

Guidelines for the Application of the SEA to Joint SECAP

Final Version of 30/04/2021

Deliverable Number 4.2.1



| | |
|----------------------------|--|
| Project Acronym | Joint_SECAP |
| Project ID Number | 10047506 |
| Project Title | Joint strategies for Climate Change Adaptation in coastal areas |
| Priority Axis | 2 |
| Specific Objective | 2.1 |
| Work Package Number | 4 |
| Work Package Title | Definition and implementation of Joint Actions for Climate Change Adaptation Plans |
| Activity Number | 4.2 |
| Activity Title | Preliminary Strategic Environmental Assessment |
| Deliverable number | 4.2.1 |
| Deliverable Title | Guidelines for the Application of the SEA to Joint SECAP |
| Partner in Charge | PP4 Municipality of Pescara |
| Partners involved | All |
| Status | Final |
| Distribution | Public |

Summary

| | |
|--|----|
| List of abbreviations and terms | 3 |
| Executive Summary..... | 4 |
| CAP. 1 Climate changes in the SEAs..... | 5 |
| 1.1 Climate changes and adaptation | 5 |
| 1.2 Supranational policies for adaptation to climate change..... | 6 |
| 1.3 Element of Innovation – Key challenges..... | 8 |
| 1.4 Supranational normative framework..... | 9 |
| CAP. 2 SEAs – phases and documents of the process..... | 10 |
| 2.1 Description of the main steps..... | 10 |
| 2.2 Orientation and setting..... | 11 |
| 2.3 Elaboration and editing..... | 15 |
| CAP. 3 The integration of climate change adaptation strategies into the SEA..... | 17 |
| 3.1 Construction of the zero scenario..... | 17 |
| 3.2 Main objectives e coherence analysis | 18 |
| 3.2.1 External coherence analysis..... | 21 |
| 3.2.2 Internal coherence analysis | 23 |
| 3.3 Identification of actions and development of the participatory process | 25 |
| 3.4 Selection of actions and optimal scenario | 28 |
| CAP. 4 Increasing Awareness | 32 |
| 4.1 Consultation on the scoping document..... | 32 |
| 4.2 Consultation on joint actions | 33 |
| CAP. 5 Monitoring..... | 35 |
| 5.1 Monitoring indicators | 35 |
| 5.2 Joint SECAP indicators..... | 37 |

List of abbreviations and terms

CoM - Covenant of Mayors for Climate and Energy

COM - Communication from the European Commission

EU – European Union

IPCC - Intergovernmental Panel on Climate Change

Joint SECAP - Joint strategies for Climate Change Adaptation in coastal areas

PAESC - Piano d'azione per l'energia sostenibile e il clima (= SECAP)

PNACC - Piano Nazionale di Adattamento ai Cambiamenti Climatici

SEA - Strategic Environmental Assessment

SECAP - Sustainable Energy and Climate Action Plans

Executive Summary

One of the objectives of the Project is to combine the construction of the scenario analysis with the Strategic Environmental Assessment (SEA) process. This Deliverable traces the phases of the process as provided for in Directive 42/2001 / EC, art.5, point 4 of and better defined in the national transposition rules (ie in Italy, Legislative Decree 152/06, art.13, point 1) and contains preparatory guidelines for the drafting of the next Environmental Report that will be drawn up in a second phase after the project closes. The proposed path stems from the consideration that the Joint SECAP, even if it contains climate adaptation and mitigation actions, does not in itself guarantee the absence of negative interactions with the environmental matrix. Although presumably for most of the actions to be assessed individually or in an integrated manner, the potential impacts may actually result in a quantification of the positive effects, the SEA applied to the Action Plan can be a useful tool to avoid negative impacts and help correct them. Therefore, the objective of these Guidelines is to optimize the forecasts of the Action Plan, or to solve the problems of cumulative effects, large-scale impacts, intersectoral and indirect impacts, ensuring the sustainability of the environmental matrix of each target area through alternative and realistic solutions.

This step is particularly important for the efficiency of the procedure as it ensures that the assessment is focused only on the relevant issues and the likely significant impacts of the Plan in question.

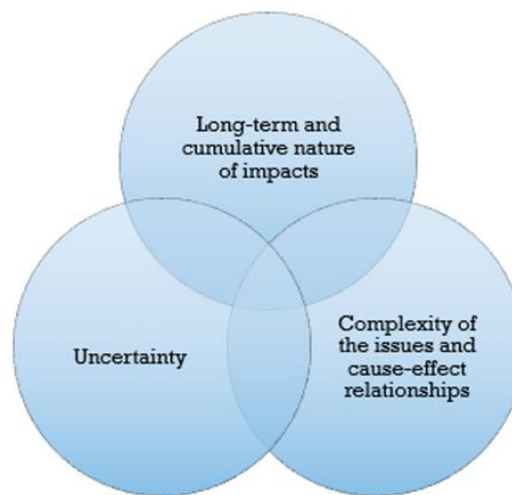
CAP. 1 Climate changes in the SEAs

1.1 Climate changes and adaptation

The frequency and intensity with which the negative effects of climate change manifest themselves from the global to the local scale, have imposed the priority on world political agendas of investing in prevention and adaptation measures against damage to people, urban settlements and the landscape.

The mathematical models developed by the scientists agree that the trend of rising global temperatures will continue in the medium term, since the residence time of climate-altering gases in the atmosphere is, depending on the compound, between the tens and the hundreds of years. In other words, even if we managed to intervene at the root of the phenomenon as desirable (for example by eliminating CO₂ emissions in the atmosphere), the beneficial effects of our virtuous choices today would only begin to be measured in many years. For this reason, the necessary mitigation strategies must be accompanied by necessary adaptation actions to deal with the negative effects and reduce vulnerability on our cities.

It is worth noting that the premise on which the concept of climate change rests is given by the substantial complexity inherent in the topic, substantially due to the cumulative and long-term nature of the impacts, and to the complexity of the cause-effect relationships.



The demand for adaptation therefore requires nothing more than developing the ability to be resilient by changing the cultural reference model, even before the economic model. It means renouncing the primacy of man over nature, accepting the condition of being part of a complex habitat in continuous evolution.

Only by acknowledging the complexity of the phenomena and accepting margins of uncertainty and / or approximation as a condition of method, it is possible to better interpret the phenomena and apply the logic of climate adaptation.

1.2 Supranational policies for adaptation to climate change

EU Adaptation Strategy

The new EU climate change adaptation strategy aims to achieve a climate resilient Europe by 2050, through four strategic objectives:

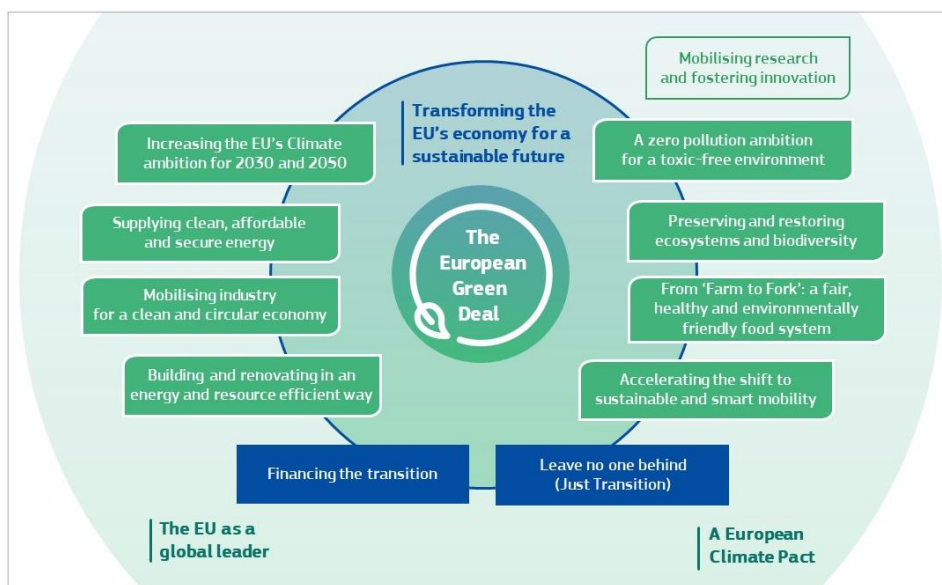
- I. *Smarter adaptation*: improving knowledge and disseminating results. Adaptation actions must be based on solid “open data” and must be made accessible to all potential stakeholders: from local authorities, to authorities with environmental expertise, to companies, to individual citizens.
- II. *More systemic adaptation*: support for policy development and climate risk management at all levels. Climate change will have repercussions at all levels of society and in all sectors of the economy, so adaptation actions must be systemic, with the following cross-cutting priorities:
 - integrate adaptation into macroeconomic policy;
 - provide natural solutions for adaptation;
 - provide for local adaptation actions.
- III. *Faster adaptation*: the effects of climate change are already evident across the planet and immediate adaptation responses are needed.
- IV. *Global adaptation*: adaptation actions must be multi-scalar: from the international to the local level. For this reason, planned and targeted policies and economic resources are needed.

