthen the society's resilience and adaptation capacity. The vulnerability and risk assessment calls for an integrated approach and requires looking at the interfaces with wider areas.

n.	Action	Pilot Area Experiences/Results
1	Identifying and assessing current and future climate hazards	<p><u>Municipality of Cervia</u></p> <p>Starting from current and future climate hazards identification and assessment carried out in the SECAP, in the framework of the Covenant of Mayors, the following climate hazards have been specifically addressed in AdriAdapt project for Cervia territory:</p> <ul style="list-style-type: none"> • Urban heat island • Saltwater intrusion in groundwaters • Sea storm surge/Coastal flooding <p>Monitoring and evaluation activities have been carried out in order to assess Cervia territory vulnerability (see following point 3).</p>
2	Selecting priority impacts of climate change	-
3	Assessing vulnerability and risks to climate change	<p><u>Municipality of Cervia</u></p> <p>Urban heat island effects in Cervia territory have been investigated through:</p> <ol style="list-style-type: none"> a) Mesoclimatic monitoring campaign. b) Microclimatic measurement campaigns. <p>In the first case 7 monitoring stations have been installed in different positions inside Cervia territory (city center, coastal area, pinewood, salt pan, suburban industrial area, rural area); the monitoring of several parameters (air temperature, air humidity, wind direction and speed, precipitation, air pressure, solar radiation) has started in summer 2020.</p>

	<p>Through mesoclimatic data collection the urban island effect in Cervia territory can be characterized in detail and future actions can be planned.</p> <p>The microclimatic measurement campaigns have been carried out with a special tool provided with sensors and instruments for the measurement of several relevant parameters for urban comfort assessment, including air temperature, nearby surfaces temperatures, solar radiation, wind speed and direction and other parameters concerning ambient hygrometry, acoustics, air quality.</p> <p>The monitoring tool is 'installed' in backpack worn by a walking person.</p> <p>Several 'microclimatic walks', with the measurement tool, have been carried out along 5 different 'routes' across Cervia territory in different periods in summer/autumn 2020 and in different day/night times (morning, noon, afternoon, evening/night).</p> <p>Measurement data have been processed in order to assess microclimatic and urban comfort conditions and to evaluate future projects to mitigate urban island effects in Cervia area.</p> <p>Saltwater intrusion has been investigated through measurements (concerning, parameters like pH, salinity, conductivity, solids and other) carried out in a piezometer specifically realized for this purpose and in other existing or temporary piezometers from the second part of 2020.</p> <p>Finally, coastal flooding vulnerability related to pluvial and coastal sources for Cervia territory has been assessed through a dedicated modelling activity.</p> <p>The activities have been devoted to mapping at high resolution, exploiting the availability of LIDAR data, the flood hazard in terms of extension and water depth associated with coastal and pluvial events. In particular two raster-based model has been developed and applied for mapping flood hazard:</p> <p>1) Safer_RAIN is a dedicated raster-based HFS (Hierarchy Filling and Spilling) model able to map water depth and flood extent for a specific rainfall event characterized by duration</p>
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		<p>and intensity. The model is coupled with an infiltration model (Green-Ampt) and is able to reproduce the flood hazard in stationary condition at the end of the event.</p> <p>2) Safer_COAST is a 0D DEM-based developed exploiting a region growing algorithm. 0D DEM-based models do not use hydraulic physically based models but aim to map the extent of the flood through the spreading of water level using gravity and the DEM as main inputs. The main assumptions of Safer_COAST region growing coastal flood model are: i) infinite volume of water; ii) the terrain is impermeable (i.e. no infiltration into the soil); iii) the results represent the maximum theoretical flood extension after infinite time and disregarding overtopping, and; iv) water flows from one cell to another (i.e. D8 method).</p> <p>The simulated flood hazard scenario both for coastal and pluvial has been characterised by a specific return time computed analysing both the historical data and future projection. In particular for the coastal scenario Estimates of ESL (Extreme Sea Level) are obtained for the N Adriatic up to year 2100 by combining reference hazard scenarios derived from historical records with regionalised projections of SLR (Sea Level Rise) and local vertical land movements (VLM) rates related to subsidence. Four ESL frequency scenarios, namely once in 1, 10, 100- and 200-years, are considered.</p> <p>The rainfall intensity for the Cervia area has been computed from rainfall maps over the entire region at 2 km resolution provided by ARPAE. These maps provide, from statistical analysis on ground station and interpolation, rainfall height in mm corresponding to a specific return time and rainfall duration (above 1 hour).</p> <p>The outputs for coastal and pluvial hazard produced by the simulation consist in raster layers at spatial resolution of 1 m for the different return time and climate projections.</p> <p>Those layers can be exploited to support the flood risk assessment in the area and support future mitigation and adaptation actions.</p>
4	Transferring the results to the visioning and planning steps	<p><u>Municipality of Cervia</u></p> <p>Main results of will be considered for an update of Cervia's Sustainable Energy and Climate Action Plan (SECAP) and</p>

	they are also considered in developing and planning actions/projects to improve Cervia territory resilience.
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1.3 Step 3. Setting the vision for adaptation

Climate change adaptation is a long-term process, which by 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 adaptation to climate change contributes to an overarching, wider vision for the territory and its community which goes beyond the pure scope of adaptation itself.

n.	Action	Pilot Area Experiences/Results
1	Contributing to the sustainable development of the society	<p>The actions of the SECAP implemented thanks to the Adriadapt project all contribute to sustainable development of the society: the protection of the coast ensure safety for people and economical activities on the coast, which are the main income source for Cervia.</p> <p>Furthermore, attention to risks, soil protection and raising urban quality are the main goals of all the municipality's urban planning instruments (PUG, SQUEA and SECAP). All these values come from the regional law pursuing the goals of zero soil consumption, urban regeneration and seismic retrofit, sustainability of the intervention and accretion of nbs to enlarge ecosystem services in the cities.</p> <p>So, all the regional and local instruments go in the same direction for the construction of a resilient territory.</p>
2	Initiating the process for the vision elaboration	The process includes mid- and long-term sustainable vision. Scientific support is very important to understand the main impacts affecting the different towns, the present and future scenario to build a strategy for climate change adaptation and mitigation measures.
3	Co-creating the vision	Protection of the coast is a huge issue, including many different possibilities of actions, goals to achieve and problems to solve. Cervia has been working for years to enhance resilience and will continue to do it, thanks to the new

		<p>challenges that are coming and the technological research helping to put into practice all the actions planned. Dissemination has to be kept on and knowledge has to be shared, to ensure collaboration among the actors involved in the process. The stakeholder engagement is fundamental for a sustainable development who sees as main characters both public and private parts.</p>
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1.4 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 prioritized 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.

n.	Action	Pilot Area Experiences/Results
1	Choosing the adaptation options	<p><u>Municipality of Cervia</u></p> <p>Vulnerability and risks assessment carried out in Covenant of Mayors' Sustainable Energy and Climate Action Plan (SECAP) and further assessments elaborated in AdriAdapt project (see step 2) have been the starting point to evaluate adaptation options.</p> <p>The assessed options include:</p> <ul style="list-style-type: none"> • Green and blue infrastructures • Coastal sand dune restoration
2	Assessing the adaptation options	<p><u>Municipality of Cervia</u></p> <p>The first options assessment driven by AdriAdapt project concerns studying and testing the microclimatic benefits arising from the de-sealing and landscape requalification (with vegetated areas) of Premi Nobel square in Pinarella, in Municipality of Cervia territory.</p> <p>De-sealing (soil recovery) means restoring part of the former soil profile by removing sealing layers such as asphalt or concrete, loosening the underlying soil, removing foreign materials and restructuring the profile in order to restore an effective connection with the natural subsoil, to increase land permeability, to reduce surface run-off.</p> <p>The action aims to investigate and test microclimatic benefits of the above-mentioned de-sealing and requalification project through a microclimatic monitoring campaigns to be carried</p>

