

# International workshop pack (materials, results, press releases, questionnaires)

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Final Version 30/06/2021

Deliverable Number 2.4.1



<u>Project Acronym</u>	<u>Joint_SECAP</u>
<u>Project ID Number</u>	<u>10047506</u>
<u>Project Title</u>	<u>Joint strategies for Climate Change Adaptation in coastal areas</u>
<u>Priority Axis</u>	<u>2</u>
<u>Specific objective</u>	<u>2.1</u>
<u>Work Package Number</u>	<u>2</u>
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<u>Activity Title</u>	<u>Capitalization and dissemination – Public events</u>
<u>Deliverable number</u>	<u>2.4.1</u>
<u>Deliverable Title</u>	<u>International workshop pack (materials, results, press releases, questionnaires)</u>
<u>Partner in Charge</u>	<u>SDEWES Centre</u>
<u>Partners involved</u>	<u>ALL</u>
<u>Status</u>	<u>Final</u>
<u>Distribution</u>	<u>Public</u>

## Summary

D2.4.1 - International workshop pack contains materials, results, press releases and questionnaires that have been prepared by project partners. This deliverable is output from activity 2.4 which included organization of 2 international workshops. First international workshop was held on June 2019 in Vela Luka, Croatia, as a part of second transnational meeting. During this workshop, first materials were presented for the development of Vulnerability and Risk Assessments. Questionnaire was presented which has been filled by each partner.

Second international workshop has been organized on 19<sup>th</sup> of April 2021. The workshop was held online due to COVID-19 lockdowns. With Joint\_SECAP, there were presented projects PentaHelix and South Eastern Europe Energy Transition Dialogue – SEEETD, which are dealing with the topic of efficient implementation of adaptation measures. Joint\_SECAP project partners have presented online support system platform that can be used as a tool for development and planning of measures for adaptation to climate changes and mitigation of climate changes. In a second part of Workshop, methods for development of climate scenarios of targeted areas were presented. All the partners have presented climate scenarios for all 8 targeted areas.

## First International Workshop

First international workshop was held during the second transnational meeting that was held in Vela Luka on 18<sup>th</sup> and 19<sup>th</sup> of June 2019. In this workshop, materials have been presented for the development of Vulnerability and Risk Assessment. Below are added the report from the transnational meeting, all the presentations containing instructions for development of VRAs and questionnaire that has been filled by the project partners.

## 2nd Transnational meeting

### LIST OF PARTICIPANTS

LP – University of Camerino

PP1- IRENA - Istrian Regional Energy Agency

PP2 - Comune di San Benedetto del Tronto

PP3 - Regione Abruzzo – SERVIZIO POLITICA ENERGETICA, QUALITÀ DELL'ARIA, SINA

PP5 - The International Centre for Sustainable Development of Energy, Water and Environment Systems – SDEWES

PP7- Split-Dalmatia County

PP8 - Municipality of Vela Luka – Korcula

### ABSENT

PP4 - Comune di Pescara

Please find attached the attendance register

### AGENDA

#### Tuesday, 18/06/2019

**9:00-9:30** Registration

**9:30-9:40** Welcome speech

**9:40-9:50** Introduction to the Joint SECAP project

**10:00- 10:30** Press conference (Coffee Break)

**10:30-11:00** WP 1 Overview

**11:00 - 11:30** WP 2 Overview

**11:30-12:30** 1st International workshop: presentation of common methodology pack

**12:30-13:00** WP 3.2.2 Risks and Vulnerability

**13:00-14:00** Lunch Break

**14:00-16:00** WP 3.2.1 Presentation for each Pilot Project (15 min)

*LP – University of Camerino (IT)*

*P1 - IRENA – Istrian Regional Energy Agency (HR)*

*P2 - Comune di San Benedetto del Tronto (IT)*

*P3 - Regione Abruzzo - SERVIZIO POLITICA ENERGETICA, QUALITÀ DELL'ARIA, SINA (IT)*

*P4 – Comune di Pescara (IT)*

*P5 - The International Centre for Sustainable Development of Energy, Water and Environment Systems SDEWES (HR)*

*P6 - Primorsko-Goranska (HR)*

*P7- Split-Dalmatia County (HR)*

*P8- Municipality of Vela Luka – Korcula (HR)*

**16:00-16:15** Coffee Break

**16:15-16:45** WP3 A3.3 Joint SECAP Support System Platform definition and implementation

**16:45 -17:15** Questions and Answers

**20:30** Networking sessions (Dinner Break)

### **Wednesday, 19/06/2019**

**9:00-9:30** Registration

**09.30-11:00** Administrative and financial procedures

**11:00-12:15** 2nd Steering Committee

**12:15-12:30** Coffee Break

**12:30-14:00** Croatian partners meeting

**14:00** Meeting Closure

### **18<sup>th</sup> of June**

#### **Opening and welcome**

At approximately 9:30 AM: Greetings from Project manager Barbara Mirošević PP7- Municipality of Vela Luka, and from the major of the Municipality of Vela Luka, Mrs. Katarina Gugić.

Overview of the Joint-Secap program by Barbara Mirošević, illustration of the meeting program by Rosalba D’Onofrio, project LP for Unicam. Proposal for a variation and a re-adaptation of the scheduled Agenda since some Unicam members were unable to be present at Vela Luka meeting due to events that have occurred in the last few hours.

The variation of the schedule was referred to in the following points:

-The shift of the "Joint SECAP Support System Platform definition and implementation", initially scheduled for the afternoon of the 18th of June, to the morning of the same day;

-The shift of the "Administrative and financial procedures" point scheduled for the 19th of June, to the afternoon of the 18th of June. This also involved the rescheduling of 6 pilot areas presentations to the 19th.

The changes in the program were accepted.

Press conference.

### **WP1-Overview**

Unicam (LP) presents the progress of the activities that are envisaged in WP1 (signed SC and PA), then she briefly summarizes the project deliverables and invites the partners to provide quickly the missing names of the Project Management Team. She illustrates that the accreditation procedures to SIU Platform were launched for the Italian PPs and FLCs, since these figures will have different accesses for the data uploading regarding the Progress Report in the parts: 1) Progress Reporting and 2) Financial Progress Reporting. She also reminds private PP (SDEWES) to provide the Financial Guarantee for the Advance Payment request and to all of the members to prepare all of the documents for the 1st Progress Report. During the presentation she asks if the instrumentation used for activity management, such as the Dropbox folder, and the online meetings via Skype, etc., is useful or if it is necessary to provide changes. They all agreed that they had no specific problem or request about it. LP recalls the next steps regarding the project management: the organization of the next online meeting, the 3rd transnational meeting. She also recalls that partners should start collecting information regarding the compilation of the 1T Progress Report.

At the end of this part of the presentation Nikola Matak, from SDEWES, PP5, informs the Croatian partners that the web portal SIU will be accessible from the 1<sup>st</sup> to the 10<sup>th</sup> of July, regarding the progress report materials delivery and therefore they will be able to use the system only starting from that period.

### **WP2-Overview**

Matija Sučić from SDEWES –PP5, presents the WP2 progress: the activities start-up activities-KOM, communication Strategy definition; Communication management start up; activities that regard the "Project promotion and communication" focusing on the timetable of those activities carried out during the next few months and the activity "Local communication". He reminds the partners to provide photographs of the poster and the screenshot of their own website page publication for the first reporting

### **Methodology pack and Risks and Vulnerability**

Stefano Magaudda from Unicam, explains the concepts that are at the base of Activity 3.2.2 “Mapping Risks and Vulnerability Assessment at a district level” that regard the concept of “risk” and of “vulnerability”. Magaudda shows briefly some projects that were financed by the LIFE Program of the European Commission and that worked on the evaluation of risks and vulnerabilities, such as: Life Master ADAPT and LIFE SEC ADAPT projects. He also describes two documents that were developed by German government for the evaluation of vulnerabilities, the “Vulnerability Sourcebook” created for assessing domestic vulnerability across different sectors at the various administrative levels and the “Risk Supplement to the Vulnerability Sourcebook”.

These documents will be considered as useful references for the construction of the Joint Secap Methodology, that Unicam will provide in a very short time.

Antonio Frankovic (Irena) and Chiara Barchiesi (Abruzzo Region) ask the LP to provide guidelines that can be considered clear and simple in order to identify the vulnerabilities of their territories. The LP reaffirms that Unicam agrees to provide these guidelines shortly.

### **Joint SECAP Support System Platform definition and implementation**

After the rescheduling of the agenda, Stefano Magaudda (Unicam) introduces the point: A3.3 Joint SECAP Support System Platform definition and implementation.

He informs partners about the researches finalized at pinpointing the web platforms that others were developed during other programs by public Authorities.

In particular, there is a contact with the Emilia Romagna Region that has developed the CLEXi platform with the support of Eret Spa. The LP asks if partners know any other platform. Chiara Barchiesi (Abruzzo Region) asks if the Marche Region Platform could be considered as a reference and the other partners affirm that other platforms are not in their knowledge. The LP answers that the Marche Region Platform is rather obsolete.

At about 13:00 the Morning works end.

At approximately 2.30pm the Afternoon works begin.

### **Administrative and financial procedures**

Unicam (LP) introduces the “Administrative and financial procedures”.

The first topic is related to the Advance payment and the necessity to make the request within the 1st of July 2019. Moreover, the bank accounts info to be provided in SIU for the LP and Italian Public bodies needs to be carefully checked by the relevant PP and the LP before the submission. The procedure for



the request for advance payment in SIU and the inclusion of the Financial Guarantee is illustrated. Other information regarding the change of the legal representative of the partners is also provided.

The second topic is the "Progress Report". LP illustrates that the report is made of two parts: a content part compiled by the LP based on the information provided by each PP; a financial part filled in based on the expenditure reported in the system by each PP and on FLC certification made by controllers within the system (proved by FLC certificates to be uploaded on SIU). The LP confirms that the deadline of the 1st Progress Report is: September 30th, 2019. The LP illustrates the type of documentation as well as the templates (provided by the program) that should be filled in and uploaded on the system, both in relation to the activity carried out and the expenses incurred, with particular reference to the staff accounts, to be sent to the FLC for the verification of the documents correctness attesting the execution of the aforementioned expenses. In this regard, LP what was reported at art.12 of the PA, regarding the terms for uploading the documents and sending them to the LP in time. The manuals and the references to the program site where are also mentioned.

#### **WP 3.2.1 Presentation for each Pilot Project**

The LP Rosalba D'Onofrio (Unicam) introduces the two first context analyses: the Partner's n°1 (Irena) and the partner's n°2 (Municipality of San Benedetto del Tronto), and plans to debate about the other context analysis the following morning.

##### **Irena**

Antonio Frankovic (Irena), introduces the Pilot area that includes the city of Buie - Buie, the Municipality of Brtonigla - Verteneglio and the city of Novigrad - Cittanova. After a description of the demographic features and of the main climate-related risks that are Selected for analysis as main areas of concern (tourism, agricultural, water supply and drainage & health sectors), and in the case of Novigrad, also regarding what concerns the coastal area and the fishery, he introduces the main policies, the plans and the actions at a national, regional and local level. Frankovic reviews the funding tools for climate change adaptation at EU level, and at national and regional level.

The LP asks if an integration of the different plans and policies already exists and if some of the plans at different levels produce effects on the city planning. The answer is negative.

##### **San Benedetto del Tronto Municipality**

Sergio Trevisani (Municipality of San Benedetto del Tronto) introduce the Pilot Area that includes the Municipality of San Benedetto del Tronto, and the neighboring Municipalities of Montepandone, Grottammare, Cupra Marittima and Acquaviva Picena. Trevisani shows the main subjects that are part of the National Level plan (Adaptation Plan 2015 and following implementations; the National river basin management plan; the National river basin floor risk management plan). At a Regional level Trevisani reports the "Water protection regional plan (2010); the "Environmental and energy regional plan

(2016)", and the "Regional plan for integrated coastal zones management (adopted 2018)". At a local level Trevisani illustrates the "2013 Sustainable Energy (climate) Action Plan", implemented in 2019 and the "Civil protection municipal plans" of San Benedetto del Tronto (2018), Cupra marittima (2013), Grottammare (2014), Montepandone (2017). The Funding tools for climate adaptation at European level are also mentioned (Life Secadapt, Citysec), as well as the national level ones (National Plan for the Mitigation of Hydrogeological Risk, Restoration and Protection of the Environmental Resources), the Regional level ones (Marche Region ERDF rop 2014-2020 axis 5, axis 8; the "Marche Region Rural Development Programme 2014-2020). Within the best practices of the Marche Region Trevisan introduces "Life Primes" - preventing flooding risk by making resilient communities (oct 2015 - aug2018).

The LP inquiries about the main risks in the San Benedetto territories and if even in this case there is some type of integration between the different measures that are expected within the different plans, especially for what concerns adaptation and mitigation.

Trevisani answers that the 2019 Secap Plan of San Benedetto's Municipality does not include specific adaptation measures and that the main risks that should be considered are: hydrogeological disruption, coastal erosion, water management.

The first day of work closes at 17:00.

## **19<sup>th</sup> of June**

**The second day begins** at approximately 9:30 AM.

Elio Trusiani (Unicam) introduces and coordinates.

## **Abruzzo Region**

Chiara Barchiesi (Abruzzo Region) presents the two Pilot areas of the Region: the coastal area of the Teramo Province (Municipalities of Giulianova, Roseto degli Abruzzi, Pineto and Silvi) including one Municipality that is located next to the coastal area (Mosciano Sant'Angelo); the inner hilly area of the cliff crossed by the Fino river between the Provinces of Teramo and Pescara. The risks that regard the first of the two pilot areas are identified as cloudburst (rain bombs); hydrogeological risk; flooding; coast erosion; extreme temperatures; water scarcity; sea level rise. Whereas for the pilot area n°2 the risks are: hydrogeological risk; insufficient energy supply; cloudburst (rain bombs); decreasing agricultural yield. Barchiesi introduces the main policies, the plans and the measures at a National level, at a Regional and at a local level. Regarding the local level, she underlines the fact that all of the Municipalities of the Abruzzo Region and all of the 4 Provinces have already developed SEAPS plans. Barchiesi lists the funding tools for climate adaptation at EU level, at a National level, and at a Regional level. Within the best practices regarding the climate adaptation she includes the Marina di Torre Cerrano Reserve, that in 2014 received the "Charter Park" award as part of the European Charter for

Sustainable Tourism in Protected Areas. The LP asks if the creation of a task force that operates within different Regional sectors in order to deal with climate change is giving positive results. The answer is affirmative, and it can be considered as a positive experience. The LP also asks if within the plans and within the regional level funding there are some measures that have to do with adaptation. The Abruzzo Region answers in negative, but there is an interest in verifying the presence of adaptation measures in other plans, like the Plan for Rural Development for example.

### **Pescara Municipality**

Chiara Barchiesi, delegate of the Municipality of Pescara, introduces the Target area that includes 6 Municipalities: Pescara, Montesilvano, Francavilla, Spoltore, San Giovanni Teatino, Cepagatti. The main climate-related risks and threats that are present in this area are: declining water availability; heat islands in cities; insufficient energy supply; decreasing agricultural yield. Barchiesi shows the main policies, the plans and the measures at a National level, at a Regional and at a local level. At a local level one best practice is illustrated: the Fontanelle Plan, which is based on sustainability and urban eco-compatibility, chosen by Green Building Council (GBC) Italy as a case study for the purpose of verifying the protocol for the certification of neighbourhood sustainability. The Municipality asks to switch the Municipality of Chieti with the Cepagatti Municipality since they are both part of the same target area, regarding air quality. The LP answers that the change is possible but only after the appropriate verifications

### **Sdewes**

Matija Sučić (SDEWES) introduces a pilot area that is included within the Dubrovnik County which includes 5 cities and 17 Municipalities. The main climate-related risks and threats are: high temperatures-wildfires, rising sea, and river levels. The pilot area includes: 1. Ston, 2. Dubrovačko Primorje, 3. Dubrovnik, 4. Župa Dubrovačka and 5. Konavle. Sučić illustrates the adaptation plans at a national level: The Draft Climate Change Adaptation Strategy in the Republic of Croatia for the time span 2040-2070. At a Regional Level the “Program for the protection of air, the ozone layer, climate change mitigation and adaptation to climate change for the area Dubrovnik-Neretva Region” for the period from 2017 to 2020. At a local level the “Program for the protection of air,” the ozone layer, climate change mitigation and adaptation to climate change for the area Dubrovnik-Neretva Region for the period from 2016 to 2020. Regarding the funding tools SDEWES refers mainly to the European Programs: Life; Interreg and Horizon 2020. At a National level SDEWES refers to the “measures within the OP Competitiveness and Cohesion 2014 – 2020, regarding: Financing climate change adaptation measures within the OP Competitiveness and Cohesion 2014 – 2020” and to the special risks and the disaster resilience investments. At a regional/local level SDEWES introduces also loans for adapting measures and environmental protection. The best practice that Sučić illustrates is the “iDEAL Decision Support for Adaptation Plan”. The LP asks if the indicators are relevant, if they should be considered

within the Joint-Secap Project and if there are any kind of ongoing experimentations. SDEWES reaffirms the importance of the Strategy and of those indicators and confirms that the strategy is in a construction phase and therefore the experimentations are not ongoing yet.

### **Primorje-Gorski Kotar County**

Luka Dragojevic presents the Target Area that includes 6 Municipalities: City of Opatija, City of Kastav; Municipality of Rijeka; Municipality of Krk, Čavle. The main climate-related risks and threats are: hydrogeological risk (landslides...) and wildfires. At a local level the Sustainable Energy Action Plan for the cities of Opatija and Kastav has analyzed energy consumption of three sectors: building, traffic and public lighting. The action plan defines measures and activities in order to reduce CO2 emissions at an urban level: during the years these policies have proved to be successful. These plans are currently in a monitoring phase.

### **County of Split**

Martin Bucan presents Brač's Target area, that includes 7 Municipalities. 14000 inhabitants live on the island all year round and they become 25000 during the summer: as a result of that, the summer energy consumption is almost double compared to the average winter consumption. The presentation continues with the illustration of the main plans at the National level: the "Climate Change Adaptation Strategy" draft of the Republic of Croatia for the period to 2040 with a view to 2070; and at a Regional level the "Program for the protection of air, the ozone layer, climate change mitigation and adaptation to climate change for the area Split and Dalmatia County for the period from 2017 to 2020". No plans related to adaptation measures have been adopted yet at a local level. The County's energetic sustainability plan is the "Sustainable Energy Plan for Island of Brač: The EASY (Energy Actions and System)", funded under the European IEE - Intelligence Energy Europe program. The main goal of the plan was to determine a model of a Local Energy System for Small and Medium Decentralized Urban Areas (pilot area: Island Brač) in order to guarantee maximum energy efficiency, integrated energy production and greater use of renewable energy sources. The main funding tools, at a National level are: Financing climate change adaptation measures within the OP Competitiveness and Cohesion 2014 – 2020, that considers adaptation measures, including ecosystem approaches (30.396,147 EUR) and the disaster resilience and disaster management system development (215.000,000 EUR), that considers special risks. At a regional and local level: the Regional budget for environmental protection and climate adaptation in 2019: 2 million HRK (cca: 270.000,00 EUR) and the Program systemic energy management in County of Split and Dalmatia : 2.5 million HRK (cca: 300.000,00 EUR). Among the good practices, the «CHANGE WE CARE J.U RERA» should be mentioned: The project's main result is to convey the latest knowledge on climate change for policy makers that can best benefit from it: planners, nature

# WP 3 Vulnerability

Joint\_SECAP | University of Camerino |  
Stefano Magaudda

2th Project Meeting | Vela Luka, Croatia | 18 June 2019

# Vulnerability and risk assessment: definitions

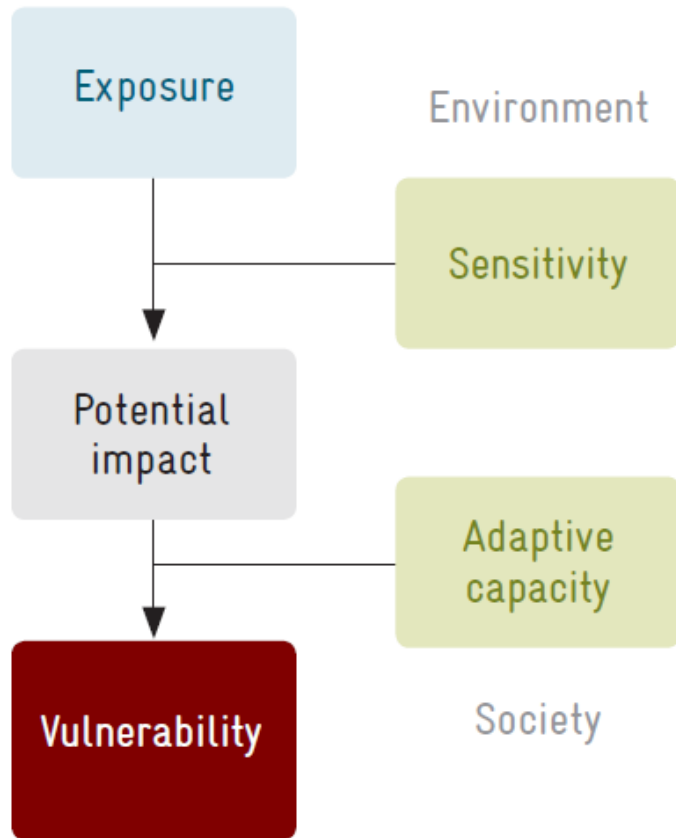
The concepts surrounding vulnerability and risk are always evolving

Until 2014 Vulnerability was a combination of Exposure, Sensitivity and Adaptive Capacity

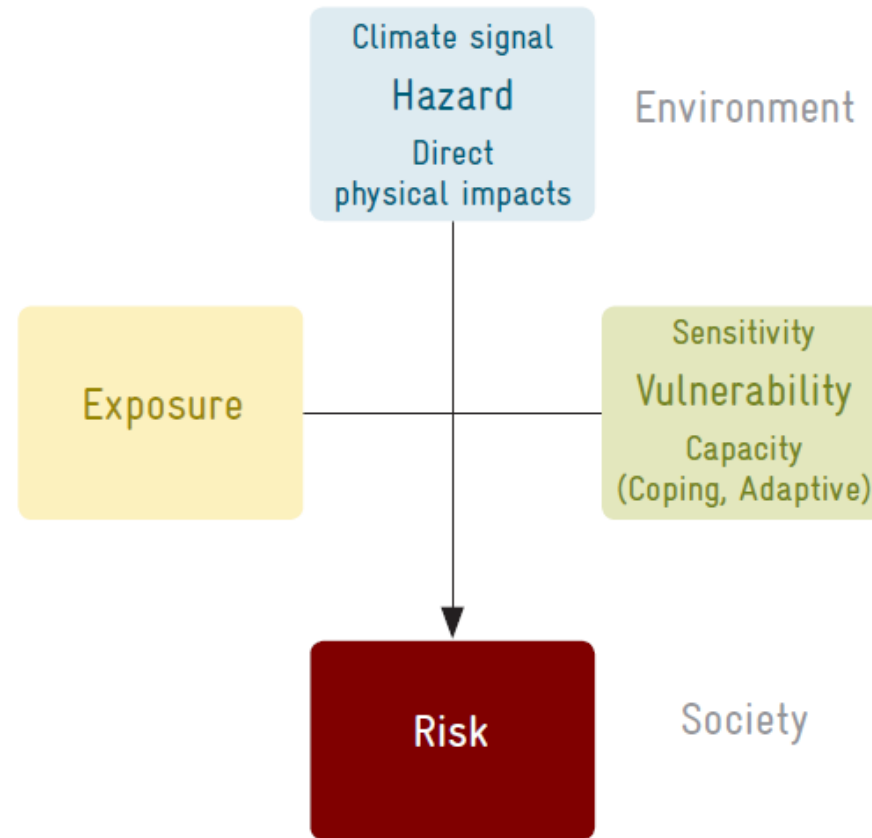
The IPCC 5<sup>th</sup> Assessment Report (AR5) brought about an evolution in the process: the combination of Hazard, Exposure and Vulnerability results in the overall Risk

# Vulnerability and risk assessment: definitions

AR 4



AR 5



# Vulnerability and risk assessment: definitions

**Hazard:** The potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources. In this report, the term hazard usually refers to climate-related physical events or trends or their physical impacts.

**Exposure:** The presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected.



# Vulnerability and risk assessment: definitions

**Vulnerability:** The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

**Outcome vulnerability:** Vulnerability as the end point of a sequence of analyses beginning with projections of future emission trends, moving on to the development of climate scenarios, and concluding with biophysical impact studies and the identification of adaptive options. Any residual consequences that remain after adaptation has taken place define the levels of vulnerability.

**Contextual vulnerability:** A present inability to cope with external pressures or changes, such as changing climate conditions. Contextual vulnerability is a characteristic of social and ecological systems generated by multiple factors and processes

# Vulnerability and risk assessment: definitions

**Sensitivity:** The degree to which a system or species is affected, either adversely or beneficially, by climate variability or change. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to sea level rise).

**Adaptive capacity:** The ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences.

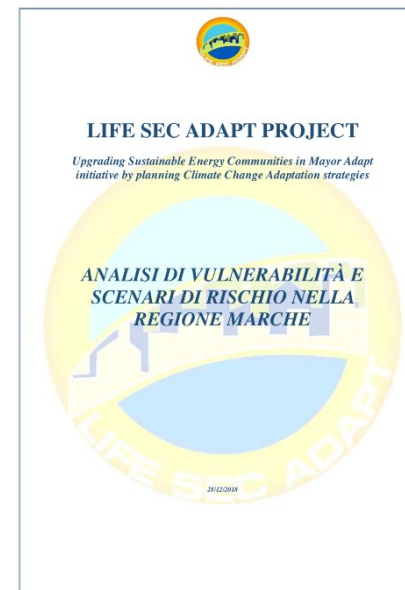
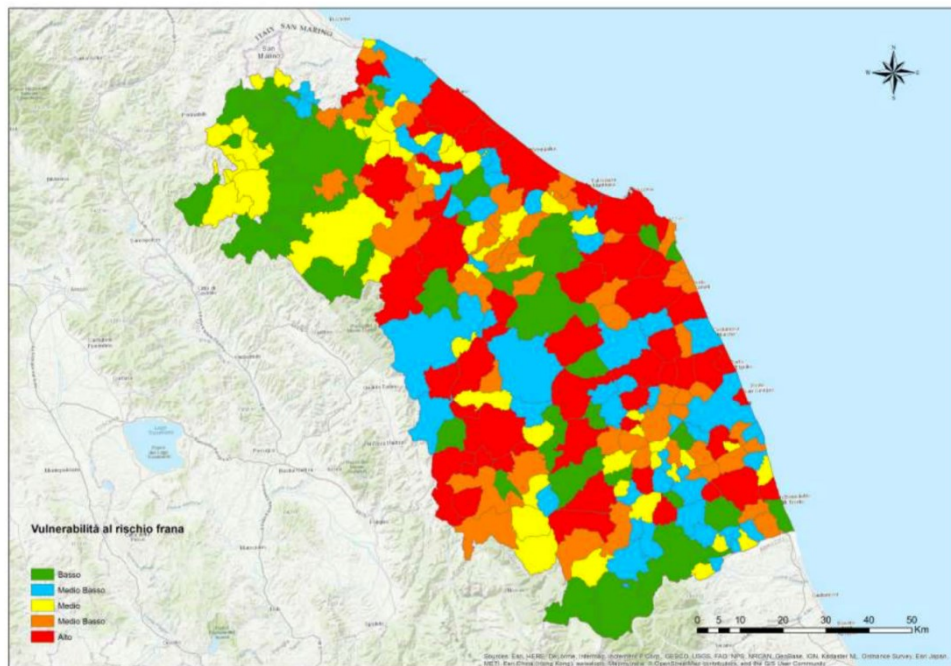
**Coping capacity:** The ability of people, institutions, organizations, and systems, using available skills, values, beliefs, resources, and opportunities, to address, manage, and overcome adverse conditions in the short to medium term.

# Vulnerability and risk assessment: definitions

**Risk:** The potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. Risk results from the interaction of vulnerability, exposure, and hazard. In this report, the term risk is used primarily to refer to the risks of climate-change impacts.

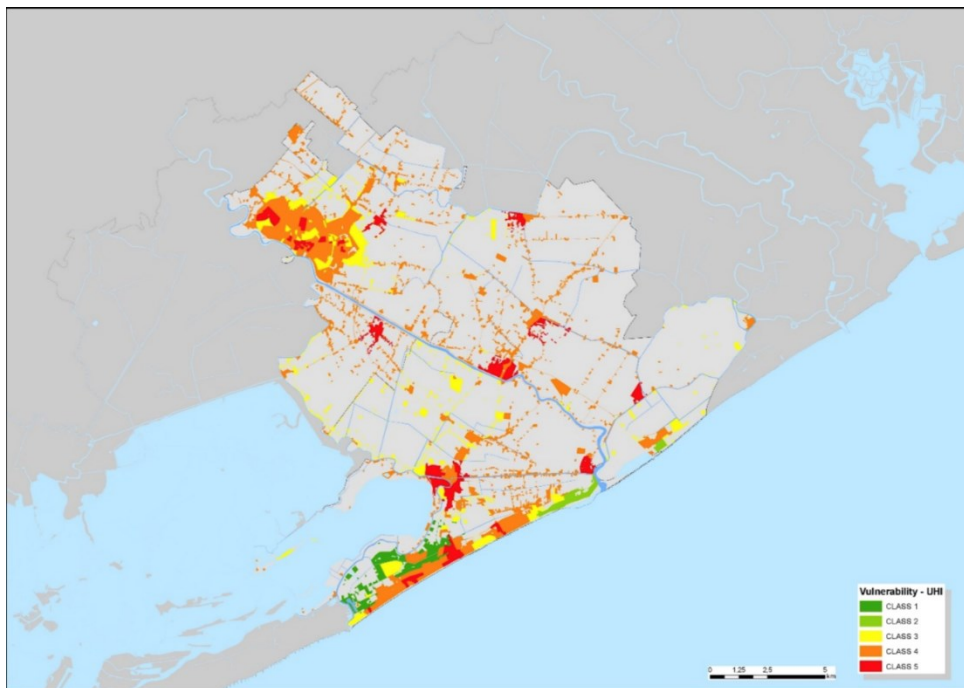
# Preparing a risk assessment: some examples

The Life SEC ADAPT provides useful examples on vulnerability assessment (methodology and climate analysis) in Croatia (Istria) and Italy (Marche), but is based on the 2007 methodology



# Preparing a risk assessment: some examples

Last year, the Life Master ADAPT project published some guidelines on vulnerability assessment based on the most recent methodology



# Preparing a risk assessment: the vulnerability sourcebook

The vulnerability sourcebook and the accompanying update on risk provide some useful guidelines on how to prepare an assessment



**The Vulnerability Sourcebook**  
Concept and guidelines for standardised vulnerability assessments

Published by: **giz** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in cooperation with: **eurac** adelphi research

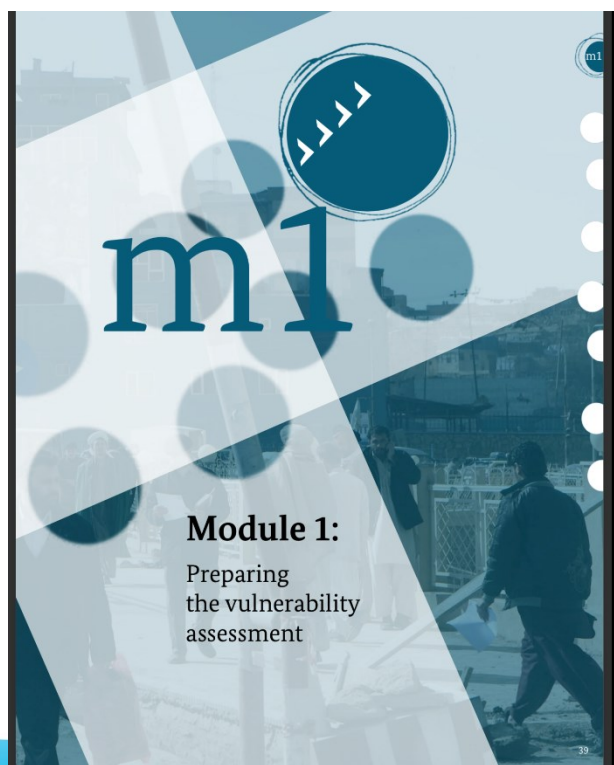


**giz** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in cooperation with: **eurac** research

# Preparing a risk assessment: the vulnerability sourcebook

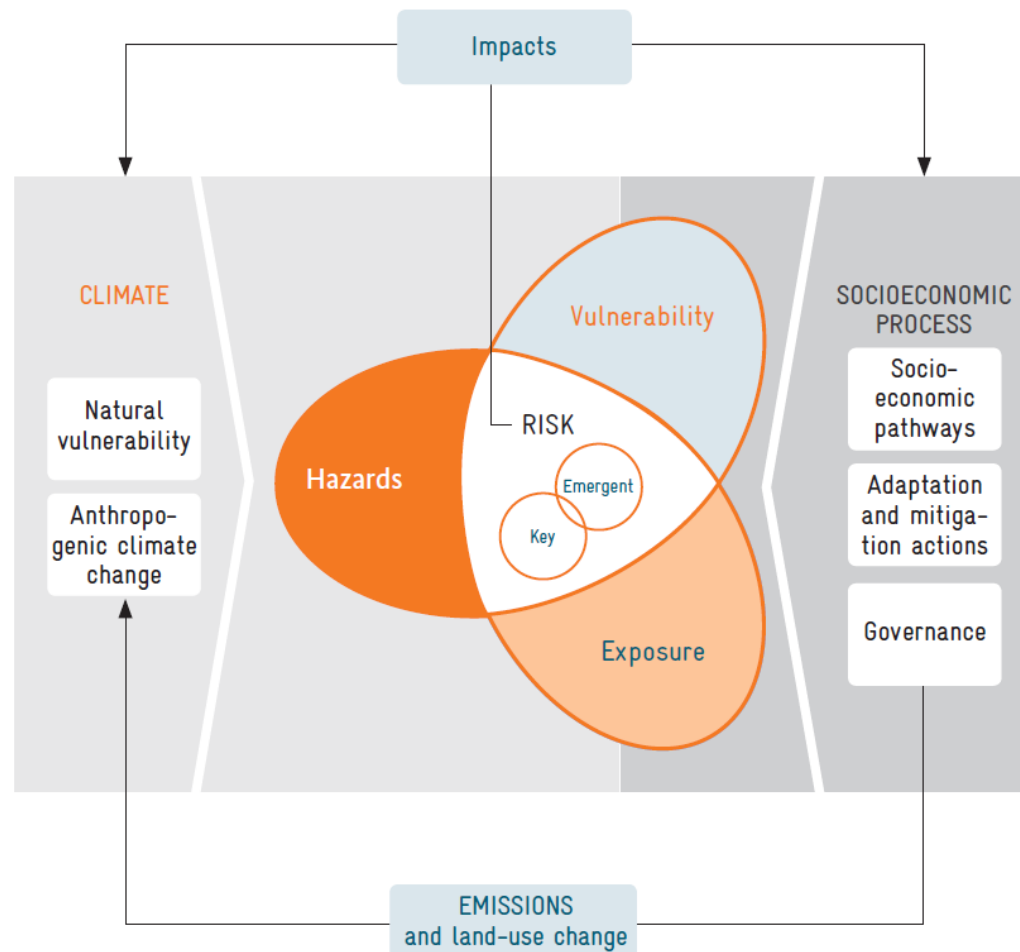
Both books should be used at the same time: the vulnerability assessment provides the main source, while the risk supplement serves as an update of the relevant information

Sourcebook



Risk supplement

# Preparing a risk assessment: the vulnerability sourcebook





# Preparing a risk assessment: the vulnerability sourcebook

The sourcebook provides guidelines structured in eight modules

Before starting some important issues should be dealt with:

- Choose what are the local relevant impacts (e.g. water scarcity, urban heat island)
- Retrieve the relevant data (environmental, socio-economic)

# Preparing a risk assessment: the vulnerability sourcebook

## Guidelines

- m1 Module 1: Preparing the risk assessment
- m2 Module 2: Developing impact chains
- m3 Module 3: Identifying and selecting indicators
- m4 Module 4: Data acquisition and management
- m5 Module 5: Normalisation of indicator data
- m6 Module 6: Weighting and aggregating of indicators
- m7 Module 7: Aggregating risk components to risk
- m8 Module 8: Presenting the outcomes of your risk assessment



# Preparing a risk assessment: the vulnerability sourcebook

III

m 1

## Module 1: (👉 p. 39)

### Preparing the risk assessment

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#### What will you learn in this Module?

‘This module outlines the essential steps for preparing your risk assessment. It shows you how to assess the initial situation of your analysis, define objectives and make key decisions on the topic and scope of the assessment. Module 1 also helps you estimate time and resources needed and avoid known pitfalls in the early planning phase of a risk assessment.’



# Preparing a risk assessment: the vulnerability sourcebook

## ➤ Step 1

Understand the context of the vulnerability assessment

- At what stage of adaptation planning is the assessment taking place?
- Are there already vulnerability or impact assessments for your topic or region?
- What are the development and adaptation priorities (if already defined)?
- Which institutions and resources can and should be involved in your vulnerability assessment?

## ➤ Step 2

Identify the objectives and expected outcomes

- What do you and key stakeholders wish to learn from the assessment?
- Which processes will the vulnerability assessment support or feed into?
- Who is the target audience for the vulnerability assessment results?



# Preparing a risk assessment: the vulnerability sourcebook

## ➤ Step 3

### Determine the scope of the vulnerability assessment

- Which topics (sectors, groups) should the vulnerability assessment cover?
- Are there known key impacts and vulnerabilities you want to assess?
- What is the scope – area(s), period – of your vulnerability assessment?
- To which time frame will the vulnerability assessment refer (past, current, future vulnerability)?

## ➤ Step 4

### Prepare an implementation plan

- Vulnerability assessment team: Who are the people and institutions involved?
- Tasks and responsibilities: Who does what?
- What is the time plan of the vulnerability assessment?



# Preparing a risk assessment: the vulnerability sourcebook

III

m2

## Module 2:

### Developing impact chains (👉 p. 55)

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## What will you learn in this Module?

‘This module will show you how to define the risks addressed in your risk assessment and develop an impact chain using it as a starting point. Impact chains can help you better understand the cause-and-effect relationship determining the risks in the system of concern. This in turn will help you identify indicators which you will use later in your assessment.’



# Preparing a risk assessment: the vulnerability sourcebook



## Step 1

### Identify climate impacts and risks

Which major climate impacts and risks do affect your system of concern?



## Step 2

### Determine hazard and intermediate impacts

Which climate-related hazardous events or trends and their physical impacts pose a risk to your system of concern? Which intermediate impacts link the hazard and the risk?



# Preparing a risk assessment: the vulnerability sourcebook



## Step 3 Determine vulnerability

Which attributes of the system contribute to the risk?



## Step 4 Determine exposure

Which factors determine exposure?



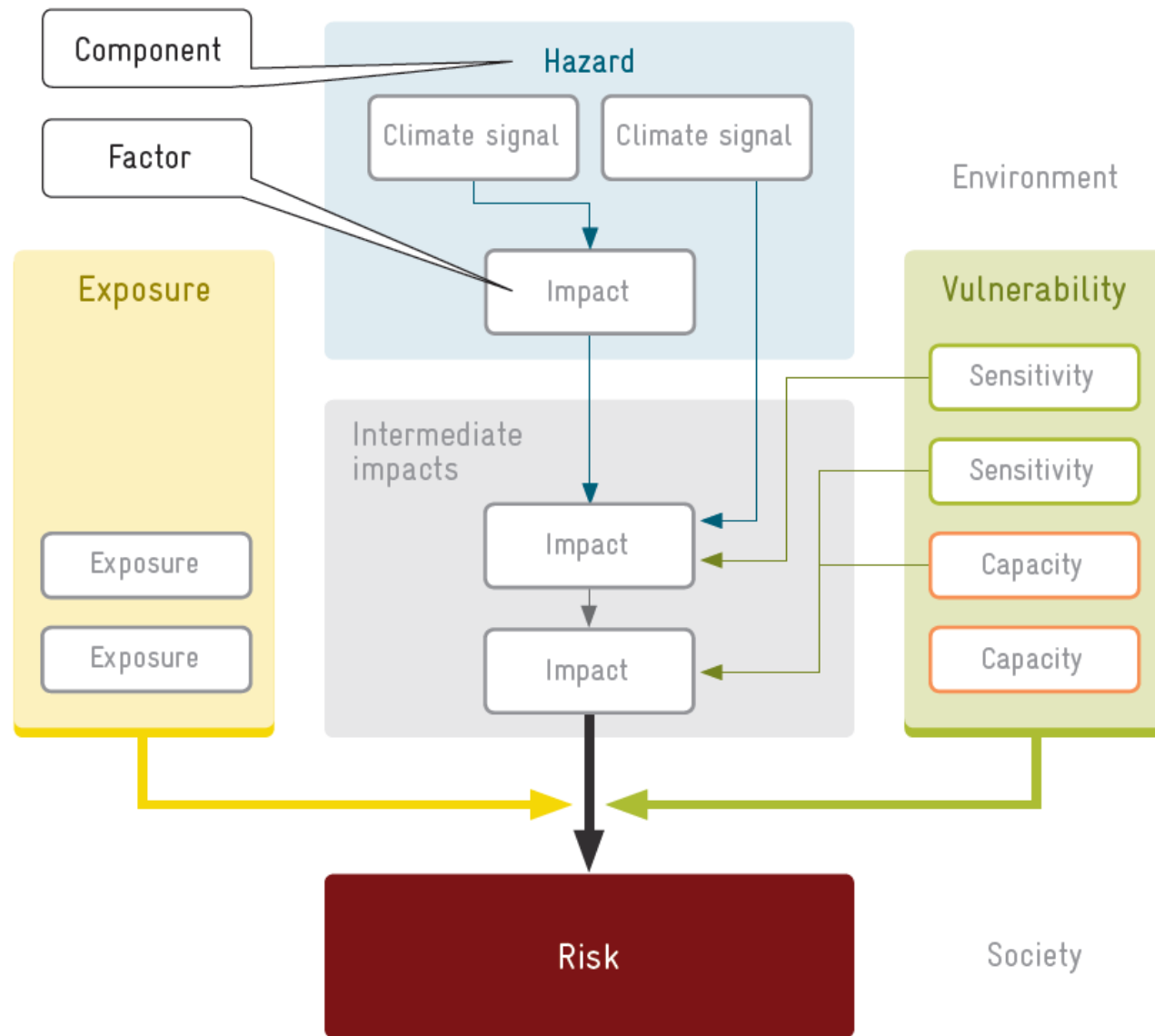
## Step 5 Brainstorm adaptation measures (optional)

What measures could help decrease vulnerability and / or exposure within the system of concern?





# Preparing a risk assessment: the vulnerability sourcebook



# Preparing a risk assessment: the vulnerability sourcebook

III

m3

## Module 3:

Identifying and selecting indicators (👉 p. 73)

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E

### What will you learn in this Module?

‘This module will show you how to select indicators for your assessment. It provides you with the criteria for deciding which indicators are suitable for quantifying the factors determining the risk identified in Module 2’



# Preparing a risk assessment: the vulnerability sourcebook

Risk component	Factor	Possible indicator
Hazard (Climate signal)	Heavy precipitation events	Number of days per year with rainfall greater than 50mm
Hazard (Direct physical impact)	Floods	Number of disastrous flood events in one year
Vulnerability (Sensitivity)	Land use prone to erosion	% of land cover classes with a high risk for erosion
	Steep slopes	% of slopes with a gradient greater than 30%
Vulnerability (Capacity)	Poverty	% of people living at less than US\$ 2 per day
Exposure	Population density	Number of inhabitants per km <sup>2</sup>
	Relevance of rainfed agriculture	% of rain-fed agricultural area within a district



# Preparing a risk assessment: the vulnerability sourcebook



Step 1

Selecting indicators for hazards



Step 2

Selecting indicators for vulnerability and exposure



Step 3

Check if your indicators are specific enough



Step 4

Create a list of provisional indicators for each factor



# Preparing a risk assessment: the vulnerability sourcebook

III  
m4

## Module 4:

### Data acquisition and management (👉 p. 87)

What will you learn in this Module?

‘This module shows you how to acquire, review and prepare data for your risk assessment. This includes guidance on data collection, database construction and linking relevant data to your chosen indicators to allow analysis and modelling of risk.’



# Preparing a risk assessment: data sources

Environmental data:

- <https://eea.europa.eu> (European Environment Agency)
- <https://www.minambiente.it> (Italian Department of Environment, contains the national adaptation strategy)

Socio-economic data:

- <https://dati.istat.it> (National statistic institute, contains census and other data)
- <https://www.istat.it/it/archivio/104317> (National statistic institute, contains census tracts and data)

etc

# Preparing a risk assessment: the vulnerability sourcebook

III

m5

## Module 5: Normalisation of indicator data (👉 p. 105)

G  
U  
I  
D  
E  
L  
I  
N  
E

What will you learn in this Module?