New Green Deal EU

Actions for climate adaptation are the heart of the "New Green Deal", the recent strategy developed by the European Commission to ensure that our continent is the first to reach zero climate impact by 2050.

The New Green Deal is supported by adequate financing instruments developed by the EU, which should ensure the effective operation of the proposed actions in the years to come:

- investments in environmentally friendly technologies;
- I support industry in innovation;
- incentives for sustainable mobility, both public and private;
- decarbonisation of the energy sector;
- improving the energy efficiency of buildings;
- international collaboration on environmental issues.



1.3 Element of Innovation – Key challenges

As well specified in some methodological documents produced by the European Union¹, the attention to climate change in SEA procedures leads to addressing various aspects of complexity including: the long term in which climatic impacts are measured and their cumulative nature; the complexity of the phenomena due to the mutual interaction of exposure and vulnerability factors that contribute to determining the impact; the substantial uncertainty in the definition of alternative scenarios due to the impossibility of exhaustively controlling all the possible variables.

From a methodological point of view, it should also be emphasized that environmental analysis integrated with climate change adaptation strategies requires the use of processes and tools, which are still being tested and developed.

The following sheet briefly illustrates the new methods deriving from the integration into the SEA of the assessment of climate impacts and of the mitigation and adaptation strategies.

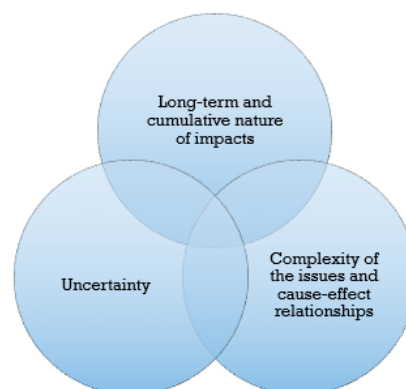
Key challenges to tackle climate changes and biodiversity in SEAs

ELEMENTS OF INNOVATION

The EU Guidance on integrating climate change and biodiversity contains some useful tips on tackling the challenges of climate change and biodiversity in SEAs

| Key challenges to considering climate change and biodiversity in SEA | TIPS |
|--|--|
| Long-term and cumulative nature of impacts | <input type="checkbox"/> Avoid 'snapshot' analyses and consider trends with and without the proposed PP |
| Complexity of the issues and cause-effect relationships | <input type="checkbox"/> Analyse impacts of proposed PP on the key climate change and biodiversity trends and their drivers <input type="checkbox"/> Work with worst-case and best-case scenarios |
| Uncertainty | <input type="checkbox"/> Acknowledge assumptions and limitations of current knowledge <input type="checkbox"/> Base your recommendations on the precautionary principle <input type="checkbox"/> Prepare for adaptive management |

– KEY CHALLENGES –



(References: EU Guidance on integrating climate change and biodiversity)

¹ EU Guidance on integrating climate change and biodiversity in SEAs: [concernente https://ec.europa.eu/environment/eia/pdf/SEA%20Guidance.pdf](https://ec.europa.eu/environment/eia/pdf/SEA%20Guidance.pdf)

1.4 Supranational normative framework

This paragraph lists the main supranational plans, programs, guidelines and regulations concerning the environment and climate change, with particular regard to resilience strategies and their integration into the SEA procedure.

European Community

- Directive 2001/42 / EC of the European Parliament and of the Council of 27 June 2001 concerning the assessment of the effects of certain plans and programs on the environment
- Communication from the European Commission COM (2013) 216 of 16/04/2013, EU strategy for adaptation to climate change
- Guide of the European Commission for SEA applied to plans and programs for integrating actions on climate change and biodiversity, published in 2013, "Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment"
- Communication from the European Commission COM (2019) 649/19 of 11/12/2019 on the "European Green Deal" - A European Green Deal 2050 - and its annex to COM (2019) 649 of 11/12/2019
- Communication from the European Commission COM (2021) 82 of 24/02/2021, "Shaping a climate resilient Europe - The new EU strategy for adaptation to climate change"

Other supranational institutions

- Climate Adapt: <https://climate-adapt.eea.europa.eu/>
- Covenant of Mayor: <https://www.covenantofmayors.eu/en/>
- Intergovernmental Panel on Climate Change (IPCC): <http://www.ipcc.ch>

CAP. 2 SEAs – phases and documents of the process

2.1 Description of the main steps

The following sheet reports the phases of the SEA, specifying for each the aspects to be taken into consideration in order to integrate issues related to climate change into the Plan.

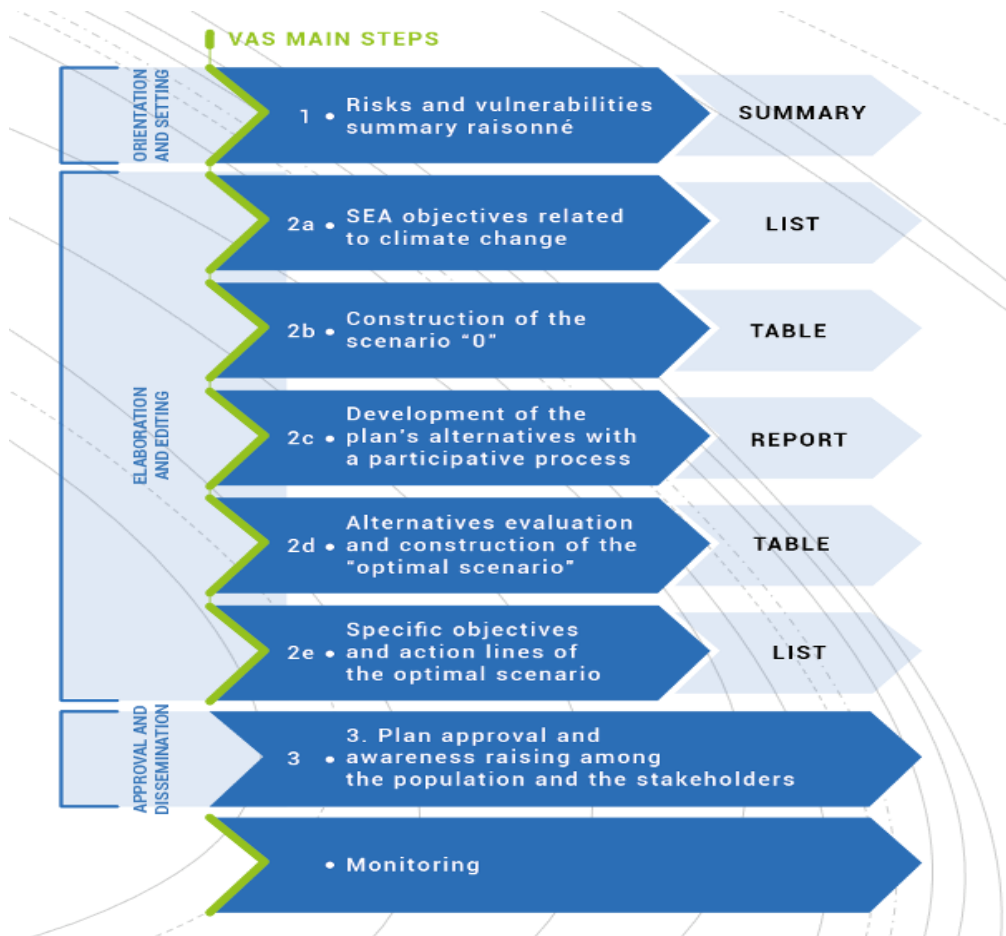
INTEGRATION OF ADAPTATION STRATEGIES TO CLIMATE CHANGES IN THE SEA PLAN

DESCRIPTION OF THE MAIN STEPS

The following table contains: the list of the main steps of the SEA, their description, the expected deliverables and a list of the contents concerning climate changes that should be considered in each step.

| STEPS | DESCRIPTION | DELIVERABLES | INTEGRATION OF CLIMATE CHANGES ISSUES IN THE SEA PLAN |
|-----------------------------------|--|----------------------|--|
| SCREENING | Verification of eligibility of plans and programmes | Report | In this step SEA should also consider: <ul style="list-style-type: none"> - How the P/P can affect/be affected (negative or positive) by the climate change issues. - How other P/P could generate significant environmental impacts on the plan. |
| SCOPING | Definition of the conceptual and operational framework for the preparation of the environmental assessment | Report | SEA should carry on the following context analysis: <ul style="list-style-type: none"> - Context analysis of climate change policies and the main objectives set at national and international level; - Identification of environmental stakeholders; - Development of climate change objectives |
| Environmental REPORTING | Identification, description and assessment of the significant effects of plan on the environment | Environmental Report | SEA should report how climate change issues have been identified and managed. In particular SEA should contain at least: <ul style="list-style-type: none"> - Description of the current environmental conditions & how they would evolve without the plan: "scenario 0"; - Description of P/P relationship with other plans & programs about climate change issues (external coherence analysis); - Development of alternative plan options related with adaptation; - Development of the best possible environmental conditions: "optimal scenario". |
| APPROVAL AND DISSEMINATION | Plan approval and awareness raising among the population and the stakeholders | SEA Plan | SEA should also: <ul style="list-style-type: none"> - Summarize how environmental issues were treated in the environmental report. - Report how submissions/consultations of stakeholders were taken into account. - Explain the reasons for choosing the plan as adopted, comparing it with other possible alternatives; - Select the monitoring measures. |
| MONITORING | Periodic monitoring of the objectives set out in the plan | Reports | SEA should verify whether the adaptation climate change measures implemented by P/P are effective. |

The diagram below summarizes briefly the various procedural steps (steps) with the activities and expected results for the application of the SEA to the Joint SECAP project.