		<p>out after the project has been realized with a special tool for microclimate measurements. The collected data will be compared to the baseline measurements carried out in this area in summer 2020 within the context of AdriAdapt Project in order to assess microclimatic and urban comfort conditions of the square environment and compare 'ante' and 'post' de-sealing and requalification project implementation and to assess changes in urban heat island vulnerability of the area. This action, made possible by microclimatic monitoring performed in AdriAdapt, has been included as a project in a submitted LIFE proposal.</p> <p>A second adaptation options assessment has been performed through pluvial and coastal flooding modelling, as described in step 2. The flooding modelling has been used not only to assess current vulnerability of Cervia territory, as described before, but also to evaluate possible adaptation measures, as dune restoration, physical barriers, storm drain, etc.</p>
3	Elaborating the plan	<p><u>Municipality of Cervia</u></p> <p>One of AdriAdapt pilot projects in the territory of Cervia's Municipality stemming from vulnerability assessment and option appraisal is the planning of the coastal sand dune creation from the relict dune in front of ex "colonia Varese". In this area dunes are almost disappeared, and the beach system is in serious danger due to anthropic pressure. Preventing further erosion and sand drift is a priority. The ability of the coast to continue to offer goods and ecological services to the people who live, work and enjoy the coast must be protected. Larger sand dunes provide a major reservoir of sand and thus are potentially significant contributors to 'coastal resilience'. The creation of a new dune system helps trapping freshwater under its surface contrasting saltwater rising.</p> <p>The plan of reconstruction of the coastal dunes is aimed to support a future realization of such infrastructures in order to re-establish and enhance the 'coastal resilience'.</p> <p>With the planning of the reconstruction of the coastal dunes in the area we would start a new process of re-naturalization of the coast that will bring increase in sand accretion in the</p>

		<p>system (right now in crisis of erosion) and in biodiversity. Dunes support many habitats, rich and varied fauna and flora; at present biodiversity is negatively affected by the strong human impact and needs to be protected by its critical condition.</p> <p>Planning the reconstruction of dunes help to provide coastal protection, buffering tides and waves with the sea level rising and during storms.</p> <p>In the area we have some strong winter storms that sometimes enter in the inland. With such project the zone will reach higher degree of protection from strong storms to inside areas, and it will contribute to give a highly dynamic and alive system that will face erosion and critical equilibrium with the sea.</p> <p>In order to evaluate the potentialities of such project an early-stage assessment will be carried out using models able to predict the positive effects of such infrastructures on coastal flooding dynamics. This analysis will describe the flood risk assessment in the area and support future mitigation and adaptation actions.</p> <p>The project will be aimed to encourage the deposition of sand grains and with it, the establishment of vegetation. During the planning, our technicians will consider the novel bio-engineering techniques and best practices in the reconstruction of coastal dunes. The goal is to create the condition of sand accretion and promote the development of coastal dune's vegetation with initial sand artificial dam with chestnut fences and planting of vegetation.</p> <p>The planned dune will be approximately 200 m long and 15 m wide along.</p>
4	Funding the plan	-

1.5 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 a 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.

n.	Action	Pilot Area Experiences/Results
1	Defining foundation elements for the plan implementation	<p><u>Municipality of Cervia</u></p> <p>Cervia already started to intervene in public urban areas in a sustainable way and with nature-based solutions:</p> <ul style="list-style-type: none"> • requalification of city center in Milano Marittima with the creation of rain gardens (viale Matteotti) • redevelopment of Milano Marittima waterfront with protections against marine ingression • urban regeneration of Borgo Marina with protections from flooding of the channel • de-sealing and landscape requalification (with vegetated areas) of Premi Nobel square in Pinarella (the part to be requalified is about 3.800 m² wide), to increase land permeability and reduce surface run-off <p>Some of these interventions has been realized with Cervia Municipality funds, some others with European/Regional funds.</p> <p>In addition, during 2021 the Municipality of Cervia has participated to the call for proposal LIFE Integrated Projects 2020. The title of the submitted project is Ecosystems-Based Integrated Coastal Zone Adaptation & Management: combining wet and dry coastal synergies (LIFE-IP EB-ICZA&M). The whole project will be eight-years long. Among</p>

		<p>the activities proposed by Cervia some regards such pilots started within the AdriAdapt project:</p> <ul style="list-style-type: none"> - dune restoration (implementation) - coastal flooding vulnerability evaluation (monitoring) - microclimatic walks (monitoring)
2	Mainstreaming the plan in other instruments in place or to be developed	<p><u>Restoration and widening of the coastal sand relict dune in front of ex “colonia Varese”.</u></p> <p>The area interested is the coastal relict dune in front of “colonia Varese”, in the north shore of the Municipality of Cervia. The dune is about 240 m long and 50 m wide along the shore. In fact, the coast near the area of the dune is currently characterized by strong erosion. The restoration of the coastal dune is aimed at re-establishing and enhancing coastal resilience. It is a new process of re-naturalization of the coast that will bring an increase in sand accretion in the system (right now in crisis of erosion) and in biodiversity. Dune supports many habitats, rich and varied fauna and flora; at present biodiversity is negatively affected by the strong human impact and needs to be protected by its critical condition. The restoration of the dune helps to provide coastal protection, buffering tides and waves with the sea level rising and during storms, in addition it guarantees the creation of freshwater lens in the underground which help to counteract the saline wedge.</p> <p>The restoration will be aimed to encourage the deposition of sand grains and with it, the establishment of vegetation. The goal is to create the condition of sand accretion and promote the development of coastal dune’s vegetation with chestnut fences.</p>
3	Monitoring the plan implementation and the adaptation process	<p><u>Coastal flooding vulnerability evaluation</u></p> <p>The coastal flooding risk characterization activities will be conducted by simulating Extreme Sea Level (ESL) scenarios for historical and future flooding scenarios that consider the predictions of climate change and the evolution of subsidence. In particular, some ESL scenarios of interest and</p>

		<p>reference for municipal urban planning will be identified for the purposes of the cognitive plan. The risk analysis will be performed on the coastal area of approximately 550 m long and 15 m wide along the shore from the relict dune in front of ex “colonia Varese” to the small river called “scolo Cupa” that mark the north municipality border.</p> <p><u>Microclimatic walks</u></p> <p>The aim will be repeat the microclimatic walks to study and test the microclimatic benefits arising from the de-sealing and landscape requalification of Premi Nobel square in Pinarella.</p>
4	Reviewing the plan	<p>The Cervia’s SECAP is going to be updated at the end of 2021 with the biennial action report and the quadrennial emissions inventory. The monitoring activity will be conducted in the future with the same basis</p>

1.6 Future actions beyond the project

In this final paragraph the pilot area should describe the future actions. Each expected action should be linked to one or more of the 5 steps, previously presented in the adaptation planning process.