‘This module will show you how to transfer (normalise) your different indicator data sets into unit-less values with a common scale from 0 (optimal, no improvement necessary or possible) to 1 (critical, system no longer functions).’



# Preparing a risk assessment: the vulnerability sourcebook

Metric class value within range of 0 to 1	Categorical class value within the range of 1 to 5	Description
0 – 0.2	1	optimal (no improvement necessary or possible)
> 0.2 – 0.4	2	rather positive
> 0.4 – 0.6	3	neutral
> 0.6 – 0.8	4	rather negative
> 0.8 – 1	5	critical (could lead to severe consequences)





# Preparing a risk assessment: the vulnerability sourcebook

III

m6

## Module 6:

### Weighting and aggregating of indicators (👉 p. 121)

G  
U  
I  
D  
E  
L  
I  
N  
E  
S

#### What will you learn in this Module?

‘This module explains the weighting of various indicators selected to describe the risk components hazard, vulnerability and exposure. Weighting is applied if some of the indicators are considered to have a greater influence on a risk component than others.

Module 6 also demonstrates how to aggregate individual indicators of the three risk components. Aggregation is used to combine the information from different indicators into a composite indicator representing a single risk component.’



# Preparing a risk assessment: the vulnerability sourcebook

III

## m7

### Module 7:

Aggregating risk components to risk (👉 p. 133)

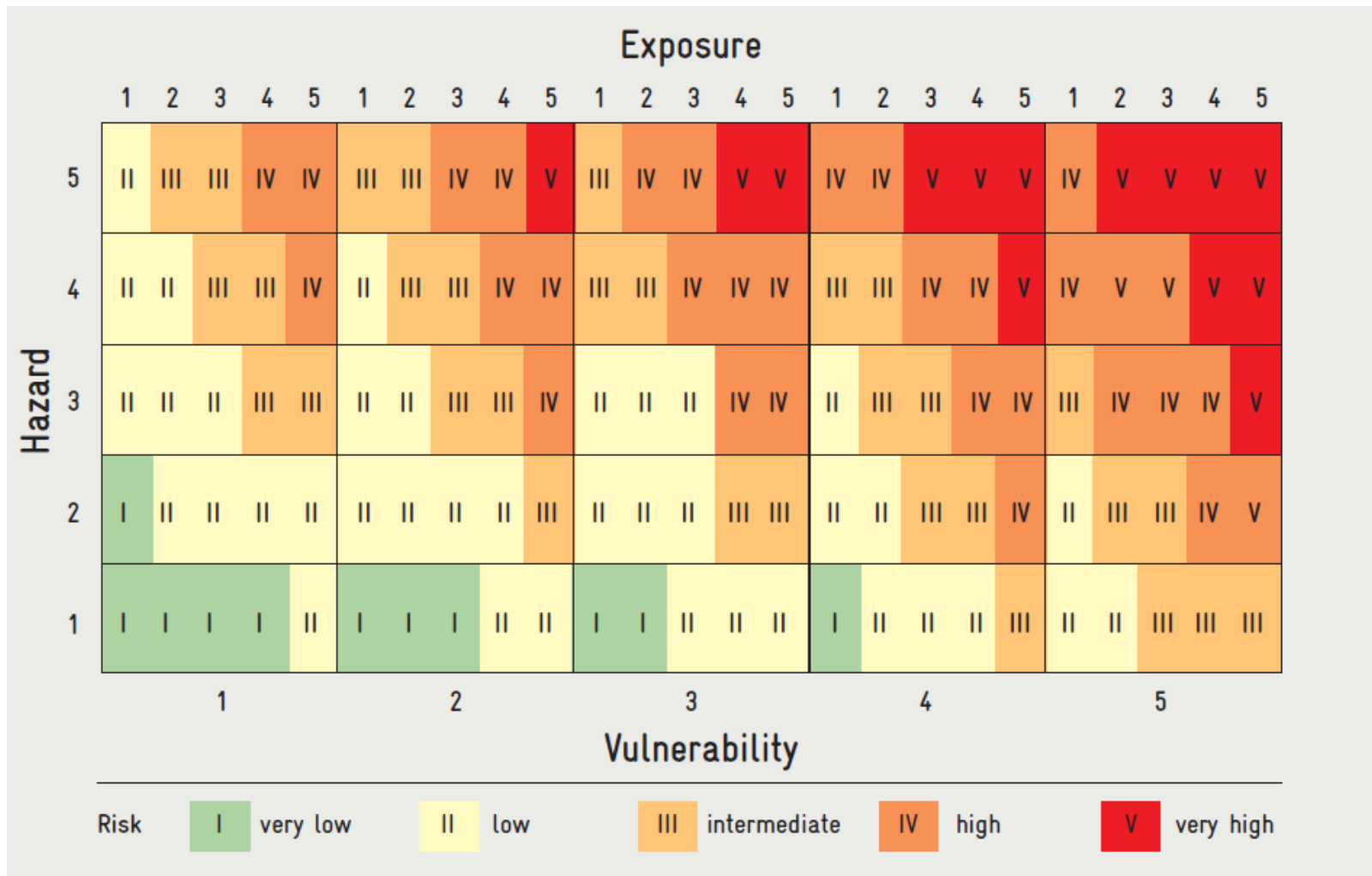
G  
U  
I  
D  
E  
L  
I  
N  
E  
S

What will you learn in this Module?

‘This module shows you how to aggregate the risk components hazard, vulnerability and exposure into a composite risk indicator. Finally, Module 7 outlines how to aggregate several sub-risks, for instance of several economic sectors.’



# Preparing a risk assessment: the vulnerability sourcebook



# Preparing a risk assessment: the vulnerability sourcebook

m8<sup>III</sup>

## Module 8: Presenting the outcomes of your risk assessment (👉 p. 143)

### What will you learn in this Module?

‘This module will show you how best to summarise and present the findings of your assessment.

For this task, you should keep both your objective and your target audience firmly in mind and ask yourself: What was the goal of your risk assessment? Which outcomes are vital for subsequent tasks such as adaptation planning or strategy development? What is the best way to present your result to different target audiences? And who should present them?’




# THANK YOU FOR YOUR ATTENTION

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# PRIMORJE – GORSKI KOTAR COUNTY

Joint\_SECAP

Administrative Department for Regional Development, Infrastructure  
and Project Management

Luka Dragojević  
Senior Associate for Project Management and Analytics

Joint\_SECAP 2nd Meeting, June 18-19 2019, Vela Luka, Korčula

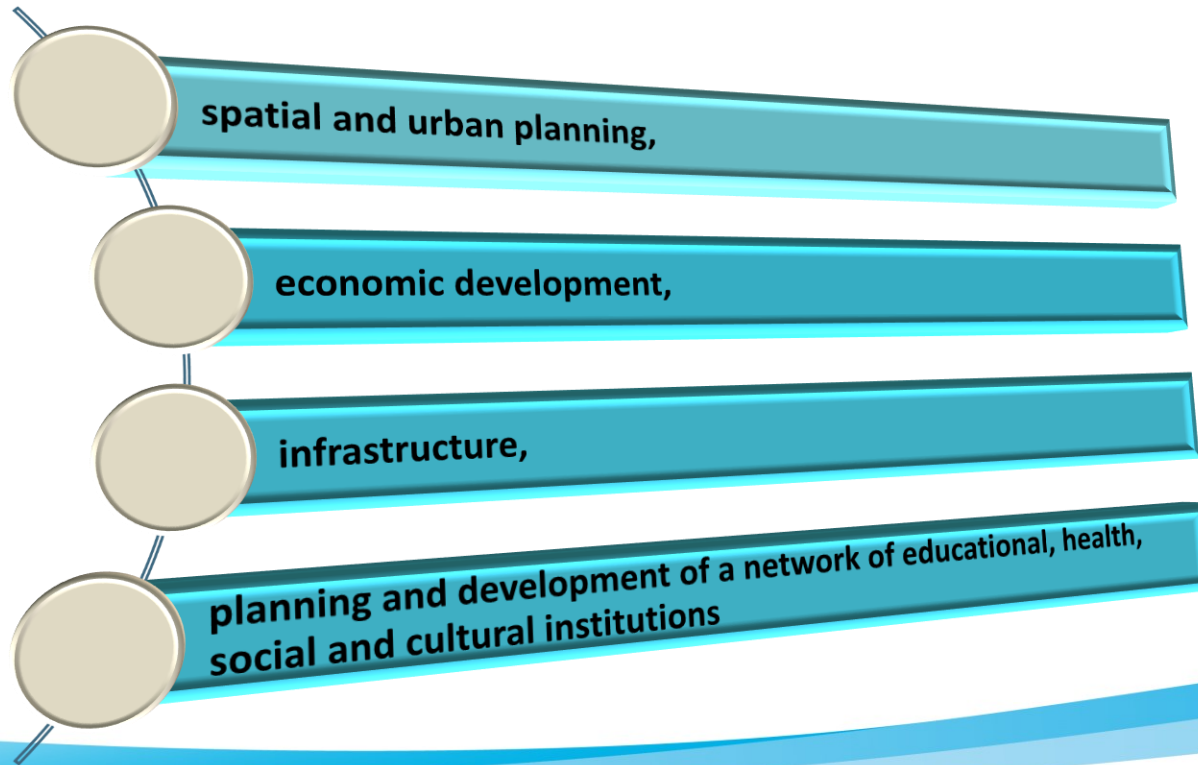
# About the county



TOTAL POPULATION	• 296.195
MOST POPULATED – CITY OF RIJEKA	• 128.624
CITIES	• 14
MUNICIPALITIES	• 22
AREA (km <sup>2</sup> )	• 3.588
COAST LENGTH (km)	• 1.065
LARGEST ISLANDS – CRES AND KRK (ha)	• 40.578
SMALLEST ISLAND – BOLJKOVAC (RAB) (ha)	• 0.11

# Profile

- **The executive authority of the County is County President, who supervises 11 administrative departments with competences on regional issues, especially regarding:**





# Project objective



- is in line with Primorje-Gorski Kotar Development Strategy - Strategic Objective 1. Development of a competitive and sustainable economy, Priority 1.4. Development of the green economy.

# Pilot Areas

**CITY OF OPATIJA**

**MUNICIPALITY OF MATULJI**

**CITY OF KASTAV**

**MUNICIPALITY OF VIŠKOVO**

**MUNICIPALITY OF ČAVLE**

# CITY OF OPATIJA



POPULATION

• 11.659

TERRITORY  
(km2)

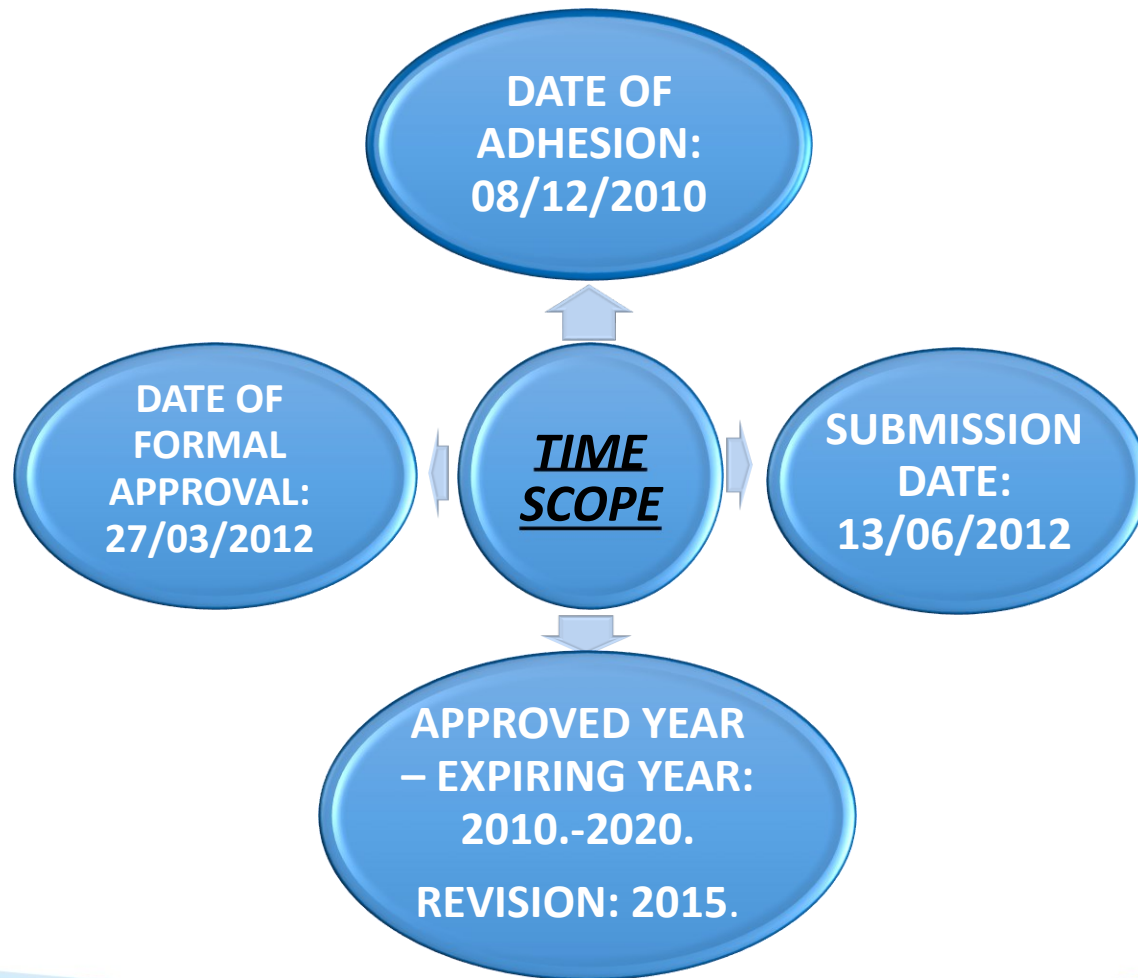
• 66





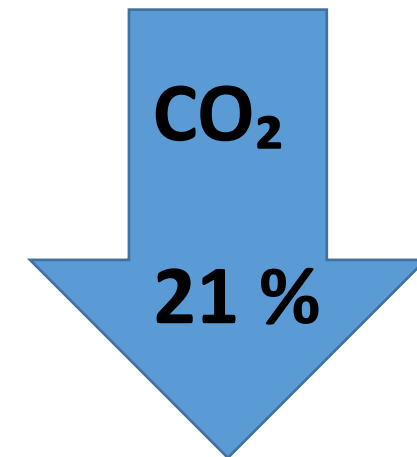
# CITY OF OPATIJA SUSTAINABLE ENERGY ACTION PLAN

## CITY OF OPATIJA REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.



REDUCE  
CO<sub>2</sub>

*Overall CO<sub>2</sub> emission reduction target: 21%.*





# CITY OF OPATIJA SUSTAINABLE ENERGY ACTION PLAN

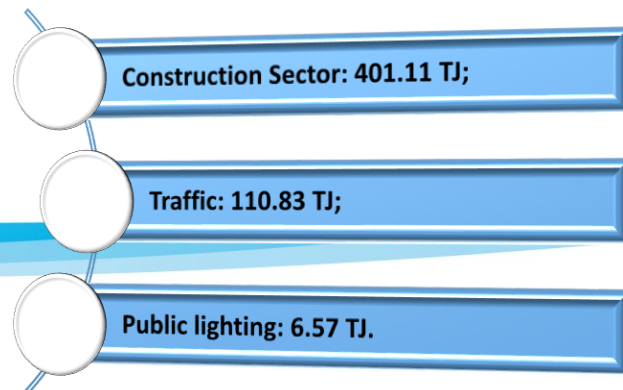
## CITY OF OPATIJA REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Description

Development of the Town of Opatija on the principle of sustainable development. Priorities: reducing energy consumption in all sectors (buildings, street lights, traffic), the reduction of CO2 emissions in the Town using various and numerous projects and energy efficiency measures, the increase of energy production from renewable sources.

The energy policy of Opatija for many years has long been focused on sustainable energy development of the urban area based on the principles of environmental protection, energy efficiency and using renewable energy sources and sustainable construction.

As part of the Energy Sustainable Development Plan of the City of Opatija, it was analyzed energy consumption of three sectors: building, traffic and public lighting. Based on that analysis, a Reference Inventory for 2010 was made. As part of the Action Plan, measures and activities have been defined to successfully reduce CO2 emissions at the City of Opatija level by more than 20% by 2020 compared to the reference year 2010. From the moment when document was published the City of Opatija actively conduct energy policy and project implementation The Control Inventory of CO2 Emissions for 2015. was made for the purpose of comparison the reference and control year. For the same purpose, an analysis of energy consumption was made as part of the Energy Sustainable Development Plan of the City of Opatija:





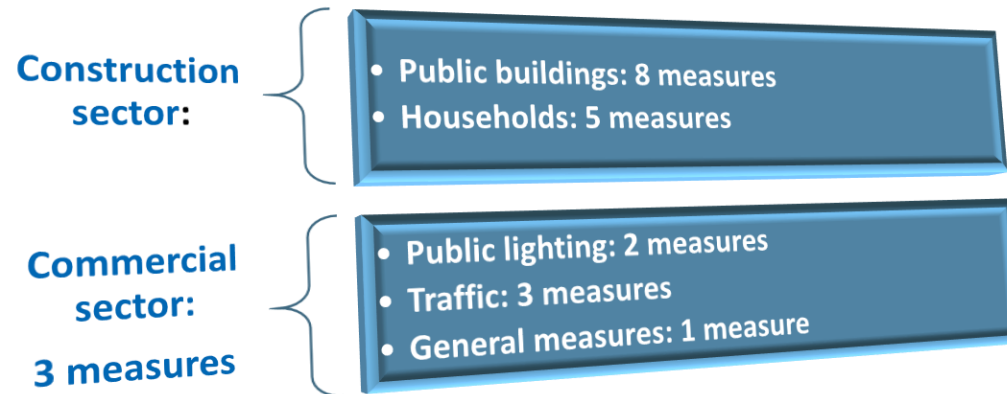
# CITY OF OPATIJA SUSTAINABLE ENERGY ACTION PLAN

## CITY OF OPATIJA REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Description

By comparing the reference year with the control year, energy consumption in the transport sector has been reduced, while consumption in the construction and public lighting sector has increased. It is important to emphasize that energy consumption in the public buildings subsector has decreased, which means that the City of Opatija successfully implemented energy efficiency measures on its buildings.

The successful implementation of each measure has been analyzed for:



From the all above mentioned measures, two measures have been dropped out in the Revision: Reconstruction of boiler rooms using heating oil and Switch to gas in public buildings since that there is still no gasification in the area of Opatija. Also, one measure which was not in the Action Plan, was added in the Revision: Integral renovation of public buildings.



# CITY OF OPATIJA SUSTAINABLE ENERGY ACTION PLAN

## CITY OF OPATIJA REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Implementation and monitoring

In accordance with the European Commission's proposal for the Action Plan and on the experience of measures implementation in the area of the City, energy indicators have been identified for the following categories:

- Traffic sector;
- Construction sector;
- Public lighting sector;
- Industry sector;
- Production of energy from renewable sources;
- Representation of energy companies in the city;
- Informing citizens on energy issues;
- Sustainable public procurement.

The energy indicators for sustainable development in the building sector of Opatija can be divided into several categories:

- Implementation of national legislation;
- Use of renewable energy sources in the buildings of the City of Opatija;
- Moving the consumption of various types of energy into the sub-sectors of construction;
- The readiness of citizens to invest in energy efficiency measures in their own homes

The fact that the public lighting sector owned by the City of Opatija will simplify the process of controlling and monitoring the following indicators:

- Number of built-in, energy and environmentally efficient lighting fixtures;
- City Lighting Public Sector Energy Consumption Movements;



# CITY OF OPATIJA SUSTAINABLE ENERGY ACTION PLAN

## CITY OF OPATIJA REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Implementation and monitoring

As the sector of industry is not in the immediate jurisdiction of cities, for monitoring the energy indicators it will be need to establish good co-operation between the competent authorities of the City of Opatija and the industrial subjects in the City

The monitoring system for energy indicators of energy production from renewable sources is based on monitoring:

- Annual production of energy from renewable energy sources in the area of Opatija;
- Yearly increase of the installed power of the plants and plants for the production of energy from the OIE for each individual OIE source.

One of the clear indicators of Energy Sustainable Development of the City based on the use of renewable energy sources and the implementation of energy efficiency measures is the representation of energy companies, companies and companies that will implement and finance these projects and provide the necessary equipment for their verification. The good understanding of energy issues of Opatija citizens is one of the important precondition for energy-efficient development and as such is an important energy indicator for the implementation of timely and successful promotional-informative activities.

The proposal of the indicator with a description of the monitoring and control system succeeded in the public procurement model in the town of Opatija, includes:

- Selecting a category of energy-efficient products and services covered by green public procurement;
- The value and number of green public procurements carried out in the city;
- The number of educational staff responsible for public procurement in a company owned by the City.





# CITY OF OPATIJA SUSTAINABLE ENERGY ACTION PLAN

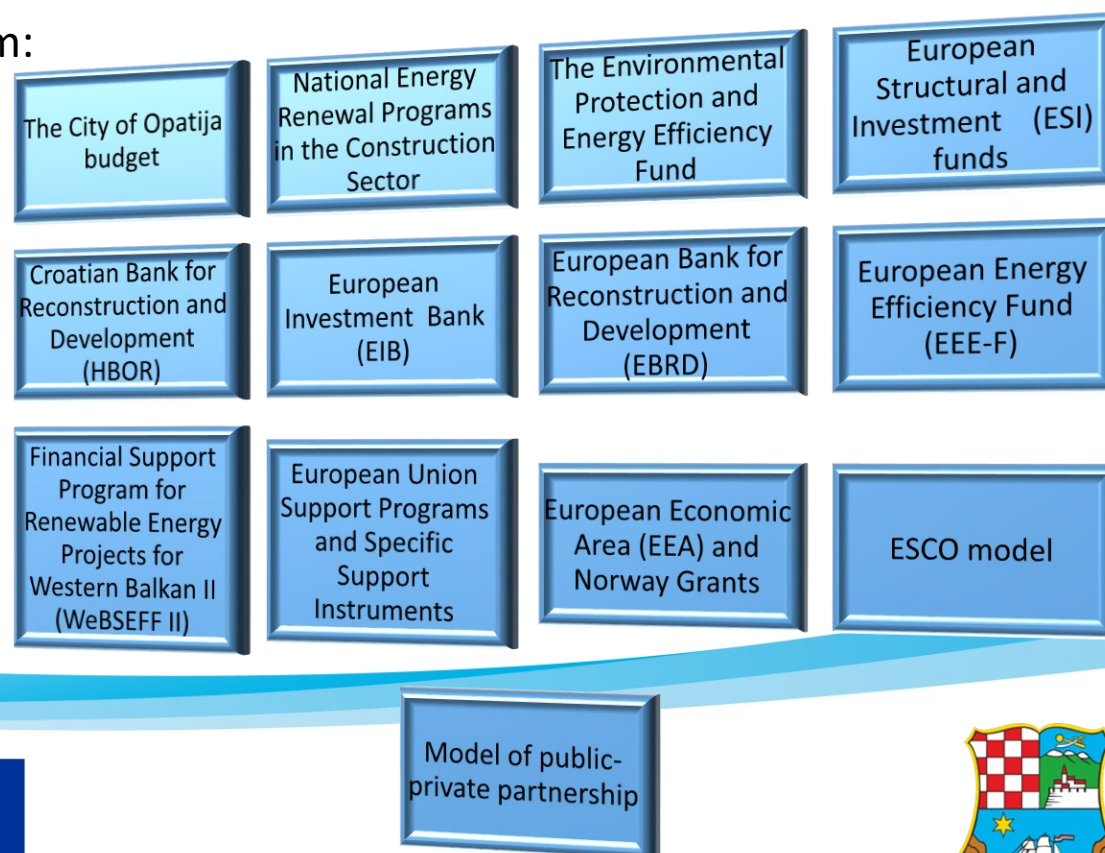
## CITY OF OPATIJA REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Funding

Significant financial investments are needed to implement identified measures that can't be achieved only from the budget of the City, but it is necessary to use available sources of financing. Review of potential funding sources of the implementation measures from this Plan generally includes three categories of financial instruments:

- Financial Instruments and Models which are available today in the Republic of Croatia;
- Financial instruments and models which are available in EU countries but not yet used in Croatia;
- Innovative financial models which are developed for the realization needs of some of the measures in the Action Plan.

Funding sources can be from:



# MUNICIPALITY OF MATULJI

**POPULATION**

• **11.246**

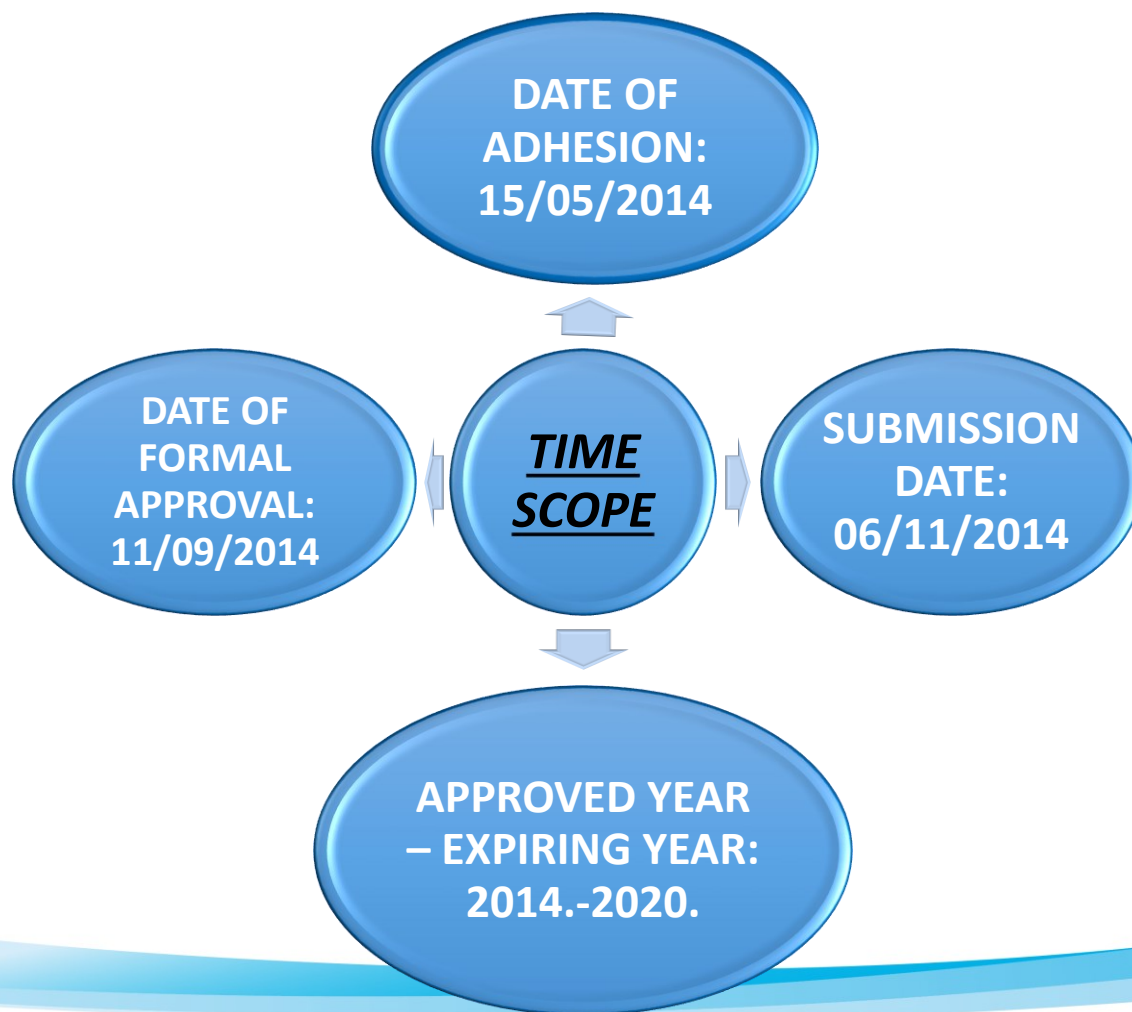
**TERRITORY  
(km2)**

• **176**

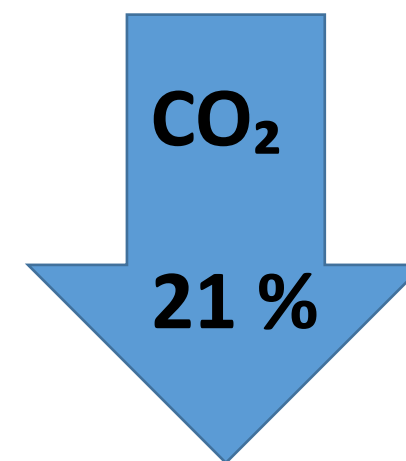




# MUNICIPALITY OF MATULJI SUSTAINABLE ENERGY ACTION PLAN



*Overall CO<sub>2</sub> emission reduction target: 21%.*





# MUNICIPALITY OF MATULJI SUSTAINABLE ENERGY ACTION PLAN

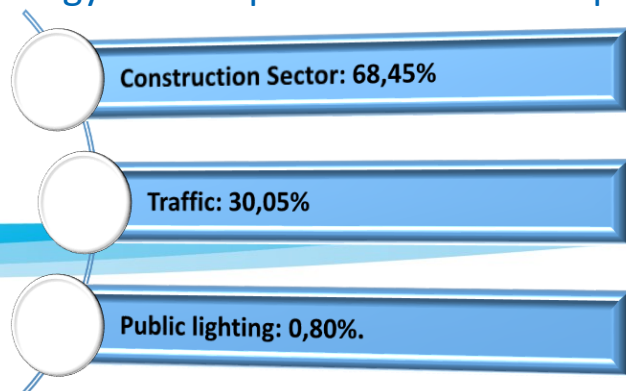
## Description

By making this Action Plan, Matulji Municipality has fulfilled the commitment which was given through the Mayor Agreement.

The main objective of this Action Plan is to reduce CO<sub>2</sub> emissions by more than 20% by 2020, which will be achieved with the proposed specific measures and activities. The reduction is observed as compared to 2012 as a reference year. Measures and activities for reducing immediate consumption energy, electricity and heat, and thus the reduction of CO<sub>2</sub> emissions, are proposed in the area of renewable energy and energy efficiency. By increasing the energy efficiency of existing energy consumers, and by introducing renewable energy sources on the places of those consumers that have so far used conventional energy sources will reduce energy consumption.

The direct consumption sectors of Matulji Municipality, in accordance with the recommendations of the European Commission, are: buildings, traffic and public lighting. Detailed energy analyzes were conducted for these sectors and high quality data about amount of energy consumed and their consumption was collected, and a 2012 emission inventory inventory was created. For the purpose of a better picture of energy consumption and CO<sub>2</sub> emissions, the Construction Division is further divided into public buildings, commercial buildings and households.

The Control Inventory of CO<sub>2</sub> Emissions for 2014. was made for the purpose of comparison the reference and control year. For the same purpose, an analysis of energy consumption was made as part of the Energy Sustainable Development Plan of Municipality of Matulji:



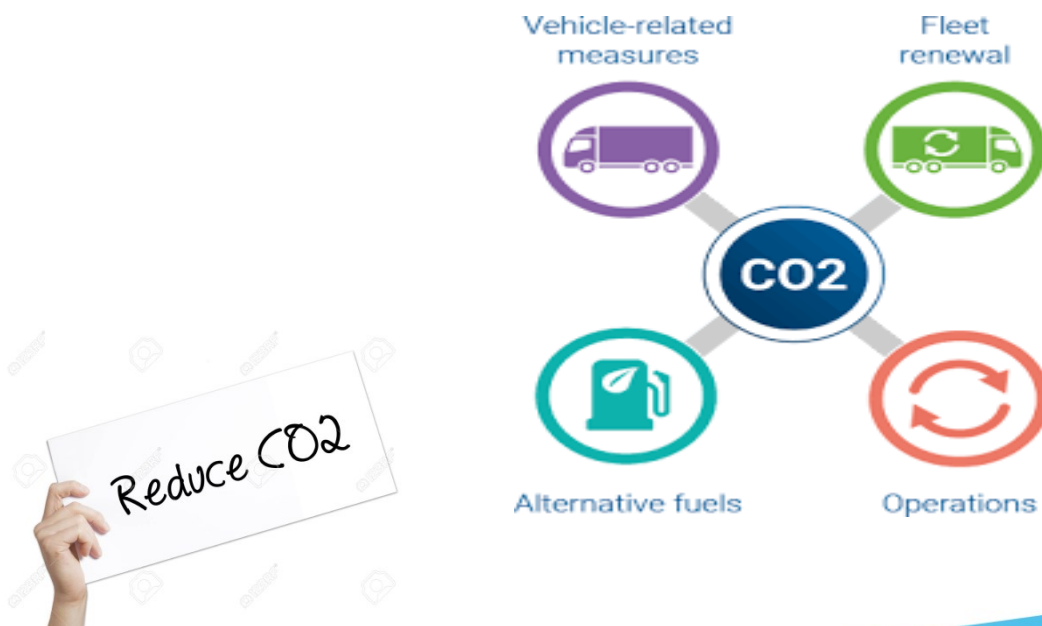


# MUNICIPALITY OF MATULJI SUSTAINABLE ENERGY ACTION PLAN

## Description

The reference inventory of the emission of the Municipality of Matulji for 2014 includes direct (fuel combustion) and indirect (electricity consumption) emissions of CO<sub>2</sub> from all three of these sectors of direct energy consumption. The total CO<sub>2</sub> emissions from the observed sectors in Matulji Municipality amounted 26 529.36 t CO<sub>2</sub> in 2014.

By signing the Mayor's Agreement, the municipality of Matulji has included a European initiative to reduce greenhouse gas emissions and propose an indicative target of 23,76% (28 102.34 t CO<sub>2</sub>) CO<sub>2</sub> reduction in 2020 compared to the emission (21 425.30) in 2012 .





# MUNICIPALITY OF MATULJI SUSTAINABLE ENERGY ACTION PLAN

## Implementation and monitoring

The monitoring and control phase of the implementation of the Action Plan should take place simultaneously at several levels:

Monitoring the dynamics of implementation of specific energy efficiency measures according to the measures and activities Plan.

Monitoring the performance of the project according to the Plan

Monitoring and control of energy savings targets for each measure inside the Plan

Monitoring and control of achieved CO2 emission reductions for each measure according to the Plan



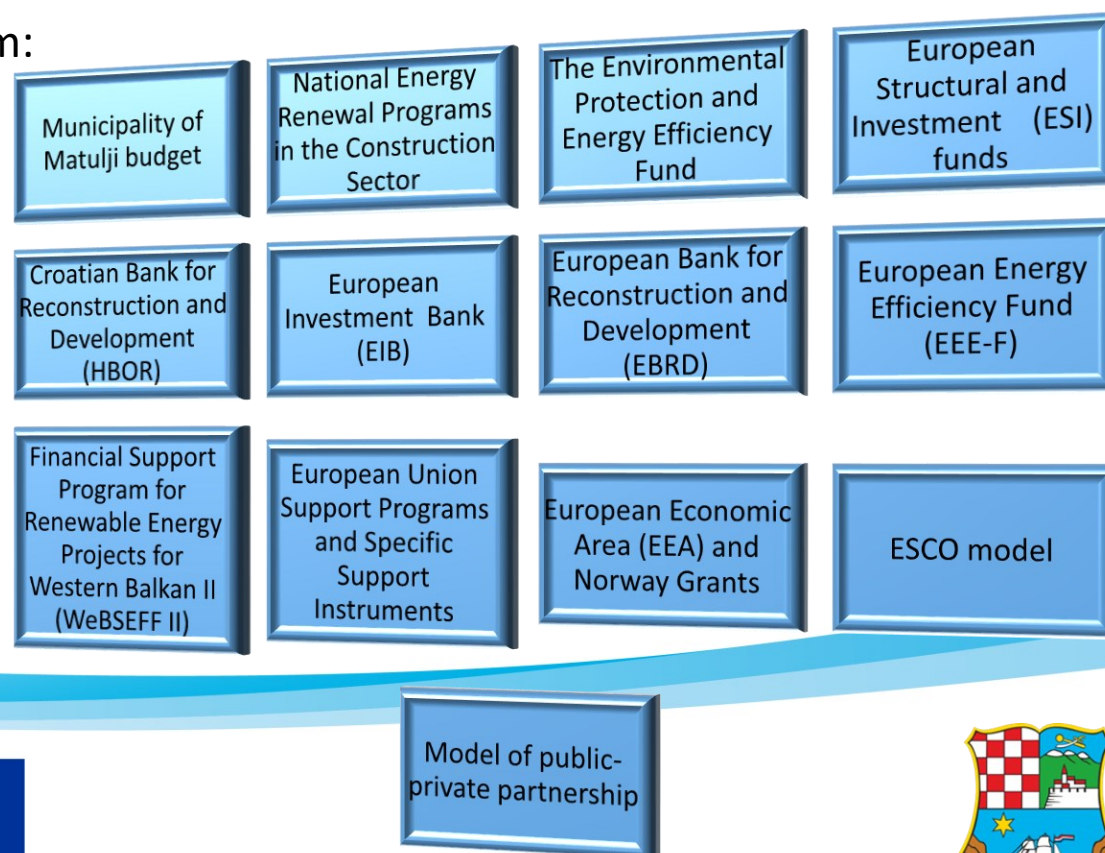
# MUNICIPALITY OF MATULJI SUSTAINABLE ENERGY ACTION PLAN

## Funding

Significant financial investments are needed to implement identified measures that can't be achieved only from the budget of the Municipality, but it is necessary to use available sources of financing. Review of potential funding sources of the implementation measures from this Plan generally includes three categories of financial instruments:

- Financial Instruments and Models which are available today in the Republic of Croatia;
- Financial instruments and models which are available in EU countries but not yet used in Croatia;
- Innovative financial models which are developed for the realization needs of some of the measures in the Action Plan.

Funding sources can be from:





# CITY OF KASTAV

## POPULATION

- 10.440

## TERRITORY (km2)

- 11

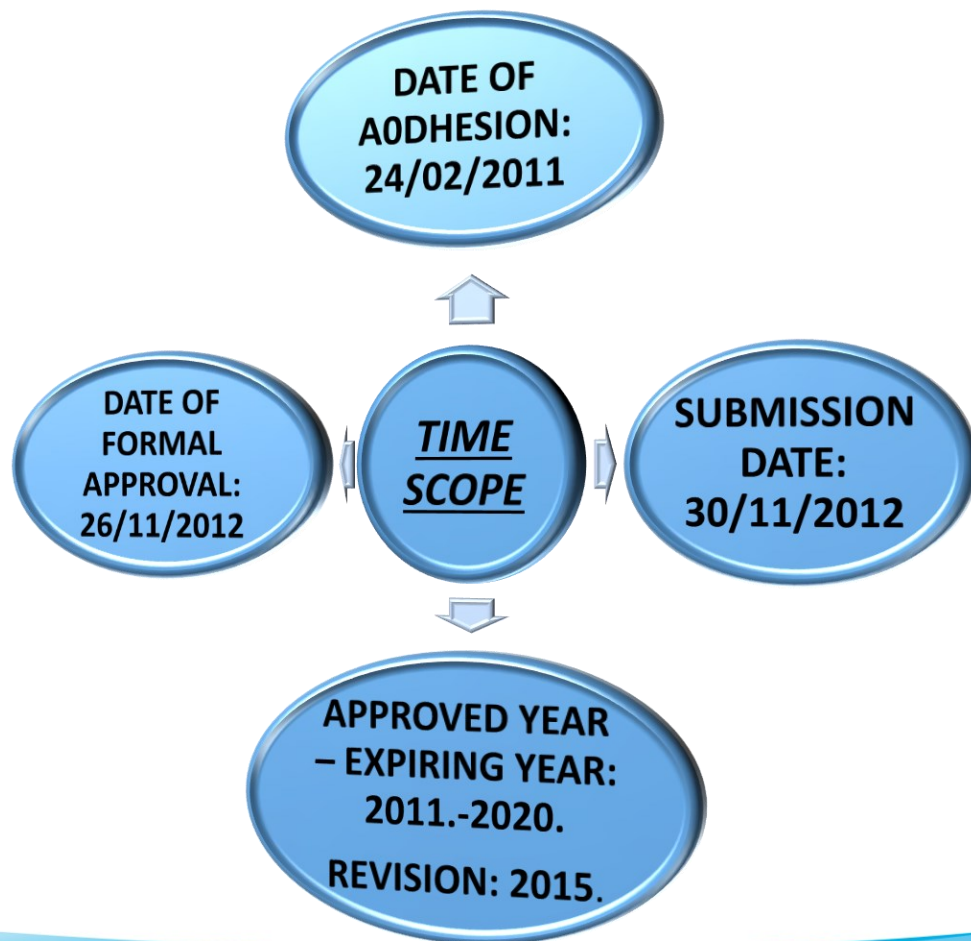




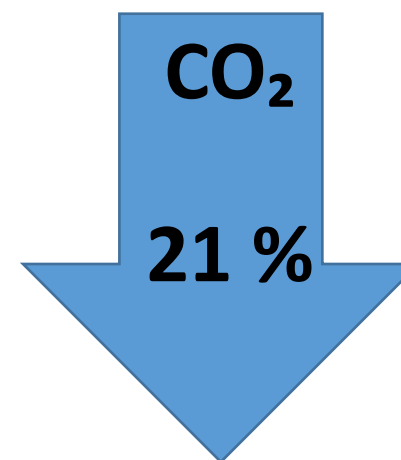


# CITY OF KASTAV SUSTAINABLE ENERGY ACTION PLAN

## CITY OF KASTAV REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.



*Overall CO<sub>2</sub> emission reduction target: 21%.*





# CITY OF KASTAV SUSTAINABLE ENERGY ACTION PLAN

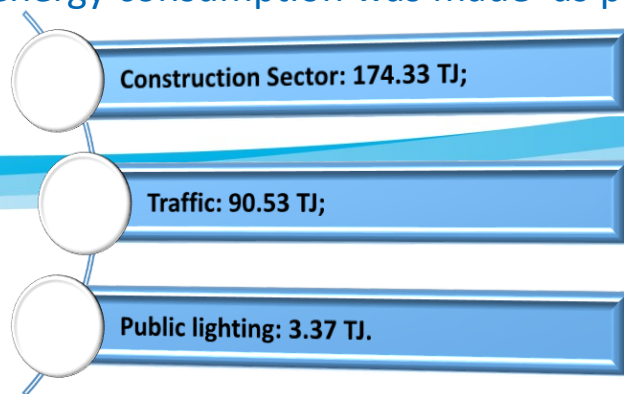
## CITY OF KASTAV REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Description

Our vision for Town of Kastav is to become environmentally friendly and developed city based on sustainability. We plan to achieve our sustainable plan primary based on energy sustainability development and renewable energy sources. We have vision that Town of Kastav will become a city of low pollutions and consumption in all aspects such as public buildings like schools, kindergartens, health institutions, households and ect. Our main challenges are overcoming legal and administrative barriers and finding financial sources for investments in RES and EE.

The energy policy of Kastav for many years has long been focused on sustainable energy development of the urban area based on the principles of environmental protection, energy efficiency and using renewable energy sources and sustainable construction. The City of Kastav joined the Mayor Agreement on 24.02.2011 and taking over obligation to make, implement and report their Energy Sustainable Development Action Plan. As part of the Energy Sustainable Development Plan of the City of Kastav, it was analyzed energy consumption of three sectors: building, traffic and public lighting. Based on that analysis, a Reference Inventory for 2011 was made. As part of the Action Plan, measures and activities have been defined to successfully reduce CO2 emissions at the City of Kastav level by more than 20% by 2020 compared to the reference year 2011. From the moment when document was published the City of Kastav actively conduct energy policy and project implementation

The Control Inventory of CO2 Emissions for 2015. was made for the purpose of comparison the reference and control year. For the same purpose, an analysis of energy consumption was made as part of the Energy Sustainable Development Plan of the City of Kastav:



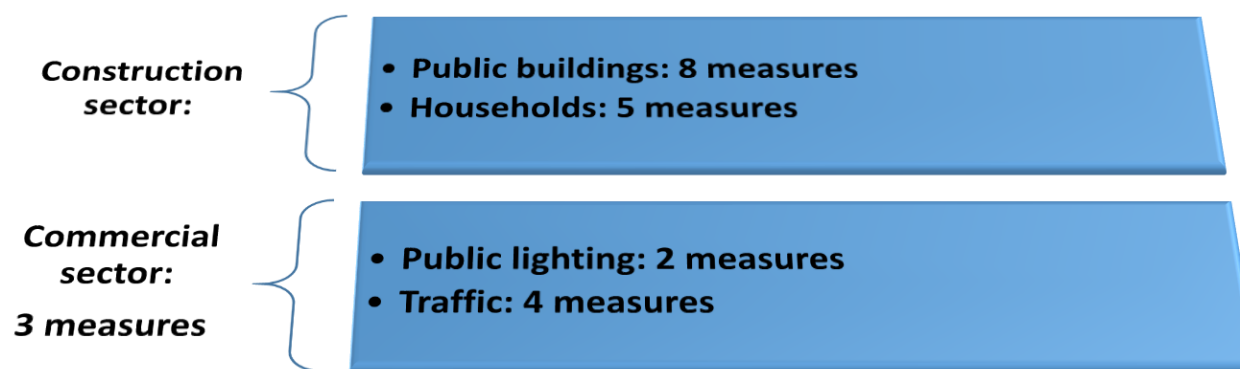


# CITY OF KASTAV SUSTAINABLE ENERGY ACTION PLAN

## CITY OF KASTAV REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Description

By comparing the reference year with the control year, energy consumption in the transport sector has been reduced, while consumption in the construction and public lighting sector has increased. It is important to emphasize that energy consumption in the public buildings subsector has decreased, which means that the City of Kastav successfully implemented energy efficiency measures on its buildings. The successful implementation of each measure has been analyzed for:



One measure which was not in the Action Plan, was added in the Revision: Integral renovation of public buildings.