2.2 Orientation and setting

Climate change triggers, directly or indirectly, adverse events that can have multiple and diversified impacts on human health, ecosystems, landscape, man-made territory and infrastructural networks, producing significant economic and social damage.

Risk assessment, therefore, is an indispensable element of initial knowledge to develop adequate adaptation policies.

The screening phase leads to the construction of a context with the following levels of information and analysis, documented in the Summary Report (D.3.2.2):

- the policies in place at various levels of scale;
- the phenomena to be countered;
- the assets and interests to be protected.

SUMMARY

Vulnerability and risk assessment

8

1. Risks and vulnerabilities summary raisonné

The Risk and vulnerability summary raisonné aims to briefly reports the work previously done during the vulnerability and risk assessment.

- M1-Preparing the risk assessment
- M2-Developing impact chains
- M3-Identifying and selecting indicators
- M4-Data acquisition and management
- M5-Normalization of indicator data
- M6-Weighting and aggregating of indicators
- M7-Aggregating risk components to risk
- M8-Presenting the outcomes of your risk assessment
- Summary

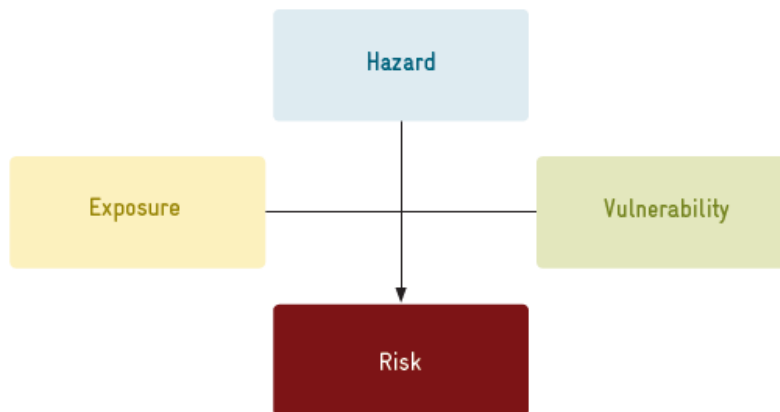
Preparing the risk assessment

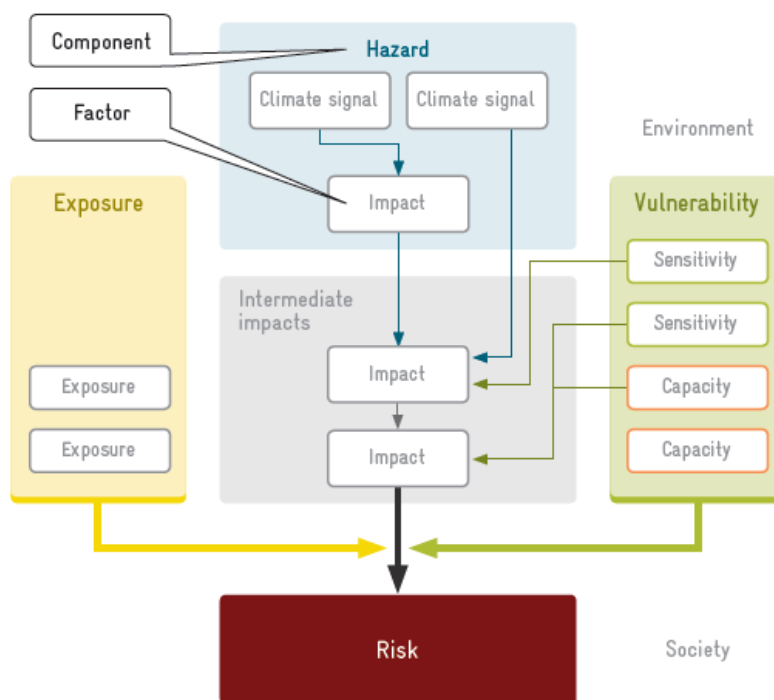
In order, the screening phase requires a preliminary reconstruction of the regulatory framework that offers the tools for intervention in the field of combating climate change, at all levels of assessment, financing, action, monitoring, participation ect. It requires the recognition of strategies, policies, plans and measures concerning the matter of combating climate change.

| PP..... Name Area TARGET..... | | | | | | |
|---------------------------------------|------|---------------------|-------------------------|---------------------------|----------------|---------|
| Existing knowledge (Module 1; Step 1) | | | | | | |
| | Name | Date of publication | Scope / Sector of study | Key information / Impacts | Knowledge gaps | Remarks |
| Existing policies/plans | | | | | | |
| National/Supra-regional | | | | | | |
| | P1 | Policies/plans 1 | | | | |
| | P2 | Policies/plans 2 | | | | |
| Regional | | | | | | |
| | Pn. | Policies/plans n. | | | | |
| | Pn. | Policies/plans n. | | | | |
| Local | | | | | | |
| | Pn. | Policies/plans 1 | | | | |
| | Pn. | Policies/plans 2 | | | | |

Developing the impact chain

For each of the climatic risks, impact chains are developed with the aim of understanding, rationalizing and prioritizing the factors that govern the risk according to cause-and-effect chains.





2.3 Elaboration and editing

The "scoping phase" constitutes the heart of the environmental assessment, has the purpose of defining the scientific, operational and methodological outlines through which the Strategic Environmental Assessment of the Plan will be elaborated and ends with the drafting of the scoping report (D.4.2.2).

The Scoping Report provides:

- methodological clarifications regarding the participatory process adopted;
- procedural instructions relating to the involvement of stakeholders and authorities with environmental responsibilities;
- analytical indications on the climatic scenarios and the expected impacts from the implementation of the Plan, as well as on the reference context and the indicators to be used.

The next chapter will illustrate the individual scoping activities in the method.

In the drafting phase of the Scoping Report, the involvement of the Authorities with competence in environmental matters is essential, in order to share the level of detail and the scope of the information to be produced for the final processing of the Environmental Report.

| | | Needs / interests in VA | Functions | Resources | Available time | Potential conflicts of interest |
|--------------------|---------------------------|-------------------------|-----------|-----------|----------------|---------------------------------|
| Stakeholder | <i>Stakeholder (name)</i> | | | | | |
| | Stakeholder 1. | | | | | |
| | Stakeholder 2 | | | | | |
| | Stakeholder n. | | | | | |

CAP. 3 The integration of climate change adaptation strategies into the SEA

3.1 Construction of the zero scenario

The "Zero Scenario" assumes the evolution of climatic phenomena and the risks associated with them over time over an established time horizon (2030), considering a theoretical situation in which no counteraction is implemented.

Scenario zero is constructed by examining and comparing the following aspects:

- historical series of climatic data of the target area;
- temperature increase of the target area and comparison with wider domains;
- risk levels that emerged in the "Risk and vulnerability summary";
- climate projections to 2030 (Copernicus and PNACC models).

For climate projections you can use the Copernicus Climate Service which provides climate projections at local level with the highest spatial resolution.

Table 1 is the tool that allows to summarize the estimated risk up to 2030, where the risk levels are reported according to three classes: low, moderate, high. For future changes in the intensity and frequency of risk, four classes are used to summarize the projections: growth, decline, no change, and no forecast.

Tab. 1. Risk estimate up to 2030 where the risk levels are reported according to the following classes: !: Low; !!: Moderate; !!!: High. The expected changes and frequency are classified as follows: +: Growth; -: Decline; =: no change; ? = I don't know. The reliability of the estimate has the following three classes: *: Low; ** Moderate; *** High.

| Risk of damage for the Area Target | Indicator | Risk Level | Change in intensity and frequency | Estimation of risk development in the future |
|---|--|------------|-----------------------------------|---|
| i.e. “Risk for human health, agriculture and energy production due to drought” | Denomination indicator (Rif. M2). i.e. % of financial resources for hydraulic infrastructures | !;!!;!!!; | +; -; =; ? | Brief description making explicit the reliability of estimation |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

3.2 Main objectives e coherence analysis

The general objectives of the P / P derive from an emergence process that starts from the context analysis (WP 3.1) and can be reported in the form of a list in the table below.

| TABELLA 2.a_1 – Lista degli obiettivi generali del piano | |
|--|--|
| SETTORI (annex 1) | OBIETTIVI GENERALI DEL PIANO Gli obiettivi sono la <u>dichiarazione di ciò che il P / P intende raggiungere</u> |
| 1. Per <u>esempio</u> <i>Water</i> | (i.e. 1.1 Ensuring water demand) |
| | (i.e. 1.2 Development <u>grainage and traitment of water</u>) |
| 2. Per <u>esempio</u> <i>Energy</i> | (i.e. 2.1 Ensuring energy demand |
| | (i.e.2.2 Development <u>renovable sources</u>) |
| <u>i.e.</u> | |
| | |
| | |
| | |

Each objective can be associated with a sector, following as an example those indicated in the Covenant of Mayors document, “Annex V - Adaptation sectors”.