n.	Action	Description
1	Stakeholder engagement and update adaptation goals	<i>(link with Step 1)</i> Carry on the knowledge and dissemination activities, including more and more stakeholders to raise awareness about urban planning and climate change. Involve local administrator and technicians in projects dealing with these topics to deepen knowledge, find best practices and develop new technologies helping the municipalities in the process of adaptation, to be ready to face the new climate challenges incoming.
2	Assessing vulnerability and risks to climate change, transferring the results in planning steps	<i>(link with Step 2)</i> Continue the monitoring activity and implement it, deepening the aspects and hazards which have not been investigated in the project. Check the benefits coming from the implementation of mitigation and adaptation measures, finding new alternative solutions to this challenge if necessary. Be able to transfer the knowledge into action and update the urban plan with new actions or steps if necessary.
3	Creation of a wetland (canals and ponds) with phytodepurant function in Milano Marittima to fight salt intrusion and soil salinization	<i>(link with Steps 4 and 5)</i> Creation of wetland is a nature-based solution that contributes to coastal defense and safeguard of biodiversity. The wetland contributes to contrast groundwater salinity, halt and reverse land degradation and halt biodiversity loss
4	Coastal sand dune restoration and widening (in front of Varese Colony)	<i>(link with Steps 4 and 5)</i> The project of the relict dune restoration and widening planned within Adriadapt is going to be realized in the next few years to enhance resilience, to defend the coast from marine ingression, erosion and to mitigate salt intrusion.
5	Coastal sand dune planning (north of Varese)	<i>(link with Steps 4 and 5)</i> The Municipality started reasoning about the necessity to intervene in the northern part of the

	Colony, up to the Cupa Channel)	Milano marittima coast to enhance resilience and fight erosion, planning the prolongation of the dune up to the Cupa Channel.
6	De-sealing and landscape requalification (with vegetated areas) of Premi Nobel square in Pinarella	<i>(link with Steps 4 and 5)</i> The intervention is focused on increasing land permeability and reduce surface run-off. To study and test the microclimatic benefits arising from the de-sealing and landscape requalification of Premi Nobel square in Pinarella will be held microclimatic walks.
7	De-sealing intervention and application of Nature Based Solutions in Milano Marittima	<i>(link with Steps 4 and 5)</i> De-sealing intervention and application of rain gardens to enhance permeability of the soil, run off and increase urban greening in the streets that give access to the Milano Marittima pinewood.
8	SECAP monitoring and updating, emission analysis	<i>(link with Step 5)</i> The monitoring activity of the SECAP will be carried on as expected: action report every two years and emission analysis every four years. Cervia will consider the opportunity to implement mitigation and/or adaptation actions, if necessary, to update the plan towards the goals of ecological transition and attention to climate change.

2 Šibenik-Knin County

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

The way along the process of adaptation 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 needs 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.

n.	Action	Pilot Area Experiences/Results
1	Obtaining high-level support and setting the governance	
2	Organizing the process leading to the plan	
3	Planning stakeholder engagement	
4	Identifying strategic goals of the adaptation process	

2.2 Step 2. Assessing climate change vulnerability and risks

Climate change will generate a multitude of impacts on the Adriatic communities: extreme events (e.g. heatwaves, extreme precipitation, flooding, wildfire) and slow onset changes (e.g. increase in temperatures, change in precipitation patterns, sea level rise). Understanding present and future vulnerabilities to climate hazards is essential to design responses and actions aiming to strengthen the society's resilience and adaptation capacity. The vulnerability and risk assessment calls for an integrated approach and requires looking at the interfaces with wider areas.

n.	Action	Pilot Area Experiences/Results	Pilot Area E
1	Identifying and assessing current and future climate hazards	Current and future climate hazards were identified and assessed during preparation of the Coastal plan of Šibenik-Knin County in 2014. These hazards haven't changed. For this assessment extreme events, in particular extreme precipitation and extreme waves as well as the sea level rise and finally increase of the temperature has been taken into consideration. Data provided by the WP 3 enabled some more detailed modelling which was done for the two pilot areas, Šibenik and Vodice.	
2	Selecting priority impacts of climate change	Within the Adriadapt project priority impacts of climate change to the coastal sea have been analyzed. Direct impacts and indirect impacts to the coastal sea, such as those related to the risks for coastal infrastructure emerging from the extreme weather events and sea level rise that may result with pollution of the coastal sea.	
3	Assessing vulnerability and risks to climate change	In order to understand the risks to coastal sea from climate change, two lines of assessment have been performed. Direct risks from climate change to the coastal sea were assessed by marine biologist. Expert on coastal infrastructure analyzed the risks to coastal infrastructure. Coastal infrastructure has clearly defined dimensions, scope and conditions of functioning, therefore risks were not so difficult to assess. However, once the impacts on the marine environment were analyzed, the problem is not easy to comprehend. The biggest challenge is the calculation of the load of pollution and the magnitude of the pressure on the marine environment that will arise from disruptions in the functioning of	

		<p>infrastructure due to the impacts of climate change. This is a local problem that must be assessed according to the local environment for each individual infrastructure.</p> <p>In order to assess this problem, first stage was the collection of detailed data on the state of coastal infrastructure in the Šibenik-Knin County. For that purpose, the methodology for development of the coastal infrastructure cadaster has been proposed. Data has been collected from different local stakeholders (Water management public company, County Port authority, Public institution-NATURE, etc.) and placed into the new Coastal infrastructure cadaster. Vulnerability analysis has been performed separately – for the coastal infrastructure and for the coastal sea. It showed where and under what condition infrastructure can be vulnerable to rising temperatures and sea levels, changes in precipitation patterns and increasingly frequent and severe weather events. Infrastructure vulnerability defined the magnitude of adverse impacts on the marine environment, based on which the vulnerability of the coastal sea has been elaborated. Detailed modelling has been performed on two locations, cities of Šibenik and Vodice. Findings of both analyses were presented with the GIS. In addition to the above analysis, an update of the indicators for sustainability of coastal spatial development has been performed. This analysis was a part of the Coastal plan analysis stage, so within the AdriAdapt project, the spatial indicators were recalculated. Due to some changes in relevant legislation in the meantime, some indicators needed to be calculated differently this time, which made their comparison challenging.</p>	
4	Transferring the results to the visioning and planning steps	<p>The envisaged measures and solutions have been integrated into the revision of the Action plan for implementation of the Coastal plan 2021 -2027.</p> <p>Used concept considers infrastructure and marine system in anticipating of a hazard thus enlarging the scope for reducing vulnerability to both, before and after hazard occurrence. Such a procedure is practical, reliable, actionable and very acceptable for local stakeholders because it initially solves</p>	

		<p>current problems respecting future needs and strengthening resilience. Focus is on the system and not on the impacts of hazard on the system. Adaptation measures are based in addressing the current weaknesses of the infrastructure system, a source of coastal pollution, and stresses impacting it. Such concept address sources of vulnerability and thus improving the condition and performance of infrastructure, regardless of whether and when the infrastructure will be threatened by climate variability.</p> <p>One of the measures proposed within the revised Action plan was also to establish observatory of the coastal space consumption. This measure has been proposed for the national level, and the Ministry of environment has been accordingly informed. In addition, the revised action plan identified the need to develop coastal resilience plan.</p>	
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2.3 Step 3. Setting the vision for adaptation

Climate change adaptation is a long-term process, which by 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 adaptation to climate change contributes to an overarching, wider vision for the territory and its community which goes beyond the pure scope of adaptation itself.

n.	Action	Pilot Area Experiences/Results
1	Contributing to the sustainable development of the society	
2	Initiating the process for the vision elaboration	
3	Co-creating the vision	

2.4 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 prioritized 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.

n.	Action	Pilot Area Experiences/Results
1	Choosing the adaptation options	
2	Assessing the adaptation options	
3	Elaborating the plan	
4	Funding the plan	

2.5 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 a 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.