# CITY OF KASTAV SUSTAINABLE ENERGY ACTION PLAN

## CITY OF KASTAV REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Implementation and monitoring

In accordance with the European Commission's proposal for the Action Plan and on the experience of measures implementation in the area of the City, energy indicators have been identified for the following categories:

- Traffic sector;
- Construction sector;
- Public lighting sector;
- Industry sector;
- Production of energy from renewable sources;
- Representation of energy companies in the city;
- Informing citizens on energy issues;
- Sustainable public procurement.

The energy indicators for sustainable development in the building sector of Kastav can be divided into several categories:

- Implementation of national legislation;
- Use of renewable energy sources in the buildings of the City of Opatija;
- Moving the consumption of various types of energy into the sub-sectors of construction;
- The readiness of citizens to invest in energy efficiency measures in their own homes

The fact that the public lighting sector owned by the City of Kastav will simplify the process of controlling and monitoring the following indicators:

- Number of built-in, energy and environmentally efficient lighting fixtures;
- City Lighting Public Sector Energy Consumption Movements;



# CITY OF KASTAV SUSTAINABLE ENERGY ACTION PLAN

## CITY OF KASTAV REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015

### Implementation and monitoring

As the sector of industry is not in the immediate jurisdiction of cities, for monitoring the energy indicators it will be need to establish good co-operation between the competent authorities of the City of Kastav and the industrial subjects in the City

The monitoring system for energy indicators of energy production from renewable sources is based on monitoring:

- Annual production of energy from renewable energy sources in the area of Kastav;
- Yearly increase of the installed power of the plants and plants for the production of energy from the OIE for each individual OIE source.

One of the clear indicators of Energy Sustainable Development of the City based on the use of renewable energy sources and the implementation of energy efficiency measures is the representation of energy companies, companies and companies that will implement and finance these projects and provide the necessary equipment for their verification. The good understanding of energy issues of Kastav citizens is one of the important precondition for energy-efficient development and as such is an important energy indicator for the implementation of timely and successful promotional-informative activities.

The proposal of the indicator with a description of the monitoring and control system succeeded in the public procurement model in the town of Kastav, includes:

- Selecting a category of energy-efficient products and services covered by green public procurement;
- The value and number of green public procurements carried out in the city;
- The number of educational staff responsible for public procurement in a company owned by the City.



# CITY OF OPATIJA SUSTAINABLE ENERGY ACTION PLAN

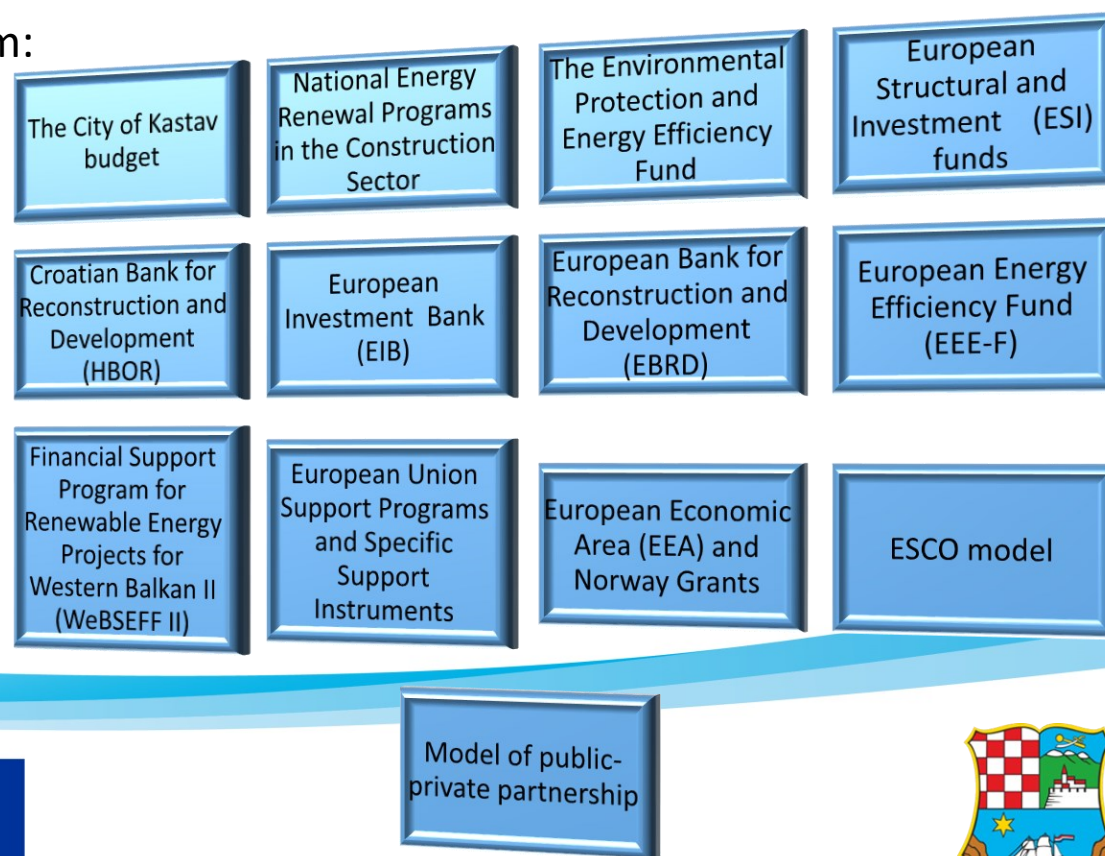
## CITY OF OPATIJA REVISION OF THE SUSTAINABLE ENERGY ACTION PLAN 2015.

### Funding

Significant financial investments are needed to implement identified measures that can't be achieved only from the budget of the City, but it is necessary to use available sources of financing. Review of potential funding sources of the implementation measures from this Plan generally includes three categories of financial instruments:

- Financial Instruments and Models which are available today in the Republic of Croatia;
- Financial instruments and models which are available in EU countries but not yet used in Croatia;
- Innovative financial models which are developed for the realization needs of some of the measures in the Action Plan.

Funding sources can be from:



# MUNICIPALITY OF VIŠKOVO



**POPULATION**

**14.445**

**TERRITORY  
(km2)**

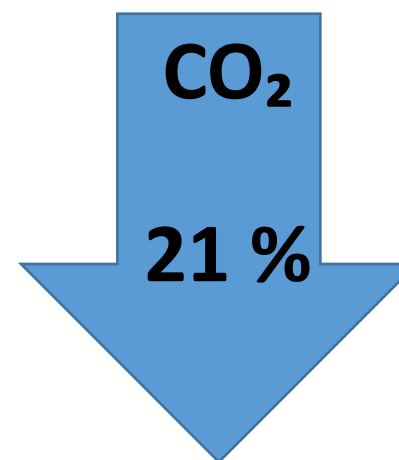
**19**



# MUNICIPALITY OF VIŠKOVO SUSTAINABLE ENERGY ACTION PLAN



*Overall CO<sub>2</sub> emission reduction target: 21%.*





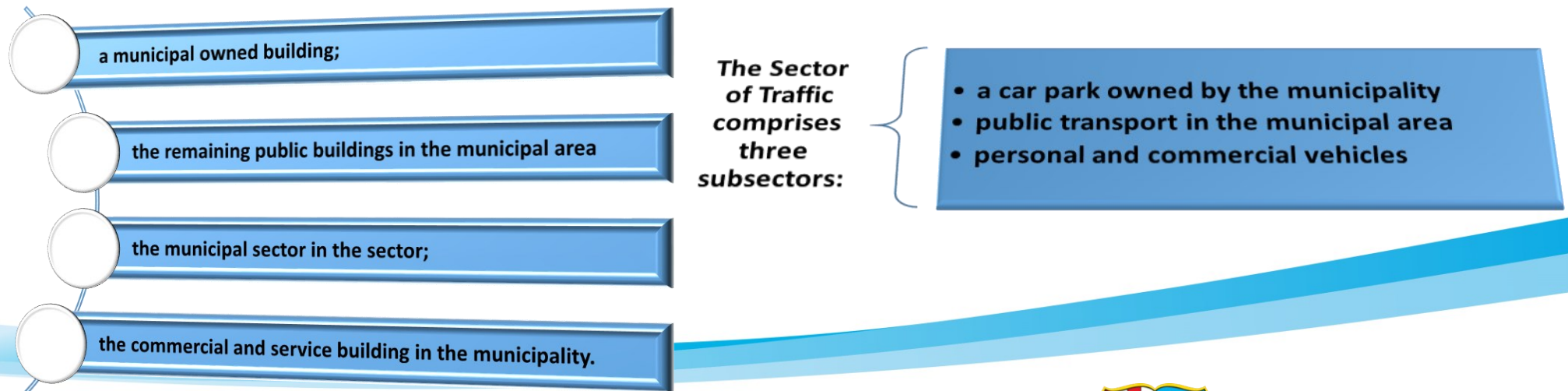


# MUNICIPALITY OF VIŠKOVO SUSTAINABLE ENERGY ACTION PLAN

## Description

By joining the mayor's agreement, the municipality of Viškovo has clearly demonstrated its commitment to sustainable development on the principles of rational use of energy and continuous care for the environment. The main objective of the Action Plan is to identify concrete measures for the sectors of direct energy consumption of the municipality whose implementation by 2018 will result in a reduction of CO<sub>2</sub> emissions by more than 20% compared to the reference year 2014. The methodology for drafting this Action Plan is in line with the European Commission guidelines.

The sectors of direct energy consumption of the municipality is construction, traffic and public lighting for which detailed energy analyzes were carried out and the relevant CO<sub>2</sub> inventory was developed in line with the recommendations of the European Commission. For the purpose of a detailed energy analysis, the construction sector is divided into the following three subsectors:





# MUNICIPALITY OF VIŠKOVO SUSTAINABLE ENERGY ACTION PLAN

## Description

The total energy consumption of the construction, transport and public lighting sector in the Municipality of Viškovo in 2014 is 104,808 MWh, of which 52,143 MWh is spent in construction, 51,892 MWh in traffic, 772 MWh in the public lighting sector. The total CO<sub>2</sub> emissions in the municipality in 2014 amounted to 27.707t CO<sub>2</sub>. The largest source of CO<sub>2</sub> emissions is the construction sector with emission of 14,210 t CO<sub>2</sub>, followed by the transport sector with emission of 13,316 t CO<sub>2</sub>, while emission from the public lighting sector is the smallest and is 180.65 t CO<sub>2</sub>.

Based on the conducted energy analyzes and concrete situation in the municipality, the measures identified were divided into groups according to the sector of direct consumption:

- Measures to reduce CO<sub>2</sub> emissions from the construction sector;
- Measures to reduce CO<sub>2</sub> emissions from the transport sector;
- Measures to reduce CO<sub>2</sub> emissions from the public lighting sector.

According to the results of the energy analyzes carried out, most of the CO<sub>2</sub> emission reduction measures are related to the construction and transport sectors. Realizing all the proposed measures, CO<sub>2</sub> emissions from observed sectors of direct consumption would be reduced by 9.22% compared to the 2014 CO<sub>2</sub> emissions.



# MUNICIPALITY OF VIŠKOVO SUSTAINABLE ENERGY ACTION PLAN

## Implementation and monitoring

Continuous monitoring, control and reporting on the results achieved is an extremely important component of the process of preparation, implementation and monitoring of the Energy Sustainable Development Action Plan of the municipality. All cities that are signatories of the Mayor Agreement are obliged to prepare and submit to the European Commission every two years the Report on the Implementation of the Action Plan (hereinafter the Report), which should contain a detailed description of the measures and activities of the achieved results including the Control Inventory of CO2 Emissions (MEI - Monitoring Emission Inventory). Comparison of the 2014 Inventory Inventory of CO2 Emissions and the Inventory Control Inventory for one of the following years will unambiguously show how much CO2 emission actually is in the municipality and answer the question of whether or not the implementation of the Action Plan is successful.



# MUNICIPALITY OF VIŠKOVO SUSTAINABLE ENERGY ACTION PLAN

## Implementation and monitoring

The process of monitoring and controlling the implementation of the Action Plan should take place simultaneously at several levels:

- Monitoring the dynamics of implementation of specific energy efficiency measures under the Measure Plan and activities;
- Monitoring the success of project implementation according to the Plan;
- Monitoring and control of set energy savings targets for each measure within plan;
- Monitoring and control of achieved CO2 emission reductions for each measure under the Plan,
- Monitoring and control of the achieved reduction of CO2 emissions by sectors of consumption (construction, traffic and public lighting) compared to the reference year 2014;
- Recovery of total CO2 emission reductions compared to the reference year 2014.

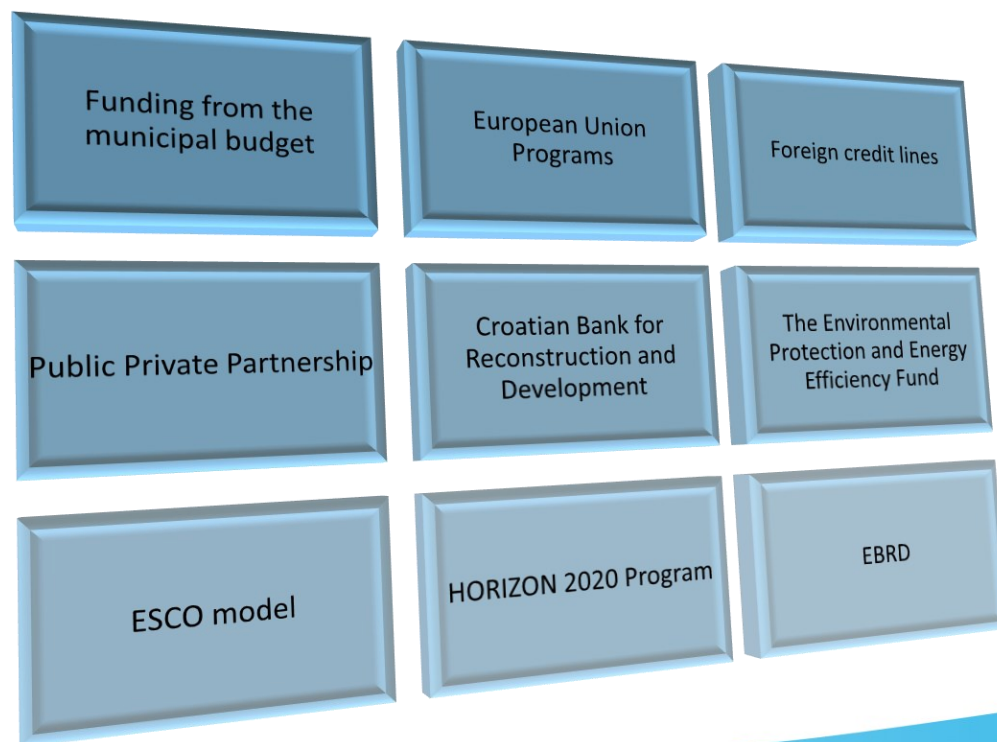
Monitoring of the dynamics and success of the implementation of the Action Plan will be carried out by an external, specialized institution



# MUNICIPALITY OF VIŠKOVO SUSTAINABLE ENERGY ACTION PLAN.

## Funding

Regarding to the restriction of the municipal budget, for the successful implementation of the proposed measures it is very important to consider other sources of funding, outside the municipal budget. The most important sources of funding are



# MUNICIPALITY OF ČAVLE

POPULATION

• 7220

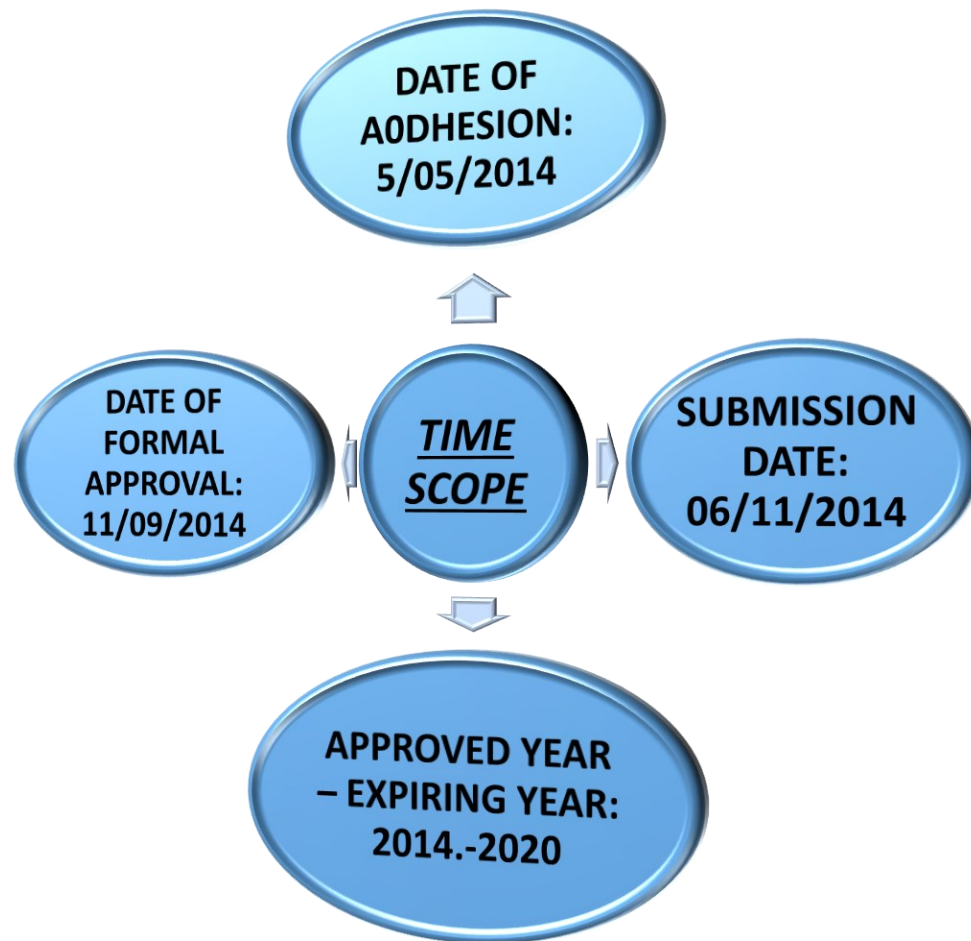
TERRITORY  
(km2)

• 85

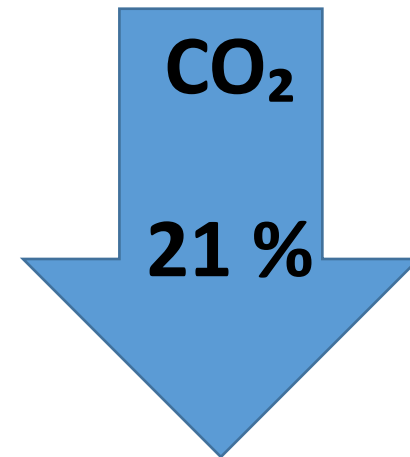




# MUNICIPALITY OF ČAVLE SUSTAINABLE ENERGY ACTION PLAN



*Overall CO<sub>2</sub> emission reduction target: 21%.*





# MUNICIPALITY OF ČAVLE SUSTAINABLE ENERGY ACTION PLAN

## Description

- The vision is to reduce amount of CO<sub>2</sub>, increase the using of renewable energy sources, encourage citizen to have more energy efficient households, with financial support and educational methods.
- Installing renewable energy systems in public buildgs. Replacing old inefficient lighting with new energy efficient and environmentally friendly lights. In transport sector the goal is to increase the share of biofuels for personal and commerical cars as well as for public transport.
- By making this Action Plan, Čavle Municipality has fulfilled the commitment which was given through the Mayor Agreement.
- The main objective of this Action Plan is to reduce CO<sub>2</sub> emissions by more than 20% by 2020, which will be achieved with the proposed specific measures and activities. The reduction is observed as compared to 2012 as a reference year.
- Measures and activities for reducing immediate consumption energy, electricity and heat, and thus the reduction of CO<sub>2</sub> emissions, are proposed in the area of renewable energy and energy efficiency. By increasing the energy efficiency of existing energy consumers, and by introducing renewable energy sources on the places of those consumers that have so far used conventional energy sources will reduce energy consumption.







# MUNICIPALITY OF ČAVLE SUSTAINABLE ENERGY ACTION PLAN

## Description

- The direct consumption sectors of Čavle Municipality, in accordance with the recommendations of the European Commission, are: buildings, traffic and public lighting. Detailed energy analyzes were conducted for these sectors and high quality data about amount of energy consumed and their consumption was collected, and a 2012 emission inventory inventory was created. For the purpose of a better picture of energy consumption and CO2 emissions, the Construction Division is further divided into public buildings, commercial buildings and households.
- The largest share of 77.31% of total energy consumption has a construction sector, followed by the transport sector with 21.91%. Electricity (110.42 TJ) is the most energy-intensive sector of the building industry, while in the transport sector the most consumed source is gasoline (31.04 TJ) and diesel (30.15 TJ).
- The reference inventory of the emission of the Municipality of Čavle for 2012 includes direct (fuel combustion) and indirect (electricity consumption) emissions of CO2 from all three of these sectors of direct energy consumption. The total CO2 emissions from the observed sectors in Čavle Municipality amounted 19 279.88 t CO2 in 2012





# MUNICIPALITY OF ČAVLE SUSTAINABLE ENERGY ACTION PLAN

## Description

- The largest share in total emission scenarios without measures, as well as in the scenario with measures, has the construction sector.
- The share of buildings in total emission scenarios without measures is 74.20%, while the share in the scenario with measures is 73.20%.
- The traffic sector's share of emissions in the scenarios without measures is 24.71%, while in the scenario with measures this share is 25.44%.
- From this it can be concluded that the building sector is the biggest potential for CO2 emission reduction. The emission scenario with the measures of this sector decreased by 23,97% compared to 2012. The total decrease in inventories compared to the base year is 21.02%.





# MUNICIPALITY OF ČAVLE SUSTAINABLE ENERGY ACTION PLAN

## Description

- By signing the Mayor's Agreement, the municipality of Čavle has included a European initiative to reduce greenhouse gas emissions and propose an indicative target of 21% (15 228.92 t CO<sub>2</sub>) CO<sub>2</sub> reduction in 2020 compared to the emission (19 281.03) in 2012 .
- For the purposes of assessing the reduction of CO<sub>2</sub> emissions in 2020, for the identified energy efficiency measures for the construction, traffic and public lighting sectors in Čavle municipality, the scenarios without measures and the scenario with the measures were made in 2020 for the scenarios of the energy consumption and emissions.
- The scenario scenario without measures in 2020 will amount to 21 666.9 t CO<sub>2</sub>, which is more than the proposed indicative target and it can be concluded that without the application of the measures the proposed target will not be achieved.
- However, if all measures envisaged are applied, the scenario scenario emissions will, as mentioned above, amount to 12 228.92 t CO<sub>2</sub>, which is below the proposed indicative target.





# MUNICIPALITY OF ČAVLE SUSTAINABLE ENERGY ACTION PLAN

## Implementation and monitoring

The monitoring and control phase of the implementation of the Action Plan should take place simultaneously at several levels:

- Monitoring the dynamics of implementation of specific energy efficiency measures according to the measures and activities Plan.
- Monitoring the performance of the project according to the Plan
- Monitoring and control of energy savings targets for each measure inside the Plan
- Monitoring and control of achieved CO2 emission reductions for each measure according to the Plan.

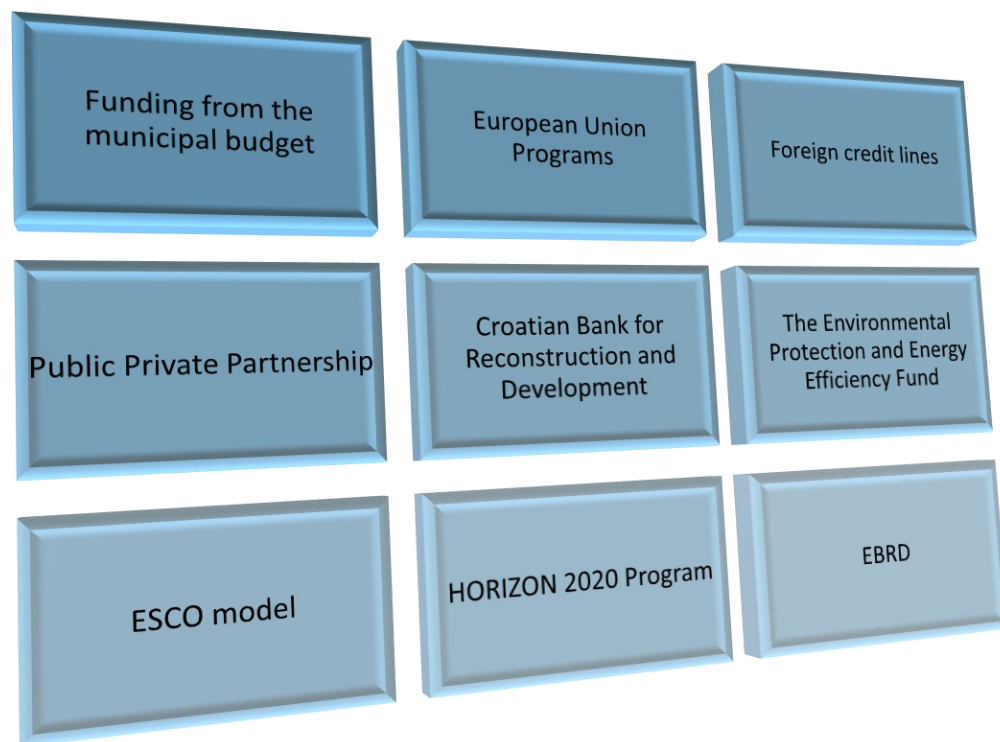




# MUNICIPALITY OF VIŠKOVO SUSTAINABLE ENERGY ACTION PLAN.

## Funding

Regarding to the restriction of the municipal budget, for the successful implementation of the proposed measures it is very important to consider other sources of funding, outside the municipal budget. The most important sources of funding are



# Contact

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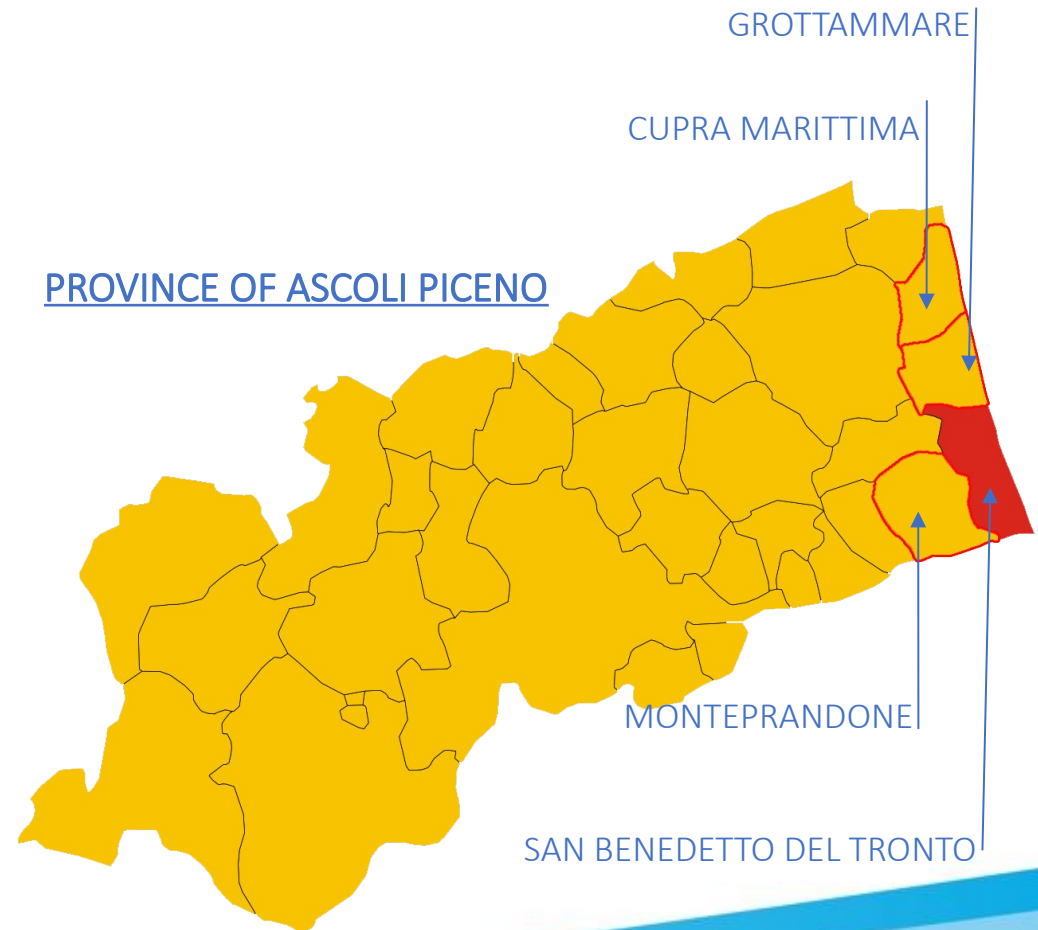
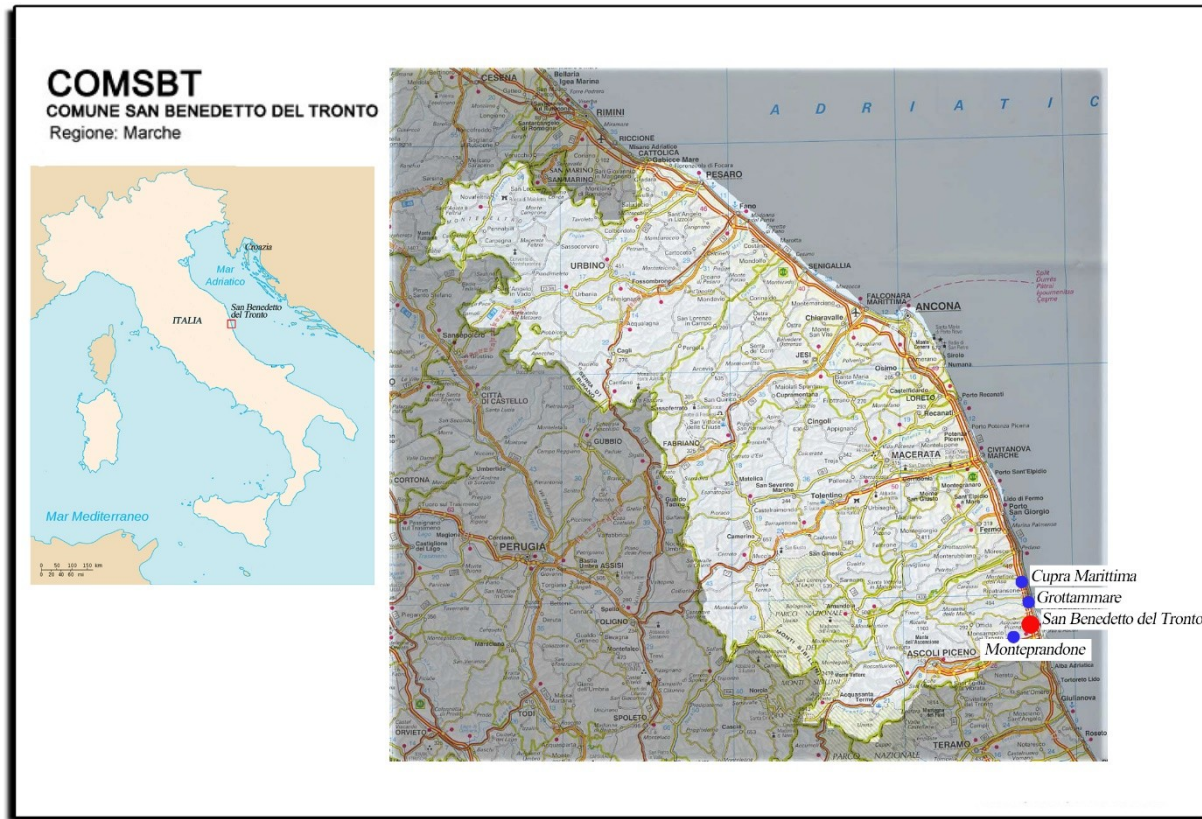
 [www.italy-croatia.eu/Joint\\_SECAP](http://www.italy-croatia.eu/Joint_SECAP)

# CONTEXT ANALYSIS RESULTS

COMSBT | Sergio Trevisani

2<sup>nd</sup> Transnational Meeting | Vela Luka | 18-19 June 2019

# THE PILOT AREA





# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## National level 1/3

### National Strategy for Climate Change Adaptation (2015)

In 2015 the Ministry of Environment approved the **NSCCA**. By gathering different sectorial studies it outlined a national picture of climate change impacts on environmental resources/processes and on socio-economic systems in order to develop a national vision of the measures to be taken to address them.

### National Plan for Climate Change Adaptation (2017)

The **NPCCA** was launched in 2017 as for implementation of the 2015 Strategy, it includes: a context analysis of the current and future climate condition, a description of the risk propensity and the expected impacts per sectors (NUT3 level), the identification and analysis of crossing and sectorial adaptation actions.

*[The NPCCA is not formally in force as it was not yet submitted to SEA procedure]*

Supporto tecnico-scientifico per il Ministero dell'Ambiente e della Tutela del Territorio e del Mare (MATTM) ai fini dell'Elaborazione del Piano Nazionale di Adattamento ai Cambiamenti Climatici (PNACC)



**Piano Nazionale di Adattamento ai Cambiamenti Climatici**

**PNACC**

Prima stesura per la consultazione pubblica

Luglio 2017

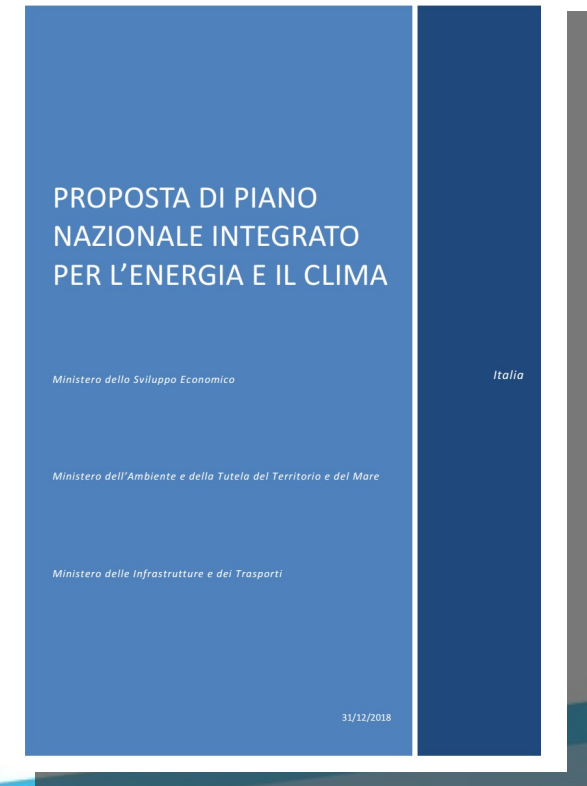
# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## National level 2/3

### Proposal for the Integrated National Energy and Climate Plan (2018/2019)

The plan was drafted by the Ministry of Economic Development at the end of 2018, it is structured in 5 sections/goals: decarbonisation, energy efficiency, energy security, internal energy market, research, innovation and competitiveness. Despite the title, climate adaptation is addressed in a very limited way only referring to the resilience of the energy infrastructures.

[The PINECP was recently sent to Local authorities for SEA scoping/consultation]



# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## National level 3/3

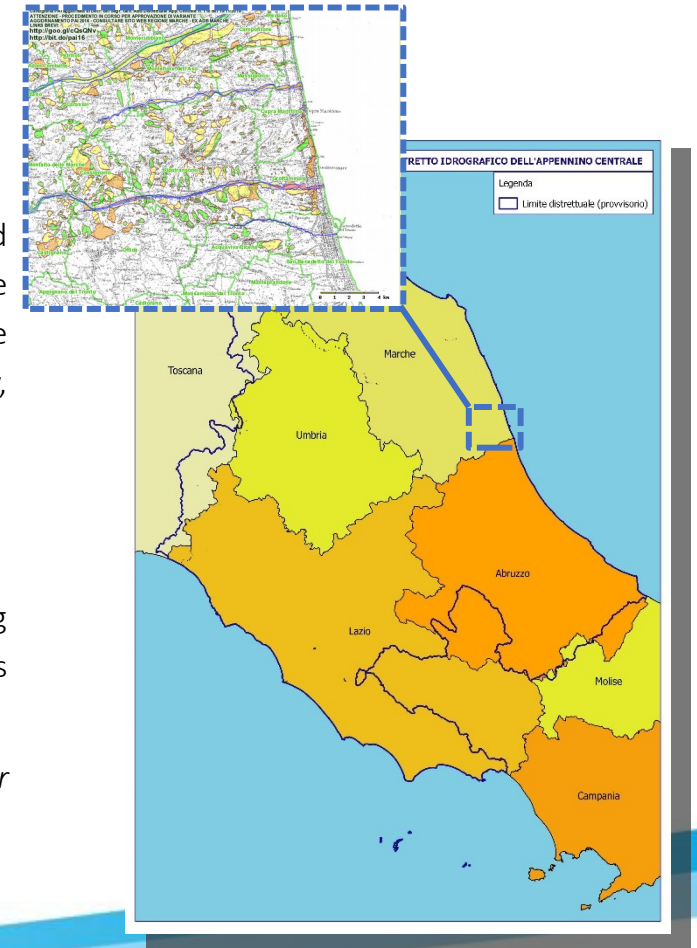
### National River Basin Management Plan – Central Appenines (2° update – 2106)

The plan, in accordance with the Water Framework Directive (2000/60/EC), identifies and classifies all the surface and underground water bodies of the district based on their ecological, chemical and quantitative status and defines the measures to be activated in order to reach a good status and the protected areas. Many of the measures provided are also relevant for climate adaptation, in particular those aiming at increasing water efficiency for irrigation, industry, energy and domestic use. Furthermore, these measures aim at improving the hydromorphological conditions as well.

### National River Basin Floor Risk Management plan – Central Appenines (2017)

The PGRA contains flood hazard and risk maps for all the river basins of the district, defines the objectives regarding their reduction and identifies the measures necessary to achieve them; it also contains indications on the alert systems and operating methods in event phase.

*[It incorporates information from the Hydrogeological Structure Plans approved by the former Marche Region River Basins Authority (2004 plan) and Tronto River Interregional Basin Authority (2008 plan)]*



# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## Regional level

### Water Protection Regional Plan (2010)

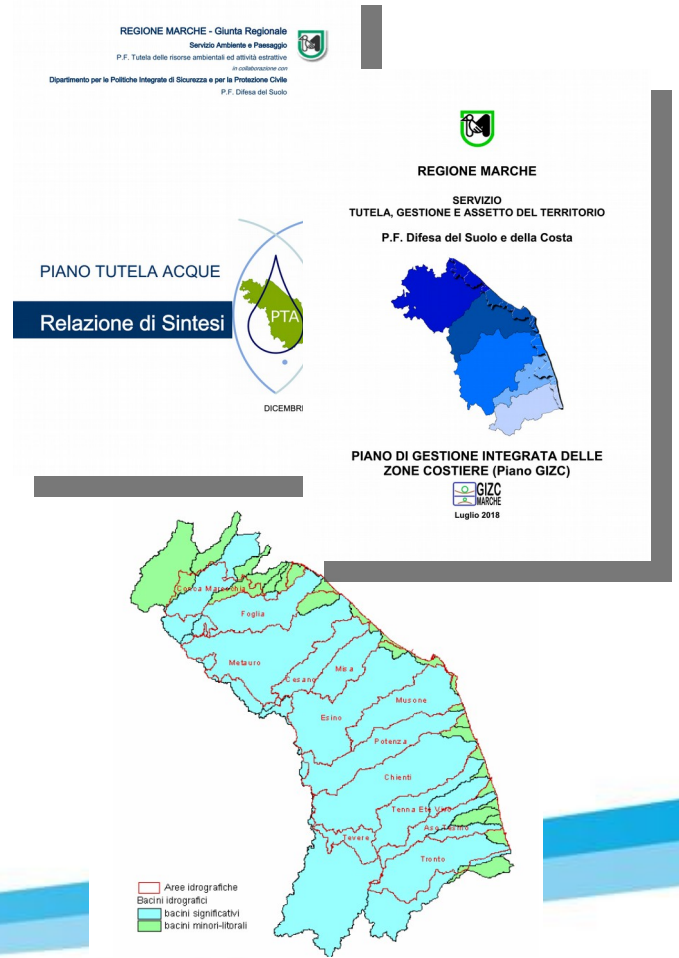
The water protection plan is to be considered the detailed articulation on the regional scale of the River Basin District Water Management Plan.

### Regional Plan for Integrated Coastal Zones Management (adopted 2018)

The Plan proposes a multi-year program and a short and medium term financial plan aimed at increasing "coastal resilience", intended as the capacity to react to changes induced by sea level variation, extreme events, sporadic anthropic impacts, maintaining unchanged the functions of the coastal system.

### Environmental and Energy Regional Plan (2016)

The plan analyzes the current state in terms of energy consumption and production, assesses the previous Plan's prescriptions and defines the set of actions to be deployed and to achieve a 15,4% target of renewables over the and gross final energy consumption as defined by the national energy laws by 2020 ("burden sharing"). The plan does not tackle adaptation issues.



# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## Local level 1/2

### Sustainable Energy (Climate) Action Plan – City of San Benedetto del Tronto (2013/2019)

The SEAP was drafted in 2013, after the CoM signature in 2011. According to the former CoM goals it was aimed at 20% CO2 reduction by 2020. Later COMSBT joined the CoM «evolution» towards adaptation, new timeframe and target. The SEAP was updated in 2019, regarding mitigation it adopted a 40% emission reduction target by 2030, while for adaptation it set as main goals the reduction of hydrogeological risk in its urban area and the safeguarding of the local agricultural sector.



### Civil Protection Municipal Plans- City of San Benedetto del Tronto (2018), Cupra Marittima (2013), Grottammare (2014), Montepandone (2017)

The Plans develop the analysis of local risks, defines risk and damage scenarios, defines the activities and emergency measures to be implemented in case of events that can affect the safety of people or interfere with the human activities. Among the considered risks, special attention is paid to floods. An efficient civil protection service is essential for adaptation as it contributes to the response and recovery capacity.



# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## Local level 2/2

### Tesino River Contract (Grottammare) and Torrents contracts (San Benedetto del Tronto)

The River Contracts are voluntary tools for strategic and negotiated planning that pursue the protection, the correct management of water resources and the enhancement of river territories together with the safeguard from the hydraulic risk. In the project area, 4 contracts of this kind are in progress, but all are in a preliminary phase and still lack the related action plans.

#### CREW Coordinated Wetland management in Italy-Croatia cross border region

Interregional Cooperation project | Interreg Italy-Croatia programme | Environmental & Cultural Heritage

Duration: 01/12/2018 to 06/2021 | Budget: € 1.836,947,50 | Lead Partner IUAV di Venezia; Partners: Città di San Benedetto del Tronto, UTI RIVIERA BASSA FRIULANA, ZASTITA PRIRODE, NATURA HISTRICA, NATURA-JADERA, Provincia BAT, UNICAM

The CREW project aims to ensure greater coordination between the different levels of territorial planning and the authorities responsible for the management of wetlands.

The objectives will be:

- Define a shared strategy and test local action plans for integrated management and sustainable development of rivers, wetlands and related systems.
- Establish an Observatory on River Ecosystems, adopting a common monitoring methodology.
- Improve public awareness of the value of river ecosystems and wetlands through a wide dissemination of project results among policy makers, wetland managers, professionals and the general public.

# FUNDING TOOLS FOR CLIMATE ADAPTATION

## EU level

**LIFE SECADAPT – Upgrading sustainable energy communities in mayor adapt initiative by planning climate change adaptation strategie**

The project was financed by the Life Program 2014-2020 from 01/09/2015 to 31/12/2018 (40 months). Its total budget amounted to 3,2 M€. The partnership involves four EU member states (Italy, Croatia, Spain, Greece) and was coordinated by the Marche Region Development Agency (SVIM). It allowed the development of adaptation strategies and plans for 17 partner municipalities (12 in the Marche Region) and to the integration of existing SEAPs with specific actions for climate adaptation.