Annex V. Adaptation sectors

| Sector | Description |
|--|--|
| Buildings | Refers to any (municipal/residential/tertiary, public/private) structure or groups of structures, surrounding spaces, permanently constructed or erected on its site |
| Transport | Includes road, rail, air and water transport networks and related infrastructure (e.g. roads, bridges, hubs, tunnels, ports and airports). It comprises an extensive range of both public and private assets and services and excludes all related vessels, vehicles (and related parts and processes) |
| Energy | Refers to the energy supply service and related infrastructure (generation, transmission and distribution networks, all energy types). It includes coal, crude oil, natural gas liquids, refinery feedstocks, additives, petroleum products, gases, combustible renewables and waste, electricity and heat |
| Water | Refers to the water supply service and related infrastructure. It also covers water use (e.g. by households, industry, energy production, agriculture, etc.) and the (waste, rain) water management system that includes sewers, drainage and treatment systems (i.e. the process to render waste water fit to meet environmental standards or other quality norms, as well as to cope with excess rain or storm water) |
| Waste | Includes activities related to the management (including collection, treatment and disposal) of various forms of waste, such as solid or non-solid industrial or household waste, as well as contaminated sites |
| Land use planning | Process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans or regulations that describe the permitted or acceptable uses |
| Agriculture & forestry | Includes land classified / designated for agriculture & forestry use, as well as organisations and industries linked to creation and production within and surrounding the boundaries of the municipality. It includes animal husbandry, aquaculture, arboriculture, beekeeping, horticulture and other agriculture & forestry management and services in the area |
| Environment & biodiversity | Environment refers to green and blue landscapes, air quality, including urban hinterland. Biodiversity refers to the variety of life in a specific region, measurable as the variety within species, between species, and the variety of ecosystems |
| Health | Refers to the geographical distribution of the dominance of pathologies, information indicating the effect on health (biomarkers, decline of fertility, epidemics) or well-being of humans (fatigue, stress, post-traumatic stress disorder, death etc.) linked directly (heat waves, droughts, floods, etc.) or indirectly (water quality and availability, genetically modified organisms, etc.) to the quality of the environment. It also includes the health care service and related infrastructure (e.g. hospitals) |
| Civil protection & emergency | Refers to the operation of the civil protection and emergency services: by or on behalf of public authorities (e.g. civil protection authorities, police, fire-fighters, ambulance, paramedic and emergency medicine services) and includes local disaster risk reduction and management (i.e. capacity building, coordination, equipment, emergency planning etc.) |
| Tourism | Refers to the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited |
| Education | Refers to a variety of educational providers, schools, colleges, universities, organisations, agencies, businesses or form of national, regional or local government that have the agreement, contract, role, responsibility and purpose of providing a form of education to members of the public |
| ICT (Information & communication technologies) | Refers to different types of communications networks and the technologies used in them. The ICT sector combines manufacturing and services industries whose products primarily fulfil or enable the function of information processing and communication by electronic means, including transmission and display |

43

ANNEX 1

March 2020



Reporting Guidelines

Annex V. Adaptation sectors

March 2020

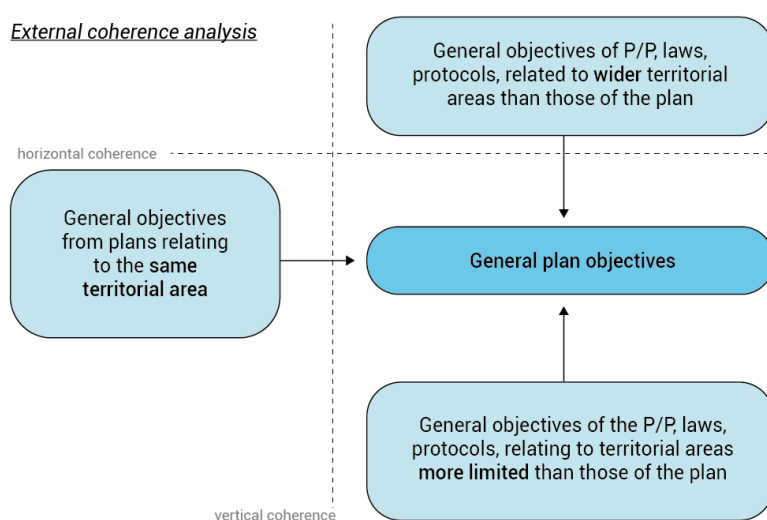
In this phase, the Strategic Environmental Assessment procedure, aimed at managing climate risk, requires a double analysis of coherence (internal and external) of the objectives to be achieved.

The proposed method consists of two phases: 1) External coherence analysis; 2) Internal coherence analysis. For each phase the following tools are proposed:

- an information note that briefly describes the consistency analysis (INFO);
- an example template (TEMPLATE);
- the instructions for filling in the template (ISTRUCTION).

3.2.1 External coherence analysis

The main purpose of the External Coherence Analysis is to guarantee the connection with pre-existing planning or programming tools, of the same or different level. The analysis is conducted by identifying the general objectives of the PP and comparing them with the objectives of the upper/lower floors listed in the “Context analysis” (WP 3.2).



The objectives of the plan / project are the specification of what it is intended to achieve through its forecasts and can be classified by sectors of adaptation, which for methodological homogeneity are the same as those indicated in the "Covenant of Mayor" (see Annex V - Sectors of adaptation).

In the analysis of external coherence, it is possible to distinguish two types of coherence:

- "vertical coherence", in which the objectives of the PP are compared with those relating to wider or more limited territorial areas;
- "horizontal coherence", in which the objectives of the PP are compared with those of the plans relating to the same territorial area.

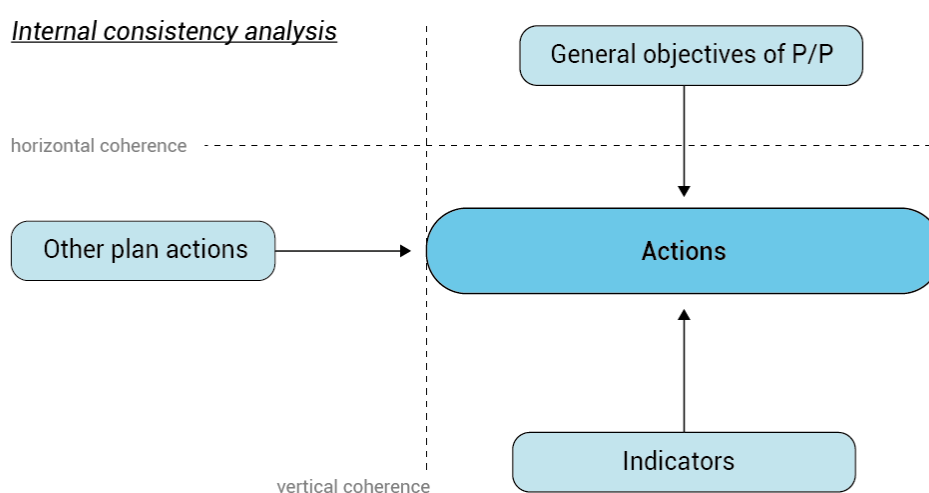
| EXTERNAL COHERENCE ANALYSIS | | | | | |
|------------------------------|---|--|-----------------------------------|-----------------------------------|-----------------------------|
| Objectives | | Vertical Coherence | | | Horizontal Coherence |
| Sectors | General Objectives of P/P (table 2.a_1) | Coherence with European programme | Coherence with National programme | Coherence with Regional programme | Coherence with Sector plans |
| i.e water | Objective 1 | ✓ | – | ✓ | ✓ |
| | Objective 2 | X | X | ✓ | ✓ |
| i.e energy | Objective 3 | ✓ | – | – | X |
| | Objective 4 | ... | ... | ... | ... |
| i.e ... | Objective ... | ... | ... | ... | ... |
| Summary Vertical Coherence | | Brief summary about the Vertical Coherence ... | | | |
| Summary Horizontal Coherence | | Brief summary about the Vertical Coherence ... | | | |

Below are the instructions for filling out the template:

1. Identify the general objectives within the P / P being evaluated and report them in the corresponding column of the table ("General objectives of P / P").
2. Group the general objectives into significant sectors and fill in the "Sectors" column. Some examples of significant sectors can be found in the "Annex V - adaptation sectors" of the Covenant of Mayor.
3. Compare the general objectives of the P / P being analyzed with the objectives of the plans identified in the context analysis and complete the table by inserting the following symbols: " ✓ " to indicate that there is consistency; " X " to indicate the lack of consistency; " – " to indicate indifference.
4. Enter a brief description of the results of the vertical and horizontal coherence analysis in the two lines at the bottom of the template. Any comments on particular issues raised during the comparison can also be included in this field.