n.	Action	Pilot Area Experiences/Results
1	Defining foundation elements for the plan implementation	<p>Šibenik-Knin County at the start of Adriadapt project already had adaptation plan developed, we were and still are at step 5 of the Integrated Adaptation Planning Tool.</p> <p>Main objectives of adaptation plan were related to enhancing resilience of the coastal zone, adaptation to climate change, coastal water management and sustainable spatial development. The Coastal Plan (CP) is specifically focused on climate variability and change. It represents a guide towards resilience and sustainable development of the Šibenik-Knin County's coastal zone.</p> <p>The Coastal Plan is an integrated plan, developed through a holistic approach, and therefore it addresses various impacts of the climate change, like increase of air temperatures, changes in the precipitation regime, changes in the wind regime, elevated sea levels, higher surface temperature of the sea, increased salinity and acidity of the sea, and changes in phenomena such as storm surges and tides.</p> <p>Second key resource for adaptation is water. Namely, although rich in water, this region already today experiences water shortages in summer months. Since this region is strongly oriented to coastal tourism, a highly seasonal activity, the pressure on all resources in summer months already trespasses sustainability levels. The climate change will make this situation worse. Particular threat is the risk of wildfires. The participatory approach used during the development of</p>

	<p>the plan revealed that this is the threat the population fears the most.</p> <p>In order to secure successful implementation we had to define a management system for coastal areas which can ensure the building of resilience and that has been done with establishing County Committee.</p> <p>CP also defined particularly endangered areas to the impacts of climate variability and change. Measures for the definition of a policy for the adaptation to the impacts of climate variability and change were proposed. Assistance in the formulation of sectoral policies and plans, and their integration in the policy of the sustainable development of the coastal area were provided.</p> <p>Actions proposed within the CP have different objectives and include soft, green and grey approaches. Actions are primarily targeting no-regret measures.</p> <p>Upon adoption of the CP an action plan was developed, through which measures, and actions were prioritized and divided into high priority (to start implementation instantly), medium priority (to be implemented within 2-5 years) and long-term (not urgent). The time span of the CP is 2030.</p> <p>The Action plan identified, besides the schedule, also the responsibilities, implementing actions, needed financial resources, possible sources of funding and the indicators for the implementation of the CP.</p> <p>With Adriadapt project we went a step further in a detailed analysis of the state of coastal infrastructure and in upgrading the database.</p>
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2	Mainstreaming the plan in other instruments in place or to be developed	<p>Several coastal cities and towns along Croatian coast have been experiencing increasing number of coastal flooding events last years. At the same time, the trend of construction in the narrow coastal strip is constantly increasing. Strong orientation to coastal tourism supports the trend of coastal urbanization. Spatial planning in Croatia does not yet take into account the risk of the marine floods, nor the elevation of the areas planned for construction.</p> <p>CP was developed on the basis of the ICZM Protocol and backed up by the County spatial plan. It was adopted by the County Assembly and by that it became an official document of the County. In addition, the CP was developed through a highly participative process. This process contributed to raising awareness of the threats of climate change, of the need for adaptation and for mitigation. Favourable circumstance for the development of the plan was the support of the Prefect of the County who closely followed the process, participated in all meetings/workshops, and by that enhanced the creation of a feeling of ownership and contributed to the trust of the stakeholders that CP will be successfully implemented.</p> <p>As regards CP measures for preservation of integrated landscape values of the coastal area, the County assembly adopted the first spatial plan of the Žut-Sit islands protected area. A strong participatory approach adopted contributed to raising awareness, another measure of the CP.</p> <p>Civil Protection has included the finding of CP into their Action Plan.</p> <p>The CP will be used as a basis for drafting the County's strategic documents.</p> <p>The CP also identified the need to prepare Marine Spatial Plan (MSP). That was one of the main reasons why County joined the Adriadapt partnership and together with other project partners applied for Interreg Italy-Croatia call for proposals. City of Vodice, as most endangered city in our</p>
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		<p>County also joined the partnership with aim to prepare their local climate adaptation plan.</p>
3	<p>Monitoring the plan implementation and the adaptation process</p>	<p>The plan defines 4 groups of key management policies: building resilience of the coastal area; sustainable spatial development, water resources management, and sustainable economic development.</p> <p>Measures proposed for the space aim at preserving integrated landscape values of the coastal area and improving built-up landscape quality. Besides improving the environment both measures contribute to the enabling conditions for improvement of social cohesion, as well as enhancing the basis for sustainable tourism. Measures that aim at improving the built-up landscape quality aim at the same time at facilitating run-off water during storms and flash floods (trees at strategic spots, removal of sealed surfaces and other green infrastructure measures). Measures related to green infrastructure secure conditions for upgrading life quality by upscaling areas for enjoyment for both local population and tourists. Finally, integrated approach secures that all adaptation measures will take into account creation of enabling conditions for mitigating climate change. Measures are proposed to increase resilience of the local economy, enhance green and blue economy, improve mobility, etc.</p> <p>One of the first steps that CP proposed was establishing the County Committee for ICZM which has been successfully established. The County Committee for ICZM is responsible for the implementation of CP and it includes representatives of 11 organizations in Šibenik-Knin County.</p> <p>County Committee meets as need occurs, but not less than once a year to coordinate and discuss the progress of the implementation.</p> <p>The County Committee supports implementation through governance and management. CP identified the need to add GIS specialist to the County staff and to continue building GIS</p>

	<p>database completed during the preparation of CP. A GIS specialist was hired in 2018.</p> <p>Adriadapt is having a key role in building our GIS database with new and updated data. This will provide us better climate monitoring and better understanding of how climate change and expected floods will affect quality of our coastal area.</p> <p>Within the Adriadapt project, an additional comparison of indicators from the CP is carried out.</p> <p>Adriadapt project is also providing a web platform with concrete adaptation measures that will support us to better prepare for climate change and it will be of great help.</p> <p>CP identified the areas most vulnerable to flooding, 2 of which made significant progress in preparing technical documentation for the adaptation of their waterfronts (Šibenik and Vodice).</p> <p>Port authority applied for several new harbours, including EIA study with climate change impacts taken into consideration, which was not the case before the CP.</p> <p>A communal port “Vrnaža” was built in Šibenik for the safe and adequate mooring of 600 boats for local population. Within that project, a coastal wall, a plateau, pontoons, two breakwaters and other necessary infrastructure were built.</p> <p>Climate change impacts are increasingly taken into account in all County’s planning endeavours. Big progress has been made in the field of fire protection, through several projects (e.g. project Holistic) and in collaboration with Croatian Forests. At present 95% of the County territory is covered by surveillance cameras.</p> <p>As for agriculture, priority measure, development of irrigation system, is in course with works on 2 accumulations starting in collaboration with Croatian Waters. A big accumulation project was abandoned following the results of the EIA study. Decision has been taken, in line with the CP, to focus on small accumulations. Hydrogeological study for new small accumulations is being developed.</p>
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		<p>Šibenik-Knin County is currently at starting stage of implementing a project to build a public irrigation system in Donje Polje (10km away from Šibenik).</p> <p>Besides the County Committee for ICZM the CP proposed to form an Advisory Board with the members who followed the participatory process most actively. This Board is not formally established but at meetings of County Committee external experts who are in advisory role are actively participating.</p>
4	Reviewing the plan	<p>One of the County Committee's tasks is also to inform about all new circumstances and reacts to any new conditions, possibilities or threats. The longer time span of the plan implies constant monitoring of the climate change and modifying measures proposed for adaptation. Several measures were proposed to be calibrated according to new conditions. For example, for the seawall it is important to build strong foundations that may be able to support different heights. The height of the seawall is to be decided in the future, in accordance with the new projections of the sea level rise.</p> <p>Adriadapt project allowed us to revise the Action plan with updated parameters and data.</p> <p>As result of cooperation with our project partners and top experts we'll get vulnerability and feasibility study of our pilot area that includes:</p> <ul style="list-style-type: none"> • analysis of existing coastal infrastructure, • datatabe upgrade with coastal infrastructure cadastre, aquaculture, nautical tourism and maritime transport. <p>Together with other valuable documents and reports that project partners provided to us (for example climate index projections obtained by models, detailed quantification of climate change signals) it will be used as input study for our future Marine Spatial Plan (MSP) and basis for future project ideas.</p>