**CITYSEC- Regional Development and Energy Agencies supporting municipality Sustainable Energy Communities (SECs) to jointly become active energy actors in Europe**

The project was financed by the IEE Program from 2011 to 2013. COMSBT was one of the 44 municipalities involved and supported by the project Consortium to sign up to the Covenant of Mayors (CoM) initiative and to develop their own SEAPs.

<http://www.lifeseCADAPT.eu/>



# FUNDING TOOLS FOR CLIMATE ADAPTATION

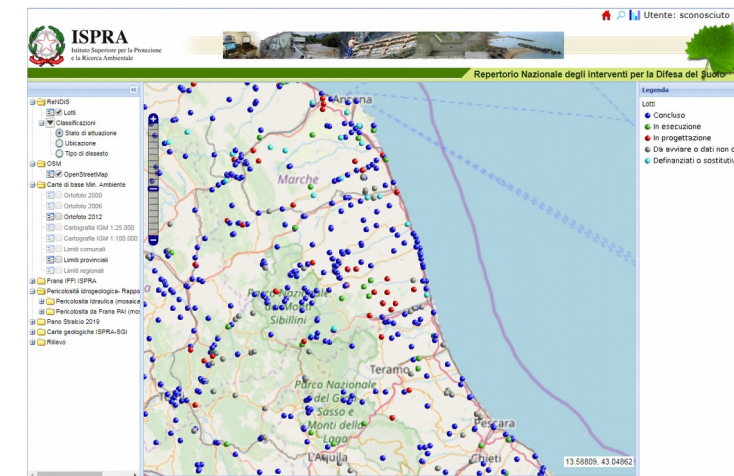
## National level

### NATIONAL PLAN FOR THE MITIGATION OF HYDROGEOLOGICAL RISK, RESTORATION AND PROTECTION OF THE ENVIRONMENTAL RESOURCES

The plan approved with Prime Ministerial Decree on 20/02/2019 aims to provide a unitary framework of intervention with indications on the needs, available financial resources, time schedule, responsibilities and governance system. In the short term, it aims to reorganize measures envisaged by current plans and distribute resources already allocated. By summer 2019 an extract of this plan is expected to be issued listing the projects ready to start by 2019, the total budget amount to 3 billion euros. According to a similar program prepared by the former government. The plan should include 5 interventions(\*) on the project area, but the progress level of the related plans suggest they will not be included in the 2019 extract.

(\*) Hydraulic maintenance and consolidation of the left bank of the Tronto river from the ANAS bridge to the mouth, Ragnola stream hydraulic system (San Benedetto del Tronto); Securing of the stretch of the Tronto River in the territory of the municipality of Montepandone; Securing the stretch of the Menocchia stream in the municipal area of Cupra Marittima; Securing the stretch of the Tesino torrent at the San Martino site (Grottammare).

(National Repository of Soil Protection Interventions)  
<http://www.rendis.isprambiente.it>





# FUNDING TOOLS FOR CLIMATE ADAPTATION

## Regional level 1/2

### MARCHE REGION ERDF ROP 2014-2020

The budget on TO 5 “Promoting climate change adaptation, risk prevention and management” amounts to 80,8 M€ (13,8%), split over 2 priority axis:

**Axis 5 – Adaptation to climate change, risk prevention and risks management** (22,8 M€). It includes 2 different actions, both under the investment priority “5b- Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems”:

- Action 15.1 Securing measures and resilience increasing on the most prone to hydrogeological risk and coastal erosion areas
- Action 15.2 Extraordinary maintenance of the water network- including drainage, lifting and flooding systems- and the stabilization of the slopes, using, where possible, green infrastructures :

**Axis 8 – Seismic hydrogeological prevention, energy retrofitting and support for the socio-economic recovery of the areas affected by the earthquake** (58 M€) [as multiobjective axis it includes ROP actions with priority assigned to the Municipalities of the crater]



# FUNDING TOOLS FOR CLIMATE ADAPTATION

## Regional level 2/2

### MARCHE REGION RURAL DEVELOPMENT PROGRAMME 2014-2020

The programme as per its last version, has over 20 measures, dedicated to 6 priorities and 3 crossing objectives: environment, climate change and innovation. Opportunities for adaptation actions can be found mostly under:

**Measure 5- Restoration of crop potential damaged by natural disasters and introduction of prevention measures.** It funds:

- 5.1- prevention and mitigation of the hydrogeological risks
- 5.2- recovery measure after disasters

**Measure 16- Cooperation.** It explicitly includes :

- 16.5- Collective actions for climate change mitigation and adaptation and for environmental improvement

Further opportunities can be found under the following one:

**Measure 4- Investments,** with special reference to 4.2.B Investments to reduce energy consumption, 4.3.B Development, modernization and enhancement of irrigation infrastructures

**Measure 8- Forestry,** with special reference to 8.3 Prevention of damage caused by forest fire and natural disasters



# FUNDING CLIMATE ADAPTATION: A GOOD PRACTICE IN THE MARCHE REGION

(FOOD FOR ThOUGHT)



## LIFE PRIMES- Preventing flooding risk by making resilient communities (Oct 2015- Aug2018)

The project was led by the Agency for Territorial Safety and Civil Protection of Emilia-Romagn in which Marche and Abruzzo Regions were partners. It aims to build resilient communities through their engagement and proactive participation in the operations of early warning and flood risk prevention measures. It produced awareness raising materials and tools to support civic engagement in climate protection issues

<https://masteradapt.eu/>



**MASTER  
ADAPT**

## LIFE MASTERADAPT- Mainstreaming experiences at regional and local level for adaption to climate change (OCT 2016- Oct 2019)


The project was led by Sardinia Region, it aims to identify and test innovative tools of multi-level governance, to support regions and local authorities in defining and developing adaptation strategies and policies. It produced various tools available to Regions, Metropolitan Areas and Municipalities for mainstreaming adaptation to climate change.

<http://www.lifeprimes.eu/>




City of San Benedetto del Tronto  
Contact person: Sergio Trevisani

thank you!

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 [www.italy-croatia.eu/comsbt](http://www.italy-croatia.eu/comsbt)

# CONTEXT ANALYSIS RESULTS

Joint\_SECAP | SDC | Martin Bućan

2° Transnational Meeting | Vela Luka | 18-19 June 2019

# THE PILOT AREA ISLAND BRAČ

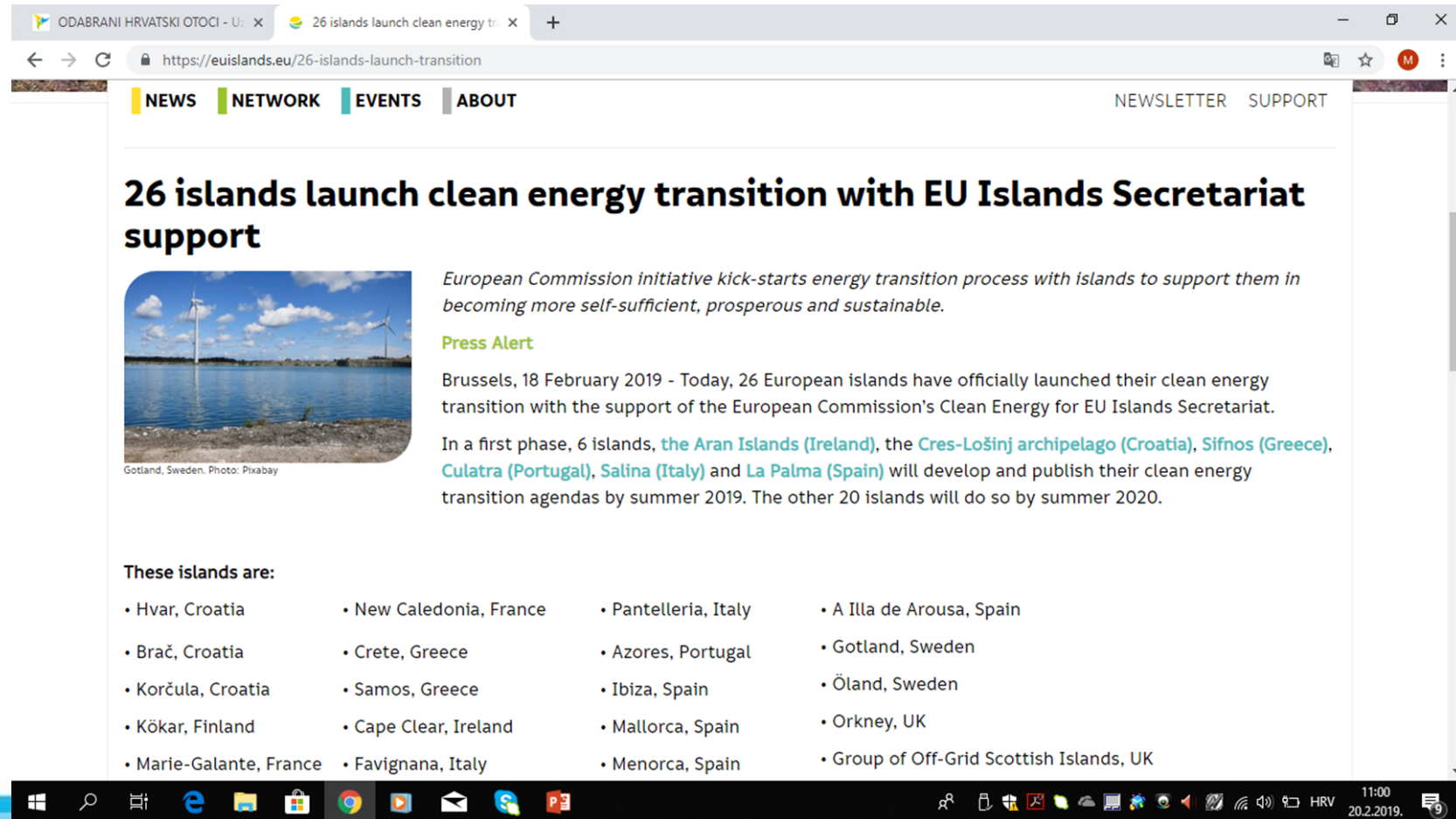
The island of Brač is one of the 50 permanently inhabited islands of the Croatian Adriatic. It belongs to Middle Dalmatian group of islands, and the town of Supetar and island's seven municipalities (Bol, Milna, Nerežišća, Postira, Pučišća, Selca, Sutivan) make a part of Split - Dalmatia County. area of 396 square kilometres (153 sq mi), making it the largest island in [Dalmatia](#), and the third largest in the Adriatic



# THE PILOT AREA BRAČ ISLAND CLEAN ENERGY TRANSITION

Brač population is currently estimated at 14 343 people.

The summer on-season starts beginning of May and lasts until the end of October. In this period, Brač is visited by more than 250000 tourists. As a result of that , energy consumption is almost double compared to the average winter consumption (HEP-ODS Brač statistics).



ODABRANI HRVATSKI OTOCI - U: x 26 islands launch clean energy tr: x

https://euislands.eu/26-islands-launch-transition

NEWS NETWORK EVENTS ABOUT NEWSLETTER SUPPORT

## 26 islands launch clean energy transition with EU Islands Secretariat support

*European Commission initiative kick-starts energy transition process with islands to support them in becoming more self-sufficient, prosperous and sustainable.*

**Press Alert**

Brussels, 18 February 2019 - Today, 26 European islands have officially launched their clean energy transition with the support of the European Commission's Clean Energy for EU Islands Secretariat.

In a first phase, 6 islands, [the Aran Islands \(Ireland\)](#), the [Cres-Lošinj archipelago \(Croatia\)](#), [Sifnos \(Greece\)](#), [Culatra \(Portugal\)](#), [Salina \(Italy\)](#) and [La Palma \(Spain\)](#) will develop and publish their clean energy transition agendas by summer 2019. The other 20 islands will do so by summer 2020.

Gotland, Sweden. Photo: Pixabay

**These islands are:**

- Hvar, Croatia
- Brač, Croatia
- Korčula, Croatia
- Kökar, Finland
- Marie-Galante, France
- New Caledonia, France
- Crete, Greece
- Samos, Greece
- Cape Clear, Ireland
- Favignana, Italy
- Pantelleria, Italy
- Azores, Portugal
- Ibiza, Spain
- Mallorca, Spain
- Menorca, Spain
- A Illa de Arousa, Spain
- Gotland, Sweden
- Öland, Sweden
- Orkney, UK
- Group of Off-Grid Scottish Islands, UK

# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## National level

### Draft Climate Change Adaptation Strategy in the Republic of Croatia for the period to 2040 with a view to 2070

- Time scope: Upgrading and under revision
- The main goals of the Adaptation Strategy:
  - reduction of the vulnerability of social and natural systems to the adverse impacts of climate change.
  - contribute to achieving long-term sustainable development of the Republic of Croatia
- The main adaptation measures:
  - ensuring sustainable regional and urban development
  - ensuring preconditions for the economic development of rural areas, coastal areas and islands
  - strengthening of the management capacities through a networked monitoring and early warning system
  - ensuring continuity of research activities



# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## Regional level

Program for the protection of air, the ozone layer, climate change mitigation and adaptation to climate change for the area Split and Dalmatia County for the period from 2017 to 2020

- Time scope: Into force
- The main goals:
  - reduction of greenhouse gas emissions
  - increase the share of renewable energy sources in all sectors
  - improving energy efficiency in all sectors.
- The main adaptation measures:
  - to increase energy efficiency and the use of renewable energy sources.
  - carry out educational activities to raise public awareness of climate change.

# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## Local level

- On the local level they still don't have adopted any plan
- Sustainable Energy Plan for Island Brač: The EASY (Energy Actions and System) project was funded under the European IEE - Intelligence Energy Europe program for two years. The main goal of the project was to determine a model of a Local Energy System for Small and Medium Decentralized Urban Areas (pilot area: Island Brač) in order to guarantee maximum energy efficiency, integrated energy production and greater use of renewable energy sources.

# FUNDING TOOLS FOR CLIMATE ADAPTATION

## EU level

### LIFE programme

The LIFE programme is the EU's funding instrument for the environment and climate action. The current funding period 2014-2020 has a budget of €3.4 billion (non-refundable funds).

### Interreg

Interreg is one of the key instruments of the European Union (EU) supporting cooperation across borders through project funding. Its aim is to jointly tackle common challenges and find shared solutions in fields such as health, environment, research, education, transport, sustainable energy and more.

Interreg contributes around EUR 1 billion to EU external border cooperation programmes supported by the Instrument for Pre-Accession Assistance (IPA) and the European Neighbourhood Instrument (ENI). 2014-2020 is the fifth period of Interreg and therefore it is called Interreg V.

### Horizon 2020

Horizon 2020 is the biggest EU Research and Innovation programme ever with nearly €80 billion of funding available over 7 years (2014 to 2020) – in addition to the private investment that this money will attract. It promises more breakthroughs, discoveries and world-firsts by taking great ideas from the lab to the market.

Horizon 2020 SC3 Energy, Horizon 2020 SC5 Environment, Horizon 2020 SC2 Food & Bioeconomy, Horizon 2020 SC4 Transport.

# FUNDING TOOLS FOR CLIMATE ADAPTATION

## National level

Financing climate change adaptation measures within the OP Competitiveness and Cohesion 2014 – 2020.

- Support for investment to adapt to climate change, including ecosystem approaches (30.396,147 EUR)
  - measures to improve the quality and availability of data for climate monitoring purposes, data collection, modelling, and analysis and forecasting of climate related information.
  - strengthening the administrative and technical capacities of public institutions dealing with climate change (primary training of administrative officers with the aim of enhancing expertise).
  - building awareness of climate change impacts at the national and local level, enabling more effective adaptation measures to be introduced.
- Promoting investment related to special risks, disaster resilience and disaster management system development (215.000,000 EUR)
  - prevention (risk awareness programs, promotion and education programs, creating a resilient community)

Climate change adaptation measures	Total cost (in mil. EUR)
RP-01-01/02 Development of indicators of effects of the implementation of the adaptation strategy for vulnerable sectors and society	0,129
Agriculture	
P-02-01. Development of an operation for increasing the water containment capacity of agricultural soil and inclusion in the Rural Development Program of the Republic of Croatia 2014 – 2020	0,013
P-04-01. Development of an operation for the breeding of species and sorts of agricultural crops and breeds of farm animals that are more resilient to climate change and its inclusion into the Rural Development Programme of the Republic of Croatia for the Period 2014–2020	0,013
Forestry	
SU-01-01. Incorporate measures of adaptation to climate change into Forestry Sector Strategy and Forest Act as well as other legal regulations concerning forests and forestry sector, including implementation indicators	0,067
Fisheries	
RA-03-01. Creating the amendments and additions to the legislative framework related to the cultivation of new (alien) fish species	0,00
RA-03-03. Market research to determine the possibility of accepting new (alien) fish species by consumers	0,135
Tourism	
T-01-01. Definition of the impact of climate change on tourism	0,202
T-01-02. Definition of guidelines for the development of Croatian tourism in accordance with adaptation to climate change	0,107
T-01-05. Continuous monitoring of the state of tourism infrastructure	0,269
Risk management	
UR-02-01. Expansion of relevant working groups and persons responsible for certain types of threats / risks related to climate change	0,067
UR-02-02. Development of algorithms and action guidelines for handling various scenarios at all levels	0,034
UR-02-03. Amendments to the legislative framework related to decentralisation and centralisation of management functions depending on the type of threat / risk	0,0134
UR-02-04. Linking of information systems of key stakeholders	2,756
UR-02-05. Connection of civil, security, and defence services in interventions	4,043
<b>TOTAL</b>	<b>7,853</b>

# FUNDING TOOLS FOR CLIMATE ADAPTATION

## Regional/local level

- County of Split and Dalmatia
  - regional budget for environmental protection and climate adaptation in 2019. : 2 milion HRK (cca: 270.000,00 EUR)
  - Program systemic energy menagment in County of Split and Dalmatia : 2.5 milion HRK (cca: 300.000,00 EUR)

# FUNDING CLIMATE ADAPTATION: A GOOD PRACTICE IN SDC

## CHANGE WE CARE J.U RERA

The project's main result is to convey the latest knowledge on climate change for policy makers that can best benefit from it: planners, nature protection bodies, local and regional authorities, etc., assessing adaptation to climate change, raising citizen awareness of climate change impacts and planning possible adjustment measures.

TOTAL BUDGET: 2.700.780


€ DURATION: 1.07.2018 - 31.12.2020





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# Thank you for the attention!

County of Split and Dalmatia -  
Departments for economicys , EU funds and  
agriculture

Contact person: Martin Bučan

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# CONTEXT ANALYSIS RESULTS

Abruzzo Region | Chiara Barchiesi

2° Transnational Meeting | Vela Luka | 18-19 June 2019

# REGION OF ABRUZZO



4 provinces: L'Aquila, Chieti, Pescara, Teramo  
305 municipalities  
1.500.000 inhabitants



Abruzzo Region is known as **the greenest region in Europe**

**1/3** of its territory is set aside as national parks  
and protected nature reserves:

**3** National parks **1** Regional park **38** Protected areas

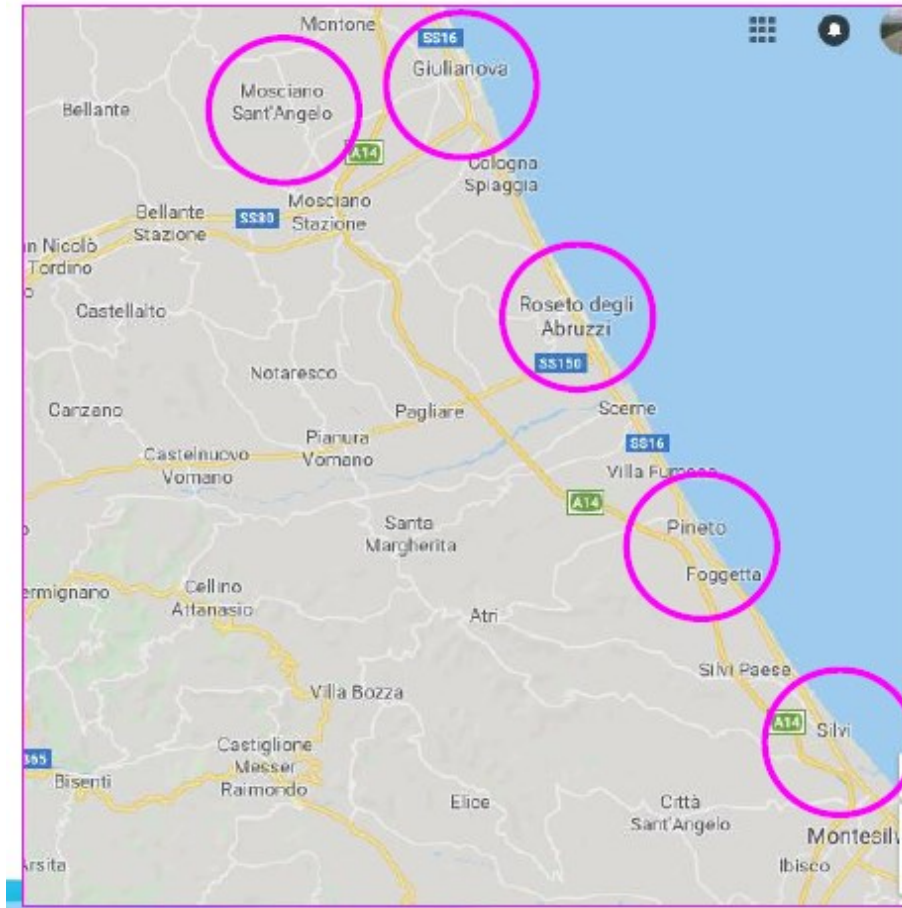
Region surface : 10,794 Km<sup>2</sup>

133 km of coastline

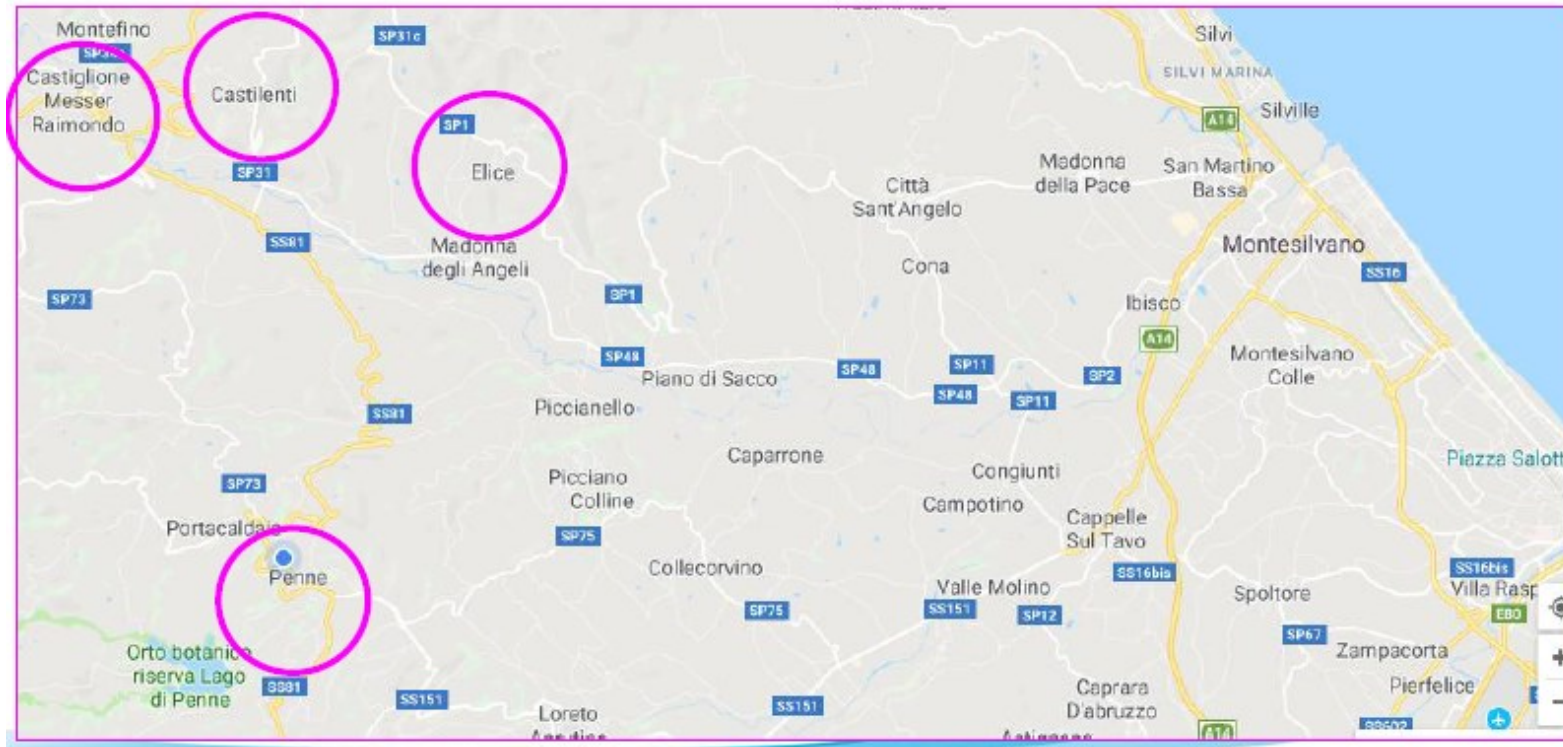
**1** Marine Protected Area



# FIRST PILOT AREA: COAST - PROVINCE OF TERAMO



# SECOND PILOT AREA: inner hilly area of the cliff crossed by the Fino river - Province of PE and TE



# PILOT AREA – general overview

Municipalities involved	9
Surface area (square km)	348,44
Number of inhabitants in the area	106.927
The biggest municipality	Roseto (25.588 inhabitants)
The smallest municipality	Castilenti (1.435 inhabitants)
Protected area	1 Marine Protected Area (Torre Cerrano)
Lakes and rivers	Both areas are crossed by several rivers. Between them, we highlight Tavo, Fino, Piomba and Vomano Lake: lake of Penne (dam) and its protected area (established in 1987)

# PILOT AREA – Climate-related risks and threats

FIRST TARGET AREA (COAST)	
Mayors Adapt	Mosciano, Pineto and Silvi
Climate-related risks and threats	<ul style="list-style-type: none"> <li>▪ Cloudburst (rain bombs)</li> <li>▪ Hydrogeological risk</li> <li>▪ Flooding</li> <li>▪ Coast erosion</li> </ul>

SECOND TARGET AREA (INNER HILL)	
Mayors Adapt	Castiglione Messer Raimondo
Climate-related risks and threats	<ul style="list-style-type: none"> <li>▪ Hydrogeological risk</li> <li>▪ Insufficient energy supply</li> <li>▪ Cloudburst (rain bombs)</li> <li>▪ Decreasing agricultural yield</li> </ul>

# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## National level

Please list the policies/strategies/plans identified at national level, including the title and 1 or 2 sentences summarizing their contribution to climate change adaptation and/or the climate change adaptation measures foreseen. Add slides if necessary.

- National Plan of Adaptation to Climate Change (july 2017)
- Integrated Italian Energy and Climate Plan (ongoing)

# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## National level

### Integrated Italian Energy and Climate Plan

- Member States of the European Union are developing Integrated National Energy and Climate Plans (NECPs). The preparation of the NECPs is foreseen by the Governance Regulation of the Energy and Climate Action Union ([Regulation \(EU\) 2018/1999](#)).
- The NECPs are a key element in achieving the objectives of the Paris Agreement, as well as those defined in the framework of the Energy and Climate Package of the European Union.
- At this stage, draft NECPs have been developed for each of the Member States. They must be finalized by the end of 2019.
- The involvement of the regions in the elaboration of the NECPs is ongoing.



# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## Regional level

- RD no. 860 of 13/11/2018 **Approval of the guidelines for the realization of the Regional Plan of Adaptation to Climate Change and Regional Climate Profile**
- RD no. 1037 of 28/12/2018 establishes the **involvement of three universities** of the Abruzzo Region in the implementation of the regional strategy of adaptation to climate change called PACC (Regional Plan of Adaptation to climate change)
- RD no. 1038 of 28/12/2018 establishes the **permanent task force** between all regional department, ARTA (regional agency for the environmental protection) and ENEA (national agency for new technologies, energy and sustainable economic development) for the governance on the regional strategy of adaptation to climate change
- commitment to the **Under2 MOU** goal (limiting global warning below 2°C; Reducing greenhouse gas emissions to 80-95% below 1990 levels OR 2t annual metric tons of emissions per capita by 2050)

# CLIMATE ADAPTATION POLICIES, PLANS AND MEASURES

## Local level

Please list the policies/strategies/plans identified at local level, including the title and 1 or 2 sentences summarizing their contribution to climate change adaptation and/or the climate change adaptation measures foreseen. Add slides if necessary

# FUNDING TOOLS FOR CLIMATE ADAPTATION

## EU level

Please list funding tools at EU level, including basic information: official name of the tool, specific origin, main scope, type of funding (grant, subsidy, revolving fund...), indicative amount and time-span.



# FUNDING TOOLS FOR CLIMATE ADAPTATION

## National level

Please list funding tools at national level, including basic information: official name of the tool, specific origin, main scope, type of funding (grant, subsidy, revolving fund...), indicative amount and time-span.



# FUNDING TOOLS FOR CLIMATE ADAPTATION

## Regional/local level

Please list funding tools at regional and/or local level, including basic information: official name of the tool, specific origin, main scope, type of funding (grant, subsidy, revolving fund...), indicative amount and time-span.



# FUNDING CLIMATE ADAPTATION: A GOOD PRACTICE IN [INSERT NAME OF THE REGION]

Please describe in brief a project (already implemented or under implementation in your region) regarding climate change adaptation, that can be considered as a good practice. Provide basic information and include a relevant picture. IF YOU DO NOT HAVE ANY GOOD PRACTICE TO PROPOSE, PLEASE DELETE THIS SLIDE.

# THANK YOU FOR YOUR ATTENTION

Abruzzo Region, Service of Energy Policy, Air Quality, National Environmental Information System and Mining Resources of the Territory

Head of Service: Iris Flacco

Contact person: Chiara Barchiesi

 tbc

 chiara.barchiesi@regione.abruzzo.it

 tbc

 [www.italy-croatia.eu/joint\\_secap](http://www.italy-croatia.eu/joint_secap)

## Portal/Newspaper releases

Following are Newspaper releases published on web portals and newspapers:

- Grad Korčula
- Radio M Vela Luka 90,1 MHz
- Dubrovački vjesnik
- HRT Radio Dubrovnik
- [www.korčula.online](http://www.korčula.online)

Mentioned portals are from island of Korčula and surrounding areas. They published the news about the second project meeting held together with the 1<sup>st</sup> international workshop in Vela Luka on 18<sup>th</sup> and 19<sup>th</sup> of June 2019.





SLUŽBENE WEB STRANICE

**Grad Korčula**

UNESCO Tentative List

**(<https://www.korcula.hr/>)**

KONTAKT INFORMACIJE

**GRAD KORČULA**

Trg Antuna i Stjepana

Radića 1,

20260 Korčula

E-mail:

info@korcula.hr

(mailto:info@korcula.hr)



Tel:

+385 20 711 143

+385 20 711 184

Fax:

+385 20 711 706

Upišite ključnu riječ ...

# Drugi međunarodni partnerski sastanak u okviru EU projekta JOINT SECAP

21.06.2019

Komentirajte (<https://www.korcula.hr/drugi-medunarodni-partnerski-sastanak-u-okviru-eu-projekta-joint-secap/#respond>)

U srijedu 19. lipnja 2019. godine potpisan sporazum o suradnji na projektu između čelnika jedinica lokalne samouprave otoka Korčule.



Web sjedište Grada Korčule koristi kolačiće da bi poboljšali Vaše iskustvo korištenja.

Prihvati

Pravila kolačića

Politika zaštite osobnih podataka  
(<https://www.korcula.hr/wp-content/uploads/2020/06/politika-zaštite-osobnih-podataka-grada-korčule.pdf>)

Korištenje web stranice

**KATEGORIJA**

Događanja

(<https://www.korcula.hr/kategorija/vijesti/Climate-Change>)

EU projekti

Sporazum o suradnji na projektu JOINT SECAP – Zajednička strategija za prilagodbu klimatskim promjenama u obalnim područjima (eng. *Joint strategies for Climate Change Adaptation in coastal areas*) potpisali su načelnica Općine Vela Luka Katarina Gugić, gradonačelnik Grada Korčule Andrija Fabris, načelnik

(<https://www.korcula.hr/kategorija/projekti/>)

Općine Blato Ante Šeparović, načelnik Općine Smokvica Kuzma Tomašić i načelnik Općine Lumbarda Igor Kršinić. Sporazum je potpisan u sklopu drugog međunarodnog partnerskog sastanka koji je 18. i 19. lipnja 2019. održan u Vela Luci.



Projekt JOINT SECAP provodi se putem Programa Interreg Italija – Hrvatska. Ukupna vrijednost projekta je 2.094.857,50 €, od čega koristi javno financiranje u 85%-tnom iznosu iz Europskog fonda za regionalni razvoj u iznosu od 1,780,628.88 €, a ostali dio iz nacionalnog sufinanciranja u iznosu od 314.228,63 €. Na projektu sudjeluje ukupno 8 partnera. Općina Vela Luka jedan je od partnera, te će kao koordinator izraditi strategiju upravljanja klimatskim promjenama za cijeli otok što uključuje aktivnosti usmjerene na podizanje svijesti građana o rizicima i odgovarajućim mjerama vezanim uz klimatske promjene.

Više možete pročitati ovdje. ([https://www.korcula.hr/wp-content/uploads/2019/06/joint-secap\\_sporazum-vela-luka-19.06.2019-1.pdf](https://www.korcula.hr/wp-content/uploads/2019/06/joint-secap_sporazum-vela-luka-19.06.2019-1.pdf))



Web sjedište Grada Korčule koristi kolačiće da bi poboljšali Vaše iskustvo korištenja.

(<https://www.korcula.hr/wp-content/uploads/2019/06/secap.png>)

Prihvati Pravila kolačića

Politika zaštite osobnih podataka  
(<https://www.korcula.hr/wp-content/uploads/2020/06/politika-zaštite-osobnih-podataka-grada-korčule.pdf>)

Korištenje web stranice  
([https://www.korcula.hr/wp-content/uploads/2020/06/koristenje\\_we](https://www.korcula.hr/wp-content/uploads/2020/06/koristenje_we))  
Impressum



## Komentiraj

Ukoliko želite ostaviti komentar, morate se prijaviti (<https://www.korcula.hr/wp-login.php> ili preko <https://www.korcula.hr/wp-content/uploads/2020/06/politika-zaštite-osobnih-podataka-grada-korčule.pdf>) da bi poboljšali Vaše iskustvo korištenja web središta Grada Korčule koristeći kolačiće.

Prihvati

Pravila kolačića

### DOGAĐANJA

OŽU <b>05</b>	<b>KINO (HTTPS://WWW.KORCULA.HR/VRSTA-DOGADAJA/KINO/)</b> Dom kulture Korčula ( <a href="https://www.korcula.hr/lokacija-dogadaja/dom-kulture-korcula/">https://www.korcula.hr/lokacija-dogadaja/dom-kulture-korcula/</a> ) Mauritanac: Dnevnik iz Guantanamo (+15) ( <a href="https://www.korcula.hr/mauritanac-dnevnik-iz-guantanama-15/">https://www.korcula.hr/mauritanac-dnevnik-iz-guantanama-15/</a> )	Politika zaštite osobnih podataka ( <a href="https://www.korcula.hr/wp-content/uploads/2020/06/politika-zaštite-osobnih-podataka-grada-korčule.pdf">https://www.korcula.hr/wp-content/uploads/2020/06/politika-zaštite-osobnih-podataka-grada-korčule.pdf</a> )	19:00h
VELJ <b>27</b>	<b>KINO (HTTPS://WWW.KORCULA.HR/VRSTA-DOGADAJA/KINO/)</b> Dom kulture Korčula ( <a href="https://www.korcula.hr/lokacija-dogadaja/dom-kulture-korcula/">https://www.korcula.hr/lokacija-dogadaja/dom-kulture-korcula/</a> ) Tom i Jerry, SINK. ( <a href="https://www.korcula.hr/tom-i-jerry-sink/">https://www.korcula.hr/tom-i-jerry-sink/</a> )	Korištenje web stranice ( <a href="https://www.korcula.hr/wp-content/uploads/2020/06/koristenje_web_stranice.pdf">https://www.korcula.hr/wp-content/uploads/2020/06/koristenje_web_stranice.pdf</a> )	17:00h
VELJ <b>26</b>	<b>KINO (HTTPS://WWW.KORCULA.HR/VRSTA-DOGADAJA/KINO/)</b> Dom kulture Korčula ( <a href="https://www.korcula.hr/lokacija-dogadaja/dom-kulture-korcula/">https://www.korcula.hr/lokacija-dogadaja/dom-kulture-korcula/</a> ) Monster Hunter (+12) ( <a href="https://www.korcula.hr/monster-hunter-12/">https://www.korcula.hr/monster-hunter-12/</a> )	Impressum ( <a href="https://www.korcula.hr/wp-content/uploads/2020/06/koristenje_web_stranice.pdf">https://www.korcula.hr/wp-content/uploads/2020/06/koristenje_web_stranice.pdf</a> )	19:00h
PRO <b>04</b>	<b>KINO (HTTPS://WWW.KORCULA.HR/VRSTA-DOGADAJA/KINO/)</b> Dom kulture Korčula ( <a href="https://www.korcula.hr/lokacija-dogadaja/dom-kulture-korcula/">https://www.korcula.hr/lokacija-dogadaja/dom-kulture-korcula/</a> )		20:00h



WRITTEN BY WEB ADMINISTRATOR CATEGORY: VIJESTI (/INDEX.PHP/VIJESTI) PUBLISHED: 18 JUNE 2019 HITS: 1089

## DRUGI PARTNERSKI SASTANAK U OKVIRU EU PROJEKTA JOINT SECAP

Fotografija Radio M - Vela Luka 90.1 MHz.

**Općina Vela Luka sudjeluje u izradi Zajedničke strategije za prilagodbu klimatskim promjenama u obalnim područjima**

Drugi međunarodni partnerski sastanak u okviru projekta JOINT SECAP - Zajednička strategija za prilagodbu klimatskim promjenama u obalnim područjima (*Joint strategies for climate change adaptation in coastal areas*) održava se u Veloj luci 18. i 19. lipnja 2019. Projekt je financiran preko Programa INTERREG Italija – Hrvatska, a među osam partnera iz Italije i Hrvatske je i Općina Vela Luka.

Kako je u pozdravnom govoru istaknula načelnica Općine Katarina Gugić, riječ je o prvom INTERREG projektu koji se provodi na području Vela Luke, a na kojem surađuju partneri iz Hrvatske i Italije.

-S obzirom da već imamo Akcijski plan učinkovitog gospodarenja energijom, drago nam je da u ovu priču možemo uključiti i klimatske promjene. Vjerujem da ćemo kroz ovaj projekt poboljšati praćenje klimatskih promjena na otoku Korčuli kao i iskoristiti potencijalne prednosti i mogućnosti pozitivnih učinaka klimatskih promjena uz implementaciju unaprijed definiranih akcijskih mjera, sve u svrhu daljnjih investiranja i pokretanja novih poslovnih aktivnosti na otoku Korčuli-istaknula je načelnica Gugić.

- Cilj je ovog projekta prikupiti podatke s terena s definiranih područja o nastalim promjenama nakon čega će se izraditi zajednička strategija za područje Italije i Hrvatske. Također će se osmisliti mjere koje će pomoći ovim područjima u prilagodbi na klimatske promjene-pojasnila je Barbara Mirošević, komunikacijska koordinatorica projekta- dodajući kako su lokalni stanovnici svjesni fenomena klimatskih promjena. -Primjerice, godinama imamo ljeta s vrlo visokim temperaturama, bez kiše, a samo u svibnju ove godine na otoku Korčuli zabilježena je količina padalina koju smo obično imali u tijeku jedne cijele godine. Ekstremi su postali vrlo izraženi, što posebno mogu osjetiti poljoprivredni proizvođači- kazala je.

Kroz projekt će se raditi na podizanju svijesti građana o rizicima i odgovarajućim mjerama vezanim uz klimatske promjene kroz radionice, seminare, web stranice, oglašavanja i promotivne materijale. Prikupljat će se podaci te izraditi procjene rizika vezanih uz klimatske promjene te konačno i web platforma koja će svim zainteresiranim omogućiti besplatan pristup podacima i studijama o rizicima klimatskih promjena te klimatskim i energetske mjerama.

Kontaktirajte nas  
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Drugog dana partnerskog sastanka planirano je potpisivanje Sporazuma o suradnji na projektu JOINT SECAP između predstavnika jedinica lokalne samouprave otoka Korčule.

Inače, prva faza projekta je usmjerena na razvoj i primjenu metodologije za Zajednički akcijski plan održivog gospodarenja energijom i klimatskim promjenama (Joint Sustainable Energy and Climate Action Plans - SECAP). Druga faza počinje kada se analize i podaci prenesu na web platformu, djelujući kao koristan alat za razvoj scenarija koji će se provoditi u Zajedničkim akcijskim planovima, koji su ujedno i glavni rezultat projekta.

Glavni partner na projektu je Sveučilište Camerino iz Italije, a ostali partneri su također, IRENA - Istarska Regionalna Energetska Agencija, Grad San Benedetto del Tronto, Usluga energetske politike, kvaliteta zraka, nacionalni informacijski sustav zaštite okoliša odjela za javne radove, teritorijalno upravljanje i politike zaštite okoliša regije Abruzzo, Grad Pescara, Internacionalni centar za održivi razvoj energetike, voda i okoliša - Sdewes centre, Primorsko-goranska županija, Splitsko-dalmatinska županija, Općina Vela Luka.

Projekt traje 30 mjeseci počevši od 1. siječnja, 2019. godine, a povodit će se do 30. lipnja, 2021. godine. Financiran je iz Europskog fonda za regionalni razvoj (ERDF) u iznosu od 1,780,628.88 € uz nacionalno sufinanciranja u iznosu od 314.228,63 € što daje ukupni proračun od 2.094.857,50 €.

◀ [Prev \(/index.php/vijesti/368-potpisan-sporazum-o-suradnji-na-projektu-između-celnika-jedinica-lokalne-samouprave-otoka-korcule\)](/index.php/vijesti/368-potpisan-sporazum-o-suradnji-na-projektu-između-celnika-jedinica-lokalne-samouprave-otoka-korcule)

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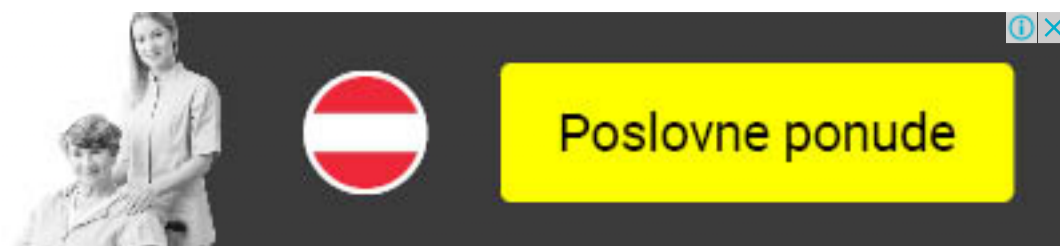
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Njegovateljica

plaća **1 700 €**

KORČULA DRUGI PARTNERSKI SASTANAK U OKVIRU EU PROJEKTA JOINT SECAP

## Općina Vela Luka sudjeluje u izradi Zajedničke strategije za prilagodbu klimatskim promjenama u obalnim područjima

PIŠE DV

19. lipnja 2019. - 11:59



Drugi međunarodni partnerski sastanak u okviru projekta JOINT SECAP - Zajednička strategija za prilagodbu klimatskim promjenama u obalnim područjima (JOINT STRATEGIES FOR CLIMATE CHANGE ADAPTATION IN COASTAL AREAS) održava se u Veloj luci 18. i 19. lipnja 2019. Projekt je financiran preko Programa INTERREG Italija – Hrvatska, a među osam partnera iz Italije i Hrvatske je i Općina Vela Luka.

Kako je u pozdravnom govoru istaknula načelnica Općine Katarina Gugić, riječ je o prvom INTERREG projektu koji se provodi na području Vela Luke, a na kojem surađuju partneri iz Hrvatske i Italije.

-S obzirom da već imamo Akcijski plan učinkovitog gospodarenja energijom, drago nam je da u ovu priču možemo uključiti i klimatske promjene. Vjerujem da ćemo kroz ovaj projekt poboljšati praćenje klimatskih promjena na otoku Korčuli kao i iskoristiti potencijalne prednosti i mogućnosti pozitivnih učinaka klimatskih promjena uz implementaciju unaprijed definiranih akcijskih mjera, sve u svrhu daljnjih investiranja i pokretanja novih poslovnih aktivnosti na otoku Korčuli istaknula je načelnica Gugić



- Cilj je ovog projekta prikupiti podatke s terena s deminiranim područja o nastalim promjenama nakon čega će se izraditi zajednička strategija za područje Italije i Hrvatske. Također će se osmisliti mjere koje će pomoći ovim područjima u prilagodbi na klimatske promjene-pojasnila je Barbara Mirošević, komunikacijska koordinatorica projekta- dodajući kako su lokalni stanovnici svjesni fenomena klimatskih promjena.