3.2.2 Internal coherence analysis

The internal coherence analysis aims to ensure coherence between the specific objectives of the PP and the actions proposed to achieve them. This analysis makes it possible to verify the existence of contradictions within the "optimal scenario". Specific indicators are used to measure and monitor the effectiveness of the proposed actions, selecting them from those identified for risk and vulnerability analysis (M1-M8).



The objective of the following matrix is to analyze the interrelationships between the plan objectives and the planned actions, verifying their consistency. One or more indicators are attributed to each action.

| INTERNAL COHERENCE ANALYSIS | | | | | | |
|-----------------------------|---------------|---|---|---|---|---|
| SECTORS | OBJECTIVES | | | | | |
| i.e water | Objective 1 | ✓ | - | X | - | - |
| | Objective 2 | - | - | X | ✓ | - |
| i.e energy | Objective 3 | - | X | - | - | - |
| | Objective 4 | - | - | X | - | - |
| i.e ... | Objective ... | ✓ | - | X | - | ✓ |

| CATEGORIES | Action 1 | Action 2 | Action 3 | Action 4 | Action ... | INDICATORS |
|------------|----------|----------|----------|----------|------------|---------------|
| | i.e ... | | | | | |
| | ✓ | - | - | - | ✓ | Indicator 1 |
| | ✓ | - | - | - | - | Indicator 2 |
| | - | - | ✓ | X | - | Indicator 3 |
| | - | ✓ | - | - | - | Indicator 4 |
| | - | ✓ | - | - | - | Indicator ... |

| | |
|-----------------------------------|--|
| Summary Internal Coherence | Brief summary about the Internal Coherence ... |
|-----------------------------------|--|

Below are the instructions for filling out the template:

- Report the general objectives within the matrix, in the corresponding rows of the table (objectives) with the relative grouping in sectors. The same objectives and sectors identified in the external consistency analysis can be reported.
- Identify the plan actions (single or grouped according to their homogeneity) and report them in the corresponding column of the table (actions).
- Compare the general objectives of the plan with the actions and complete the table by inserting the consistency assessment. Use the symbols: "v" to indicate that there is consistency; " X " to indicate that there is no consistency; "-" to indicate indifference.
- Report within the matrix the indicators capable of measuring consistency. You can use eg. the indicators identified in the "Vulnerability and Risk Assessment" analysis (WP_3.2.2). Some examples of indicators can also be found in the "Annex VI - sample adaptation indicators" of the Covenant of Mayor (see the "Annex" section at the end of this document).
- Compare the actions of the P / P with the indicators and complete the table.

- Insert a brief description that summarizes the results of the vertical and horizontal internal consistency analysis.

3.3 Identification of actions and development of the participatory process

A set of possible actions for adaptation to climate change is identified for each area of intervention, as anticipated in the last part of the previous paragraph.

A useful guide for the choice of actions can be found in the specific EU platforms for the adoption of adaptation actions, in particular:

- 1) Climate Adapt²;
- 2) Covenant of Mayor³ (CoM);

A third platform used as a methodological reference for the construction of the repertoire of strategies and actions to combat climate change is:

- 3) The intergovernmental Panel on Climate Change⁴;

The following table can be used for the synthetic exposure and classification of the selected actions among those useful for adapting to climate change in our target area.

| Intervention Sector | Climate risk factor | Type of Intervention | Description Action |
|---|---|--|--------------------|
| (Water, Energy, Transport, Land Use) | (Extreme precipitation, Drought, Heat waves) | (Social, Institutional, Physical) | |
| | | | |

² Climate Adapt: <https://climate-adapt.eea.europa.eu/>

³ Covenant of Mayor: <https://www.covenantofmayors.eu/en/>

⁴ IPCC: <https://www.ipcc.ch/>

The table expresses the connection relationships between the intervention sectors (first column), the risk factors for the climate impact to be countered (second column) and the proposed actions. Furthermore, the actions are classified into categories (third column) that distinguish the type of measures to be implemented for the use of homogeneous types of skills, resources, intervention techniques.

The categories referable to adaptation actions are structural, institutional and social ones. Some occur on the border between adaptation measures and mitigation and / or prevention measures and are potentially able to accumulate multiple effects as illustrated by the following diagram extracted from “*The intergovernmental Panel on Climate Change*”.

Table 4.2 | Approaches for managing the risks of climate change through adaptation. These approaches should be considered overlapping rather than discrete, and they are often pursued simultaneously. Examples are presented in no specific order and can be relevant to more than one category. (WGII Table SPM.1f)

| Overlapping Approaches | Category | Examples | WGII References |
|---|---|--|---|
| Vulnerability & Exposure Reduction <i>through development, planning & practice including many low-regret measures</i> | Human development | Improved access to education, nutrition, health facilities, energy, safe housing & settlement structures, & social support structures; Reduced gender inequality & marginalization in other forms. | 8.3, 9.3, 13.1-3, 14.2-3, 22.4 |
| | Poverty alleviation | Improved access to & control of local resources; Land tenure; Disaster risk reduction; Social safety nets & social protection; Insurance schemes. | 8.3-4, 9.3, 12.1-3 |
| | Livelihood security | Income, asset & livelihood diversification; improved infrastructure; Access to technology & decision-making tools; Increased decision-making power; Changed cropping, livestock & aquaculture practices; Reliance on social networks. | 7.5, 9.4, 13.1-3, 22.3-4, 23.4, 26.5, 27.3, 28.6, Table SM24-7 |
| | Disaster risk management | Early warning systems; Hazard & vulnerability mapping; Diversifying water resources; Improved drainage; Flood & cyclone shelters; Building codes & practices; Storm & wastewater management; Transport & road infrastructure improvements. | 8.2-4, 11.7, 14.3, 15.4, 22.4, 24.4, 26.6, 28.4, Box 25-1, Table 3-3 |
| | Ecosystem management | Maintaining wetlands & urban green spaces; Coastal afforestation; Watershed & reservoir management; Reduction of other stressors on ecosystems & of habitat fragmentation; Maintenance of genetic diversity; Manipulation of disturbance regimes; Community-based natural resource management. | 4.3-4, 8.3, 22.4, Table 3-3, Boxes 4-3, 8-2, 15-1, 25-8, 25-9 & CC-EA |
| | Spatial or land-use planning | Provisioning of adequate housing, infrastructure & services; Managing development in flood prone & other high risk areas; Urban planning & upgrading programs; Land zoning laws; Easements; Protected areas. | 4.4, 8.1-4, 22.4, 23.7-8, 27.3, Box 25-8 |
| Structural/physical <i>including incremental & transformational adjustments</i> | <i>Engineered & built-environment options:</i> Sea walls & coastal protection structures; Flood levees; Water storage; Improved drainage; Flood & cyclone shelters; Building codes & practices; Storm & wastewater management; Transport & road infrastructure improvements; Floating houses; Power plant & electricity grid adjustments. | 7.5-6, 5.5, 8.2-3, 10.2, 11.7, 22.3, 24.4, 25.7, 26.3, 26.8, Boxes 15-1, 25-1, 25-2 & 25-8 | |
| | <i>Technological options:</i> New crop & animal varieties; Indigenous, traditional & local knowledge, technologies & methods; Efficient irrigation; Water-saving technologies; Desalination; Conservation agriculture; Food storage & preservation facilities; Hazard & vulnerability mapping & monitoring; Early warning systems; Building insulation; Mechanical & passive cooling; Technology development, transfer & diffusion. | 7.5, 8.3, 9.4, 10.3, 15.4, 22.4, 24.4, 26.3, 26.5, 27.3, 28.2, 28.4, 29.6-7, Boxes 20-5 & 25-2, Tables 3-3 & 15-1 | |
| | <i>Ecosystem-based options:</i> Ecological restoration; Soil conservation; Afforestation & reforestation; Mangrove conservation & replanting; Green infrastructure (e.g., shade trees, green roofs); Controlling overfishing; Fisheries co-management; Assisted species migration & dispersal; Ecological corridors; Seed banks, gene banks & other ex situ conservation; Community-based natural resource management. | 4.4, 5.5, 6.4, 8.3, 9.4, 11.7, 16.4, 22.4, 23.6-7, 24.4, 25.6, 27.3, 28.2, 28.7, 30.6, Boxes 15-1, 22-2, 25-9, 26-2 & CC-EA | |
| Institutional <i>including incremental & transformational adjustments</i> | <i>Services:</i> Social safety nets & social protection; Food banks & distribution of food surplus; Municipal services including water & sanitation; Vaccination programs; Essential public health services; Enhanced emergency medical services. | 7.5-6, 8.3, 9.3, 11.7, 11.9, 22.4, 29.6, Box 13-2 | |
| | <i>Economic options:</i> Financial incentives; Insurance; Catastrophe bonds; Payments for ecosystem services; Pricing water to encourage universal provision and careful use; Microfinance; Disaster contingency funds; Cash transfers; Public-private partnerships. | 8.3-4, 9.4, 10.7, 11.7, 12.3, 15.4, 17.5, 22.4, 24.7, 27.6, 29.6, Box 25-7 | |
| | <i>Laws & regulations:</i> Land zoning laws; Building standards & practices; Easements; Water regulations & agreements; Laws to support disaster risk reduction; Laws to encourage insurance purchasing; Defined property rights & land tenure security; Protected areas; Fishing quotas; Patent pools & technology transfer. | 4.4, 6.3, 9.3, 10.5, 10.7, 15.2, 15.4, 17.5, 22.4, 23.4, 23.7, 24.4, 25.4, 26.3, 27.3, 28.6, Table 25-2, Box CC-CR | |
| Social <i>including incremental & transformational adjustments</i> | <i>National & government policies & programs:</i> National & regional adaptation plans including mainstreaming; Sub-national & local adaptation plans; Economic diversification; Urban upgrading programs; Municipal water management programs; Disaster planning & preparedness; Integrated water resource management; Integrated coastal zone management; Ecosystem-based management; Community-based adaptation. | 2.4, 2.6, 4.4, 5.5, 6.4, 7.5, 8.3, 11.7, 15.2-5, 22.4, 23.7, 25.4, 25.8, 26.8-9, 27.3-4, 29.6, Boxes 25-1, 25-2 & 25-9, Tables 9-2 & 17-1 | |
| | <i>Educational options:</i> Awareness raising & integrating into education; Gender equity in education; Extension services; Sharing indigenous, traditional & local knowledge; Participatory action research & social learning; Knowledge-sharing & learning platforms. | 8.3-4, 9.4, 11.7, 12.3, 15.2-4, 22.4, 25.4, 28.4, 29.6, Tables 15-1 & 25-2 | |
| | <i>Informational options:</i> Hazard & vulnerability mapping; Early warning & response systems; Systematic monitoring & remote sensing; Climate services; Use of indigenous climate observations; Participatory scenario development; Integrated assessments. | 7.4, 5.5, 8.3-4, 9.4, 11.7, 15.2-4, 22.4, 23.5, 24.4, 25.8, 26.6, 26.8, 27.3, 28.3, 28.5, 30.6, Table 25-2, Box 26-3 | |
| Spheres of change <i>Transformation</i> | <i>Behavioural options:</i> Household preparation & evacuation planning; Migration; Soil & water conservation; Storm drain clearance; Livelihood diversification; Changed cropping, livestock & aquaculture practices; Reliance on social networks. | 5.5, 7.5, 9.4, 12.4, 22.3-4, 23.4, 23.7, 25.7, 26.5, 27.3, 29.6, Table SM24-7, Box 25-5 | |
| | <i>Practical:</i> Social & technical innovations, behavioural shifts, or institutional & managerial changes that produce substantial shifts in outcomes. | 8.3, 17.3, 20.5, Box 25-5 | |
| | <i>Political:</i> Political, social, cultural & ecological decisions & actions consistent with reducing vulnerability & risk & supporting adaptation, mitigation & sustainable development. | 14.2-3, 20.5, 25.4, 30.7, Table 14-1 | |
| | <i>Personal:</i> Individual & collective assumptions, beliefs, values & worldviews influencing climate-change responses. | 14.2-3, 20.5, 25.4, Table 14-1 | |