		It will also help us to better prepare ourselves for the new EU programming period. EU funds will be main source of financing our future actions from adaptation and action plan.
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2.6 Future actions beyond the project

In this final paragraph the pilot area should describe the future actions. Each expected action should be linked to one or more of the 5 steps, previously presented in the adaptation planning process.

n.	Action	Description
1	Improving the fire protection system	County is planning future improvement in this important field because many studies showed that wildfires are one of the main risks for our coastal area.
2	Improvement of infrastructure	County plans future improvement of our infrastructure to increase capacity and reliability. Port of Šibenik is working on strengthening the port capacity, renovating existing infrastructure and building a passenger terminal.
3	Encouraging green infrastructure	Improving and preserving the environment, which is a key element of joint strategies and an important factor in economic development.
4	Raising the awareness of the local community	County is planning to organize workshops, lectures, presentations and other activities to emphasize the importance of adaptation to climate change.
5	Irrigation reservoirs	County is planning to finish the project of building the irrigation reservoir that we already started. In future new similar projects in our County are also planned.
6	Waterfronts	Our coastal area, especially Šibenik and Vodice are most at risk of flooding. The construction of new waterfronts is planned to increase safety and decrease the negative impact of floods.
7	Other actions	<p>County is planning to increase its own capacities for implementation of adaptation and action plan. For financial more demanding projects we are planning to apply for EU funds and work closely with other regions.</p> <p>We are also planning to improve local and regional coordination between different stakeholders which is very important if we want to increase synergistic effect and improve our efficiency.</p>

3 Municipality of Udine

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

The way along the process of adaptation 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 needs 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.

n.	Action	Pilot Area Experiences/Results
1	Obtaining high-level support and setting the governance	The councilors referring to the offices that deal with environmental and urban planning issues were involved. This also facilitated the mayor's involvement in the project activities.
2	Organizing the process leading to the plan	To define the plan, it was essential to first identify the correct subjects to be involved within the municipality. The municipal offices, and consequently the people, who are best suited to work on the issue of climate adaptation have been identified. The environment and energy management offices were involved for the technical part and the European projects and participation office for administrative and communication management, including about the political component.
3	Planning stakeholder engagement	Stakeholders were identified through environmental associations, present in the area that could contribute to the project were evaluated and subject (Legambiente, AIFA, ...), public and private subjects, who work and study climate change (University of Udine, ARPA FVG, ...). and the networks to which the municipality of Udine is registered on the topic of environment and health (EMAS Club, Healthy Cities, ...)

4	Identifying strategic goals of the adaptation process	<p>The objectives for the adaptation process were identified by matching the needs already identified by the Administration in its strategic planning documents and the climatic criticalities related to the territory highlighted by the project's technical partners.</p> <p>The identification of the common elements was discussed with the technical and administrative component of the city. The result was the identification of a series of actions and studies that the Municipality of Udine deemed necessary to address.</p>
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3.2 Step 2. Assessing climate change vulnerability and risks

Climate change will generate a multitude of impacts on the Adriatic communities: extreme events (e.g. heatwaves, extreme precipitation, flooding, wildfire) and slow onset changes (e.g. increase in temperatures, change in precipitation patterns, sea level rise). Understanding present and future vulnerabilities to climate hazards is essential to design responses and actions aiming to strengthen the society's resilience and adaptation capacity. The vulnerability and risk assessment calls for an integrated approach and requires looking at the interfaces with wider areas.

n.	Action	Pilot Area Experiences/Results
1	Identifying and assessing current and future climate hazards	The identification of climatic risks derives from the analysis of the local climate perception and from the collection of the most intense meteorological events that have occurred in recent years.
2	Selecting priority impacts of climate change	The selection of priorities depends on the severity and impact on the territory, also considering the categories of people or activities that are most affected. The economic impact on the territory is also considered.
3	Assessing vulnerability and risks to climate change	The assessment of vulnerabilities and risks related to climate change was carried out by the IUAV processing the climate data. the Municipality of Udine has provided to researchers with the territorial and the information necessary for the evaluation of these aspects
4	Transferring the results to the visioning and planning steps	The results obtained from the studies were shared with the municipal administration and external professionals in charge of investigating the issues highlighted. These results were then used to develop actions and strategies for climate adaptation by the municipality, these were included in the municipal planning documents.

3.3 Step 3. Setting the vision for adaptation

Climate change adaptation is a long-term process, which by 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 adaptation to climate change contributes to an overarching, wider vision for the territory and its community which goes beyond the pure scope of adaptation itself.

n.	Action	Pilot Area Experiences/Results
1	Contributing to the sustainable development of the society	The sustainable development of society necessarily involves the involvement of local stakeholders and citizens. To develop an effective strategy, it is important that administrations have a clear understanding of the goal to be achieved and how to improve the area from a climate point of view. This requires a long-term vision that must go beyond the current political mandate so that future administrations can continue what has been started by ensuring the continuity of the technical part. In this way it is possible to give continuity to the social development of the company through an overall vision.
2	Initiating the process for the vision elaboration	The evaluation of a process for a community vision on the issue of climate adaptation must necessarily involve the stakeholders and the network with those who work and operate in the environmental and territorial planning fields. It is therefore important to involve, in addition to local administrations, environmental associations, research bodies and all those subjects that allow the creation of a more widespread network of skills
3	Co-creating the vision	The collective vision must be carried out by teamwork between all the subjects operating in a territory. The work that is carried out must be inspiring and, if possible, replicable for other territories in such a way that a large-scale benefit can be obtained.

3.4 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 prioritized 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.

n.	Action	Pilot Area Experiences/Results
1	Choosing the adaptation options	The choice of adaptation actions applicable in the Udine area is based on the studies carried out by the technical partners of the Project and subsequently by some in-depth studies on territorial criticalities. These studies are “Mapping of floodable areas of Udine and intervention proposal” and “State of Maintenance of river of Udine and intervention proposal”. The adaptation options were sought by consulting the various municipal technical offices which, according to their needs, were able to define lessons that they considered most important.
2	Assessing the adaptation options	After collecting the possible proposed adaptation actions, it was discussed which of these were most in line with the analysis of the vulnerabilities made. Actions regarding green and blue infrastructures as Udine is a city crossed by three waterways that have a major impact on the city climate.
3	Elaborating the plan	The development of a climate adaptation plan matches the Udine SECAP. Within this document, a series of targeted actions are collected that cover the most sensitive components of the territory. The proposed activities included are the result of internal discussions with the technical departments and using the results of the studies carried out within the project.
4	Funding the plan	Funding is already provided for some actions within the economic plans of the municipality of Udine. He hopes to exploit future European and ministerial funding.

3.5 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 a 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.

n.	Action	Pilot Area Experiences/Results
1	Defining foundation elements for the plan implementation	<ul style="list-style-type: none"> • Solid environmental and climatic analysis. • Motivation of the administration. • Motivation and involvement of the technical offices. • Creation of a collaboration network between the Administration and external entities.
2	Mainstreaming the plan in other instruments in place or to be developed	The plan will be able to integrate some urban planning and territorial control tools, the ones concerning the issue of water management for urban drainage and maintenance of public parks.
3	Monitoring the plan implementation and the adaptation process	The plan must be dynamic because it must adapt to changes. Monitoring serves to verify that the proposed actions are carried out and completed. A series of programming documents are also drawn up every year. The platform that will be made available to citizens will allow a more in-depth monitoring of the territory and will help the administration to identify the territorial aspects to be improved.
4	Reviewing the plan	Being a dynamic and constantly evolving plan, it is necessary to assess whether the actions envisaged in the plan are, at the time of the review, still feasible or whether they must be implemented or removed according to local needs.