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Drugog dana partnerskog sastanka planirano je potpisivanje Sporazuma o suradnji na projektu JOINT SECAP između predstavnika jedinica lokalne samouprave otoka Korčule.

Inače, prva faza projekta je usmjerena na razvoj i primjenu metodologije za Zajednički akcijski plan održivog gospodarenja energijom i klimatskim promjenama (Joint Sustainable Energy and Climate Action Plans -SECAP). Druga faza počinje kada se analize i podaci prenesu na web platformu, djelujući kao koristan alat za razvoj scenarija koji će se provoditi u Zajedničkim akcijskim planovima, koji su ujedno i glavni rezultat projekta.

Glavni partner na projektu je Sveučilište Camerino iz Italije, a ostali partneri su također, IRENA - Istarska Regionalna Energetska Agencija, Grad San Benedetto del Tronto, Usluga energetske politike, kvaliteta zraka, nacionalni informacijski sustav zaštite okoliša odjela za javne radove, teritorijalno upravljanje i politike zaštite okoliša regije Abruzzo, Grad Pescara, Internacionalni centar za održivi razvoj energetike, voda i okoliša - Sdewes centre, Primorsko-goranska županija, Splitsko-dalmatinska županija, Općina Vela Luka.

Projekt traje 30 mjeseci počevši od 1. siječnja, 2019. godine, a povodit će se do 30. lipnja, 2021. godine. Financiran je iz Europskog fonda za regionalni razvoj (ERDF) u iznosu od 1,780,628.88 € uz nacionalno sufinanciranja u iznosu od 314.228,63 € što daje ukupni proračun od 2.094.857,50 €.

**KORČULA** [OKO 300 NATJECATELJA VELOLUČANE I NJIHOVE GOSTE IZ CIJELOG SVIJETA ZAHVATIO 'TRKAČKI VIRUS' Održano šesto izdanje Vela Luka Outdoorsa!](#)

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# Korčulanski čelnici surađivat će na projektu Joint\_SECAP



## OBJAVLJENO:

20.06.2019 19:26

## PODIJELI:

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## AUTOR:

Radio Dubrovnik

**Sporazum o suradnji na projektu "Joint\_SECAP - Zajednička strategija za prilagodbu klimatskim promjenama u obalnim područjima" (eng. Joint strategies for Climate Change Adaptation in coastal areas) potpisali su čelni ljudi korčulanskih jedinica lokalne**

*Foto: Marin Baničević*



**samouprave** i općina Vela Luka, Općina Blato, Općina Smokvica i Općina Lumbarda. Projektom će se razvijati i provedba projekata važnih za gospodarski razvoj otoka Korčule.

Potpis na Sporazum stavili su načelnica Općine Vela Luka Katarina Gugić, gradonačelnik Grada Korčule Andrija Fabris, načelnik Općine Blato Ante Šeparović, načelnik Općine Smokvica Kuzma Tomašić i načelnik Općine Lumbarda Igor Kršinić. Sporazum je potpisan u sklopu drugog međunarodnog partnerskog sastanka koji se 18. i 19. lipnja održao u Veloj Luci.

Sporazumom je između ostalog utvrđeno kako je provedba navedenog projekta od zajedničkog interesa za održivi razvoj otoka Korčule te kao konačni rezultat projekta izrada Zajedničke strategije za prilagodbu klimatskim promjenama otoka Korčule pod nazivom Joint\_SECAP. Potpisani sporazum nastavak je suradnje jedinica lokalne samouprave na provođenju zajedničkih projekata važnih za gospodarski razvoj otoka Korčule.

U cilju prikupljanja podataka i izrade procjene rizika vezanih uz klimatske promjene, organizacije radionica i seminara, izrade web platforme te izrade dokumenta - Zajedničke strategije za prilagodbu klimatskim promjenama otoka Korčule - Joint SECAP-a sporazumom je usuglašeno kako će odgovorna osoba za provedbu projekta biti Općina Vela Luka kao koordinator za provedbu projekta na području cijelog otoka Korčule.

Podsjetimo, projekt JOINT SECAP provodi se putem Programa Interreg Italija – Hrvatska. Ukupna vrijednost projekta je 2.094.857,50 eura, od čega koristi javno financiranje u 85%-tnom iznosu iz Europskog fonda za regionalni razvoj u iznosu od 1,780,628.88 eura, a ostali dio iz nacionalnog sufinanciranja u iznosu od 314.228,63 eura.

Projekt traje 30 mjeseci od 1. siječnja 2019. do 30. lipnja 2021. godine. Na projektu sudjeluje ukupno 8 partnera. Vodeći partner je Sveučilište Camerino iz Italije, a ostali partneri s talijanske strane su grad San Benedetto del Tronto, grad Pescara i regija Abruzzo. Partneri s hrvatske strane su Istarska Regionalna Energetska Agencija IRENA, Primorsko-goranska županija, Splitsko-dalmatinska županija, SDEWES - Internacionalni centar za održivi razvoj energetike, voda i okoliša te Općina Vela Luka.

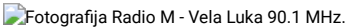
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## Potpisan sporazum o suradnji na projektu između čelnika jedinica lokalne samouprave otoka Korčule



Sporazum o suradnji na projektu JOINT SECAP - Zajednička strategija za prilagodbu klimatskim promjenama u obalnim područjima (eng. *Joint strategies for Climate Change Adaptation in coastal areas*) potpisali su danas načelnica Općine Vela Luka Katarina Gugić, gradonačelnik Grada Korčule Andrija Fabris, načelnik Općine Blato Ante Šeparović, načelnik Općine Smokvica Kuzma Tomašić i načelnik Općine Lumbarda Igor Kršinić. Sporazum je potpisan u sklopu drugog međunarodnog partnerskog sastanka koji se 18. i 19. lipnja 2019. održava u Veloj Luci.

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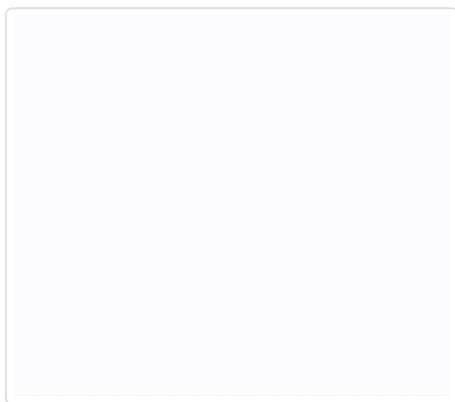
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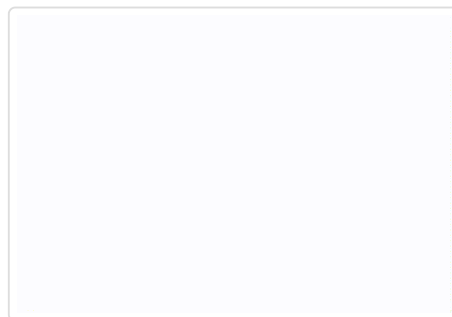
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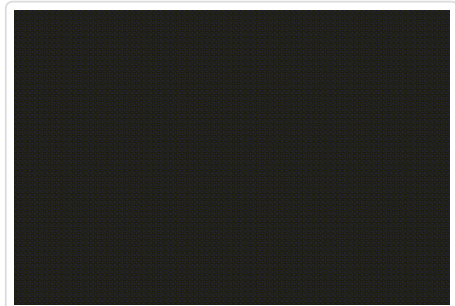
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PROJEKT "JOINT\_SECAP"

## Potpisan sporazum o suradnji na projektu "Joint\_SECAP"

Like 18

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U srijedu, 19. lipnja u Veloj Luci je potpisan sporazum o suradnji na projektu sa gradonačelnikom i načelnicima JLS otoka Korčule.



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Projekt Zajednička strategija za prilagodbu klimatskim promjenama u obalnim područjima financirana je kroz Program INTERREG Italija – Hrvatska. Općina Vela Luka jedan je od partnera na projektu.

ATOP

Ovim projektom Općina Vela Luka izradit će strategiju upravljanja klimatskim promjenama za cijeli otok. Projekt uključuje aktivnosti usmjerene na podizanje svijesti građana o rizicima i odgovarajućim mjerama vezanima uz klimatske promjene. Prikupljat će se podaci te izraditi procjene rizika vezanih uz klimatske promjene te web platforma koja će svim zainteresiranim omogućiti besplatan pristup podacima i studijama o rizicima klimatskih promjena te klimatskim i energetske mjerama.

📍 Korčula online () 📷 Korčula online # joint\_secap ([http://www.korcula.online/1/pretraga.html?q=%23joint\\_secap](http://www.korcula.online/1/pretraga.html?q=%23joint_secap))  
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📰 Korčula (<http://www.korcula.online/1/2/korcula.html>) 📰 Vijesti (<http://www.korcula.online/1/1/vijesti.html>) 🕒 21.06.2019 🗨️ 0

PROMO

X



## Do sada još nitko nije znao tako jednostavno rješenje - svaki bol nestaje za 3 minute! Iskoristilo je već 56 tisuća Amerikanaca, a sada je red na našu zemlju

Bol se događa svima i to je normalna životna situacija. Srećom, jednokratna bol lako se uklanja. Problem nastaje kad se takve tegobe pogoršaju i počnu nas pratiti svaki dan. Nažalost, mnogi ljudi tada uzimaju tablete protiv bolova. Međutim, nisu svi svjesni štetnog utjecaja takvih sredstava na naše tijelo. Problemi sa želucem, jetrom i gušteračom posljedica su česte upotrebe raznih tableta. Pa što onda raditi? Srećom, već postoji rješenje koje uklanja bol u doslovno 3 minute i to sasvim prirodno!

## Questionnaire to Joint SECAP Partners

General overview of the Steering Committee meeting (was everything clear?):

- Excellent       Good       Satisfactory       Unsatisfactory

General overview of the overall project meeting organization (meeting place, study visit...):

- Excellent       Good       Satisfactory       Unsatisfactory

COMMENTS (OPTIONAL)

Thank you for your cooperation!

WHAT DID YOU THINK OF THE WAY IN WHICH THE PROJECT MEETING WAS DELIVERED? IN PARTICULAR, HOW DID YOU RATE

General overview of project Joint\_SECAP; objectives, outputs and expected results, work plan-deadlines, project budget presentation:

Excellent       Good       Satisfactory       Unsatisfactory

General overview of WP1 presentation - Project management and coordination of activities:

Excellent       Good       Satisfactory       Unsatisfactory

General overview of WP2 presentation - Project Communication:

Excellent       Good       Satisfactory       Unsatisfactory

WP3 presentation - Risks and Vulnerability:

Excellent       Good       Satisfactory       Unsatisfactory

WP 3.2.1 - Presentation for each Pilot Project

Excellent       Good       Satisfactory       Unsatisfactory



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General overview of WP1 presentation - Project management and coordination of activities:

- Excellent       Good       Satisfactory       Unsatisfactory

General overview of WP2 presentation - Project Communication:

- Excellent       Good       Satisfactory       Unsatisfactory

WP3 presentation - Risks and Vulnerability:

- Excellent       Good       Satisfactory       Unsatisfactory

WP 3.2.1 - Presentation for each Pilot Project

- Excellent       Good       Satisfactory       Unsatisfactory

WHAT DID YOU THINK OF THE WAY IN WHICH THE PROJECT MEETING WAS DELIVERED? IN PARTICULAR, HOW DID YOU RATE

General overview of project Joint\_SECAP; objectives, outputs and expected results, work plan-deadlines, project budget presentation:

Excellent       Good       Satisfactory       Unsatisfactory

General overview of WP1 presentation - Project management and coordination of activities:

Excellent       Good       Satisfactory       Unsatisfactory

General overview of WP2 presentation - Project Communication:

Excellent       Good       Satisfactory       Unsatisfactory

WP3 presentation - Risks and Vulnerability:

Excellent       Good       Satisfactory       Unsatisfactory

WP 3.2.1 - Presentation for each Pilot Project

Excellent       Good       Satisfactory       Unsatisfactory

## Second International Workshop

Second international workshop was organized on the 19<sup>th</sup> of April 2021. It was organized online due to COVID-19 measures. In this meeting projects PentaHelix and South Eastern Europe Energy Transition Dialogue – SEETD took part to share their perspective on efficient implementation of adaptation measures. During the workshop, project partners presented online support system platform and how can it be used. In the second part of the workshop, climate scenarios have been presented for each area. All the materials are added below.



# Actions for climate change adaptation April 2021

Joint\_SECAP: 2<sup>nd</sup> International Workshop

Venue: Online

29<sup>th</sup> of April 2021.

Agenda

10:00 - 10:15	Online registration of participants	
10:15 -10:20	Welcome speech and Opening of the Actions for climate change adaptation webinar	Vladimir Vidović, SDEWES Centre
10:20 -10:40	Multi-stakeholder and multi-governance approach for planning and implementing climate and energy actions; PentaHelix project	Ana Lovrak, UNIZAG, FSB
10:40 – 11:00	National Recovery and Resilience Plan for Croatia (EUKI project: <i>South Eastern Europe Energy Transition Dialogue - SEEETD</i> )	Hrvoje Dorotić, UNIZAG, FSB
11:00 – 11:30	JOINT_SECAP - Support System Platform	Prof. Piero Di Carlo, Municipality of Pescara; Timothy Brownlee and Piera Pellegrino, UNICAM
11:30 -11:40	Definition of climate scenarios for each territory	Split-Dalmatia County
11:40 - 13:00	Presentations of climate scenarios – 8 targeted areas	Joint_SECAP partners: 1) IRENA - Istrian Regional Energy Agency; 2) City of San Benedetto Del Tronto; 3) Abruzzo Region; 4) Municipality of Pescara; 5) SDEWES Centre; 6) Primorje - Gorski Kotar County; 7) Split - Dalmatia County; 8) Municipality of Vela Luka
13:00 – 13:15	Q & A	



# Multi-stakeholder and multi-governance approach for planning and implementing climate and energy actions

## PentaHelix project

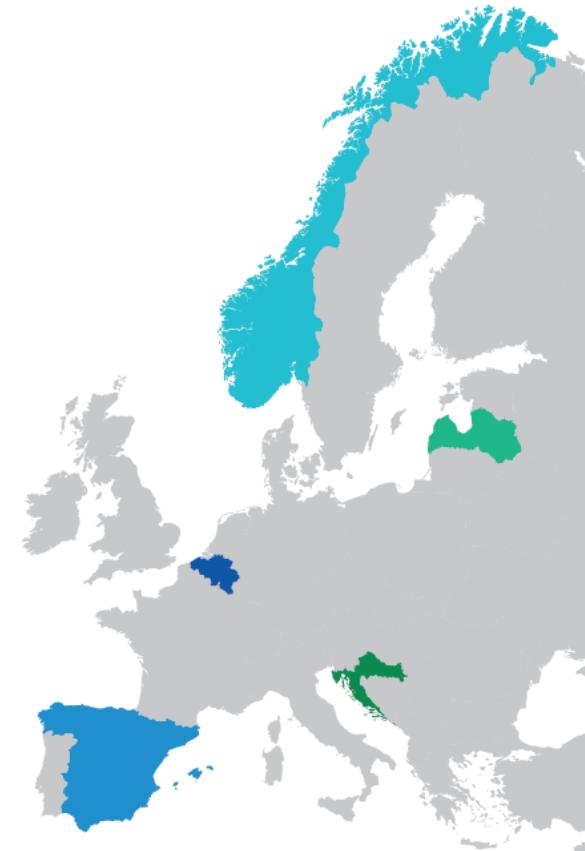
Prof.dr.sc. Neven Duić, doc.dr.sc. Tomislav Pukšec, doc.dr.sc. Goran Krajačić, Ana Lovrak

Zagreb, 29.4.2021.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 784994

- Horizon 2020 project
- 11 partners from 5 countries: Norway, Belgium, Latvia, Spain and Croatia
- Project coordinator: Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb



## The goal of the project

PentaHelix project aims to **empower local and regional authorities to find innovative and cost effective approaches** to develop, finance, implement and improve sustainable energy and climate action plans (SECAP)

## Sustainable energy and climate action plans (SECAP)

the signatories are committed to reduce greenhouse gas emissions by at least **40% by 2030** and to adopt an integrated approach **to climate change mitigation and adaptation** while encouraging the use of renewable energy sources and improving energy efficiency.



 **10,614**  
Signatories

 **53**  
Countries

## The main objective

The main objective is to **develop and implement the PentaHelix method** that will be used to support the development and implementation of SECAP measures in collaboration with other key stakeholders. We identified as key stakeholders:

- **Public authorities** (local, regional, national and international);
- **Industry** (and businesses such as SMEs, farmers, trade etc);
- **Academia** (research and educational institutes);
- **NGOs** (associations, organizations, etc.)
- **Citizens** (house owners, car owners, commuters etc).

## Task force groups

In order to **structure the inclusion process** and ensure the involvement of all parts of society, task force groups have been established in pilot cities, which tested the PentaHelix method.

**The task force groups** include representatives of all five groups of the PentaHelix approach.

The main purpose of a task force group is **to serve as an advisory body and to provide an environment for useful discussions** related to the development and implementation of SECAP.

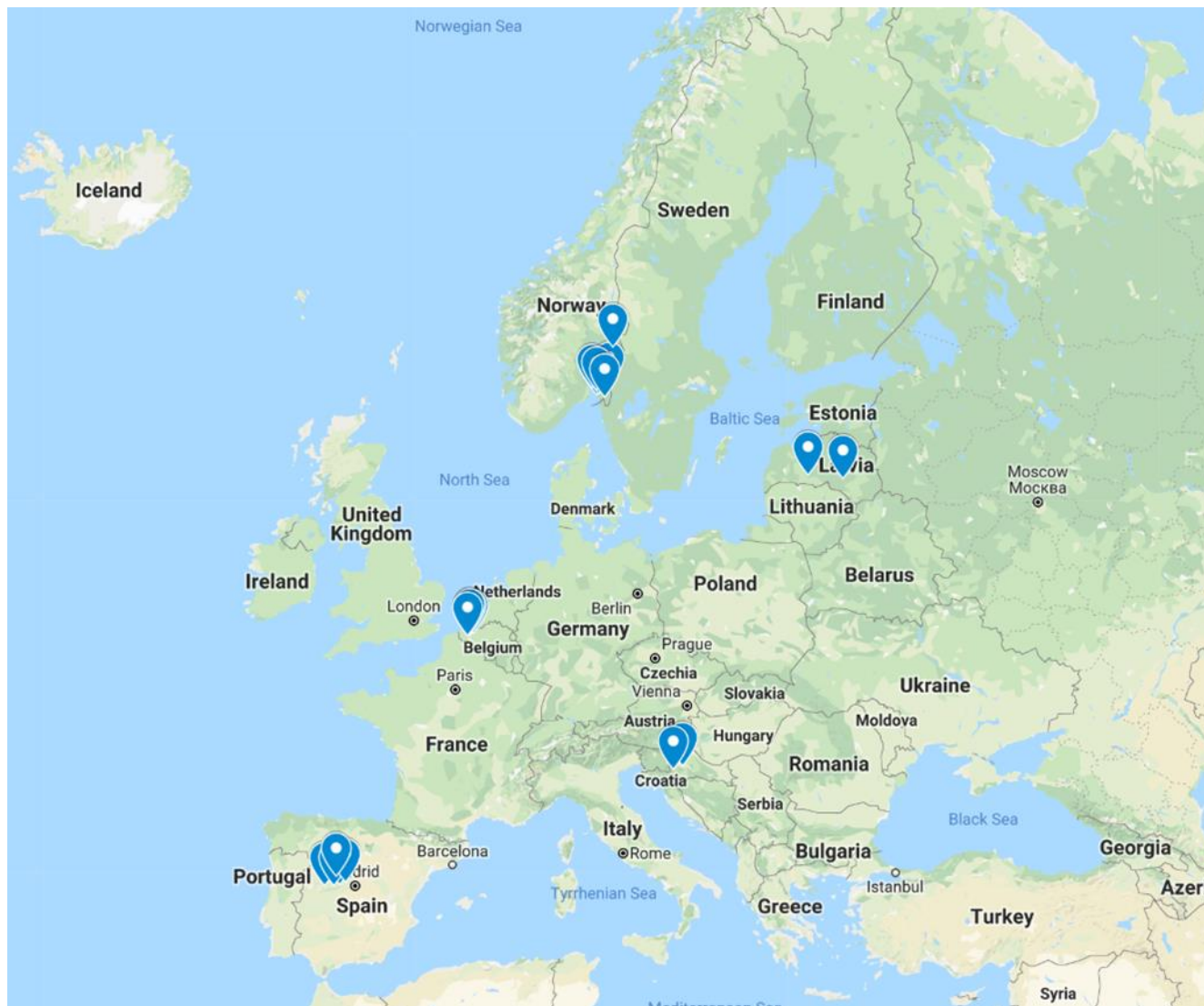
## Application of the PentaHelix approach

Involvement of stakeholders in the co-creation process of SECAP development.

Task force meeting organisation in cities and municipalities:

- Stakeholders propose mitigation and climate adaptation measures
- Stakeholders define the needs of the city or the needs of stakeholders
- They comment and amend the proposed measures
- Task force group define the stakeholders responsible for the implementation of certain measures
- Stakeholders cooperate in the implementation of measures





**5 COUNTRIES**

**30 cities/  
municipalities**

**23 SECAPs**





**AKCIJSKI PLAN ENERGETSKI ODRŽIVOG RAZVITKA I  
PRILAGODBE KLIMATSKIM PROMJENAMA  
GRADA VELIKE GORICE**

*SUSTAINABLE ENERGY AND CLIMATE ACTION PLAN - SECAP*

Zagreb, svibanj 2020.



**AKCIJSKI PLAN ENERGETSKI ODRŽIVOG RAZVITKA I  
PRILAGODBE KLIMATSKIM PROMJENAMA  
GRADA KARLOVCA**

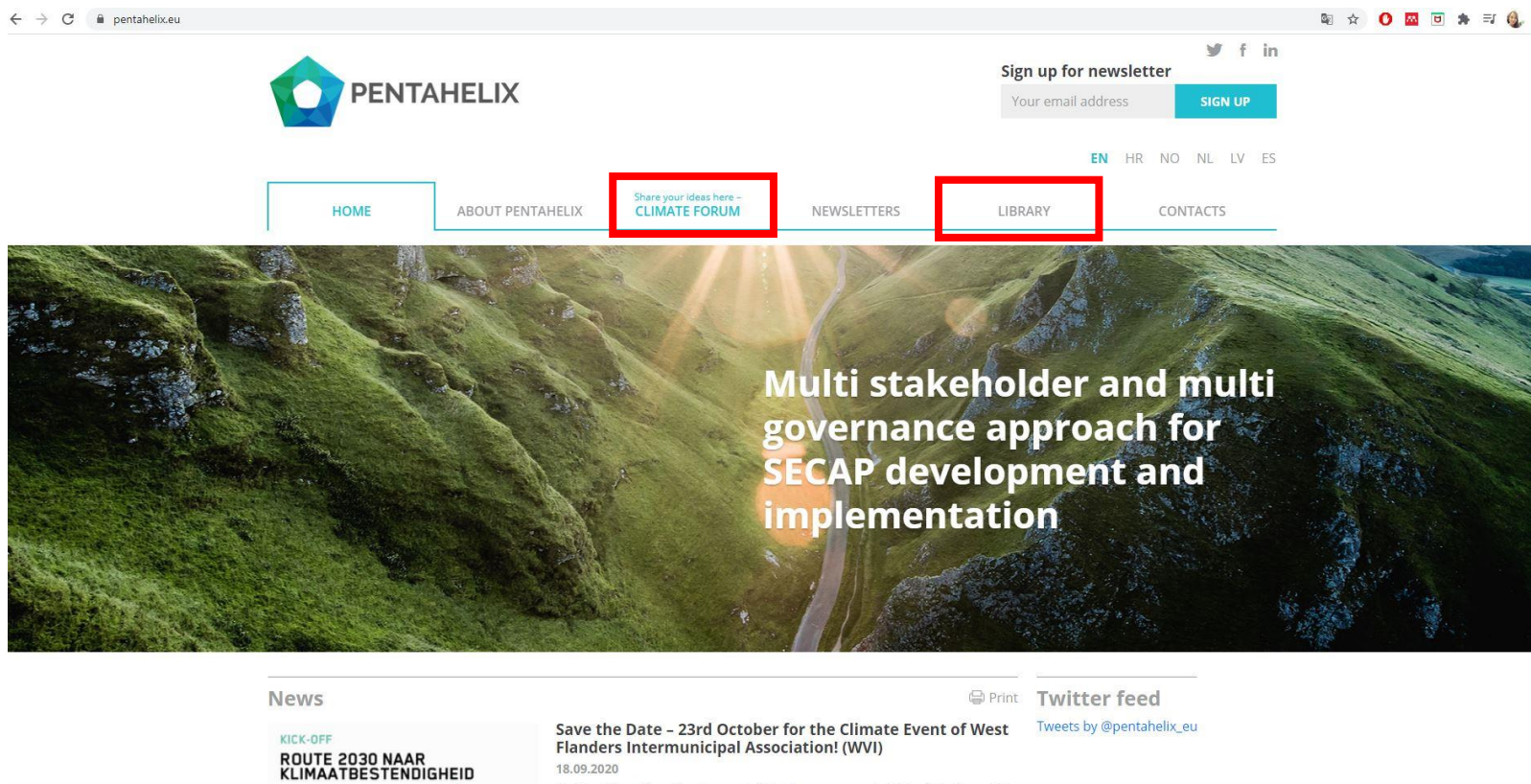
*SUSTAINABLE ENERGY AND CLIMATE ACTION PLAN - SECAP*

Zagreb, ožujak 2020.

## Benefits of an integrated approach to planning and implementation

- Step up from generic measures to measures tailored to the city/municipality and stakeholders
- Getting a broader picture of the impact of certain measures on other sectors
- Increase of the social inclusion in the implementation of CO2 reduction measures and adaptation to climate change
- Improved coordination of measure implementation
- A plan that presents realistic and preferred measures, and at the same time serves to attract investment

## Literature on the application of the Pentahelix approach

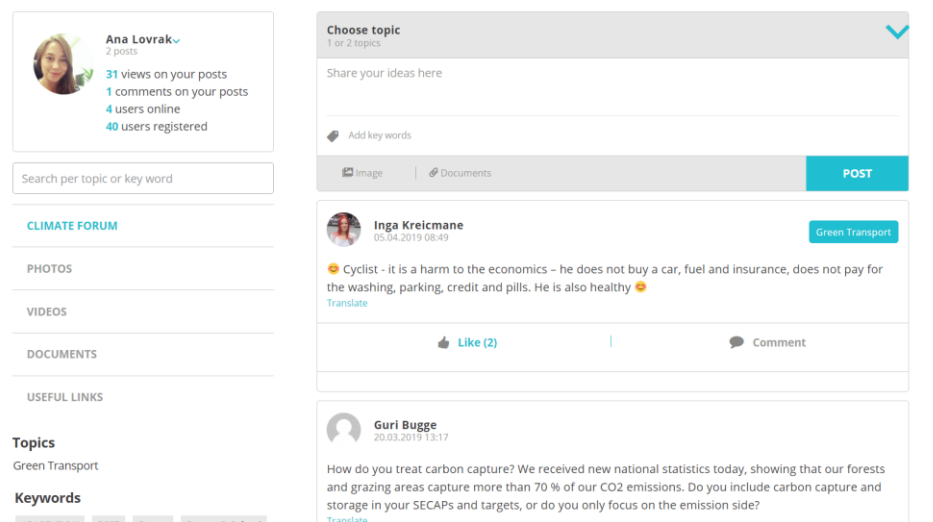


The screenshot shows the Pentahelix website interface. At the top left is the Pentahelix logo and name. To the right is a newsletter sign-up form with a 'SIGN UP' button. Below this is a language selection menu with options: EN, HR, NO, NL, LV, ES. The main navigation menu includes: HOME, ABOUT PENTAHELIX, CLIMATE FORUM (highlighted with a red box), NEWSLETTERS, LIBRARY (highlighted with a red box), and CONTACTS. The main content area features a large image of a green mountain landscape with a road, overlaid with the text: "Multi stakeholder and multi governance approach for SECAP development and implementation". Below the main content is a 'News' section with a 'Print' icon and a 'Twitter feed' link. The news item is titled "KICK-OFF ROUTE 2030 NAAR KLIMAATBESTENDIGHEID" and "Save the Date - 23rd October for the Climate Event of West Flanders Intermunicipal Association! (WVI)" with a date of 18.09.2020.

Source: <https://pentahelix.eu>

## PentaHelix platform

- Online platform for SECAP development
- enables communication and exchange of experiences
- includes free materials that can be used directly without copyright infringement)
- free registration



The screenshot displays the PentaHelix Climate Forum interface. On the left, a user profile for Ana Lovrak is shown with 2 posts, 31 views, 1 comment, 4 users online, and 40 registered users. Below the profile is a search bar and a navigation menu with categories: CLIMATE FORUM, PHOTOS, VIDEOS, DOCUMENTS, and USEFUL LINKS. The main content area features a 'Choose topic' dropdown set to '1 or 2 topics' and a 'Share your ideas here' text input. Below the input are 'Add key words', 'Image', and 'Documents' options, and a 'POST' button. A post by Inga Kreicmane, dated 05.04.2019 08:49, is visible with the topic 'Green Transport'. The post text reads: 'Cyclist - it is a harm to the economics - he does not buy a car, fuel and insurance, does not pay for the washing, parking, credit and pills. He is also healthy'. It has 2 likes and a comment option. Below this is another post by Guri Bugge, dated 20.03.2019 13:17, with the topic 'Topics'. The text asks: 'How do you treat carbon capture? We received new national statistics today, showing that our forests and grazing areas capture more than 70 % of our CO2 emissions. Do you include carbon capture and storage in your SECAPs and targets, or do you only focus on the emission side?'. A 'Translate' link is provided for both posts.

Source: <https://pentahelix.eu/climate-forum-7/>

## The materials developed in the scope of the project

- Guidelines on how to establish a task force group and implement the PentaHelix method
- Results of the research on the most relevant drivers and barriers to stakeholder involvement in the SECAP development process
- Guidelines on climate communication
- More is available at:  
<https://pentahelix.eu/library/>



## Conclusion

- Cities are **leaders of the energy transition**
- Achieving the targets set by SECAP requires the involvement of a **large number of stakeholders**
- The key to successful SECAP is **a good stakeholder engagement process**
- It is necessary to involve a **local or regional task force group** that would structure the inclusion process and ensure the involvement of all parts of society





**PENTAHELIX**

**Thank you for your attention !**



Neven Duić



Tomislav Pukšec



Goran Krajačić



Ana Lovrak

[www.pentahelix.eu](http://www.pentahelix.eu)



[@pentahelix\\_eu](https://twitter.com/pentahelix_eu)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 784994

**FSB**

**100**

100 godina Fakulteta  
strojarstva i brodogradnje  
Sveučilišta u Zagrebu

100 Years of Faculty of  
Mechanical Engineering  
and Naval Architecture  
University of Zagreb



On behalf of:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety



European  
**Climate Initiative**  
EUKI

of the Federal Republic of Germany

# National Recovery and Resilience Plan for Croatia

Hrvoje Dorotić

[hrvoje.dorotic@fsb.hr](mailto:hrvoje.dorotic@fsb.hr)

*University of Zagreb, Faculty of Mechanical Engineering  
and Naval Architecture*

Actions for climate change adaptation

April 2021, online, Joint\_SECAP: 2nd International Workshop



# Content

- South Eastern Europe Energy Transition Dialogue project and EUKI programme
- Resilience Recovery Facility
- National RRF plan for Croatia
- Energy transition in RRF plan
- Conclusion





# EUKI programme

- EUKI programme, [link](#)
- Opportunity to **expand network**, develop **international clusters** and think-tanks
- Call for proposals on annual level: **not for SMEs**
- **Focus on EU member states** from Central, Eastern and Southern Europe as well as the Baltic states
- EU candidate states also eligible (in some cases)





# South Eastern Europe Energy Transition Dialogue

On behalf of:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety



of the Federal Republic of Germany

**Coal phase  
in South East**

Policy no.

Energy-economic facts, funding needs in Bulgaria  
Transition Funding. Do the pu

Budapest, May 2020

**KLIMA  
POLITIKA**

**Unlocking Low Cost  
Renewables in  
South East Europe**

Case Studies on De-risking Onshore Wind  
Investment

**ANALYSIS**

**EPG**  
ENERGY POLICY GROUP

**THE IMPACT OF THE  
EUROPEAN  
A Focus on Romania**

Radu Du

The COVID-19 outbreak prompted restrictions on travel and economic activity largely caused, this crisis is promoting investments and the transition to a world of lower energy demand, shows the impact on the recently launched European Energy Policy Group (EPG) study. Efforts are being made to ensure that national levels are in line with the attention should be given to the S vulnerable to such economic shock. In Romania, a drop in energy prices potentially ill-conceived government imbalances. In transportation, the rise while an influx of second-hand vehicles the replacement of internal combustion and more costly energy performance funds, the renovation rate of buildings. In order to address this multifaceted to take into account both the more and the need to safeguard long-term for combatting the immediate social combined with a set of policy and sustainable post-crisis recovery.

This study was performed within the projects of the European Climate Initiative (EUKI) of the German Nuclear Safety (BMU). It is the overarching goal (EU) in order to mitigate greenhouse gas emissions.

**HRVATSKA ENERGETSKA TRANZICIJA  
2018.**

**STUDIJA**

**Scenarijska analiza dugoročnog planiranja  
energetske potrošnje i dobave s posebnim  
osvrtnom na elektroenergetski sustav**



# Resilience Recovery Facility

On behalf of:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety



of the Federal Republic of Germany

## RECOVERY AND RESILIENCE FACILITY

# How will Member States access €672.5 billion in EU recovery funding?

Commission raises necessary funds on markets by issuing bonds





# Overview of Croatian RRF Plan

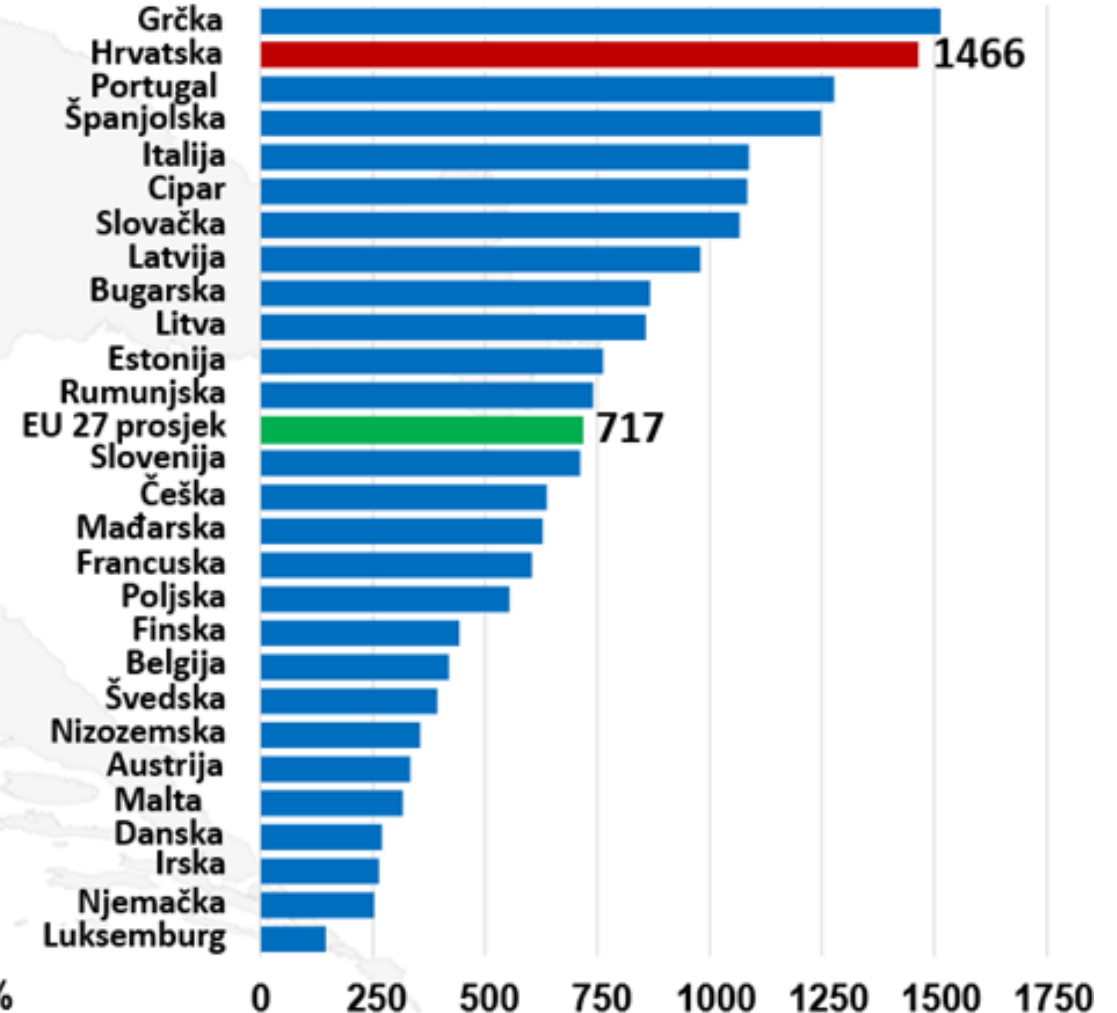
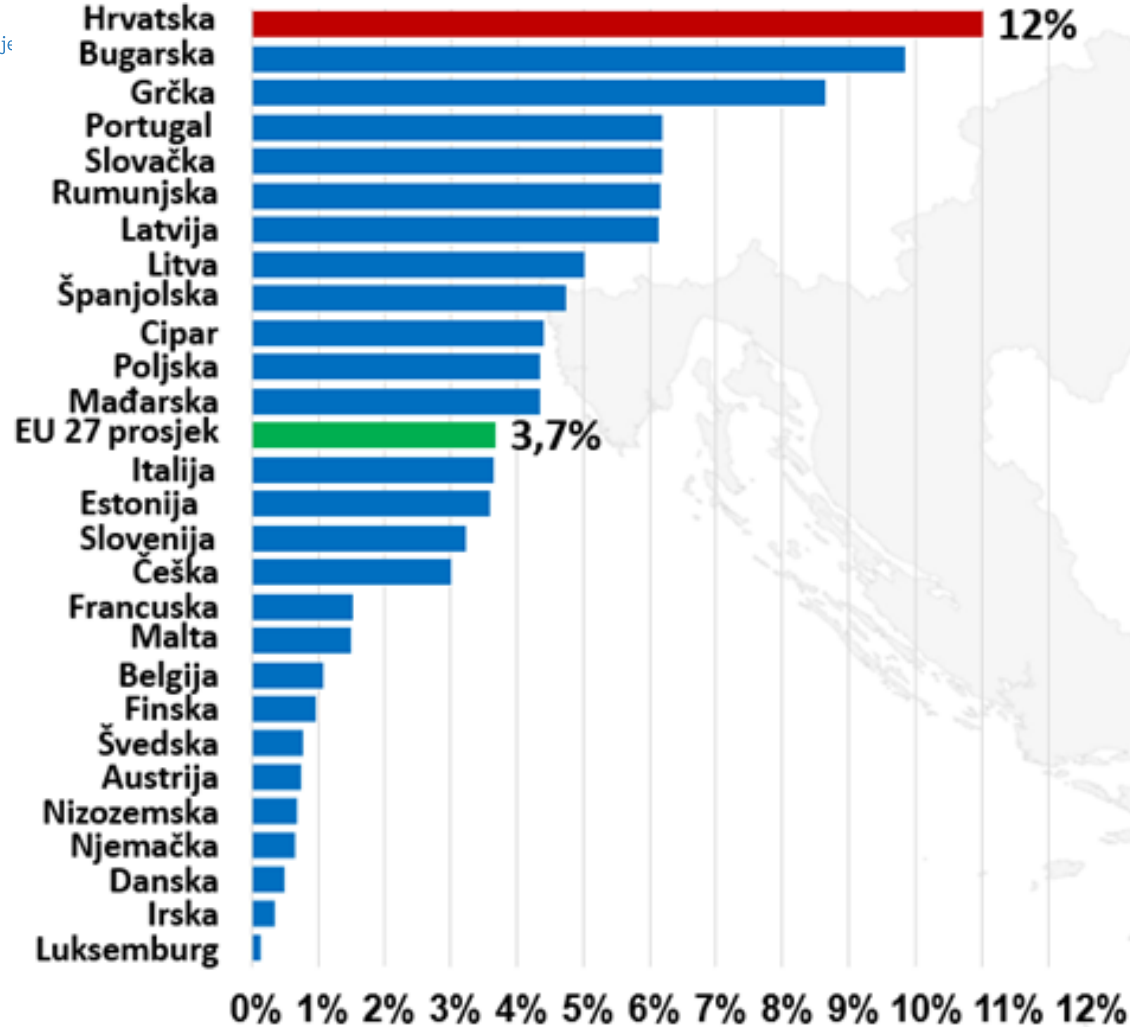
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# Overview of Croatian RRF Plan

On behalf of:

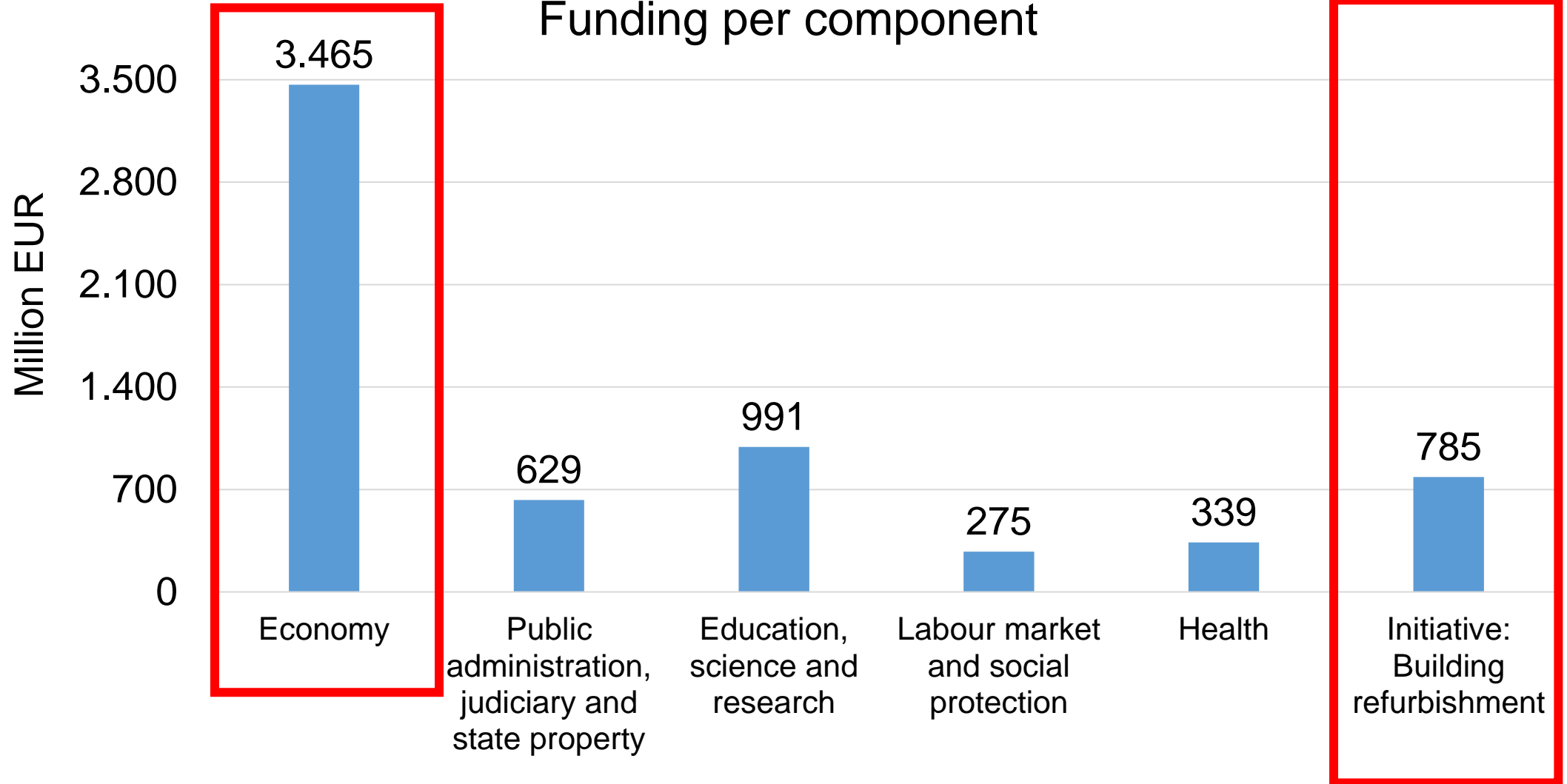


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and Nuclear Safety



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## Funding per component



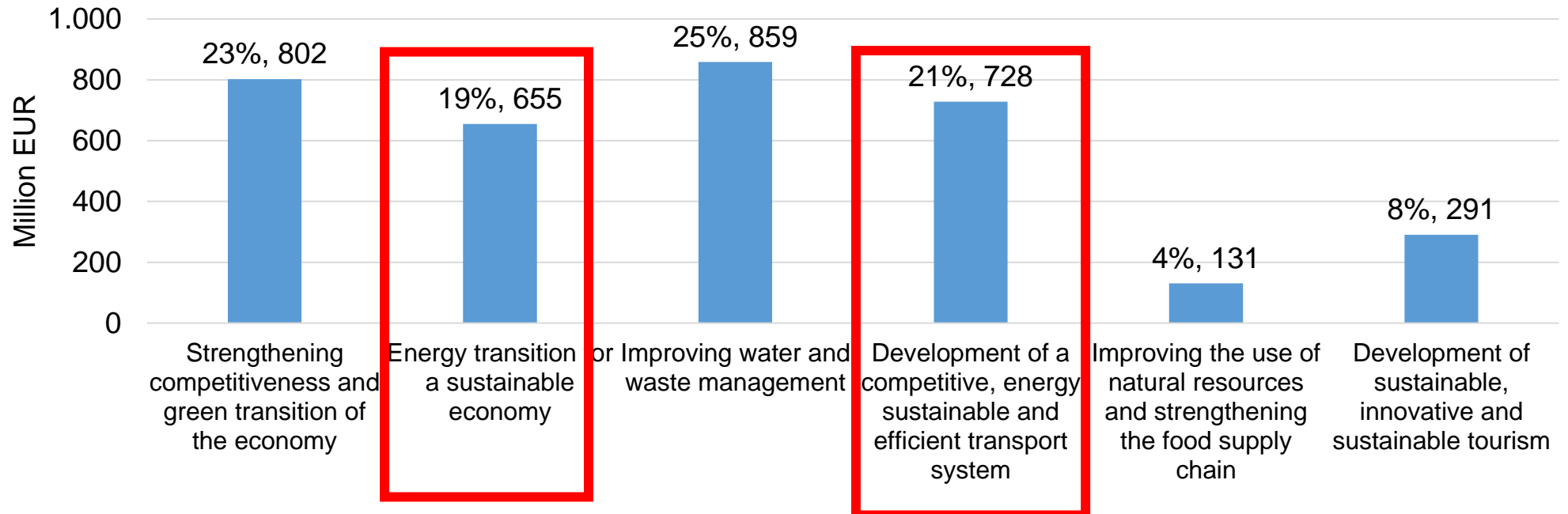




# Energy transition in Croatian National RRF

- Energy transition investments and reforms mostly located in **Economy** component and **Building refurbishment initiative**
- Subcomponents: i) Energy transition for a sustainable economy and ii) Development of a competitive, energy sustainable and efficient transport

Economy - Funding and share per subcomponent





# Energy transition for a sustainable economy

*Investment: Revitalization, construction and digitalization of the energy system and accompanying infrastructure for the decarbonisation of the energy sector*

- Deployment of large-scale and **small-scale RES** projects
- **Development** of transmission and distribution **grid**
- Involvement of **prosumers**
- Smart **metering**
- **Power balancing** will present important issue → chance for power balancing **market** increase





# Energy transition for a sustainable economy

*Investment: Encouraging energy efficiency, district heating and renewable energy sources to decarbonise energy sector*

- Recognizes role of **district heating** in achieving energy efficiency targets
- Plan proposes **modernisation of at least one** existing large district heating system
- Plan mentions that part of existing end-users, currently using natural gas boilers, **should switch to a district heating**
- However, the **Plan does not tackle the issue** of district heating's poor positioning in **nZEB legislation**
- The Plan **does not consider** the possibility of power system balancing through utilisation of **power-to-heat** capacities





# Energy transition for a sustainable economy

## *Investment: Use of hydrogen and new technologies*

- Proposes **development of hydrogen infrastructure** for production and supply
- Hydrogen and other alternative fuel infrastructure will be installed by 2026 to reach EU defined target of minimum of **14% RES share in the transport sector**
- “Renewable” hydrogen will be utilised in transport sector, however **type of hydrogen production facilities is not mentioned**
- „Grey” hydrogen is already produced in Croatia → integration of **carbon capture** in that is necessary
- **Already announced projects** with hydrogen in public transportation
- Electrification of the transportation is **only mentioned**
- **What about hydrogen in other sectors?**





# Development of a competitive, energy sustainable and efficient transport system

Investment - Application of green technologies in rail passenger transport

- Development of **battery trains**

Investment/Construction of passenger ships for coastal transport

- The Plan **proposes increase of coastal boat** lines by acquiring two passenger ships and three catamarans which **use alternative fuels** (electricity??)