The set of possible selected actions forms the basis of the dialogue process with the interested parties and creates the crucial phase of the scoping process.

The participatory process was organized in order to achieve the following objectives:

- identify the risk factors most perceived by the population in the various municipalities of the target area;
- favor the concentration of actions on shared strategic choices, avoiding the waste of resources on objectives of low impact or considered by the stakeholders to be of doubtful feasibility;
- stimulate consultation of all decision-making centers;
- set the appropriate temporal and spatial boundaries, identifying significant findings and indicators for the subsequent monitoring phase;
- guide the selection of alternatives to the measures to be adopted.

The participatory methodology evaluated as best suited to the specificity of the JSECAP project is the "Focus Group"⁵ one.

The term "Focus Group" is the combination of two methods of social scientific research:

- 1) the targeted interview, in which an interviewer obtains information on a topic without the use of a fixed guide to the questionnaire;
- 2) a collegial discussion, in which a small (6-12) relatively heterogeneous but carefully selected group of people with similar characteristics and skills discuss a topic proposed by an experienced moderator.

The specific objective of the JSECAP Focus Group was to use the participatory process as a tool to develop alternative climate scenarios: from the "zero scenario" projected to 2030 to the "optimal scenario".

The main innovation of the JS Focus Group compared to a traditional Focus Group, is constituted by proposing to each stakeholder, the "set of actions" - as mentioned above - in the form of a Synoptic Table, for the detection of the level of feasibility in order to combat the effects of climate change. The Synoptic Table is therefore the tool through which it was possible to detect and measure the actions planned for the construction of climate scenarios.

I For this reason, the JS Focus Groups can be divided into the following phases:

- a) *intro* - stakeholders are shown the JS project, the methodology that was intended to be implemented in the Focus Group and the usefulness of each person's contributions;
- b) *brainstorming* - the risk factors detected in the target area are illustrated and the level of interest of the stakeholders is verified, calling them to participate in the discussion regarding: which risk factors are repeated frequently in their territory; what damage is caused to economic activities;

⁵ WP4.1.2 "Methodology for the definition of alternative scenarios of intervention"

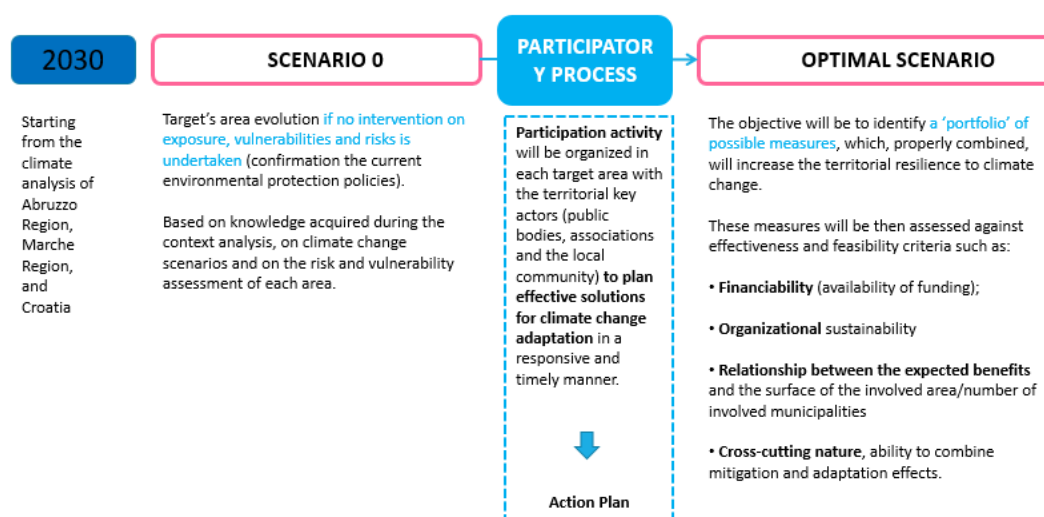
what dangers they cause on public health; what actions are proposed to combat them, taking into account the intervention priorities;

- c) *synoptic table* - the synoptic table is illustrated which identifies about fifty possible actions to adapt to climate change, asking each stakeholder to indicate the level of feasibility that the identified actions could have had in their reference territory.

3.4 Selection of actions and optimal scenario

The alternatives to the Plan are constructed in concert with the stakeholders, through a specific participatory process. The participation method used is that of the "Focus Group" described in the previous paragraph.

The objective of the FG is to use the participatory process as a tool to develop alternative climate scenarios and thus move from the "scenario 0" projected to 2030 to the "optimal scenario".



In the Focus Groups the analyzed risk factors are represented to the stakeholders, the vulnerability and exposure of the target area to the aforementioned risk factors are taken into account, a synthetic representation of the zero scenario and the possible actions to be implemented for the adaptation is given.

The contribution of the stakeholders is essential to determine the degree of perception of the risk factors affecting the individual target areas and to measure the level of administrative feasibility of the set of proposed actions and implementation times.