3.6 Future actions beyond the project

In this final paragraph the pilot area should describe the future actions. Each expected action should be linked to one or more of the 5 steps, previously presented in the adaptation planning process.

n.	Action	Description
1	Continuous involvement of the Administration	It is essential to continue to pursue a strategy that maintains the synergy between the political, administrative, and technical parts.
2	Continuous risks and vulnerability monitoring	The climatic risks have already been identified, but it will still be important to monitor the trend of the climatic parameters and to discuss with the maintenance offices to understand if there are any variations.
2,3,4,5	SECAP Platform	The SECAP platform is designed to bring citizens closer to the climate issues involving Udine. The tool will allow, thanks to the reports, to increase knowledge of the problems in the area and to increase and improve the adaptation measures of the SECAP. This tool will make it possible over the years to improve the city planning tools.
4	Future public works	Possibility to use the in-depth studies conducted to plan and finance works to improve the resilience of the territory.

4 Union of Municipalities Valle del Savio

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

The way along the process of adaptation 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 needs 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.

n.	Action	Pilot Area Experiences/Results
1	Obtaining high-level support and setting the governance	The Union of Municipalities Valle del Savio is made up of 5 Municipalities of which Cesena city is the leader. For the development of the project, it was therefore necessary to build an effective governance that first of all involved the political level and in particular the Councilor of the Municipality of Cesena for the Environment, European projects and climate, and the Councilor for European projects and territorial planning of the Union. In this way it was possible from the beginning to build a process that considered both territorial needs linked to the mountain part of the pilot constituted by the smallest and most peripheral municipalities, and needs of the urban territory of Cesena, the largest of the plain.
2	Organizing the process leading to the plan	From a technical point of view, the process for leading the definition of the Action plan, was entrusted to the Manager of the Environment Sector of the Municipality of Cesena who is also responsible for the Civil Protection Sector in the Union. An interdisciplinary working group was then set up consisting of the representatives of the following municipal Departments: Urban and territorial planning, Public works and urban green areas, Environment and mobility, Territorial information systems (GIS). For the drafting of the Plan also 2 technical partners were involved outside the ADRIADAPT partnership and in particular: "Energie per la città Ltd", the in-house

		company of the Cesena and the Union that deals with energy policies and which had already drawn up the SEAPs of the individual municipalities of the Union and the SECAP of Cesena, and the research group of the Institute of Biometeorology of the CNR of Bologna.
3	Planning stakeholder engagement	Within the Adriadapt project, the first key stakeholders within the process were the structure of the Valle Savio Union itself. To build a strategy and an effective vision on adaptation, it was considered important to involve different sectors of the administration to build first of all a widespread culture on adaptation and its various technical and strategic declinations. In collaboration with ARPAE and the Green University of Bologna, a stakeholder engagement path was therefore organized which included 3 workshop meetings involving various municipal sectors including the social services, economic development and communication sectors.
4	Identifying strategic goals of the adaptation process	For the definition of the strategic goals, the first reference was the Union's political mandate plan. In addition, the working group coordinated by the Environment and Civil Protection Manager, integrated the more general development objectives with the specific objectives contained in various planning tools among which the main document is certainly the General Urban Plan (PUG) currently being defined in the Cesena and in the mountain municipalities of the Union.

4.2 Step 2. Assessing climate change vulnerability and risks

Climate change will generate a multitude of impacts on the Adriatic communities: extreme events (e.g. heatwaves, extreme precipitation, flooding, wildfire) and slow onset changes (e.g. increase in temperatures, change in precipitation patterns, sea level rise). Understanding present and future vulnerabilities to climate hazards is essential to design responses and actions aiming to strengthen the society's resilience and adaptation capacity. The vulnerability and risk assessment calls for an integrated approach and requires looking at the interfaces with wider areas.

n.	Action	Pilot Area Experiences/Results
1	Identifying and assessing current and future climate hazards	Thanks to the support of the technical partners and in particular of IUAV, ARPAE and CMCC, a specific climate vulnerability analysis was carried out for the territory of the Union. The data and climate projections provided together with the analysis of the main risks associated with climate change were the essential basis for all subsequent reasoning within the Action Plan.
2	Selecting priority impacts of climate change	From the vulnerability analysis carried out by IUAV, the priority impacts of the Union are linked to the issue of hydrogeological instability and water management in the part of the mountain territory, and heat waves in the urban part of the Municipality of Cesena.
3	Assessing vulnerability and risks to climate change	See the comment above point n.1
4	Transferring the results to the visioning and planning steps	Thanks to the support of IUAV, an on-line training course was organized for technicians from various municipal sectors to transfer the methodology and the results of the climatic vulnerability of the territory. To capitalize on the results, the data of the vulnerability analyses were transferred into shape files from the GIS municipal sector in order to create georeferenced maps that are useful tools for reading territorial fragility and support planning processes.

4.3 Step 3. Setting the vision for adaptation

Climate change adaptation is a long-term process, which by 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 adaptation to climate change contributes to an overarching, wider vision for the territory and its community which goes beyond the pure scope of adaptation itself.

n.	Action	Pilot Area Experiences/Results
1	Contributing to the sustainable development of the society	To build a long-term vision, all the technical contributions, data and methodologies developed by ADRIADAPT have been integrated into the Action Plan which was drawn up within the framework of the “Mayors Adapt initiative” by integrating the funds of the European project with funds from the Emilia Romagna Region. In addition to climate and vulnerability analyzes, energy consumption was also analyzed in parallel by Energie per la città ltd (the in-house society of Cesena city) to draw up a complete document that looked at 360-degree sustainable development.
2	Initiating the process for the vision elaboration	To broaden the definition of the vision, discussion tables were also organized with the Civil Protection Department which is currently drafting the new “Union Civil Protection Plan” and updating the “Land Use Regulation” to preserve the territory from landslides and floods in addition to the intertwining with the urban planning sector that are developing the Urban Plan.
3	Co-creating the vision	See the point above.

4.4 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 prioritized 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.

n.	Action	Pilot Area Experiences/Results
1	Choosing the adaptation options	The adaptation actions were chosen starting from the analysis of climate vulnerability and the calculation of emissions underlying the SECAP methodology
2	Assessing the adaptation options	See point above
3	Elaborating the plan	As mentioned above, to design the Action Plan all the technical contributions, data and methodologies developed by ADRIADAPT have been integrated into the Action Plan which was drawn up within the framework of the “Mayors Adapt initiative” by integrating the funds of the European project with funds from the Emilia Romagna Region. Energie per la città ltd elaborated the energy part and the BEI - Basic Emissions Inventory in collaboration with the CNR of Bologna which developed focuses on adaptation actions on the agricultural and forestry sector, completing the analyzes. The plan was therefore drawn up by integrating funds and technical resources. <u>The plan was officially approved by the Union’s Council on 7th April 2021.</u>
4	Funding the plan	The actions of the plan also include an estimate of costs. The Emilia Romagna Region will offers various calls to finance the development actions of the SECAP - Sustainable Energy and Climate Plan, also thanks to the creation of the REGIONAL FORUM FOR CLIMATE CHANGE

4.5 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 a 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.

n.	Action	Pilot Area Experiences/Results
1	Defining foundation elements for the plan implementation	The starting point for the implementation of the Plan is precisely the intersectoral work group that was formed within the Adriadapt project and managed by the environment and civil protection Department. This will be the technical core of governance structure to develop the actions of the plan.
2	Mainstreaming the plan in other instruments in place or to be developed	As described above, the Plan was integrated from the early planning stages with the new Urban Plan, Civil Protection Plan and Land Use Regulation and furthermore in the GIS tools.
3	Monitoring the plan implementation and the adaptation process	“Energie per la città” is responsible for monitoring. The approved Plan will be monitored every 3 years as required by the Mayors Adapt platform.
4	Reviewing the plan	At the end of the monitoring, the new calculation of the AREA is expected, accompanied by an update of the climate data to correct and adapt the actions.