Investment - Procurement of alternative fuel vehicles

- It is highly likely that **hydrogen will be prioritised as an alternative fuel in public transportation** even in the urban areas where electric transportation is more economically affordable

Investment - Research, development and production of **new mobility vehicles** and supporting infrastructure

- Opportunity for **Croatian auto industry**





# Initiative – Building refurbishment



- **Earthquake** total financial damage was **around 17.2 billion EUR** which presents great challenge
- Croatia has one of the lowest building refurbishment rates in EU, **around 0.7%**
- The Plan tends to increase this up to **2% in 2026** which calls for large investments

## Investments

- Energy refurbishment of buildings
- Renovation and energy refurbishment of buildings affected by earthquake
- Energy refurbishment of buildings with cultural heritage status



# Conclusion

- Croatia **developed** National Recovery and Resilience Plan
- Full Plan is **not publicly available**, only summary published
- RRF Plan should promote **green and digital transition**
- Croatian Plan **supports energy transition** and goals developed in National Energy and Climate Plan
- **Building refurbishment investments are only mentioned**
- Most of the mentioned energy projects and investments are large-scale → **citizens should be in focus of energy transition**





100 godina Fakulteta  
strojarstva i brodogradnje  
Sveučilišta u Zagrebu

100 Years of Faculty of  
Mechanical Engineering  
and Naval Architecture  
University of Zagreb



On behalf of:



Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear Safety



European  
Climate Initiative  
EUKI

of the Federal Republic of Germany

# Thank you for your attention

Hrvoje Dorotić

Email: [hrvoje.dorotic@fsb.hr](mailto:hrvoje.dorotic@fsb.hr)

*University of Zagreb*

*Faculty of Mechanical Engineering and Naval Architecture*



# JOINT\_SECAP - Support System Platform

## 3.3. Joint SECAP Support System Platform

E. Zazzero | Municipality of Pescara

T. D. Brownlee, P. Pellegrino | University of Camerino

2nd International Workshop | April 29, 2021

The PLATFORM is a web tool that can be freely consulted by everyone and offers sections in which the project partners can enter strategies and actions of their target areas.

It is available on the website:

<https://joint-secap.unicam.it>

THE PLATFORM will offer support for three main services:

- i) starting up the planning process;
- ii) collecting and monitoring the strategies and actions of the SEAP and/or Joint SECAPs;
- iii) defining the measures to be planned at the district level and selecting the pilot actions to be implemented in the short term, including the financial resource finding.

The great potential of the PLATFORM consists:

- i) in updating the key actions after the closure of the Joint SECAP project (for 5 years);
- ii) helping Joint SECAP Coordinators and all the involved municipalities, offering easy access to a database of actions already planned by each municipality to be implemented in the Joint SECAPs;
- iii) collecting existing tools selected by partners for planning related to adaptation to climate change.

# HOME, PRESENTATION OF JOINT SECAP PROJECT



- HOME
- RESULTS
- STRATEGY ▾
- ACTIONS ▾
- PLANNING AND MONITORING TOOLS
- WEB MAP



# HOME, PRESENTATION OF JOINT SECAP PROJECT

## Joint Secap

Joint strategies for climate change adaptation in coastal area

The project aims to build a common methodology for the definition of Joint Sustainable Energy and Climate Action Plans (SECAPs) focused on sharing knowledge on climate change adaptation strategies and mitigation measures.



The University of Camerino coordinates a network of 8 Italian and Croatian partners which work on target areas on the two sides of the Adriatic Sea, within the Interreg Italy-Croatia Program, (Irena-Istrian Regional Energy Agency L.T.D.; Comune di San Benedetto del Tronto; Regione Abruzzo; Comune di Pescara; Sdewes- International Centre for Sustainable Development of Energy, Water and Environment Systems; Primorje-Gorski Kotar County; County of Split-Dalmatia; Municipality of Vela Luka) with the aim of:

Gathering data and assessing climate change risks, planning joint adaptation actions;

Raising citizens' awareness about risks and appropriate measures related to climate change through workshops, seminars, websites, advertising, and promotional materials;

Creating a web platform in which case studies, climate and energy measures, data on risks will be available for free to all interested stakeholders and citizens.

The project idea reflects the necessity to operate on a wider district level and better define strategies and actions for climate change adaptation.

- 1 The first phase is developed to build the common methodology for Joint Actions definition and implementation and to share the basic knowledge about climate change adaptation strategies and energy efficiency measures.
- 2 The second phase starts upon the analysis uploaded in the web platform, acting as a useful tool for the development of scenarios for the Joint Actions to be implemented in the Joint SECAP plans, the main project deliverable.

The duration of the project is 30 months.

The project started on the 1<sup>st</sup> of January 2019 and lasts until the 30<sup>th</sup> of June 2021.

The project benefits from public funding from European Regional Development Fund (ERDF) of 1,780,628.88 € and national co-financing of 314,228.63 € which makes a total budget of 2,094,857.50 €.

## Lead Partner Partners



UNIVERSITÀ  
di CAMERINO



# RESULTS



## Results

Home

The project idea reflects the necessity to operate at a wider district level and better define strategies and actions for climate change adaptation, especially for weather, climate changes and hydrogeological risks affecting coastal areas. The project's deliverables reported below are structured through two main phases. The first phase is developed to build the common methodology for Joint Actions definition and implementation and to share the basic knowledge about issues concerning climate change adaptation strategies and energy efficiency measures. A context analysis for each target area prepared the consequent pilot activities, investigating plans and measures already planned for each territory, analysing funding opportunities and describing risks and vulnerabilities at the district level. The second phase starts upon these analysis uploaded in the web platform, acting as a useful tool for the development of scenarios for the Joint Actions to be implemented in the Joint SECAP plans. The web platform is designed to share information, to support planning activities and even to monitor results and ongoing actions.

- Annex - Best practice (D.3.1) +
- D.3.1 The guidelines manual +
- D.3.2.1 Context analysis (for each target area) +
- D.3.2.2 Climate risks and vulnerabilities assessments for any target area +
- D.3.3. Manual for the use of the "Joint SECAP Support System Platform" +**
- D.4.1.1 Report on the final climate scenario for each district area +
- D.4.1.2 Joint Thematic Focus Group Report +
- D.4.2.1 Guidelines for the application of the EEA to Joint SECAP +

# MANUAL



## Manual for the use of the “Joint SECAP Support System Platform”

Deliverable Number 3.3.

April the 27<sup>th</sup> 2021, Draft Version

European Regional Development Fund

[www.italy-croatia.eu/web/jointsecap](http://www.italy-croatia.eu/web/jointsecap)





# LOG IN



HOME RESULTS STRATEGY ▾ ACTIONS ▾ PLANNING AND MONITORING TOOLS WEB MAP

## Log in

Home

[Log in](#) [Create new account](#) [Reset your password](#)

USERNAME

*Enter your Joint-SECAP username.*

PASSWORD

*Enter the password that accompanies your username.* Compila questo campo.

[Log in](#)

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- Each partner will manage ONE ACCOUNT for TARGET AREA.
- Each partner will manage the platform's functions and will be RESPONSIBLE for the entered data in the STRATEGY AND ACTION CARDS.

# STRATEGY – STRATEGY CARD



- HOME
- RESULTS
- STRATEGY ▾
- ACTIONS ▾
- PLANNING AND MONITORING TOOLS
- WEB MAP

## STRATEGY

Home

View Results



### DESCRIPTION OF STRATEGY ?



# STRATEGY CARD – GENERAL INFO

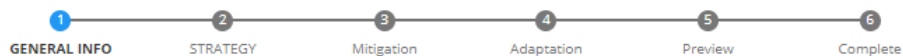


- HOME
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- PLANNING AND MONITORING TOOLS
- WEB MAP

## STRATEGY

Home

- View
- Results



### DESCRIPTION OF STRATEGY ?

### INSTITUTION TYPE ?

- Municipality ?
- Associative Form ?

Institution type: indicates whether the entity in charge of the plan is 'Municipality' or an 'Association Form'

### ADDRESS/CITY/PROVINCE/REGION

State/Province

Country

Next >

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# STRATEGY CARD – STRATEGY



- HOME
- RESULTS
- STRATEGY
- ACTIONS
- PLANNING AND MONITORING TOOLS
- WEB MAP

## STRATEGY

Home

**View** Results



### INSERTION STATUS ?

Insertion Status: indicates whether the strategy is provisional (Draft) or confirmed (Confirmed)

### TYPE OF PLAN ?

Plan Type: the 'Single municipality' data is displayed when the plan belongs to a single municipality, 'Joint' in the other cases.

### TITLE PLAN ?

Title: It is the descriptive title of the plan.

### STATUS OF PLAN ?

Approved SECAP: indication of whether the SECAP has been approved or not.

### APPROVAL DATE ?

Approval Date: date of the approval resolution of the SECAP if the user has checked the "approved SECAP" box.

[< Previous](#) [Next >](#)

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# STRATEGY CARD – MITIGATION



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- ACTIONS ▾
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- WEB MAP

## STRATEGY

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### REFERENCE YEAR ?

Reference Year: is the reference year of the plan.

CO2EQ EMISSION (%) ?  50 CO2

CO2eq emissions

CO2EQ EMISSION ABSOLUTE REFERENCE YEAR [T] ?  Mt 100 CO2

CO2eq emissions Absolute Reference Year [t]: indication of emissions in the reference year in absolute value.

CO2EQ PRO CAPITA EMISSION PER YEAR [T] ?  Mt 100 CO2

CO2eq pro capita Emissions Per Year [t]: indication of pro capita emissions in the reference year (value required only if a pro capita reduction target has been chosen)

- < Previous
- Next >

# STRATEGY CARD – ADAPTATION



**GOAL** ?

Please outline your adaptation strategy goals (if any). Feel free to add as many goals as necessary and be as specific as possible. One goal is mandatory and additional adaptation goals are optional.

**UNIT** ?

Specify the unit (as applicable)

**TARGET YEAR** ?

Please include the target year if applicable, either in descriptive or in quantitative terms

**BASE YEAR** ?

Please include the base year if applicable, either in descriptive or in quantitative terms

**PROGRESS TOWARDS THE TARGET** ? - None - ▾

Please include the progress achieved to date

< Previous Submit

# STRATEGY RESULTS



- HOME
- RESULTS
- STRATEGY ▾
- ACTIONS ▾
- PLANNING AND MONITORING TOOLS
- WEB MAP

## STRATEGY

Home

- View
- Results
- Submissions
- Download

▼ Filter submissions

Filter by submitted data and/or notes  All [1]

1 submission

USER ▲	TYPE OF PLAN	TITLE PLAN	OPERATIONS
SDEWES	Single municipality	SDEWES [1]	View



### Operation:

View: everyone can view the inserted cards without making any changes.

Edit: the partner who entered the Strategy Card can edit the content.



# ACTION – ACTION CARD



HOME

RESULTS

STRATEGY ▾

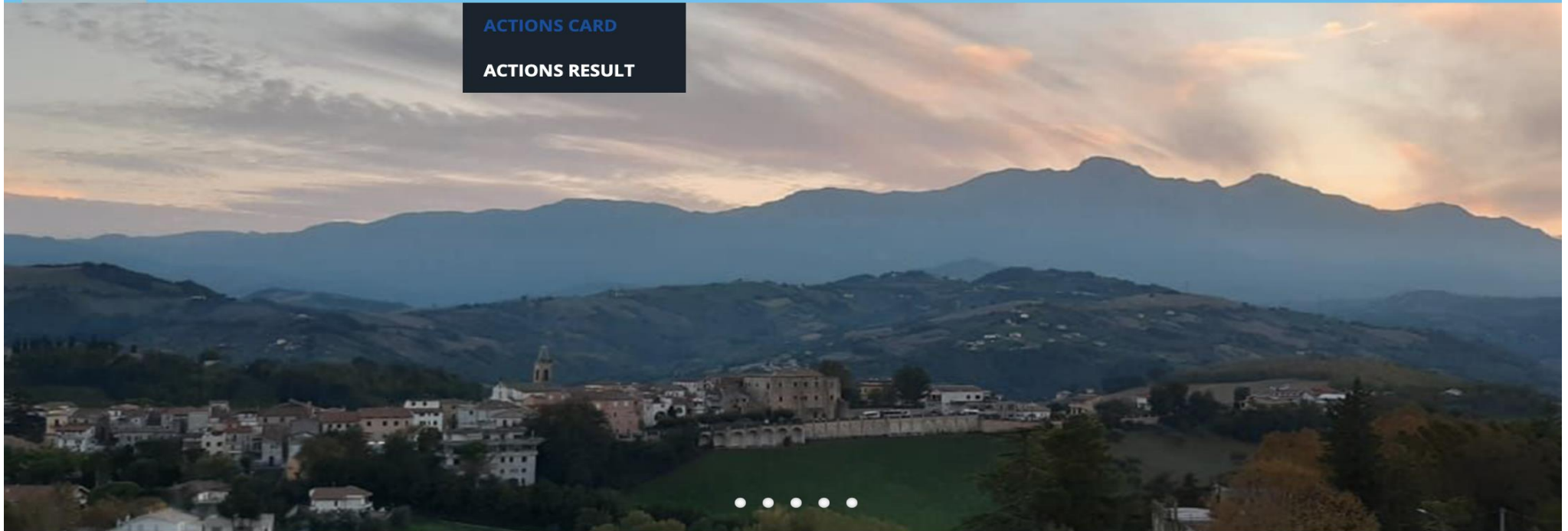
ACTIONS ▾

PLANNING AND MONITORING TOOLS

WEB MAP

ACTIONS CARD

ACTIONS RESULT





# ACTION – GENERAL INFO



HOME RESULTS STRATEGY - ACTIONS - PLANNING AND MONITORING TOOLS WEB MAP

## ACTIONS

Home

View Results



PLAN

SECAP OR SEAP TYPE

SECAP TYPE: THE 'SINGLE MUNICIPALITY' DATA IS DISPLAYED WHEN THE PLAN BELONGS TO A SINGLE MUNICIPALITY, 'JOINT' OTHERWISE.

SHEET TYPE

SHEET TYPE INDICATES WHETHER THE SHEET IS QUANTIFIABLE OR NOT IN TERMS OF CO2EQ REDUCTIONS AND / OR RENEWABLE ENERGY PRODUCTION AND / OR ENERGY SAVING.

TITLE

TITLE: IT IS THE DESCRIPTIVE TITLE OF THE ACTION SHEET.

TYPE OF INSTITUTION

TYPE OF INSTITUTION: INDICATES WHETHER THE ENTITY IN CHARGE OF THE PLAN IS 'MUNICIPALITY' OR AN 'ASSOCIATION FORM'.

ADDRESS/CITY/PROVINCE/REGION

STATE/PROVINCE

COUNTRY

Next >

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The address is MANDATORY FIELD for the localization on webmap.

If the action concerns the entire municipal territory of the single Municipality or of all the Municipalities involved in associative form, enter the address of the city hall (in the case of a single Municipality) or enter the city hall address of the leading municipality leader (in case of associative form).

# ACTION – ACTIONS



## ACTIONS

Home

View Results



### TYPE OF ACTION

Mitigation Adaptation

Energy poverty

Only in combination with "Mitigation" and/or "Adaptation" actions

Title of the action

### ORIGIN OF THE ACTION

Local authority  Covenant coordinator or supporter  National  Regional  Mixed  Other...

Responsible body

Short description

### IMPLEMENTATION TIMEFRAME (Start-End)

Add

The COMBINATIONS for INTEGRATED ACTIONS are:

- Mitigation and adaptation;
- Mitigation and energy poverty;
- Adaptation and energy poverty;
- Mitigation and adaptation and energy poverty.

# ACTION – ACTIONS

## IMPLEMENTATION STATUS

Not started  Ongoing  Completed  Cancelled

### STAKEHOLDERS INVOLVED

National government and/or agency(ies)

Sub-national governments(s) and/or agency(ies)

Business & private sector

Academia

Education sector

NGOs & civil society

Trade unions

Citizens

Additional comments

Total implementation costs

### SOURCE OF FUNDING

Local authority's own resources

Regional funds and programmes

National funds and programmes

EU funds and programmes

Public-private partnerships

Private partnerships

Other...

Investment costs:

Non-investment costs:

[< Previous](#)

[Next >](#)

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# ACTION – MITIGATION

## SECTOR

Municipal buildings, equipment/facilities Tertiary (non municipal) buildings, equipment/facilities Residential buildings Industry Transport Waste Local Electricity Production Local Heat/Cold Production Other...

## Tool / Area of intervention:

### Buildings

- None -

### Public lighting

- None -

### Transport

- None -

### Industry

- None -

### Electricity Production

- None -

### Heat/cold Production

- None -

### Other

- None -

## Policy instrument:

### Buildings

- None -

### Public lighting

- None -

### Transport

- None -

### Industry

- None -

### Electricity Production

- None -

### Heat/cold Production

- None -

### Other

- None -

## Estimated impacts:

Estimated impacts - Energy savings (MWh/a)

# ACTION – MITIGATION

Estimated impacts - Renewable energy production (MWh/a)

Estimated impacts - CO2 reduction: (t CO2/a)

Financial savings (€)

Life expectancy of the action

Return on Investment (%)

VULNERABLE POPULATION GROUP(S) TARGETED

- Women Girls
- Children
- Youth
- Elderly
- Marginalized groups
- Persons with disabilities
- Persons with chronic diseases
- Low-income households
- Unemployed persons
- Persons living in sub-standard housing
- Migrants and displaced people
- Other

Jobs created

A. OTHER FIGURES

[PLEASE SPECIFY]	[NUMERICAL VALUE]	[UNIT]
<input type="text"/>	<input type="text"/>	<input type="text"/>

# ACTION – ADAPTATION

## ACTIONS

Home

**View** Results



CLIMATE HAZARD(S) ADDRESSED

- Extreme heat
- Extreme cold
- Floods and sea level rise
- Droughts and water scarcity
- Storms
- Mass movement
- Wild fires
- Heavy precipitation
- Other

SECTOR(S)

- Buildings
- Transport
- Energy
- Water
- Waste
- Land use planning
- Agriculture & forestry
- Environment & biodiversity
- Health
- Civil protection & emergency
- Tourism
- Education
- ICT (information & communication technologies)

B. Outcome(s) reached - Description:

B. Outcome(s) reached - Related indicator:

[PLEASE SPECIFY]	[NUMERICAL VALUE]	[UNIT]
<input type="text"/>	<input type="text"/>	<input type="text"/>

# ACTION – ADAPTATION

HOME RESULTS STRATEGY ACTIONS PLANNING AND MONITORING TOOLS WEB MAP

⊕ ⊖

**Add**

**B.VULNERABLE POPULATION GROUP(S) TARGETED**

- Women Girls
- Children
- Youth
- Elderly
- Marginalized groups
- Persons with disabilities
- Persons with chronic diseases
- Low-income households
- Unemployed persons
- Persons living in sub-standard housing
- Migrants and displaced people
- Other

AVOIDED COST

B.Life expectancy of the action  years

B Return on Investment (%)

B Jobs created   
full-time equivalent

**B. OTHER FIGURES**

[PLEASE SPECIFY]	[NUMERICAL VALUE]	[UNIT]
<input type="text"/>	<input type="text"/>	<input type="text"/>

⊕ ⊖

**Add**

[< Previous](#) [Next >](#)

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# ACTION -ENERGY POVERTY



C VULNERABLE POPULATION GROUP(S) TARGETED

- Women Girls
- Children
- Youth
- Elderly
- Marginalized groups
- Persons with disabilities
- Persons with chronic diseases
- Low-income households
- Unemployed persons
- Persons living in sub-standard housing
- Migrants and displaced people
- Other

C. Outcome(s) reached - Description:

C. Outcome(s) reached - Related indicator:

[PLEASE SPECIFY]	[NUMERICAL VALUE]	[UNIT]
<input type="text"/>	<input type="text"/>	<input type="text"/>



# ACTION RESULTS



- HOME
- RESULTS
- STRATEGY ▾
- ACTIONS ▾
- PLANNING AND MONITORING TOOLS
- WEB MAP

## ACTIONS

Home

View Results

Submissions Download

▼ Filter submissions

Filter by submitted data and/or notes

All [4]

Filter

4 submissions

USER ▲	TITLE OF THE ACTION	TYPE OF ACTION	OPERATIONS
giuseppe.demarco	Oratione	Mitigation, Adaptation	View
SDEWES	JOINT ACTION	Adaptation	View
SDEWES	JOINT ACTION	Adaptation	View
SDEWES	JOINT ACTION	Adaptation	View

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### Operation:

**View:** everyone can view the inserted cards without making any changes.

**Edit:** the partner who entered the Action Card can edit the content.



# PLANNING AND MONITORING TOOLS



HOME RESULTS STRATEGY ACTIONS **PLANNING AND MONITORING TOOLS** WEB MAP

## Planning and monitoring tools

Home

- AST2.0 +
- Climate APP +
- Urban Proof Toolkit +
- AIRQ+ +
- HEAT v4.2.0 +
- Joint\_SECAP Tool for Vulnerabilities and Risks Assessment. +

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# PLANNING AND MONITORING TOOLS



- HOME
- RESULTS
- STRATEGY
- ACTIONS
- PLANNING AND MONITORING TOOLS
- WEB MAP

## Planning and monitoring tools

Home

### AST2.0

**Manual:** Yes

**Developed by:** Deltares

**Web Site:** [crctool.org](http://crctool.org)

*In "Documentation" you can find the Guide step by step*



It is an adaptation support tool to explore climate change adaptation measures in an urban area. The tool allows the user to select an urban area, to draw adaptation options for flooding, drought and urban heat on a map, to compare adaptation options with regard to their effectiveness, and to calculate the distance to a pre-determined target. It

is especially useful in stakeholder group meetings, and can be run on a touch table.

Documentation is included in the tool. The adaptation support tool was originally developed in the Climate KIC Blue Green Dream project and has been further developed by Deltares and will be maintained with support of the Dutch government. It has been tested in various cities including Berlin, London, Paris, and several Dutch cities.

# WEB MAP

The screenshot shows a web map interface. At the top left, there are logos for 'interreg Italy - Croatia Joint\_SECAP' and the 'EUROPEAN UNION'. A 'Location List' menu is visible. A search bar is located at the top right. On the left side, there is a 'Filter' section with a 'Sort' button and three project categories: 'AFFORESTATION OF NEGLECTED, DEGRADED, AND BURNED AREAS', 'CONSTRUCTION OF GREEN CANOPIES THAT PROTECT FROM THE SUN (AND PRECIPITATION) AT PUBLIC TRANSPORT STOPS', and 'REHABILITATION OF WATER LOSSES IN THE WATER SUPPLY SYSTEM AND EXPANSION OF THE WATER SUPPLY AND SEWERAGE SYSTEM IN THE CITY OF DUBROVNIK'. A legend on the right side includes 'Street Map', 'Select Layer', 'STRATEGY', and 'ACTION'. A green circle with the number '3' is highlighted on the map over Podgorica, Montenegro.

# WEB MAP

**ACTION: Construction of green canopies that protect from the sun (and precipitation) at public transport stops**

**GENERAL INFO**  
**PLAN** JOINT ACTION  
**SECAP OR SEAP TYPE** Joint  
**SHEET TYPE** Quantifiable  
**TITLE** Construction of green canopies that protect from the sun (and precipitation) at public transport stops  
**TYPE OF INSTITUTION** Municipality  
**PROVINCE/REGION ADDRESS/CITY/PROVINCE/REGION:** Dubrovnik, Croatia  
**Latitude:** 42.65066059999999  
**Longitude:** 18.0944238  
**Location:** 42.650661, 18.094424  
**Formatted Address:** Dubrovnik, Croatia  
**Locality:** Dubrovnik  
**State/Province:** Dubrovnik-Neretva County  
**Country:** Croatia  
**Country Code:** HR  
**Actions**  
**TYPE OF ACTION** Adaptation  
**Energy poverty** {Empty}  
**Title of the action** JOINT ACTION  
**ORIGIN OF THE ACTION** Mixed  
**Responsible body** Competent Administrative Departments of the City / Municipality in the observed area; Libertas d.o.o. (public transportation company)  
**Short description** All the Municipalities implement together a joint action and there is a total of 5 municipalities in the area. All the municipalities join this action because all are covered by the same public transport operator and have the same conditions regarding heat waves. Heatwaves are one of the manifestations of climate change that has a significant effect on many aspects of everyday life, and perhaps most pronounced on passengers in public transport, and can pose a serious threat to human health. Consequently, this action aims to ensure the availability of (green) canopies that provide greater protection from direct sun exposure at public transport stops. When choosing the type of canopies and building materials should consider, and where possible give preference, the use of green materials and technologies.  
**IMPLEMENTATION TIMEFRAME (Start-End)**  

- 2021-01-01
- 2030-12-31

**IMPLEMENTATION STATUS** Not started  
**Stakeholders involved** Sub-national governments(s) and/or agency(ies), Business & private sector  
**Additional comments** The stakeholders have involved thanks to the 3 focus group

# THANK YOU

## CONTACT INFO

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 [www.italy-croatia.eu/jointsecap](http://www.italy-croatia.eu/jointsecap)

## D 4.1 Definition climate scenarios (D4.1.1)

Actions for climate change adaptation  
Joint\_SECAP: 2nd International Workshop | online | 29th April 2021

Joint\_SECAP | Split and Dalmatia County |  
Martin Bućan

# D4.1.

## Activity details 4.1

Definition of climate scenarios for each territory

Trough the analysis of collected plans, measures and financing tools presented in the web platform the Joint Action Coordinators, selected for each district area, will start-up the process to define, manage and implement Joint Actions for climate change adaptation.

A.4.1.1 The Joint Action Coordinator will coordinate for each target area the activity designed to define possible scenarios for interventions of climate change adaptation: by reviewing, comparing and evaluating different measures, the activity will deliver a final climate scenario for each target area in order to define and implement Joint Actions for the territories.

## Activity deliverables

The deliverables for this activity will be two reports that will collect the results of the practices from each target area:

D.4.1.1 For each district area there will be the description of the final climate scenario, with a synthesis of the criteria undertaken to its definition;



# D4.1.

SDC is the Deliverable Leader for 4.1.1, as described in the workplan.

SDC task was:

- define the index that enables each partner to build a summary based on the work done for the "0" scenario and for the "optimal scenario";
- collect all contributions from partners.

## The LP suggested a way of working in the "METHODOLOGY FOR THE DEFINITION OF ALTERNATIVE SCENARIOS OF INTERVENTION"

### What is a scenario and what is it used for?

*"...a description of a **possible set of events** that might reasonably take place. The main purpose of developing scenarios is to stimulate thinking about possible occurrences, assumptions relating these occurrences, possible opportunities and risks, and **courses of action**"*

# D4.1.

## The Joint SECAP scenario planning

It has the aim to explore what will happen in the future (on a defined timescale: 2030) starting from a series of factors that are identifiable in the present (vulnerabilities and risks that have been characterized for each of the target areas), by encouraging a reflection between an option “0” (or Scenario 0) that describes the target’s area evolution if no intervention on vulnerabilities and risks is undertaken, which means the confirmation the current environmental protection policies and an alternative option, namely “Optimal scenario” option.

Already in this phase, and for the purpose of sharing the optimal scenario it will be necessary to:

- 1) Select a Joint Action Coordinator for each target area that will coordinate the activities at the district level

# D4.1.

## 2) Combine the Scenario construction with the SEA /Strategic Environmental Assessment\_SEA

PHASE OF THE "JOINT_SECAP" ACTION PLAN CONSTRUCTION PROCESS	Planning Process	Evaluation Process
<ul style="list-style-type: none"> <li>➤ Orientation and Setting</li> </ul>	<b>1. Risks and vulnerabilities Raisonné summary</b>	
<ul style="list-style-type: none"> <li>➤ Elaboration and editing</li> </ul>	<p><b>2.a Determination of general objectives of the Plan by the Administration</b>  <b>List</b></p> <p><b>2.b Construction of the scenario "0"</b>  <b>(see Table 1) and annex</b></p>	<p><b>Scoping D.4.2.2</b></p> <p><b>External Coherence Analysis</b>  <b>Report/ sheet</b></p>
	<p><b>2.c Construction of the Plan alternatives through the participatory process</b>  <b>(see Participation modes sheets-Annex A)</b></p> <p><b>2.d Alternatives evaluation and construction of the "optimal scenario"</b>  <b>(see table 2)</b></p> <p><b>2.e Specific objectives and action lines of the scenario</b>  <b>List</b></p>	<p><b>Internal Coherence Analysis</b>  <b>Report/ Sheet</b>  <b>Selection of indicators (among the ones identified for the risks and vulnerabilities)</b></p>
<ul style="list-style-type: none"> <li>➤ Approval and dissemination</li> </ul>	<b>3. Plan approval and awareness raising among the population and the stakeholders</b>	

# D4.1.

## 1. Risks and vulnerabilities summary raisonné

**Output:** Summary planned as conclusion step of the Risk and Vulnerability Methodology

## 2.a Determination of the Plan's general objectives by the Administration

The objectives are the declaration of what the P/P intends to achieve through all its forecasts.

**Output: List**

# D4.1.

## 2.b Construction of the scenario “0”

describes the evolution of the target area if no action is taken regarding vulnerabilities and risks, confirming the current environmental protection policies, but taking into consideration the climatic scenarios by 2030 (See Annex All.A)

**Output: Report of a few pages**

## 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. The path taken through the participation activity and the optimal / shared scenario selected through this path will be described with the support of Tab. 2.

**Tab.2 Elaboration, evaluation and sharing of scenarios**

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:

## 2.e Specific objectives and action lines of the optimal scenario

2.e.1 The specific defined objectives must be concrete, measurable and evaluable. They must correspond to the means and to the actions that are activated by the Plan.

Example of a specific objective: the general objective: “Improve air quality” can be expressed by the specific objective “Reduction of the concentration in the air of a certain percentage of a specific substance, in a specific area and within a given time interval”.

**Output:** List


2.e. The Action Lines is a set of measures that characterize the optimal scenario, compared to other alternatives and to the scenario “0”.

**Output:** List

# Thank you for your attention!

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 [www.italy-croatia.eu/jointsecap](http://www.italy-croatia.eu/jointsecap)

# Presentation of Climate scenarios (D4.1) for IRENA – Istrian Regional Energy Agency

Joint\_SECAP | IRENA – Istrian Regional Energy Agency |  
Antonio Franković

29 April 2021



# Climate scenario process

Public procurement for development of 0 and optimal climate scenario, development of a joint Action Plan for Sustainable Energy Development and Climate Change (SECAP) and preparation of a preliminary strategic environmental assessment for the area of Buje-Buie, the city of Novigrad-Cittanova and the municipality of Brtonigla-Verteneglio done in July, and finalized in August

Ecorys Croatia Ltd. chosen as external expert

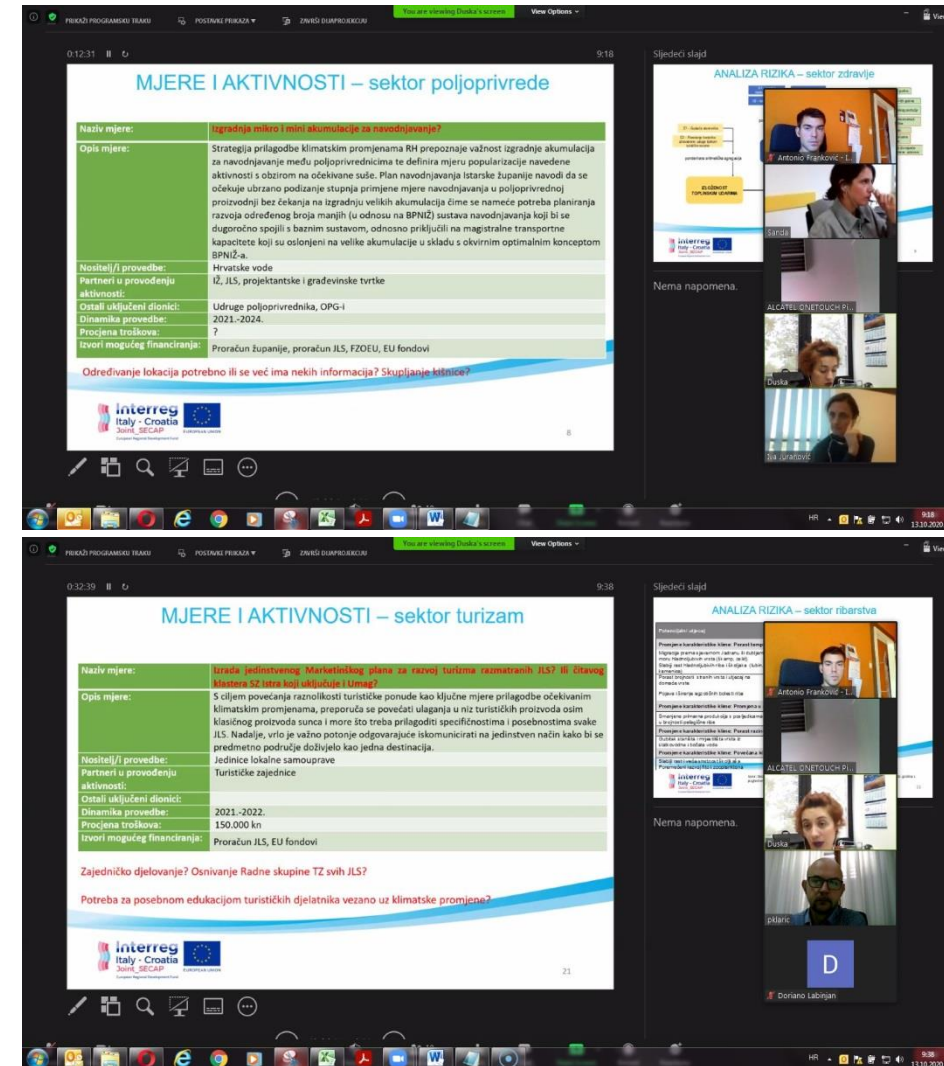


<https://www.ecorys.com/hr/croatia>

# Climate scenario process

1st Focus Group was held on 13th October 2020 via Zoom platform

Participants included representatives from the cities of Buje-Buie and Novigrad-Cittanova, the municipality of Brtonigla-Verteneglio, the port authority of Umag-Novigrad, LAG Northern Istria and representatives from Ecorys Croatia ltd. and IRENA



# Climate scenario process

Activity from the 1st Focus Group:

Representatives of Ecorys Croatia Ltd. presented the main results of the vulnerability and risk assessment of expected climate changes for the city of Buje-Buie, the city of Novigrad-Cittanova and the municipality of Brtonigla-Verteneglio.

A proposal of measures or scenarios for adaptation to climate changes was presented and an active discussion was held where participants gave their comments and suggestions on proposed measures and activities (also later via mail).

# Climate scenario process



## CLIMATE SCENARIOS

### Scenariji za djelovanje u kontekstu očekivanih klimatskih promjena

*Grad Buje - Buie*  
*Grad Novigrad – Cittanova*  
*općina Brtonigla - Verteneglio*

Listopad, 2020.



#### Autori:

Duška Šaša, dipl.ing.biol., univ.spec.oecooing.

Maja Hranilović, dipl.ing.biol.

Sanda Hunjak Čargonja, dipl.ing.građ.