The overall set of actions is processed through a model that processes the results of the consultations to arrive at an index of utility (feasibility and impact capacity) of the proposed actions. The following table is merely an example

| AZIONI | | Categorie | Fattori di rischio prevalenti | FATTORI DI RISCHIO | | | IMPEGNO ECONOMICO | | | SISTEMA DI RILEVAZIONE MONITORAGGIO | | GRADO DI FATTIBILITÀ |
|---------------|---|---------------------|---|--------------------|---------------|-------------------|-------------------|-------|------|-------------------------------------|-------------|----------------------|
| Settore | Azione | | | Esposizione | Vulnerabilità | Fenomeno naturale | Basso | Medio | Alto | Presente | Da attivare | |
| Land Use | Politiche per disincentivare il consumo di suolo | Institutional | Precipitazioni estreme - Ondate di calore | | ✓ | ✓ | ✓ | | | ✓ | | |
| Land Use | Interventi di riqualificazione e manutenzione delle aree attigue al fiume | Strutturale/Fisical | Precipitazioni estreme | ✓ | ✓ | ✓ | | ✓ | | | ✓ | |
| Transport | Promozione servizi di sharing (bici, monopattini, etc.) | Institutional | Precipitazioni estreme - Ondate di calore - Siccità | | ✓ | ✓ | | ✓ | | | ✓ | |
| Transport | Ampiamiento della dotazione di piste ciclabili | Strutturale/Fisical | Precipitazioni estreme - Ondate di calore - Siccità | | ✓ | ✓ | | ✓ | | ✓ | | |
| Transport | Installazione di colonnine per la ricarica di auto elettriche | Strutturale/Fisical | Precipitazioni estreme - Ondate di calore - Siccità | | ✓ | ✓ | | ✓ | | | ✓ | |
| Transport | Rifacimento dell'asfalto stradale con asfeti drenanti | Strutturale/Fisical | Precipitazioni estreme | | ✓ | ✓ | | ✓ | | | ✓ | |
| Environmental | Disponibilità di aree naturali pubbliche auto-gestite dai cittadini | Institutional | Ondate di calore | ✓ | ✓ | ✓ | ✓ | | | | ✓ | |
| ICT | Utilizzo di dispositivi digitali per l'invio di avvisi e notifiche di cortesia ai cittadini | Institutional | Precipitazioni estreme - Ondate di calore - Siccità | ✓ | | | ✓ | | | | ✓ | ✓ |
| ICT | Potenziamento delle connettività wireless nei luoghi pubblici e negli uffici della PA | Strutturale/Fisical | | | | | | ✓ | | | ✓ | ✓ |
| ICT | Digitalizzazione delle procedure amministrative | Institutional | | | | | ✓ | | | | ✓ | ✓ |
| ICT | Creazione di una banca dati pubblica e aperta per le attività di dati ambientali | Institutional | Precipitazioni estreme - Ondate di calore - Siccità | | ✓ | ✓ | ✓ | | | | ✓ | ✓ |
| Water | Installazione di colonnine per la distribuzione dell'acqua | Strutturale/Fisical | Ondate di calore - Siccità | | ✓ | ✓ | | | | | ✓ | ✓ |
| Water | Monitoraggio della rete stradale a rischio di allagamento | Strutturale/Fisical | Precipitazioni estreme | ✓ | | | | ✓ | | | ✓ | |
| Water | Campagna di sensibilizzazione al risparmio di acqua | social | Siccità | ✓ | | | ✓ | | | | ✓ | ✓ |
| Energy | Campagna di promozione risparmio energetico | social | Ondate di calore - Siccità | ✓ | | ✓ | ✓ | | | | ✓ | ✓ |
| Energy | Efficientamento energetico edifici pubblici (isolamento termico di pareti, finestre, tetti) | Strutturale/Fisical | Ondate di calore - Siccità | | ✓ | ✓ | | ✓ | | ✓ | | |
| Transport | Rinnovo del parco veicoli comunale/ Sostituzione dei veicoli a filo-vita con veicoli a basso emissioni | Strutturale/Fisical | Ondate di calore - Siccità | | | | | ✓ | | | ✓ | |
| Energy | Interventi sugli impianti server/ottimizzazione attraverso la sostituzione delle lampade tradizionali con LED | Strutturale/Fisical | Precipitazioni estreme - Ondate di calore - Siccità | | | ✓ | | ✓ | | | ✓ | |
| Energy | Riqualificazione energetica degli edifici di proprietà comunale | Strutturale/Fisical | Precipitazioni estreme - Ondate di calore - Siccità | | | ✓ | | | ✓ | ✓ | | |
| Energy | Installazione di impianti fotovoltaici su edifici pubblici | Strutturale/Fisical | Precipitazioni estreme - Ondate di calore - Siccità | | ✓ | ✓ | | ✓ | | ✓ | | |
| Energy | Acquisto energia elettrica verde | Institutional | Precipitazioni estreme - Ondate di calore - Siccità | | | | | ✓ | | | ✓ | |
| environment | Introduzione di procedure di acquisti verdi | Institutional | Precipitazioni estreme - Ondate di calore - Siccità | | ✓ | ✓ | | ✓ | | | ✓ | |
| Energy | Campagna informativa allargata alla cittadinanza | social | Precipitazioni estreme - Ondate di calore - Siccità | ✓ | | ✓ | ✓ | | | | ✓ | ✓ |
| Energy | Attività di sensibilizzazione "energetica ed ambientale" nelle scuole | social | Precipitazioni estreme - Ondate di calore - Siccità | ✓ | | ✓ | ✓ | | | | ✓ | |




The progressive selection process, implemented through the various checks described, allows you to select a subset of actions that appear to be the most performing for the purposes of adapting to climate change in our target area in terms of feasibility, sharing, effectiveness and efficiency.

JOINT ACTION IMPLEMENTATION

Sub Act. 4.3




scelta delle azioni da sottoporre ai partners: metodologia

1. LIVELLO DI FATTIBILITA' AZIONI PROPOSTE (STAKEHOLDERS)

-  Action that is usefull for all
-  Action that is usefull for many
-  Action that is usefull for few




Abbiamo già effettuato questa verifica di fattibilità con il primo Focus Group. Grazie agli stakeholders abbiamo selezionato un sottoinsieme di azioni.

2. VERIFICA DI COERENZA INTERNA AZIONI PROPOSTE

-  Action that is usefull for all
-  Action that is usefull for many
-  Action that is usefull for few

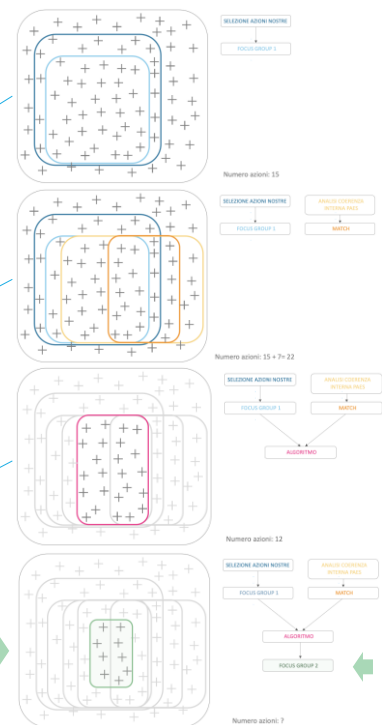
Abbiamo analizzato le strategie dei singoli Comuni dell'area target (verifica di coerenza PAES-DUP). Abbiamo estratto le azioni comuni a tutti i partner (già inserite nei documenti di programmazione)

3. GRADO DI EFFICIENZA AZIONI PROPOSTE (COSTI-BENEFICI)

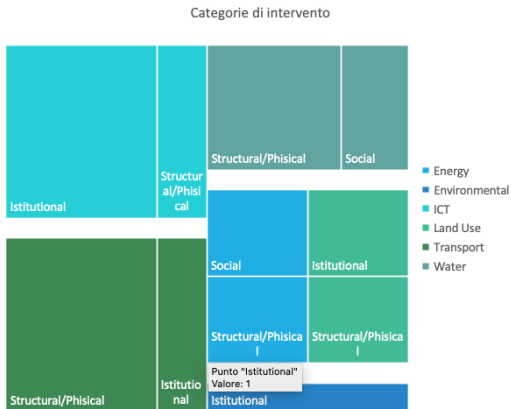
-  High level of incidence
-  Medium level of incidence
-  Low level of incidence

Abbiamo elaborato un algoritmo che considera il «peso» di ciascuna azione in termini di efficacia sui benefici attesi e sui fattori di rischio

PROCESSO DI SELEZIONE AZIONI



The analysis of the results of the Focus Groups is used as a starting point for the construction of the optimal scenario and provides a series of information that can be organized by sectors of intervention, categories of intervention and contrast to risk factors.



The model that can be used to represent the optimal scenario is the following.

TABLE

Elaboration, evaluation and sharing of scenarios

2.d Alternatives evaluation and construction of the “optimal scenario”

The comparison and the evaluation within the participatory process will lead to the identification of an "optimal scenario" which aims to achieve the best possible environmental benefits of the Action Plan. Alternatives evaluation will be described with the support of the following table.