4.6 Future actions beyond the project

In this final paragraph the pilot area should describe the future actions. Each expected action should be linked to one or more of the 5 steps, previously presented in the adaptation planning process.

n.	Action	Description
1	Obtaining high-level support and setting the governance	Official presentation of the Plan to all the Mayors of the Union Municipalities
2	Stakeholders Engagement	Organization of public moments of presentation of the Plan to external stakeholders in the area, in particular businesses, trade associations and citizens
3	Mainstreaming the plan in other instruments in place or to be developed	Demonstration action with the group of civil protection volunteers for the participatory application of the Land Use Regulations within the landslide in the chestnut forest of the Municipality of Verghereto-Unione Valle Savio

5 Municipality of Vodice

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

The way along the process of adaptation 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 needs 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.

n.	Action	Pilot Area Experiences/Results
1	Obtaining high-level support and setting the governance	High-level political support has not been obtained through any formal document, e.g. Covenant of Mayors, but it has been triggered by impacts from extreme events, i.e. urban flooding, which occurred frequently in recent period. The preparation of the Plan, as well as joining the Adriadapt project, has been recognized as an initial step in the adaptation process and thus supported by the local government of Town of Vodice. However, in the light of the local government elections which are happening throughout the final month of the Adriadapt project realization (in May, 2021), the level of support for the prepared Plan from the newly elected representatives of the local government is yet to be seen.
2	Organizing the process leading to the plan	Similarly to some other coastal municipalities along the Adriatic, Vodice has been experiencing extreme weather events with severe consequences increasingly more in the recent period, e.g. urban flooding due to intense precipitation. Efforts from the local government to prevent and mitigate those problems related to climate change and variability has been sporadic, both in time and space, and also to some extent the selected measures had been proven to be a not particularly efficient or adequate. The growing sense of a need for more appropriate measures to above-mentioned problems within the local government, in a combination with the growing

		<p>level of awareness to climate change among the general public, has led to understanding that more systematic and integral approach should be applied. Therefore, the Town of Vodice eagerly joined the Adriadapt project and initiated the development of the Plan, which is their first strategic planning document related solely and specifically to climate resilience issues. In addition, regional government previously in 2015 developed the “Coastal Plan for Šibenik-Knin County”, which addressed in a significant part issues related to climate resilience and helped raising awareness of climate change in Vodice as well.</p>
3	Planning stakeholder engagement	<p>Town of Vodice recognized the importance of the need for integral approach in the process of Plan development and therefore contracted a group of experts with various specialties (urban planners, several types of engineers, biologists, sociologist, etc.). In order to ensure the stakeholder engagement, team of experts have organized a several meetings and workshops with general public and local stakeholders, including a specifically prepared survey questionnaire which aimed at identifying the main impacts and risks related to climate change along with the good approaches and methods perceived by the local stakeholders. Team of experts have also included a tailor-made communication strategy into the Plan in order to ensure good communication of Plan’s findings, and smooth out the implementation.</p>
4	Identifying strategic goals of the adaptation process	<p>Through meetings with the local stakeholders, including a survey questionnaire, several strategic goals have been proposed by stakeholders, such as: coastal development; increasing proportion of a green areas, both on public and private areas; limit urbanization rate and better urban planning; reducing environmental footprint, shift towards a sustainable tourism and agriculture. Based on these findings, including experiences of a local government, combined with the results of an analysis of team of experts, the following main sectors for adaptation has been identified for the Plan, namely sustainable coastal development, strengthening</p>

		resilience for urban flooding, urban heat waves, and wildfires/droughts.
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5.2 Step 2. Assessing climate change vulnerability and risks

Climate change will generate a multitude of impacts on the Adriatic communities: extreme events (e.g. heatwaves, extreme precipitation, flooding, wildfire) and slow onset changes (e.g. increase in temperatures, change in precipitation patterns, sea level rise). Understanding present and future vulnerabilities to climate hazards is essential to design responses and actions aiming to strengthen the society's resilience and adaptation capacity. The vulnerability and risk assessment calls for an integrated approach and requires looking at the interfaces with wider areas.

n.	Action	Pilot Area Experiences/Results
1	Identifying and assessing current and future climate hazards	In recent years, Town of Vodice has experienced frequent and intense urban flooding, as a climate hazard with the most severe consequences, i.e. material damages, which are expected to amplify in the future due to change in precipitation pattern coupled with the sea level rise. Other group of currently significant impacts from weather extremes are wildfires and droughts, and to some extent urban heatwaves, which all can be related to an increase in temperature, which are also expected to amplify in the future. The climate hazard that is currently not very impactful but is expected to pose a significant threat to Vodice in the future is the vulnerability of the coastal zone due to sea level rise, particularly for flooding and damaging of coastal infrastructure.
2	Selecting priority impacts of climate change	Urban flooding, especially in the coastal zone, has been recognized as the most impactful climate hazard in Vodice, and since climate projections for future only increase the risk related to it, it is obvious that impacts from urban flooding should have top priority in the adaptation process. Afterwards in the priority line follow impacts related to temperature increase which are wildfires, droughts and urban heatwaves, respectively. Lastly, impacts related to sea level rise for Vodice area has been labelled as low priority for current period, but with a potential to become the highest priority in the future. In addition, cross-sectoral implications of the above-mentioned impacts have been assessed in the Plan as well.

3	Assessing vulnerability and risks to climate change	<p>In order to determine the vulnerability and risks for climate hazards, team of experts have assessed vulnerability, i.e. local sensitivity, exposure and capacity to adapt, based on analysis of former extreme events; while risks have been determined in relation to climate trends and future projections of a particular climate indicators. Team of experts combined available data and local knowledge to obtain the vulnerability analysis. Vulnerability to urban flooding has been recognized as high, especially in coastal zone (based on runoff coefficients obtained from the surface water flow model) of which is highly sensitive and highly exposed to the weather extremes, i.e. intensive/extreme precipitation episodes, while at the same time capacity to adapt is medium. Future climate change projections related to precipitation and sea level rise have reinforcing impacts on urban flooding so the associated risk is therefore estimated to be very high. Vulnerability to urban heat waves has been identified to vary from low to medium with only certain areas being high, e.g. center of Vodice (based on analysis of urban heat index), while vulnerability to wildfire and drought is estimated to medium on average although it also vary greatly over the hinterland area. Future climate projections of temperature related indices are expected to increase and thus reinforce identified impacts of climate hazards, leading to medium to very high level of risk associated to urban heat waves and medium to high level of risk associated to wildfires and droughts. Vulnerability to sea level rise, i.e. flooding and damage of coastal zone, has been estimated to be low along the coastline except in the center of Vodice where is high (based on analysis with wave agitation model). Future climate change projections of sea level rise are reinforcing impacts, so the associated risk is therefore estimated to vary from medium to very high, respectively.</p>
4	Transferring the results to the visioning and planning steps	<p>Within the Plan besides the comprehensive and detailed elaboration of the vulnerability analyses there is a segment in which key messages for each examined sector is given as a summary for a wide audience, which is intended for use in the visioning and selection the adaptation approach and measures.</p>

5.3 Step 3. Setting the vision for adaptation

Climate change adaptation is a long-term process, which by 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 adaptation to climate change contributes to an overarching, wider vision for the territory and its community which goes beyond the pure scope of adaptation itself.