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# Climate scenarios conclusions

RISK	RISK LEVEL	EXPECTED CHANGE IN INTENSITY	EXPECTED CHANGE IN FREQUENCY	RELIABILITY OF ESTIMATION
Risk of drought in Agricultural sector	!!	+	+	**
Risk of heat stroke in Health sector	!! (Buje,Brtonigla) !!! Novigrad	+	+	**
Risk of drought in water supply sector	!!	+	+	**
Risk of high temperatures and heavy precipitation in Tourism sector	!!	+	+	**
Risk of temperature level rise in Fisheries sector	!!!	+	+	**
Risk water circulation changes due to thermohaline reasons in Fisheries sector	!!!	+	+	**
Risk of sea level rise in Fisheries sector	!!	+	+	**
Risk of sea acidity level rise in Fisheries sector	!!!	+	+	**
Risk of sea floods (Coastline)	!!!	+	+	**

\* Due to the limitation and inaccessibility of specific data, risk for Coastline and Fisheries sector determined same as national level risk

# Climate scenarios conclusions

Criteria for climate scenario measures as defined by external expert

CRITERIA	DESCRIPTION	RESULT
<u>Significance</u>	<u>Risk diminishment potential</u>	High / Medium / Low
<u>Urgency</u>	<u>Are consequences already being felt? Is the measure implementation process log?</u>	Yes / No
<u>Feasibility</u>	<u>Are there any obstacles to the implementation process? If so, which ones?</u>	Yes / No
<u>Cost efficiency</u>	<u>What is the measure effect and invested funds ratio?</u>	High / Medium / Low
<u>Multiple usability</u>	<u>Does the measure bring benefit independently from climate change?</u>	Yes / No
<u>Synergy effect</u>	<u>Does the measure have positive effect also on other sectors/areas? If so, which ones?</u>	Yes / No

Measures can be:

- Preparatory
- Implementational
- Educational-promotional

# Climate scenarios conclusions

SECTOR	HAZARD	MEASURES
Agriculture (3)	Drought	Education of farmers in the field of financial support for project development and entrepreneurial knowledge
		Construction of mini and micro reservoirs for irrigation
		Continued co-financing of crop, animal and plant insurance premiums

# Climate scenarios conclusions

SECTOR	HAZARD	MEASURES
Health (4)	Heat wave	Implementation of the Protocol on Procedures and Recommendations for Protection against Heat
		Establishment of a new or transformation of an existing health institution in order of improving health care coverage
		Installation of green and smart canopies at public transport stops and public car parks
		Integrating green infrastructure into spatial plans



# Climate scenarios conclusions

SECTOR	HAZARD	MEASURES
Water supply (5)	Drought	Reconstruction of the water supply network
		Implementation of educational programs on efficient water consumption
		Water consumption savings in LGU buildings
		Introduction of eco-smart showers on public beaches
		Construction of a comprehensive public wastewater drainage system, inclusive with purification system for water reuse

# Climate scenarios conclusions

SECTOR	HAZARD	MEASURES
Tourism (6)	Extreme temperatures and high precipitation	Integrating the domain of climate change into strategic planning documents of tourism development
		Encouraging the development of sports and recreational tourism
		Encouraging the development of cultural tourism
		Encouraging the development of <u>agritourism</u>
		Education of tourism workers on climate change
		Development of a unique Marketing Plan for the development of tourism in the NW Istria cluster

# Climate scenarios conclusions


SECTOR	HAZARD	MEASURES
Coastal belt (3)		Climate change Vulnerability and risk assessment of the coastal belt of <u>Buje-Buie</u> , <u>Novigrad-Cittanova</u> and <u>Brtonigla-Verteneglio</u> area
		Continuous updating of the hydrographic database
		Reconstruction of existing breakwaters and/or construction of new ones

# Climate scenarios conclusions

SECTOR	HAZARD	MEASURES
Spatial planning (1)		Education of decision makers in the domain of integrative spatial planning


# Thank you for your attention !

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## WP 4 – Presentation of the intervention scenario

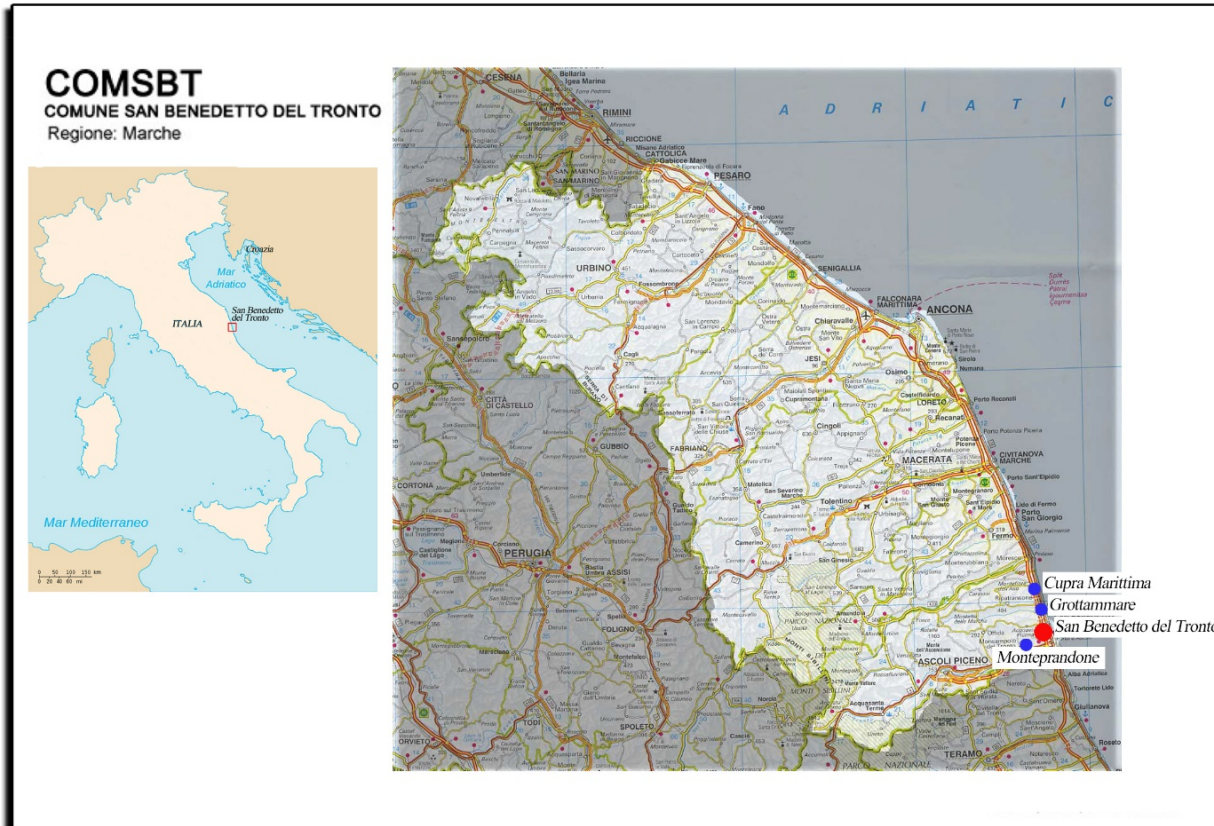
Target area:  
San Benedetto del Tronto/Monteprandone/Grottammare/Cupra Marittima



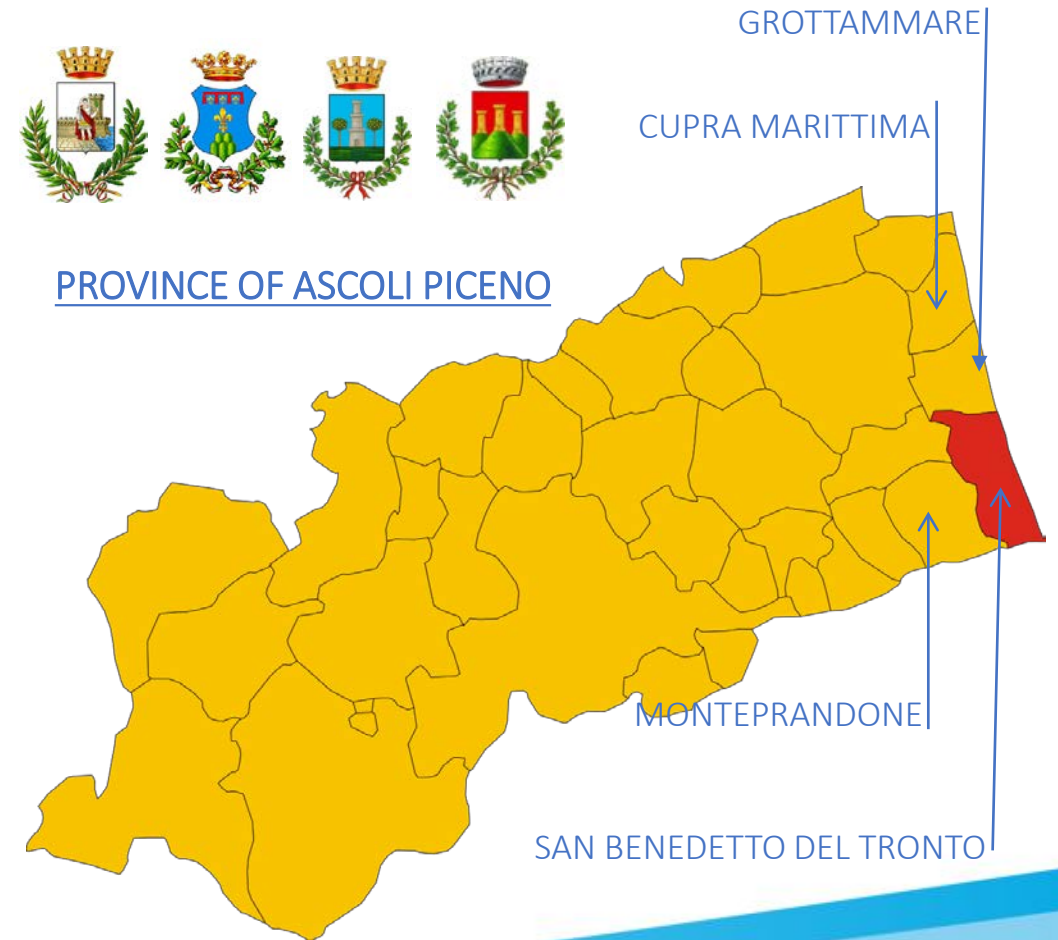
Maria Pietrobelli   
Centro ricerche applicate  
per lo sviluppo sostenibile

Joint\_SECAP: 2nd International Workshop - Actions for climate change adaptation – 29 April 2021

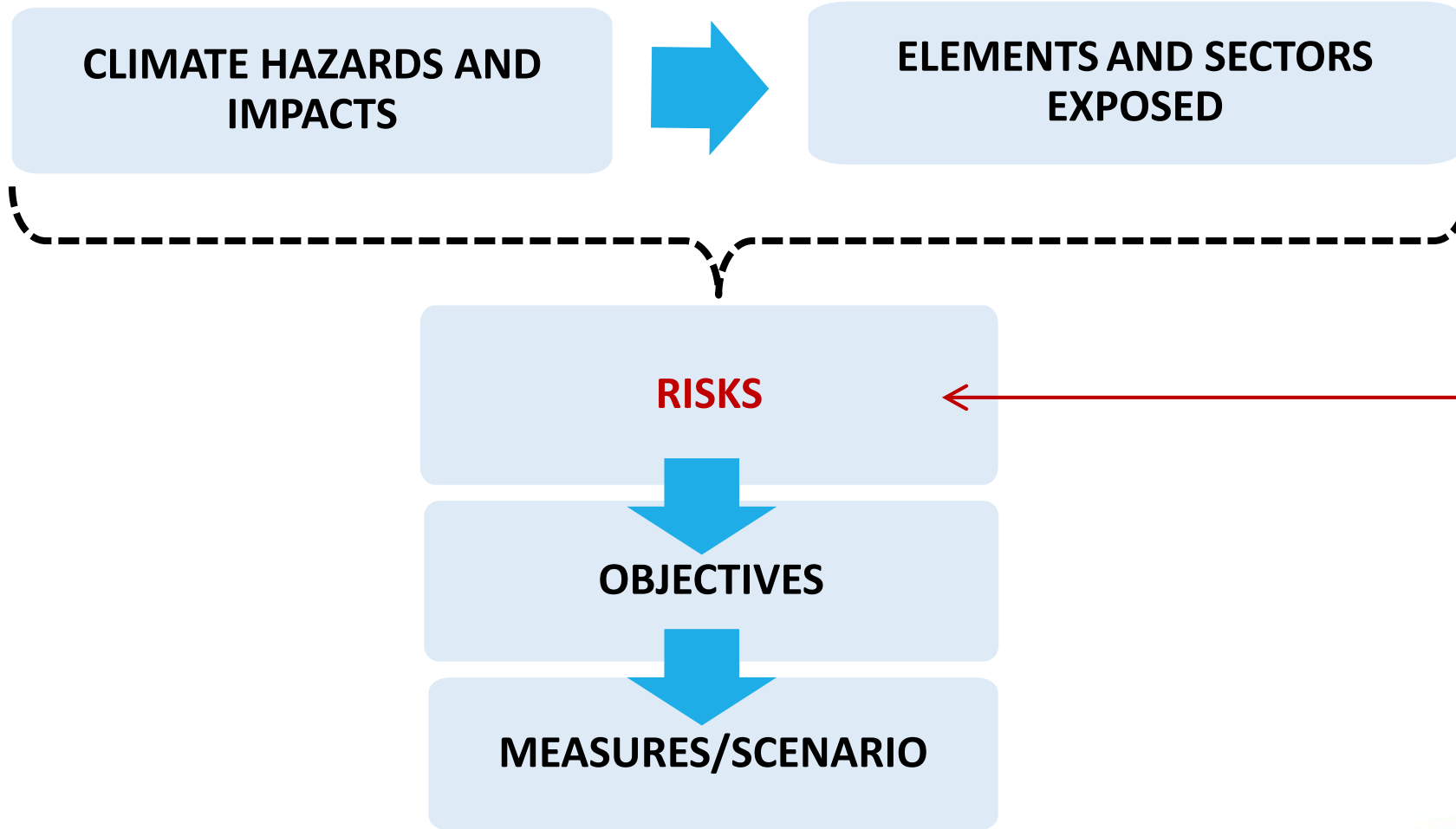
# THE TARGET AREA



PROVINCE OF ASCOLI PICENO



# DEVELOPMENT OF INTERVENTION SCENARIO – Summary of the logical process



**Risk and Vulnerability Assessment (RVA)**

```

    graph TD
      CH[CLIMATE HAZARD] --> I[IMPACTS]
      E[EXPOSURE] --> I
      S[SENSITIVITY] --> I
      I --> R[RISK]
  
```

- IPCC-R4 CONCEPTUAL FRAMEWORK
- IMPACT CHAINS METHODOLOGY (GIZ-Eurac, 2014)

↓

**MUNICIPAL AND SUBMUNICIPAL MAPS (634 census sections)**  
 ABOUT 4 EXTREME WEATHER EVENTS:

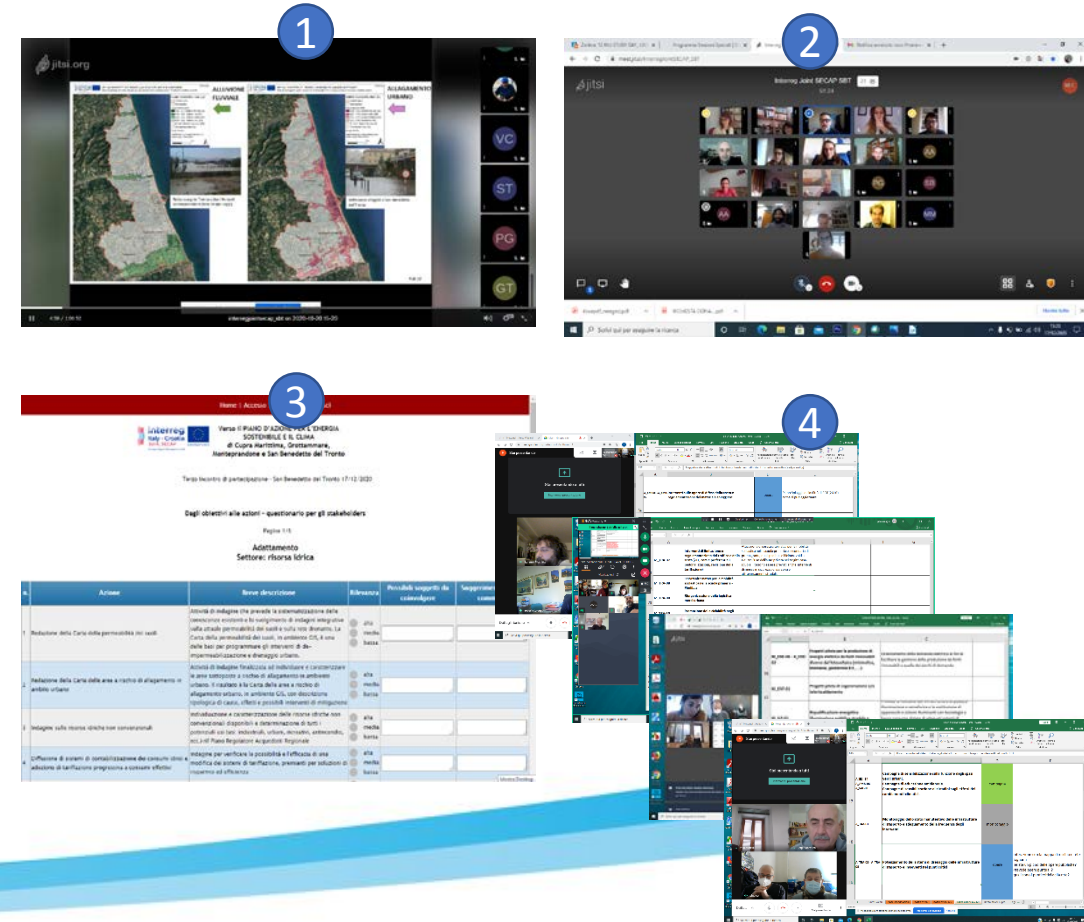
- River flooding
- Urban flooding
- Coastal flooding
- Landslide



# BUILDING THE FINAL SCENARIO STEP BY STEP – THE PARTICIPATORY PROCESS

The previous logical process has been applied through 5 main working steps to built the final scenario - each of them strongly linked with the participatory process

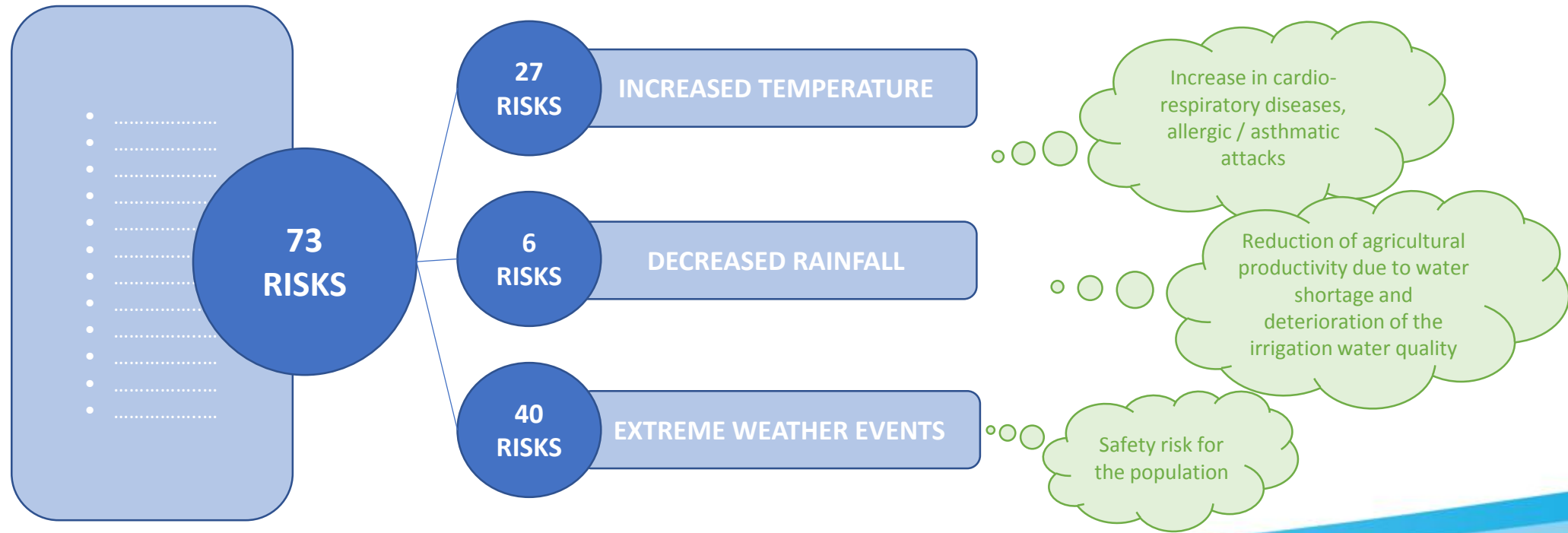
- 1 **RISKS DEFINITION (1st Focus Group): list of 73 risks**
- 2 **OBJECTIVES DEFINITION (2nd Focus Group): list of 23 objectives**
- 3 **PRELIMINARY MEASURES DEFINITION (3rd Focus Group): list of 63 measures**
- 4 **MEASURES REVISION (Bilateral web meetings with each of the 4 Municipalities)**
- 5 **FINAL LIST OF MEASURES - individual and joint measures (list of 18 measures (+ 22 for mitigation) – that represent the Intervention scenario**



# FIRST FOCUS GROUP – DEFINITION OF RISKS

1	RISKS DEFINITION
2	
3	
4	
5	

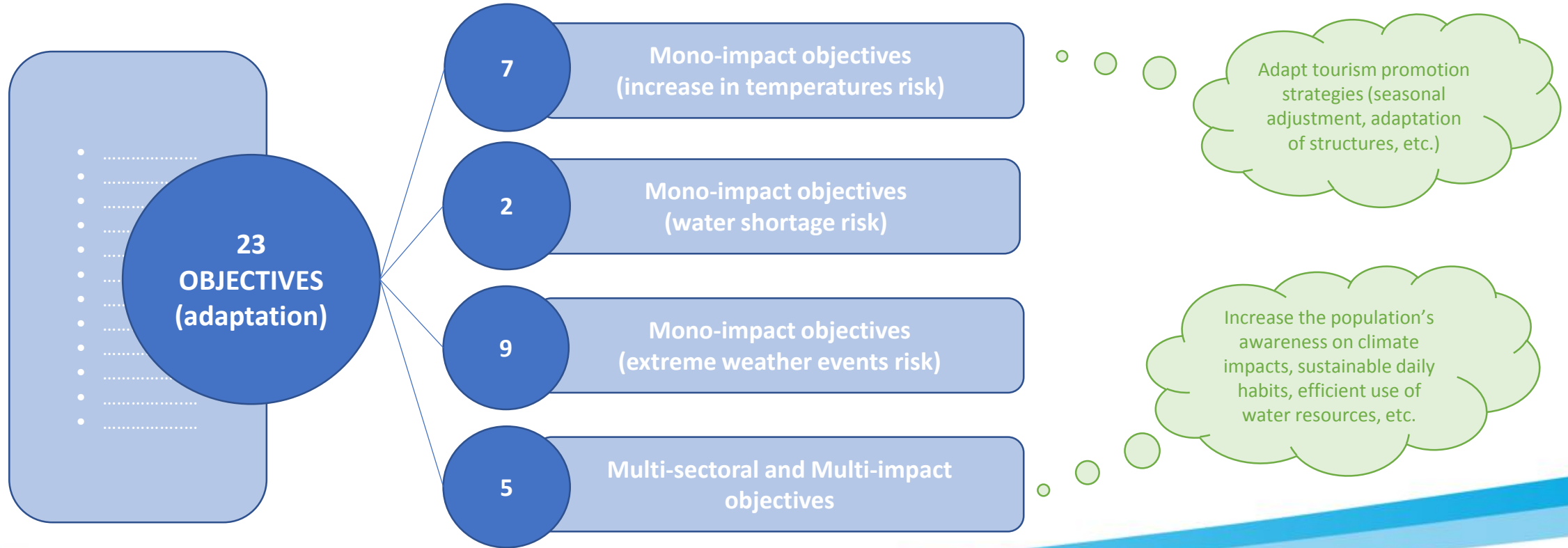
From the intersection of the 9 climate impacts on each exposed sector, it has been possible to draft a list of 73 potential risks, analyzed and discussed with stakeholders. The risks are organized per sector and per climate impact. After the discussion the stakeholders filled in a web survey with their risks assessment. The result has been a final shared and weighed list of the existing risks in the area



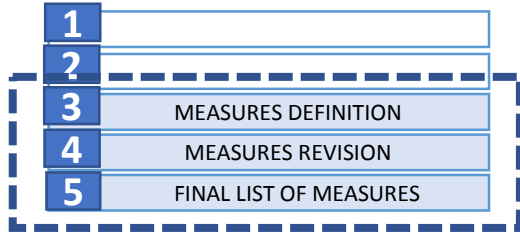
# SECOND FOCUS GROUP – DEFINITION OF PLAN OBJECTIVES

1	
2	OBJECTIVES DEFINITION
3	
4	
5	

The expert groups proposed a list of 23 objectives, that the Plan set in order to manage the previous identified risks – preventing, minimizing, managing them, organized per climate impact and per sector



# DEVELOPMENT OF THE FINAL SCENARIO – DEFINITION of ADAPTATION ACTIONS/MEASURES



4 profiles on the CoM platform  
 4 GHG Reduction goals (>40%),  
 4 Baseline Emission Inventories  
 1 SECAP approved by the 4 City Councils, including INDIVIDUAL and SHARED MEASURES

**JOINT SECAP OPTION1**  
 including

**18 ADAPTATION ACTIONS**  
 (+ 22 mitigation actions)

## WATER

A-ACQ-01	Retrofit of the sewage system	SJ
A-ACQ-02	Retrofit of the Water supply network	SJ
A-ACQ-03	Maintenance and monitoring of waterbodies	SJ
A-ACQ-04	Pilot intervention for the re-use of water	Ind

## AGRICULTURE & FORESTRY

A-AGR-01	Upgrade of the irrigation system	SJ
A-AGR-02	Farmers' help desk TOWARDS A RESILIENT AGRICULTURE	J

## ENVIRONMENT & BIODIVERSITY

A-AMB-01	Coastal protection and defense	SJ
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## BUILDINGS

A-EDI-01	Sustainable urban drainage systems	Ind
A-EDI-02	Urban afforestation	Ind
A-EDI-03	Interventions in landslide risk areas	Ind

## EDUCATION

A-EDU-01	Awareness raising campaign: LET'S ADAPT!	SJ
A-EDU-02	Awareness raising campaign: SAVE WATER!	SJ

## CIVIL PROTECTION & EMERGENCY

A-EME-01	Optimization of the Civil Protection system	J
A-EME-02	Improvement of the early warning systems	J

## LAND USE PLANNING

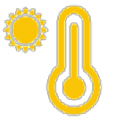
A-PIA-01	Mainstreaming climate change adaptation into municipal planning tools	SJ
A-PIA-02	Implementation of Green Infrastructure planning tools	J
A-PIA-03	Promotion of River and Coastal Contracts	SJ

## TOURISM

A-TUR-01	ALL-YEAR-LONG TOURISM (Working table of the tourism sector)	J
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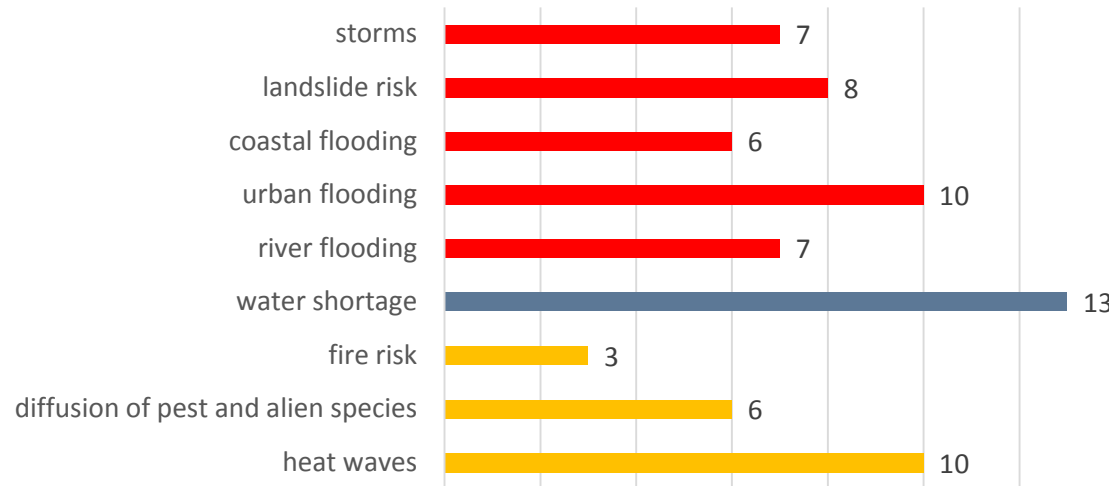
# ANALYSIS OF THE ADAPTATION ACTIONS

## CLASSIFICATION PER CLIMATE IMPACT TARGETED

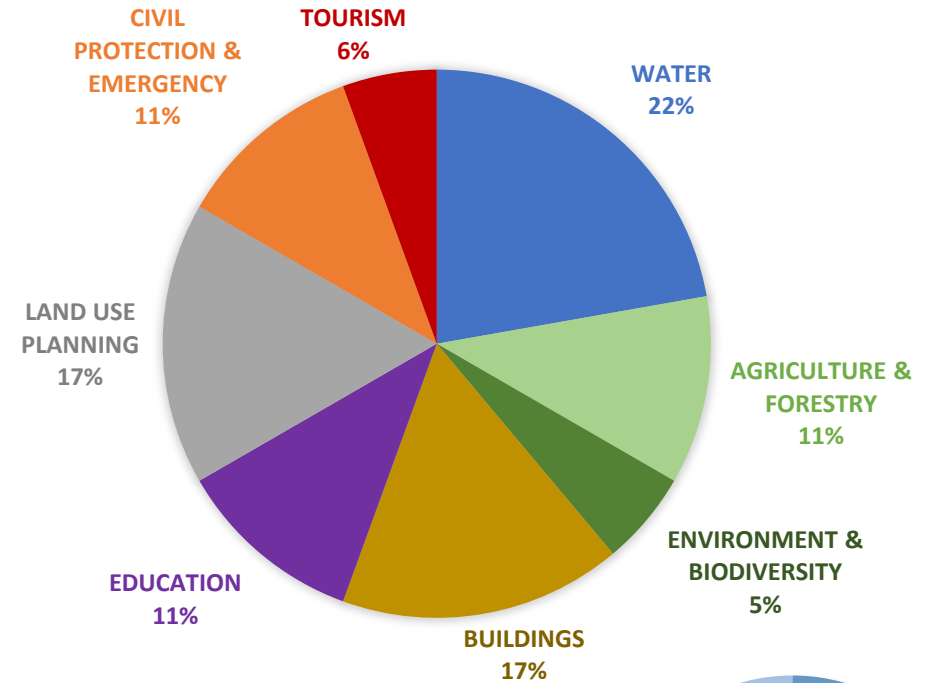


CLIMATE PHENOMENA	IMPACT	ACTIONS*
Increased Temperatures	heat waves	10
	diffusion of pest and alien species	6
	fire risk	3
Decreased Precipitations	water shortage	13
	river flooding	7
Extreme Events	urban flooding	10
	coastal flooding	6
	landslide risk	8
	storms	7

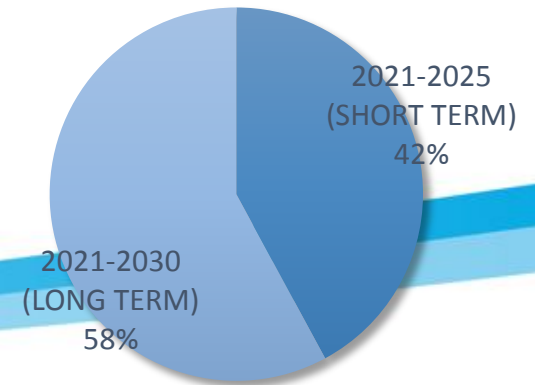
\* Many actions address more than one climate impact



## CLASSIFICATION PER SECTOR ↓

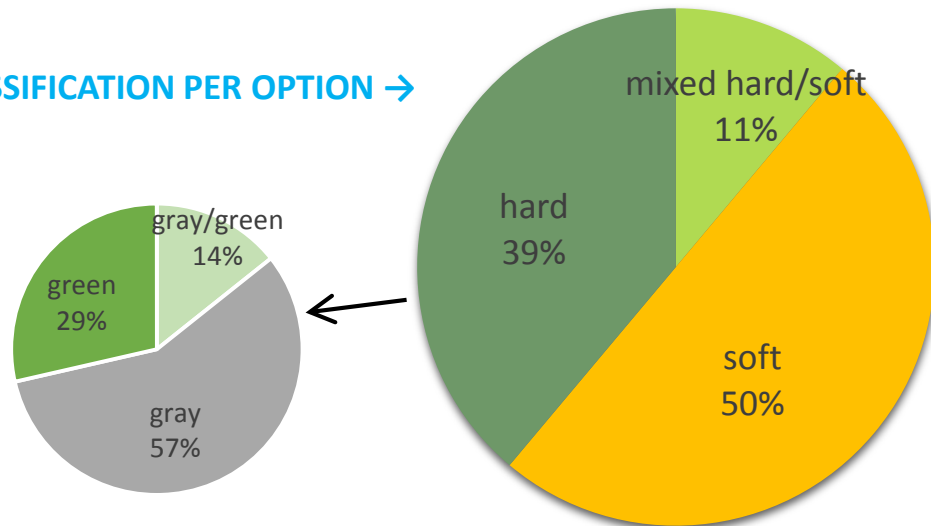


## CLASSIFICATION PER SHORT/LONG TERM →

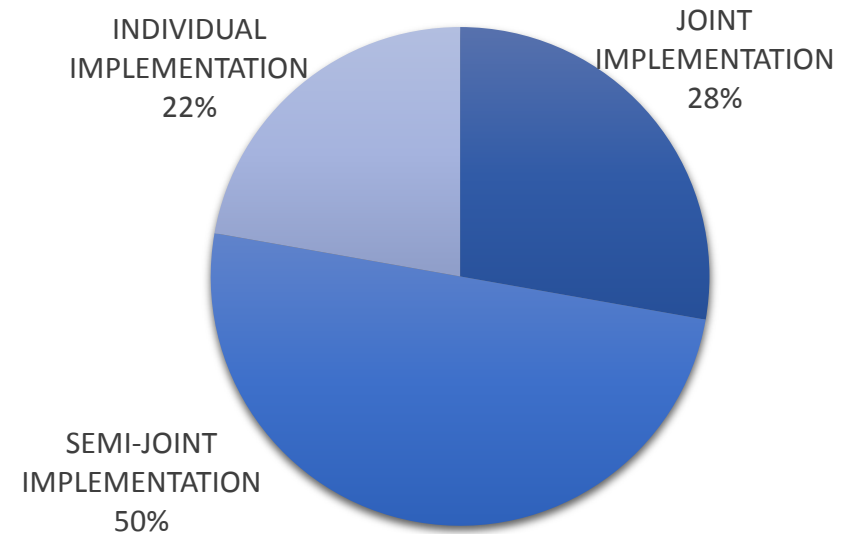


# ANALISYS OF THE ADAPTATION ACTIONS

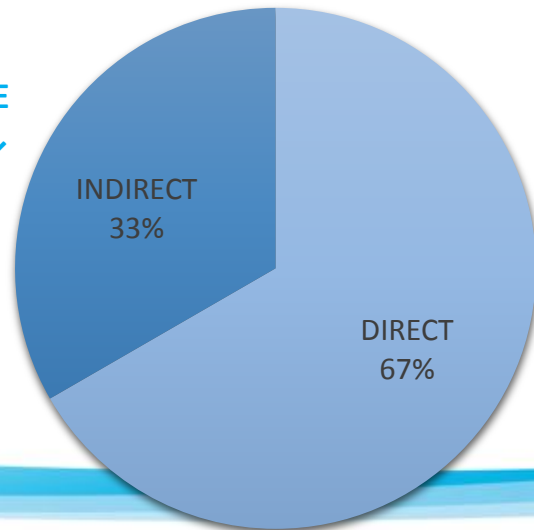
CLASSIFICATION PER OPTION →



CLASSIFICATION PER «SHARING LEVEL» ↓



CLASSIFICATION PER COMPETENCE OF THE MUNICIPALITY ↓



**INDIVIDUAL IMPLEMENTATION** - Action that municipalities (one or more) implement individually on their territory with their own resources according to specific needs and opportunities.

**SEMI-JOINT IMPLEMENTATIONS** - Actions that are implemented in more than one municipality under a common direction, because the responsible body is supra-local or because follow common rules/guidelines.

**JOINT IMPLEMENTATION** - Actions to be implemented by the 4 municipalities together, sharing human, financial resources and leading to common results.

# ACTION SHEETS AND SECAP TEMPLATES

<b>A-AGR-02</b>	<b>SERVIZI DI SUPPORTO ALLO SVILUPPO DI UNA AGRICOLTURA PIÙ RESILIENTE</b>	
<b>AMBITO</b>	<b>ADATTAMENTO</b>	
<b>SETTORE</b>	<b>Agricoltura e forestazione</b>	
<b>PERICOLO CLIMATICO</b>	Aumento temperature	<input checked="" type="checkbox"/> Aumento temperature <input checked="" type="checkbox"/> Diffusione insetti vettori e specie aliene <input type="checkbox"/> Accentuazione rischio incendio
	Riduzione piogge	<input checked="" type="checkbox"/> Carenza idrica <input type="checkbox"/> Alluvione fluviale <input type="checkbox"/> Allagamento urbano
	Eventi estremi	<input type="checkbox"/> Alluvione costiera <input type="checkbox"/> Accentuazione rischio frana <input checked="" type="checkbox"/> Vento forte e grandinate
<b>NATURA</b>	<input type="checkbox"/> hard/green	
	<input type="checkbox"/> hard/grey	
	<input checked="" type="checkbox"/> soft	
<b>COMPETENZA COMUNALE</b>	<input checked="" type="checkbox"/> diretta	
	<input type="checkbox"/> indiretta	
<b>COMUNI COINVOLTI</b>	<input checked="" type="checkbox"/> Cupra Marittima	<input checked="" type="checkbox"/> Grottammare
	<input checked="" type="checkbox"/> San Benedetto del Tronto	<input checked="" type="checkbox"/> Montepredone
<b>LIVELLO DI CONDIVISIONE</b>	<input checked="" type="checkbox"/> Attuazione congiunta	
	<input type="checkbox"/> Attuazione semi-congiunta	
	<input type="checkbox"/> Attuazione individuale	
<b>PROMOTORE /RESPONSABILE</b>	Comuni	
<b>ALTRI ATTORI COINVOLTI</b>	Organizzazioni professionali agricole (Coldiretti, CIA) Ordine Agronomi (consulenza e formazione)	
<b>TARGET GROUP</b>	imprenditori/attori economici	
<b>DESCRIZIONE</b>	Azioni di sostegno alla formazione e informazione degli addetti al settore agricolo e alle PMI. Sistematizzazione e diffusione delle conoscenze ed i dati esistenti sui cambiamenti climatici in agricoltura e sulle buone pratiche per l'adattamento, attraverso azioni di sensibilizzazione e comunicazione orientate ad accrescere le conoscenze sulle capacità adattative da parte degli operatori del settore. Organizzazione di cicli di formazione rivolti agli operatori sulle metodologie per la	

...stanze estranee ai processi naturali locali (pesticidi, liquami zootecnici) per una migliore salvaguardia della gli insetti impollinatori, e integrità delle colture. diversificazione colturale finalizzata ad aumentare la promozione della realizzazione di "infrastrutture verdi" in impatti causati da eventi atmosferici estremi, e l'utilizzo di protezione dei raccolti (strutture per la protezione da gelo etti). Formazione e informazione sull'utilizzo di macchinari sione, lavorazione minima, semina su sodo. nenti, a valere sulla pianificazione regionale e sui fondi azione di misure di riduzione degli impatti e di forme

...e nelle seguenti attività:  
 ...lenza e formazione per gli agricoltori;  
 ...forme assicurative specifiche;  
 ...cesso alle fonti di finanziamento.

...verso un'agricoltura più sostenibile e resiliente agli effetti atico, attraverso la diffusione di buone pratiche agli

...embre 1999, N. 37

...strutturali (FEASR)

...ività di divulgazione;  
 ...comunicazione e formazione e divulgazione per anno;  
 ...rtatori d'interesse coinvolti- partecipanti;  
 ...o per la divulgazione;  
 ...tipulate;  
 ...umenti innovativi/adattativi;  
 ...coinvolta (mq)

<b>ALTRE AZIONI</b>	A-AGR-01
<b>NOTE</b>	

Actions	
1) Type of action	<input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> Adaptation <input type="checkbox"/> Energy poverty <small>ⓘ Only in combination with 'Mitigation' and/or 'Adaptation' actions</small>
2) Title of the action	<b>Services to support resilient agriculture: farmers' help desk</b>
3) Origin of the action	<b>Local authority</b>
4) Responsible body	<b>municipality and farmer's associations</b>
5) Short description	<p>Information and training activities addressed to farmers and actors in the food and forestry sectors. Systematization and dissemination of knowledge and existing data on climate change in agriculture and on good practices for adaptation, through awareness-raising and communication actions aimed at increasing knowledge on adaptive capacities by sector operators. Promotion of the progressive decrease in the use of chemicals (pesticides, herbicides, fertilizers, livestock sewage) for a better safeguard of biodiversity and crop integrity, and the creation of "green infrastructures" capable of mitigating the impacts caused from extreme atmospheric events (floods, riparian erosion, desertification). Promotion of investments, based on regional planning and European funds, for the implementation of impact reduction measures.</p> <small>172 characters left</small>
6) Implementation timeframe	Start: <b>2021</b> End: <b>2027</b>
7) Implementation status	<b>Not started</b>
8) Stakeholders involved	<b>Sub-national governments(s) and/or agency(ies)</b> <b>Business &amp; private sector</b> <small>ⓘ For multiple choice, insert additional rows as needed</small>
9) Total implementation costs	Additional comments _____ _____ € Source of funding: <b>Regional funds and programmes</b> Investment costs: _____ € Non-investment costs: _____ €
B. Adaptation	
<small>ⓘ Only for actions addressing adaptation. Click on the [+/-] buttons on the left to expand or collapse</small>	
18) Climate hazard(s) addressed	<b>Droughts and water scarcity</b> <b>Extreme heat</b> <small>ⓘ For multiple choice, insert additional rows as needed</small>
19) Sector(s)	<b>Agriculture &amp; forestry</b> <small>ⓘ For multiple choice, insert additional rows as needed</small>
20) Outcome(s) reached	Description: <b>Promote the transition to a more sustainable and resilient agriculture to the effects of climate change, through the dissemination of good practices to farmers.</b> Related indicator: <b>Expenditure (EUR) on dissemination activities</b> [numerial value] <b>euro</b> <small>840 characters left</small>
21) Vulnerable population group(s) targeted	<b>Other</b> <small>ⓘ For multiple choice, insert additional rows as needed</small>
22) Avoided cost	_____ €
23) Life expectancy of the action	<b>7</b> years
24) Return on Investment	_____ %
25) Jobs created	<b>2 persons</b> full-time equivalent
26) Other figures	[Please specify] [numerial value] [Unit]



# thank you!

## City of San Benedetto del Tronto

Contacts: Sergio Trevisani, Serena Sgariglia



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[www.italy-croatia.eu/jointsecap](http://www.italy-croatia.eu/jointsecap)



## Technical Assistance



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[www.cras-srl.it](http://www.cras-srl.it)



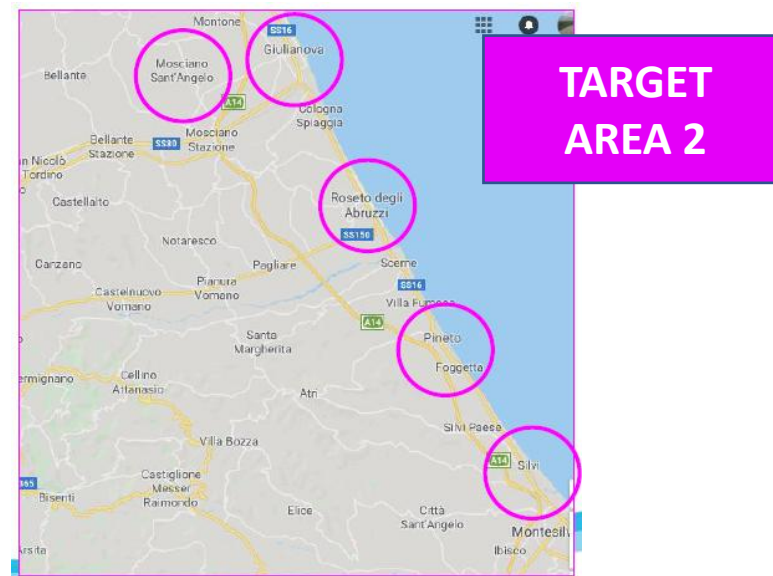
# Climate scenarios of Abruzzo Region

Joint\_SECAP – Abruzzo Region

Chiara Barchiesi, Claudia Magri,  
Danilo Di Pietro

2nd transnational meeting | WEB MEETING | April, 29<sup>th</sup> 2021

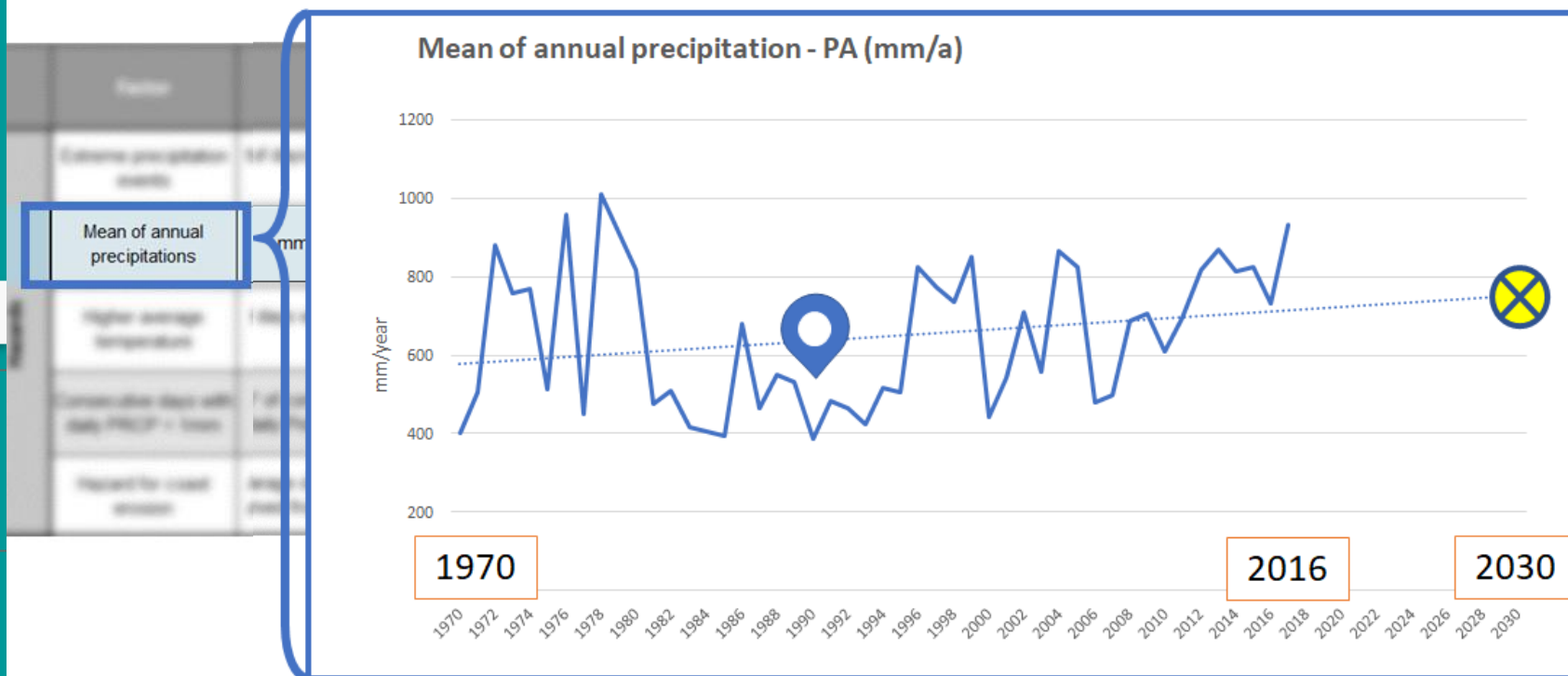
# The target areas of Abruzzo Region



# Development of scenario 0

- Starting point: indicators of 4 impact chains for 2 target areas
- **Conservative** estimation and **linear trend projections** for indicators with historical data

- Coherence with CoM template (updated in March 2020)



# Development of scenario 0

Supported also by:

- technical reports by EU and multilateral agencies
- data sharing platform
- national and international meteorological centres

Climate hazards for area target 1 - hill area	<< Current risk of hazard occurring >>		<< Future hazards >>		
	Probability of hazard	Impact of hazard	Expected change in hazard intensity	Expected change in hazard frequency	Timeframe(s)
Extreme heat	High	High	No change	Increase	Short-term
Heavy precipitation	High	High	No change	Increase	Short-term
Heavy rainfall	High	High	No change	Increase	Short-term