Table 2.d – Optimal scenario

| | |
|---|--------------|
| Brief description of the definition process, evaluation and sharing of scenarios | |
| Description of the participatory method used | |
| List of key actors involved and role of each one of them (local and regional authorities) | |
| List of stakeholders | |
| Brief description of the "optimal shared scenario" | Aims: |

CAP. 4 Increasing Awareness

Stakeholders who have competences and responsibilities in environmental matters become privileged interlocutors of the participatory process to which the Scoping Report is submitted after its initial drafting. In particular, the methods of accessing the information and documents of the Plan, the methods and times for receiving comments and suggestions, the communication initiatives and the methods for publishing the results are shared with them.

4.1 Consultation on the scoping document

A first phase of sharing the Scoping Report takes place through the organization of a workshop on the Focus Group model during which the document, previously made available by sending it in digital form, is questioned with local authorities who have environmental skills. The comparison takes place on the basis of a lineup of topics and pre-identified questions that allows for feedback both on the analysis phase conducted within the Report, and on the methodological approach adopted, and on the subsequent phase of monitoring the actions with the verification of the selected parameters.

Below is an example of a lineup of topics to be discussed in the Focus Group.

| LEGAL FRAMEWORK AND SOURCES | |
|---|--|
| <p>The European reference legislation for actions to adapt to climate change is constantly evolving. Among the most interesting recent documents is the "EU Strategy COM (2021) 82" of 24.2.2021 which indicates some strategic objectives to be achieved in the short term:</p> <ul style="list-style-type: none"> - Smarter fit - Systemic and integrated adaptation - Faster adaptation | <p>The most recent documents are known, but have not yet been taken as a reference for identifying local initiatives or strategies otherwise:</p> <p style="text-align: center;">-</p> <p>The documents are known and have already given rise to one or more initiatives by your institution:</p> <p style="text-align: center;">-</p> |

| RISK ASSESMENT AND MAIN OBJECTIVES | |
|---|--|
| <p>The analysis of the priority climate risk factors in the target area led to the development of four impact chains:</p> <ul style="list-style-type: none"> - extreme rainfall; - heat waves; - wind and sand storms; - Drought. | <p>It is believed that the analysis is complete and that the trends described are those actually perceptible from an empirical observation otherwise:</p> <p>-</p> |
| | <p>there are phenomena not considered or trends in progress with trends different from those considered:</p> <p>-</p> |

| PARTECIPATIVE PROCESS | |
|--|---|
| <p>The optimal scenario was also elaborated by means of a participatory process with privileged local interlocutors which made it possible to deepen some assessments deriving from the analysis phase (for example those relating to risk factors and vulnerabilities) and above all it allowed to identify a set of adaptation actions that present good levels of feasibility, effectiveness and efficiency within the target area.</p> | <p>Do you have any observations regarding the organization of the participatory phase?</p> <p>-</p> |
| | <p>Do you have any suggestions regarding additional stakeholders to involve?</p> <p>-</p> |

4.2 Consultation on joint actions

The effectiveness of the adaptation strategies that are intended to be adopted in the target area largely depends on the actions that are intended to be included within the Local Action Plan. The choice of actions is the subject of a cascade process of successive checks of effectiveness, efficiency, feasibility that has made it possible to pass from about fifty theoretical actions suggested by the literature and by the main European portals on the subject of adaptation (Climate Adapt, Covenant of Mayor, IPCC) to six specific actions identified as the most appropriate for the target area.

The authorities with environmental expertise involved in the scoping process are asked to make a critical contribution, both at a methodological and operational level, with regard to the adoption and monitoring of the local action plan.

| JOINT ACTIONS | |
|--|---|
| The two Focus Groups that were organized made it possible to evaluate the usefulness (feasibility and impact capacity) of the set of proposed actions, and to measure the convergence on some actions shared by all the administrations of the target area | How did you evaluate the actions identified for the possible joint implementation of adaptation? - |
| | What do you think could be your contribution in the monitoring phase of the Action Plan? - |

| INDICATORS | |
|---|---|
| The scoping document contains an initial indication of the data necessary for the construction of the indicators to be used in monitoring the local Action Plan over time | Do you think it appropriate to point out other more significant indicators? - |
| | Do you think it useful to report the availability of databases and / or information? - |

CAP. 5 Monitoring

5.1 Monitoring indicators

An aspect of the method that assumes relevance in the environmental assessment process is the identification of indicators that allow the initial assessment of the measurability of the effects of the selected actions and subsequent monitoring.

By "monitoring indicator" we define a parameter that describes (qualitatively or quantitatively) the trend of measurable data with respect to a base value and a defined target.

The following are fundamental elements in the monitoring process:

- the metric;
- the typology;
- the expected value and detected value;
- the data collection and certification process;
- the availability of data;
- the detection frequency;
- the analysis of the results and consequent actions;
- any relationships with other indicators.

Monitoring indicators can be divided into three general categories:

- *result indicators*: they measure the immediate effects on the expected users (number of new services released, number of reengineered functions out of the total number of available functions, etc.);
- *impact indicators*: they measure the long-term contributions with respect to the general objective (for example reduction of the time / costs of an administrative procedure, simplification of access to information on the portal, digitization of paper documents, optimization of resources, etc.);
- *performance indicators*: they measure the achievement of objectives in the context of the performance of an infrastructure;

The characteristics of the monitoring indicators can be summarized in a table.

| INDICATOR TABLE | |
|--|--|
| Type | Result/Impact/Performance |
| Objective | Description of the objective |
| Expected Benefits | Describe the expected benefit |
| Description | <ol style="list-style-type: none"> 1. The type of indicator (qualitative / quantitative) must be defined 2. There must be a clear and concise description of the indicator |
| Expected value | Indicate the target value |
| Survey method | Define: <ol style="list-style-type: none"> 1. Elementary data involved in the measurement 2. The method of calculation (if quantitative) |
| Survey frequency | Indicate how often you intend to carry out the indicator's collection of data. The survey must be consistent with the phases of the project or activity to be meaningful |
| Additional significant elements | For example: <ol style="list-style-type: none"> 1. Economic value of the objective (if available) |

5.2 Joint SECAP indicators

A guiding tool on specific indicators for adaptation actions has been developed at European level by the CoM and is reported below.

Annex VI. Sample adaptation indicators

| ID# | Sector | Indicator | Unit |
|------|---|---|------------------------------------|
| 1.1 | Buildings | Number or percentage of (public/residential/tertiary) buildings damaged by extreme weather conditions/events | (per year / over a certain period) |
| 1.2 | Transport, Energy, Water, Waste, ICT | Number or percentage of transport/energy/water/waste/ICT infrastructure damaged by extreme weather conditions/events | (per year / over a certain period) |
| 1.3 | Land Use Planning | Percentage of grey/blue/green areas affected by extreme weather conditions/events (e.g. heat island effect, flood, rockfalls and/or landslides, forest/land fire) | % |
| 1.4 | Transport, Energy, Water, Waste, Civil Protection & Emergency | Number of days with public service interruptions (e.g. energy/water supply, health/civil protection/emergency services, waste) | No. |
| 1.5 | Transport, Energy, Water, Waste, Civil Protection & Emergency | Average length (in hours) of the public service interruptions (e.g. energy/water supply, public transport traffic, health/civil protection/emergency services) | hours |
| 1.6 | Health | Number of people injured/evacuated/relocated due to extreme weather event(s) (e.g. heat or cold waves) | (per year / over a certain period) |
| 1.7 | Health | Number of deaths related to extreme weather event(s) (e.g. heat or cold waves) | (per year / over a certain period) |
| 1.8 | Civil Protection & Emergency | Average response time (in min.) for police/fire-fighters/emergency services in case of extreme weather events | min. |
| 1.9 | Health | Number of water quality warnings issued | % |
| 1.10 | Health | Number of air quality warnings issued | No. |
| 1.11 | Environment & Biodiversity | Percentage of areas affected by soil erosion / soil quality degradation | % |
| 1.12 | Environment & Biodiversity | Percentage of habitat losses from extreme weather event(s) | % |
| 1.13 | Environment & Biodiversity | Percentage change in number of native species | % |
| 1.14 | Environment & Biodiversity | Percentage of native (animal/plant) species affected by diseases related to extreme weather conditions/events | % |
| 1.15 | Agriculture & Forestry | Percentage of agriculture lost due to extreme weather conditions/events (e.g. drought/water scarcity, soil erosion) | % |
| 1.16 | Agriculture & Forestry | Percentage of livestock losses from extreme weather conditions | % |
| 1.17 | Agriculture & Forestry | Percentage change in crop yield / evolution of the annual grassland productivity | % |
| 1.18 | Agriculture & Forestry | Percentage of livestock lost due to pests/pathogens | % |
| 1.19 | Agriculture & Forestry | Percentage of timber lost due to pests/pathogens | % |
| 1.20 | Agriculture & Forestry | Percentage change in Forest composition | % |
| 1.21 | Agriculture & Forestry | Percentage change in water abstraction | % |
| 1.22 | Tourism | Percentage change in tourist flows / tourism activities | % |

44