n.	Action	Pilot Area Experiences/Results
1	Contributing to the sustainable development of the society	The Plan envisions sustainable development of Vodice, by proposing adaptation measures which aim at mitigation of the identified risks to climate hazards (urban flooding firstly), but also promoting best environmental practices (e.g. green infrastructure, public/private green areas) when coping with impacts from analyzed weather extremes, and fostering long-term sustainable practices in dominant nature resources exploiting business sectors (e.g. off-season tourism, water-not-intensive agriculture).
2	Initiating the process for the vision elaboration	Team of experts, that are mandated for the preparation of the Plan, have been given a goal to propose a set of best available adaptation measures which should in return enhance the climate resilience of Vodice and complement the existing development vision that has been developed through a current urban plan and development strategy.
3	Co-creating the vision	Plan's recommended adaptation measures are covering sectors of coastal and urban flooding, urban heatwaves, wildfires and droughts, and can be categorized into several groups such as technical, planning and societal measures. These recommended adaptation measures will surely contribute to strategic goals, strengthening of climate resilience and sustainable development of Vodice, but will also alternate the existing development vision to some extent and influence local society and their businesses to some extent. Therefore the crucial step toward the implementation phase is the approval of adaptation measures by the local government and integration of them into planning documents,

		i.e. particularly the ones that are required to be integrated into urban plan, which all require wide stakeholder involvement.
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5.4 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 prioritized 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.

n.	Action	Pilot Area Experiences/Results
1	Choosing the adaptation options	Team of experts has explored available relevant adaptation options and narrowed them down to list of adaptation measures which could be labelled as plausible set of best available techniques and best environmental practices for Vodice area and their major climate challenges. Adaptation options cover tackle predominantly major sectors, which are urban flooding, urban heat waves, wildfires and droughts, coastal flooding, although there are handful of cross-sectoral options. Used adaptation options are listed as follows: integrated land use planning, urban storm water management, nature based solutions, water recycling, groundwater management, integrated coastal zone management, coastal infrastructure management, beach nourishment, green spaces in urban areas, adaptation of transport infrastructure and services, integrated fire management, forest management, agricultural areas management, knowledge sharing and learning platforms, early warning systems, adaptation governance. It noticeable that these adaptation options include various categories from purely engineering hard structural to soft societal ones.
2	Assessing the adaptation options	Assessment of adaptation options according to their suitability to a site-specific context and effectiveness has been obtained quantitatively and qualitatively in the Plan, depending on the particular adaptation option, which resulted in a clear identification of suitable measures or at least to narrowing

		<p>down to a finite set of a viable adaptation measures. The Plan strongly advocates the use of so-called nature based solutions which promote measures that mimic the natural cycle, e.g. measures for urban storm water management such as bio retention ponds, and rain trenches or for urban heat waves urban green canopy. In addition it is important to notify that adequate mix of these “green infrastructure” measures with traditional “grey” structural measures, combined with planning and societal measures will likely provide best effectiveness.</p>
3	Elaborating the plan	<p>Adaptation measures recommended for Vodice, for their site-specific context, are listed here as follows: develop urban storm water management plan, develop urban storm water management concept design with priority list and preliminary design for main elements of the system, integrate sustainable urban design elements into urban storm water system and measures for urban heat waves, prepare set of planning measures for integration into urban plans, prepare set of societal and management measures for integration into local policy instruments related to management of urban runoff, groundwater re-charge, rainfall recycling, prepare set of integrated land use planning measures in for of management plans for various coastal segments, measures for promoting sustainable tourism, set of structural measures for coastal infrastructure management, development of cadaster of urban green areas, management plan for urban green areas, set of local policy instruments for mitigation of urban heat islands towards private property owners, set of measures for transport infrastructure and services, integrated fire management plan, forest management plan, set of policy instruments towards promotion of specific agricultural areas and practices, early warning system for climate hazards. In the Plan adaptation measures are described in detail but also listed in a short table-like format for easier use in later phases, i.e. implementation and M&E.</p>
4	Funding the plan	<p>This Plan has listed some of the available options for financing adaptation measures.</p>

5.5 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 a 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.

n.	Action	Pilot Area Experiences/Results
1	Defining foundation elements for the plan implementation	According to Plan a designated coordinating committee should be established within the local government of Vodice, ideally the same team that has been included in the Plan development phase, which should preferably include some other local stakeholders as well, e.g. local business sector and civil society, and when needed supported by scientific advisors. This committee would have mandate to implement the adaptation measures provided by the Plan, upon its approval by the local government.
2	Mainstreaming the plan in other instruments in place or to be developed	One of the main prerequisites for this Plan to finally reach implementation phase is integration of its adaptation measures into urban plan and policy instruments.
3	Monitoring the plan implementation and the adaptation process	Monitoring of an adaptation process is another important step in the implementation phase, for which is also mandated the above-mentioned Vodice's climate adaptation committee. As suggested in the Plan, the committee should meet up at least once a year to report on monitoring the progress of Plan's implementation and periodically to evaluate the success of implemented measures and upon findings to initiate the necessary updates in the Plan.
4	Reviewing the plan	Upon findings of monitoring and evaluation, provided by the climate adaptation committee, the need for reviewing and updating the Plan shall be initiated.

5.6 Future actions beyond the project

In this final paragraph the pilot area should describe the future actions. Each expected action should be linked to one or more of the 5 steps, previously presented in the adaptation planning process.

n.	Action	Description
1	Adopting the Plan by the local government	<p>Prior to the implementation, the Plan has to be accepted and adopted by the newly elected representatives of the local government (local elections were during May 2021). In the line with this action there will be a presentation of the Plan for the local stakeholders in the upcoming months.</p> <p>This action is linked with the step 3 - Setting the vision for adaptation.</p>
2	Setting the financial framework.	<p>Upon adoption of the Plan, local government shall prepare the financial framework for the implementation of the Plan.</p> <p>This action is linked with the step 4 - Assessing options and designing the adaptation plan.</p>
3	Establishing the management framework and incorporation of the Plan's adaptation measures into local policy instruments and planning documents.	<p>Further, for the implementation there is a need for a designated coordinating committee, which shall be established within the local government capacity and shall have a mandate to implement the Plan. As an initial action, the Committee shall ensure incorporation of the Plan's measures into local policy instruments and urban plan.</p> <p>This action is linked with the step 5 - Implementing, monitoring, and evaluating the plan.</p>

Conclusions

The planning process is **flexible and non-linear**. It should be designed on vary situations and realities, because each part of a studied territory may be at **different stages of planning** (both in terms of planning for climate change and other integrated dimension of territory/city planning). The report makes this evident: the methodological framework (coming from the guidelines and used parallely in this report) may be used **for the whole planning process or only for a few steps** by different local authorities, according to the needs or to the local level of planning. The territories and the cities have different planning structures, authorities, administrative processes, technical and financial capacities and resources. Therefore, the use of this framework has to be flexible, **depending on local capacity and need**.

The pilot areas in the project and probably in other European contexts/projects present different level within the planning process for the adaptation. Some of them have already an advanced status even before the project and they have done a further step. Some other started from the beginning of the process. This report shows **what the pilot areas have done** and **what steps they have focused on the most**. Some steps will be developed after the project.

In general, the **European projects** are very important because they **enhance and implement the process already begun** or [make the base for the beginning of new ones](#).

This report is a starting point for the Adriatic region's communities to consider and review adaptation strategies, policies and actions. From the experiences gathered in this report, the five pilot areas and the nearby territories can furtherly develop their climate change adaptation planning processes. Moreover, the project has created a network useful for new knowledge and experiences exchange.