Adaptive capacity of area target n.1 - hill area

Adapted sector(s)	Adaptive capacity factor(s)	Current adaptive capacity level	Indicator	Value	Unit
Buildings	Socio-economic	High	IVSM: Social and material vulnerability index	0,70	none
Agriculture & forestry	Governmental & institutional	Low	FF_P: Presence and updating of the regional forest fire prevention plan	0,10	none
Environment & biodiversity	Governmental & institutional	Low	R_A_H: % of financial regional resources for flood and landslides	0,10	none
Civil protection & emergency	Governmental & institutional	High	M_E_P: n° of municipal emergency plans and state of update	0,81	none
Tourism	Socio-economic	High	IVSM: Social and material vulnerability index	0,70	none

Table 2) Vulnerable sectors for area target 1 - hill area

Climate hazards	Relevant vulnerable sector(s)	Current vulnerability level	Indicator	Value	Unit
Extreme heat	Buildings Agriculture & forestry Environment & biodiversity Civil protection & emergency Tourism	Low	Sensitivity indicators of Impact chain n.3, that includes: • IND_DIP_STR: Ratio between the population of non-active age (0-14 ys and > 65 ys) and the population of active age (15-65 years) compared to the regional data (weight 0,1/0,4) • E30+E31: % of residential buildings with poor state of conservation compared to the total municipal stock (weight 0,2/0,4) • IN_RF: Municipalities infested by rhynchophorus ferrugineus (weight 0,1/0,4)	0,39	none
Heavy precipitation	Buildings Agriculture & forestry Environment & biodiversity Civil protection & emergency Tourism	Moderate	Sensitivity indicators of Impact chain n.1/A and 1/B, that includes: • IND_DIP_STR: Ratio between the population of non-active age (0-14 ys and > 65 ys) and the population of active age (15-65 years) compared to the regional data (weight 0,1/0,2) • E30+E31: % of residential buildings with poor state of conservation compared to the total municipal stock (weight 0,1/0,2)	0,40	none
Floods & sea level rise	Buildings Agriculture & forestry Environment & biodiversity Civil protection & emergency Tourism	Moderate	Sensitivity indicators of Impact chain n.1/A, that includes: • IND_DIP_STR: Ratio between the population of non-active age (0-14 ys and > 65 ys) and the population of active age (15-65 years) compared to the regional data (weight 0,1/0,2) • E30+E31: % of residential buildings with poor state of conservation compared to the total municipal stock (weight 0,1/0,2)	0,40	none
Droughts & water scarcity	Buildings Agriculture & forestry Environment & biodiversity Civil protection & emergency Tourism	Low	Sensitivity indicators of Impact chain n.2, that includes: • IND_DIP_STR: Ratio between the population of non-active age (0-14 ys and > 65 ys) and the population of active age (15-65 years) compared to the regional data (I.C. 2 weight 0,1/0,3) • SPI: Number of February monthly/quarterly with SPI values <-1 (drought seasons) in the periods 1951-2020 (I.C. 2 weight 0,2/0,3)	0,34	none
Mass movement	Buildings Agriculture & forestry Environment & biodiversity Civil protection & emergency Tourism	Moderate	Sensitivity indicators of Impact chain n.1/B, that includes: • IND_DIP_STR: Ratio between the population of non-active age (0-14 ys and > 65 ys) and the population of active age (15-65 years) compared to the regional data (weight 0,1/0,2) • E30+E31: % of residential buildings with poor state of conservation compared to the total municipal stock (weight 0,1/0,2)	0,40	none
Wild fires	Buildings Agriculture & forestry Environment & biodiversity Civil protection & emergency Tourism	Moderate	Sensitivity indicators of Impact chain n.4, that includes: • R_F_C: % of area with risk of fire of forest with medium or high level, compared with regional data (weight 0,5/0,5)	0,50	none

Table 4) Vulnerable population groups for area target n. 1 - hill area

Climate hazards	Most vulnerable population group(s)
Extreme heat	All listed population groups
Heavy precipitation	All listed population groups
Floods & sea level rise	All listed population groups
Droughts & water scarcity	All listed population groups
Mass movement	All listed population groups
Wild fires	All listed population groups

Supporting documents

Factor	Report	Level
Extreme heat	National plan for adaptation and climate change - Annex 1 "Analysis of current and future climatic conditions "	National macroregions
Heavy precipitation	National plan for adaptation and climate change - Annex 1 "Analysis of current and future climatic conditions " Results from Life "Primes" project	National macroregions/ Regional
Sea level rise	National plan for adaptation and climate change - Annex 1 "Analysis of current and future climatic conditions "	National macroregions
Flood	Results from Life "Primes" project	Regional
Drought and water scarcity	National plan for adaptation and climate change - Annex 1 "Analysis of current and future climatic conditions "	National macroregions
Mass movement	Results from the publication "Landslides in a changing climate "	National
Wild fires	Result from the "Regional Forest Firefighting Plan	Regional

# Risk level, expected change in intensity and frequency and reliability of estimation – areas 1 and 2

RISK FOR TARGET AREA 1 – HILLY AREA	RISK LEVEL	EXPECTED CHANGE IN INTENSITY	EXPECTED CHANGE IN FREQUENCY	RELIABILITY OF ESTIMATION
Risk of damage for extreme precipitations to buildings, tourism, agriculture & forest and industry sectors (flood risk)	!!	?	?	*
Risk of damage for extreme precipitations to buildings, tourism, agriculture & forest and industry sectors (landslide risk)	!!!	?	?	*
Risk of damage for drought to population, tourism, agriculture & forest and industry sectors	!!	=	+	***
Risk of damage for extreme heat and increase of temperature to population, tourism, agriculture & forest and industry sectors	!!!	=	+	***
Risk of damage for extreme heat and drought to population, tourism, agriculture & forest and industry sectors for forest fires	!!!	=	+	***

RISK FOR TARGET AREA 2 – COASTAL AREA	RISK LEVEL	EXPECTED CHANGE IN INTENSITY	EXPECTED CHANGE IN FREQUENCY	RELIABILITY OF ESTIMATION
Risk of damage for extreme precipitations to buildings, tourism, agriculture & forest and industry sectors (flood risk)	!!!	?	+	*
Risk of damage for extreme precipitations to buildings, tourism, agriculture & forest and industry sectors (landslide risk)	!!!	?	+	*
Risk of damage for extreme weather conditions to population, tourism, environment and biodiversity sectors for coast erosion	!!!	?	+	*
Risk of damage for drought to population, tourism, agriculture & forest and industry sectors	!!!	+	+	***
Risk of damage for extreme heat and increase of temperature to population, tourism, agriculture & forest and industry sectors	!!!	+	+	***

!: Low; !!: Moderate; !!!: High

+: Growth ; -: Decline ; =: no change; ? = not known

\*: Low; \*\* Moderate; \*\*\* High



# Main steps to develop the optimal scenario

1. Identification of general objectives on the basis of the common vision
2. Participatory process and involvement of stakeholders also through focus groups
3. Identification of adaptation actions



Identification of the BP for the target areas

**42** adaptation options proposed

- 5 categories**
- Planning
  - Regulation
  - Design and public work
  - Communication
  - Monitoring

1° Focus Group: Selection by municipalities

**37** adaptation options selected by both Target areas

	Castiglione	Castiglioni	Elice	Pennabene	SELEZIONE
	NO**	SI*	SI*	SI	JOINT ACTION
	SI*	SI	SI	SI	JOINT ACTION

2° Focus Group: Actions Details, open discussion and integration

**11** Additional Actions

# Target area 1 - hilly

44 Actions, 37 selected and 7 added

Castiglione	Castiglioni	Elice	Pennabene	SELEZIONE
NO**	SI*	SI*	SI	JOINT ACTION
SI*	SI	SI	SI	JOINT ACTION

8 Joint Actions on communication

5 Joint Actions on monitoring

2 Joint Actions on planning

1 Joint Action on design & public works

28 individual actions (2 from 1 municipality only)

# Target area 2 - coastal

47 Actions, 37 selected and 10 added

Giulianova	Roseto	Pineto	Silvi	Mosciano	SELEZIONE
NO**	SI	NO	NO*	NO*	SINGLE ACTION
NO**	SI	SI	SI	SI*	JOINT ACTION

8 Joint Actions on communication

6 Joint Actions on monitoring

2 Joint Actions on planning

5 Joint Actions on design & public works

26 individual actions (1 from 1 municipality only)



ADAPTATION ACTIONS	CATEGORY	CODICE (INT)	CODICE (COSTA)
Attività di comunicazione e di coinvolgimento delle imprese su tematiche legate ai cambiamenti climatici	Comunicazione	Com-1	Com-1
Attività di comunicazione e di coinvolgimento della cittadinanza su tematiche legate ai cambiamenti climatici	Comunicazione	Com-2	Com-2

Castiglione	Castiglioni	Elice	Pennepenne	SELEZIONE	LINK interno
NO**	SI*	SI*	SI	JOINT ACTION	<a href="#">AZ-01</a>
SI*	SI	SI	SI	JOINT ACTION	<a href="#">AZ-02</a>

Giulianova	Roseto	Pineto	Silvi	Mosciano	SELEZIONE	LINK costa
NO**	SI	NO	NO*	NO*	SINGLE ACTION	<a href="#">AZ-01(2)</a>
NO**	SI	SI	SI	SI*	JOINT ACTION	<a href="#">AZ-02 (2)</a>

Comune	Attività	Descrizione	Categoria	Codice	Castiglione	Castiglioni	Elice	Pennepenne	Giulianova	Roseto	Pineto	Silvi	Mosciano	LINK
Castiglione	Attività di comunicazione e di coinvolgimento delle imprese su tematiche legate ai cambiamenti climatici	Attività di comunicazione e di coinvolgimento delle imprese su tematiche legate ai cambiamenti climatici	Comunicazione	Com-1	NO**	SI*	SI*	SI	NO**	SI	NO	NO*	NO*	<a href="#">AZ-01</a>
Castiglione	Attività di comunicazione e di coinvolgimento della cittadinanza su tematiche legate ai cambiamenti climatici	Attività di comunicazione e di coinvolgimento della cittadinanza su tematiche legate ai cambiamenti climatici	Comunicazione	Com-2	SI*	SI	SI	SI	NO**	SI	SI	SI	SI*	<a href="#">AZ-02</a>



# CLIMATE HAZARDS AND ACTIONS

## CLIMATE HAZARD

(both areas)

- EXTREME HEAT
- HEAVY PRECIPITATION
- DROUGHT & WATER SCARCITY
- MASS MOVEMENT

(area 1)

WILDFIRES

(area 2)

COASTAL  
EROSION

## ACTIONS

26  
Area 1

23  
Area 2

ENVIRONMENT  
BIODIVERSITY  
AGRICULTURE  
FORESTRY



# EXAMPLE OF ACTIONS

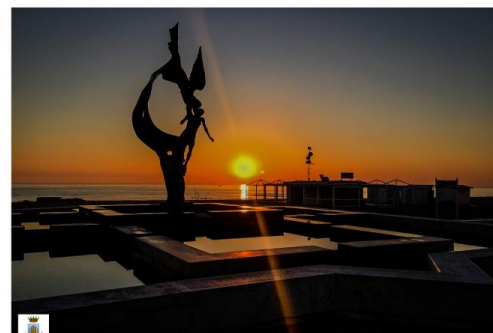
SECTOR	HAZARD	MEASURES
Buildings Agriculture and forestry Environment and biodiversity Civil protection and emergency	Extreme heat Heavy precipitations Drought and water scarcity Mass movement Coastal erosion	Communication activities for citizens
Buildings Agriculture and forestry Tourism	Extreme heat Drought and water scarcity	Promotion activities for water saving, recycling and reuse
Buildings Environment and biodiversity	Extreme heat Heavy precipitations Drought and water scarcity	Update of the building regulations
Agriculture and forestry Environment and biodiversity Civil protection and emergency	Extreme heat Heavy precipitations	Drafting of the risk management plan for trees
Civil protection and emergency	Heavy precipitations Mass movement Wild fire	Update of the municipal emergency plan for civil protection
Agriculture and forestry Environment and biodiversity	Extreme heat Heavy precipitations	Cadastre of trees affected by alien species
Agriculture and forestry Environment and biodiversity Civil protection and emergency Tourism	Extreme heat Heavy precipitations Drought and water scarcity Mass movement	Implementation of river contracts
Buildings Agriculture and forestry Environment and biodiversity Tourism	EXTRA	"Blue Flag" certification

Buildings Agriculture and forestry Environment and biodiversity Civil protection and emergency Tourism	Extreme heat Heavy precipitations Drought and water scarcity Mass movement Coastal erosion	Programme agreements with other local authorities for public works and adaptation measures
Buildings Agriculture and forestry Environment and biodiversity Civil protection and emergency Tourism	Extreme heat Heavy precipitations Drought and water scarcity Mass movement Coastal erosion	Public works program for works related to the risks faced by the Plan (including hydrogeological risk and coastal erosion)
Environment and biodiversity	Drought and water scarcity	Installation of tap timers in public buildings
Environment and biodiversity Tourism	EXTRA	Installation of charging stations for electric cars
Environment and biodiversity Tourism	EXTRA	Strengthening cycle paths
Environment and biodiversity	Coastal erosion	Promotion of mitigation actions against coastal marine erosion by favoring and increasing the vegetation
Buildings Agriculture and forestry Environment and biodiversity Tourism	Extreme heat Heavy precipitations Mass movement	Urban greening
Agriculture and forestry Environment and biodiversity Civil protection and emergency	Heavy precipitations Drought and water scarcity Mass movement Coastal erosion	Strengthening the maintenance of water courses



# NEXT STEPS

- Municipalities consultation and final revision of the SECAP actions for Target areas 1&2
- Capacity building activities



# THANK YOU VERY MUCH FOR YOUR ATTENTION!

## CONTACT INFO

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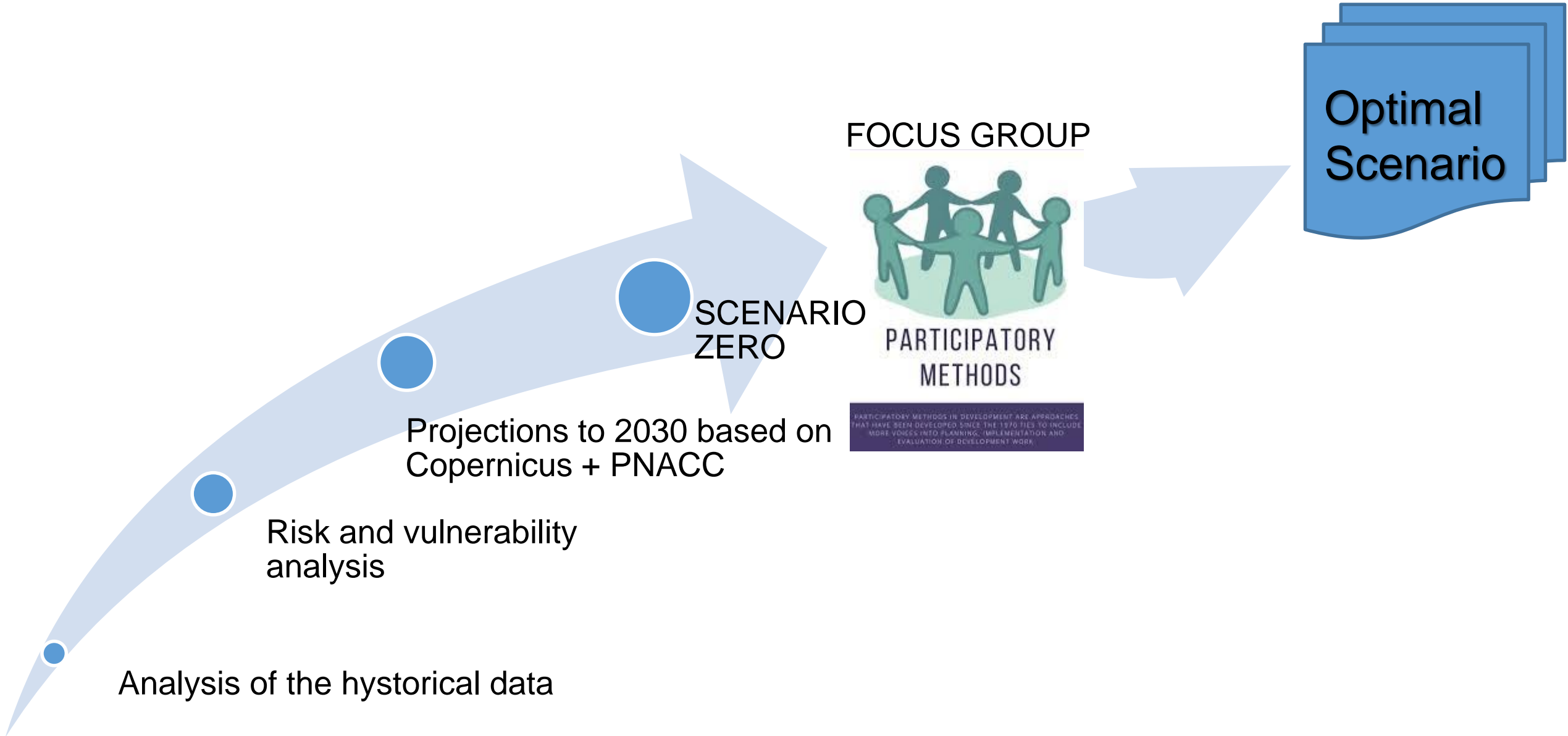


## Presentations of climate scenarios

Pilot Target area:

Pescara, Chieti, Montesilvano, Francavilla,  
Spoltore, San Giovanni Teatino

# From the 2030 scenario to the optimal





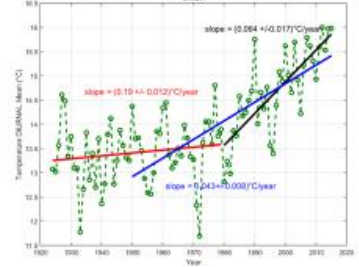
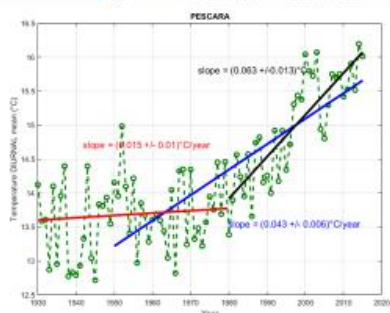
# Historical data analysis & Risk-Vulnerability assessment

Analisi dei dati climatici storici dell'area target

Serie storica utile ai fini climatici (>30 anni), solo stazioni di Pescara e Chieti

	Altitudine (m, slm)	Tasso variazione Temperatura in °C/anno Periodo 1930-1979	Tasso variazione Temperatura in °C/anno Periodo 1950-2015	Tasso variazione Temperatura in °C/anno Periodo 1980-2015
TERAMO	318	0.016 ± 0.011	0.044 ± 0.008	0.073 ± 0.015
CHIETI	278	0.019 ± 0.012	0.043 ± 0.008	0.064 ± 0.017
PESCARA	2	0.015 ± 0.010	0.043 ± 0.006	0.063 ± 0.013

- PESCARA
- GUARDIAGRELE
- LAMCIANO
- PESCARORIO
- CASTEL DI SANGRO
- RAVENNA
- MONTAZZOLI
- SCERRI
- WASTO
- RAMOLI
- CAMPOTOSTO
- ISOLA DEL GRAN SASSO
- NERETO
- PIANE
- LAZURIA
- ASSERGI
- SCANNO
- SILVANA
- BARISCIANO
- MEDIA SU TUTTO DARI



Confronto aumento temperature area target con domini più ampi

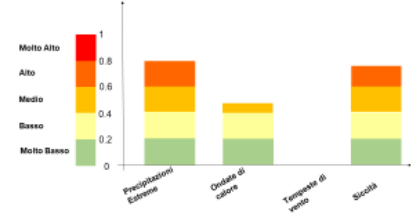
	Tasso di variazione Temperatura in °C/decade Periodo 1930-1979	Tasso di variazione Temperatura in °C/decade Periodo 1950-2015	Tasso di variazione Temperatura in °C/decade Periodo 1980-2015
PESCARA	+0.15 ± 0.10	+0.43 ± 0.06	+0.63 ± 0.13
CHIETI	+0.19 ± 0.12	+0.43 ± 0.08	+0.64 ± 0.17
ABRUZZO	+0.14 ± 0.10	+0.42 ± 0.07	+0.60 ± 0.15
EUROPA (terre emerse)	-0.02	+0.21	+0.44
EMISFERO NORD	-0.01	+0.15	+0.23
GLOBALE	+0.02	+0.13	+0.16

Per altri parametri (velocità del vento, radiazione solare) e altri comuni solo dati ARTA, ma.....

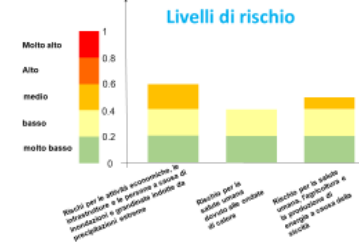
Pescara ha uno storico di dati che parte solo dal 1979  
 Montesilvano e Francavilla partono dal 2017  
 Spoltore sono presenti solo per due intervalli temporali 1974-2010 e 2017-2019  
 Chieti dal 1974 ai giorni nostri  
 San Giovanni Teatino (stazione di Sambuceto) solo per l'anno 2008 e solo il dato di precipitazione

Vulnerabilità e rischi

Confronto dei pericoli



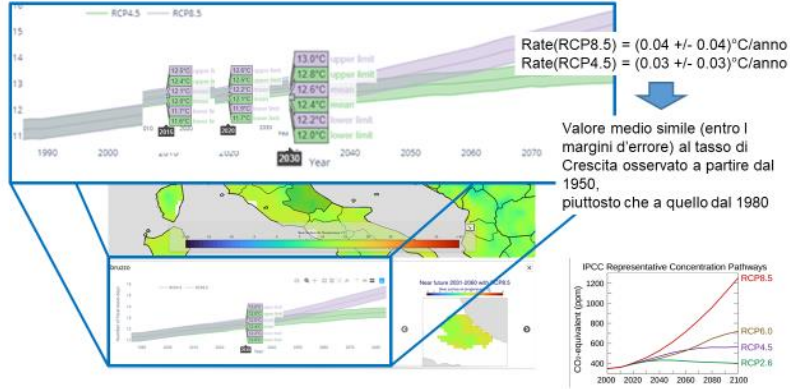
Livelli di rischio



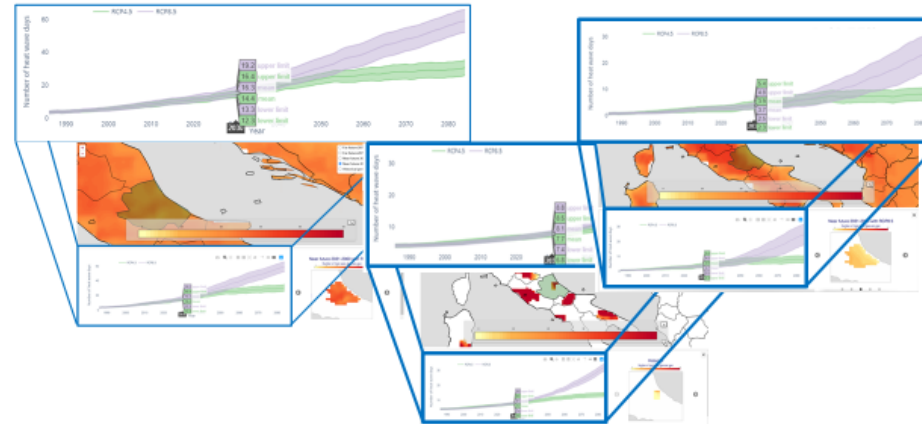
Molto per le attività economiche in agricoltura e in turismo a causa di inondazioni e grandine molto da precipitazioni violente  
 Molto per le attività economiche in agricoltura a causa di ondate di calore  
 Molto per le attività economiche in agricoltura a causa di inondazioni e grandine molto da precipitazioni violente

# Projection to 2030

Proiezione delle temperature per l'area target al 2030: COPERNICUS



Ondate di calore al 2030 COPERNICUS, da 3 progetti diversi



## PNACC proiezioni 2020-2050

RCP 4.5 - Aree climatiche omogenee: A, 2C, 2D.

**Anomale principali:** Le proiezioni indicano un aumento delle precipitazioni invernali e una riduzione di quelle estive per il versante tirrenico e la maggior parte della Pianura Padana. Per la parte ovest della pianura Padana e il versante adriatico, si evidenzia una riduzione sia delle precipitazioni estive che di quelle invernali. In generale si ha un aumento significativo dei giorni estivi per l'intera macroregione 2.

	A	C	D
Tmean (°C)	1.4	1.2	1.2
R20 (giorni/anno)	-1	0	1
FD (giorni/anno)	-20	-6	-9
SU95p (giorni/anno)	18	12	14
WIP (mm) (%)	-4	-5	8
SP (mm) (%)	-27	-18	-25
SC (giorni/anno)			
Evap (mm/anno) (%)			
R95p (mm) (%)			



RCP 8.5 - Aree climatiche omogenee: 2C, 2D, 2E.

**Anomale principali:** Le proiezioni indicano una riduzione delle precipitazioni estive e ad un aumento rilevante di quelle invernali per quanto riguarda la pianura Padana. Le restanti aree della macroregione 2 sono invece caratterizzate da un aumento complessivo dei fenomeni di precipitazione, anche estremi. In generale si ha un aumento significativo dei giorni estivi, come per lo scenario RCP4.5.

	C	D	E
Tmean (°C)	1.5	1.5	1.5
R20 (giorni/anno)	1	0	1
FD (giorni/anno)	-14	-10	-27
SU95p (giorni/anno)	12	14	14
WIP (mm) (%)	7	-4	18
SP (mm) (%)	8	14	-14
SC (giorni/anno)	-1	-1	-9
Evap (mm/anno) (%)	2	-8	-2
R95p (mm) (%)	13	6	9



# Scenario zero for the Target area of Pescara

	RISK	RISK LEVEL	Level change	Risk	Frequency change	Estimation uncertainty
Extreme precipitation	Risk for <b>store and shops</b> due to extreme precipitation.	HIGH	??		??	High
	Risk for <b>critical infrastructure</b> in areas at risk of flooding due to extreme precipitation.	INTERMEDIATE	??		??	High
	Risk for <b>agricultural activities</b> in flood-prone areas due to extreme precipitation	INTERMEDIATE	??		??	High
Heatwaves	Risk for the <b>elderly</b> due to heat waves.	INTERMEDIATE	Increase		Increase	High
	Risk for <b>tourism and fisheries</b> due to heatwaves.	LOW	Increase		Increase	High
Drought	Risk for <b>sports and recreational activities</b> due to drought.	LOW	Increase		Increase	High
	Risk for <b>agricultural activities and crops</b> due to drought.	LOW	Increase		Increase	High

# 1° Focus Group

PROPOSALSFORNGDS.COM



**PARTICIPATORY  
METHODS**

PARTICIPATORY METHODS IN DEVELOPMENT ARE APPROACHES THAT HAVE BEEN DEVELOPED SINCE THE 1970 FIES TO INCLUDE MORE VOICES INTO PLANNING, IMPLEMENTATION AND EVALUATION OF DEVELOPMENT WORK.

9 December 2020

Colonna1	Colonna2	RISK FACTOR
High	****	A Extreme precipitation
Sufficient	***	B Heat waves
Low	**	C Drought
Not applicabl *		
		Extra

A	B	C	D	E
SECTOR	RISK FACTOR	TYPE OF ACTION	ADAPTATION ACTION	LIVELLO DI FATTIBILITÀ
Water	C	Social	Promotion of controlled agricultural irrigation systems	
	C	Social	Promotion of the use of domestic water flow reducers	
	C	Social	Water saving awareness campaign	
	C	Structural/Physical	Installation of water distribution columns	
	A	Structural/Physical	Periodic monitoring and maintenance of riverbeds	
	A	Structural/Physical	Protection of coastlines at risk of erosion	
	C	Structural/Physical	Development and diffusion of rainwater collection and use systems	
	A	Structural/Physical	Maintenance and implementation of coastal defence structures	
	A	Structural/Physical	Monitoring the roads at risk of flooding	
			Other: .....	
Energy	A - B - C	Social	Energy saving promotion campaign	
	B	Structural/Physical	Energy efficiency of public buildings (thermal insulation of walls, windows, roofs)	
	B	Structural/Physical	Exploitation of renewable energies for the energy supply of public buildings	
	B	Structural/Physical	Implementation of "smart grids" infrastructure	
		Other: .....		
Transport	A - B - C	Istitutional	Promotion of sharing services (bicycles, scooters, etc..)	
	A - B - C	Structural/Physical	Introducing electric vehicles into the public transport service	
	A - B - C	Structural/Physical	Expansion of the bicycle paths	
	A	Structural/Physical	Refurbishment of the road surface with draining asphalts	
	A - B - C	Structural/Physical	Installation of charging columns for electric cars	
	A - B - C	Istitutional	Introduction of sustainability criteria in purchasing policies for public transport	
			Other: .....	
Environmental	B	Istitutional	Increase teleworking in the public administration	
	A - B	Structural/Physical	Tree planting and green areas increase	
	A - B	Istitutional	Availability of public natural areas self-managed by citizens	
	A - B - C	Istitutional	Protection of ecological corridors	
	A - C	Istitutional	Tax incentives for agricultural activities in areas at environmental risk	
	C	Structural/Physical	Sand storm protection infrastructure on waterfront	
		Other: .....		
Land Use	A	Structural/Physical	Preparation of natural areas for river flooding	
	A - B	Structural/Physical	Urban reforestation	
	A - B - C	Istitutional	Introduction of technical regulations and tax incentives that favor renewable energy	
	A - B	Istitutional	Policies to prevent land use	
	A	Structural/Physical	Renaturalization and maintenance interventions of the areas adjacent to the river	
	A - B	Structural/Physical	Increase of permeable areas	
			Other: .....	
ICT	B	Istitutional	Digitisation of administrative procedures	
	B	Istitutional	Increase in teleworking	
	A - B - C	Istitutional	Creation of a unique and open database for the collection of environmental data	
	A - B	Istitutional	Use of digital devices to spread notices and courtesy notifications to citizens	
	B	Structural/Physical	Enhancing wireless connectivity in public places and PA offices	
			Other: .....	





# Data Analysis

# Scenario zero



# Final Scenario

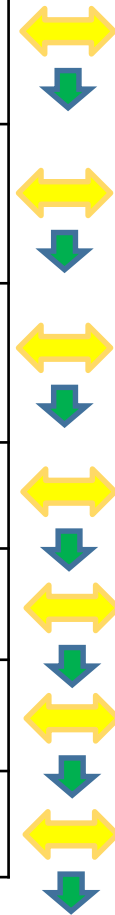
RISK	RISK LEVEL	PROIEZIONE DEL CAMBIO DEL LIVELLO DI RISCHIO NEL TEMPO	PROIEZIONE DEL CAMBIO DI FREQUENZA NEL TEMPO	INDETERMINAZIONE DELLA STIMA
Risk for <b>store and shops</b> due to extreme precipitation.	HIGH	Difficile da determinata	Difficile da determinare	Alta
Risk for <b>critical infrastructure</b> in areas at risk of flooding due to extreme precipitation.	INTERMEDIATE	Difficile da determinata	Difficile da determinata	Alta
Risk for <b>agricultural activities</b> in flood-prone areas due to extreme precipitation	INTERMEDIATE	Difficile da determinata	Difficile da determinata	Alta
Risk for the <b>elderly</b> due to heat waves.	INTERMEDIATE	AUMENTO	AUMENTO	Alta
Risk for <b>tourism and fisheries</b> due to heatwaves.	LOW	AUMENTO	AUMENTO	Alta
Risk for <b>sports and recreational activities</b> due to drought.	LOW	AUMENTO	AUMENTO	Alta
Risk for <b>agricultural activities and crops</b> due to drought.	LOW	AUMENTO	AUMENTO	Alta

extreme precipitation

heatwaves

drought

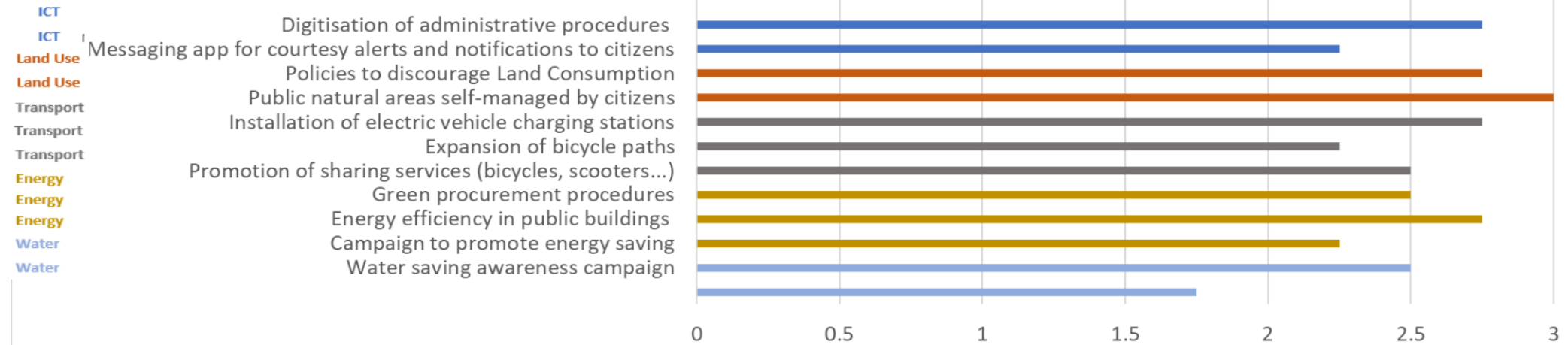
RISK	RISK LEVEL
Risk for <b>store and shops</b> due to extreme precipitation.	HIGH
Risk for <b>critical infrastructure</b> in areas at risk of flooding due to extreme precipitation.	INTERMEDIATE
Risk for <b>agricultural activities</b> in flood-prone areas due to extreme precipitation	INTERMEDIATE
Risk for the <b>elderly</b> due to heat waves.	INTERMEDIATE
Risk for <b>tourism and fisheries</b> due to heatwaves.	LOW
Risk for <b>sports and recreational activities</b> due to drought.	LOW
Risk for <b>agricultural activities and crops</b> due to drought.	LOW



# 2° Focus Group Data Analysis

Priorities for the Target Area

Priority	value
High	3
medium	2
bassa	1



# 2° Focus Group Data Analysis

Implementation Timing	value
Short	3
Medium	2
Long	1

Implementation timing Target Area

ICT

ICT

Land Use

Land Use

Transport

Transport

Transport

Energy

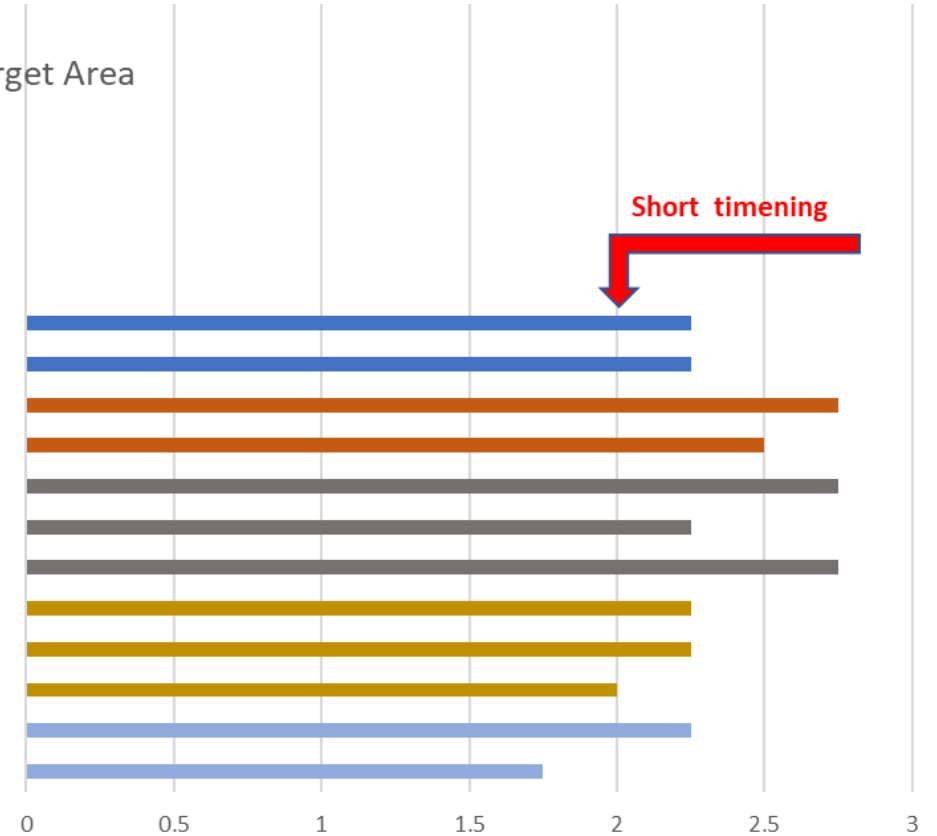
Energy

Energy

Water

Water

- Digitisation of administrative procedures
- Messaging app for courtesy alerts and notifications to citizens
- Policies to discourage Land Consumption
- Public natural areas self-managed by citizens
- Installation of electric vehicle charging stations
- Expansion of bicycle paths
- Promotion of sharing services (bicycles, scooters...)
- Green procurement procedures
- Energy efficiency in public buildings
- Campaign to promote energy saving
- Water saving awareness campaign



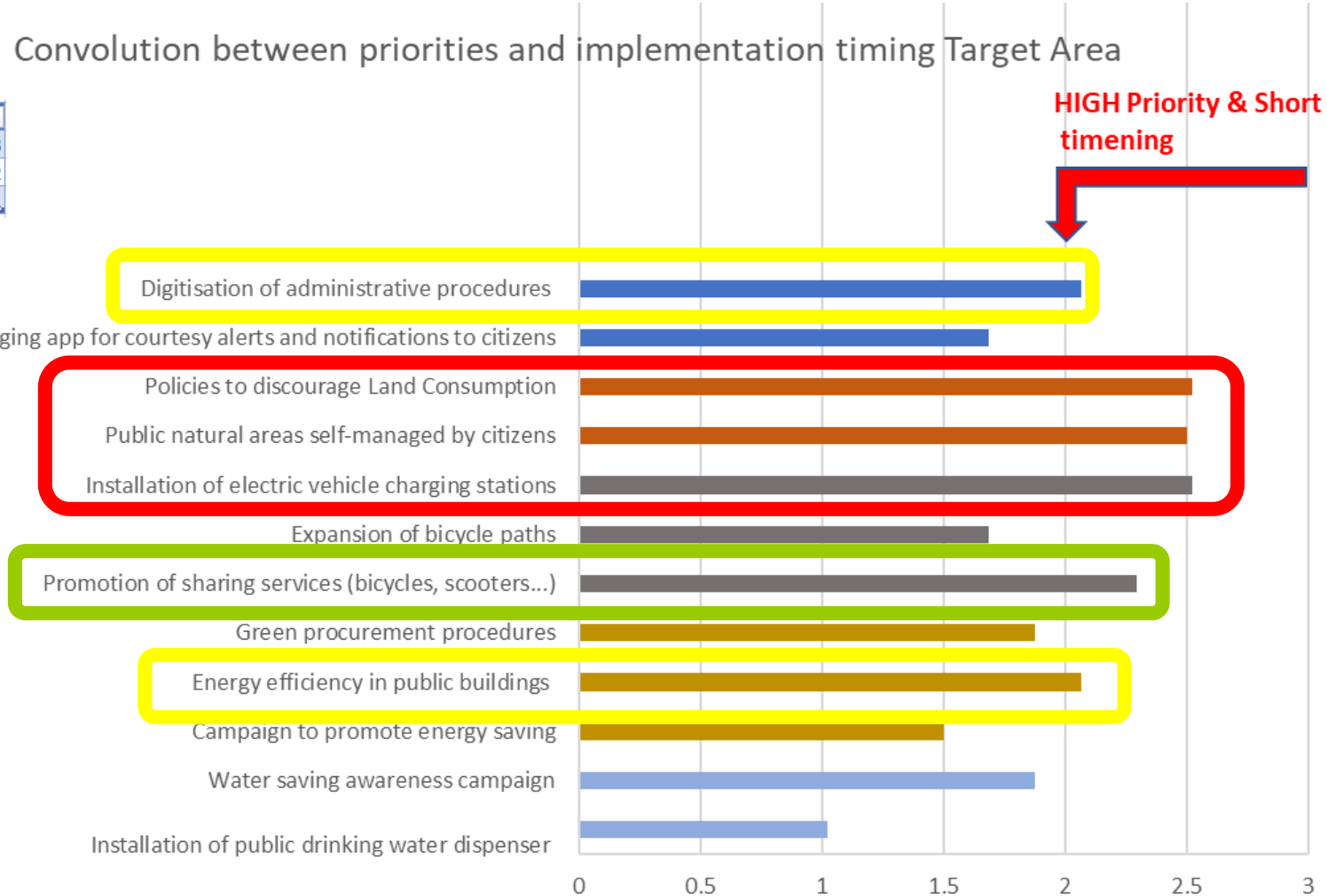


# 2° Focus Group Data Analysis: Actions

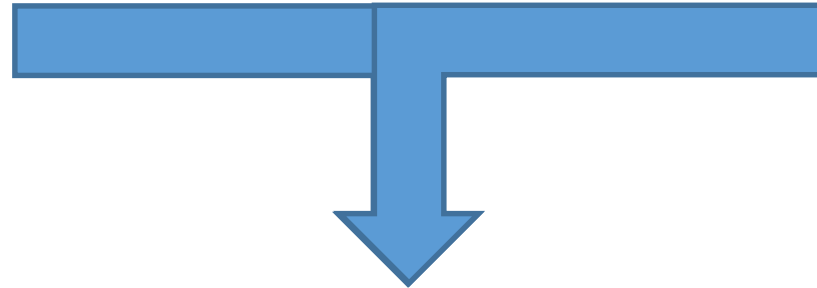
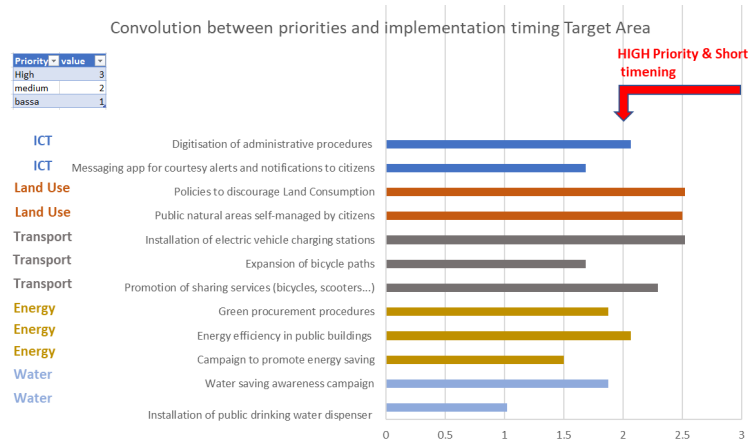
Convolution between priorities and implementation timing Target Area

Priority	value
High	3
medium	2
bassa	1

- ICT
- ICT
- Land Use
- Land Use
- Transport
- Transport
- Transport
- Energy
- Energy
- Energy
- Water
- Water



# 2° Focus Group Data Analysis



	RISK	RISK LEVEL
extreme precipitation	Risk for <b>store and shops</b> due to extreme precipitation.	<b>HIGH</b>
	Risk for <b>critical infrastructure</b> in areas at risk of flooding due to extreme precipitation.	<b>INTERMEDIATE</b>
	Risk for <b>agricultural activities</b> in flood-prone areas due to extreme precipitation	<b>INTERMEDIATE</b>
heatwaves	Risk for the <b>elderly</b> due to heat waves.	<b>INTERMEDIATE</b>
	Risk for <b>tourism and fisheries</b> due to heatwaves.	<b>LOW</b>
drought	Risk for <b>sports and recreational activities</b> due to drought.	<b>LOW</b>
	Risk for <b>agricultural activities and crops</b> due to drought.	<b>LOW</b>

SECTOR	HAZARD	MEASURES	SCORE (1-3)*
Land Use	Extreme precipitation	Policies to discourage Land Consumption	2.52
		Public natural areas self-managed by citizens	2.50
Transport	Drought	Policies to discourage Land Consumption	2.52
		Promotion of sharing services (bicycles, scooters...)	2.29
Energy	Heatwaves	Installation of electric vehicle charging stations	2.52
		Energy efficiency in public buildings	2.06
ICT	Extreme precipitation	Digitization of administrative procedures	2.06
	Heatwaves		
	Drought		

\*Score legend:  
 1 = low priority & long term, 2= medium priority& timing, 3= high priority & short implementation time

# Optimal Scenario for the Target area of Pescara

	RISK	RISK LEVEL	Level change	Risk	Frequency change	Estimation uncertainty
Extreme precipitation	Risk for <b>store and shops</b> due to extreme precipitation.	<b>HIGH</b>	=		??	High
	Risk for <b>critical infrastructure</b> in areas at risk of flooding due to extreme precipitation.	<b>INTERMEDIATE</b>	=		??	High
	Risk for <b>agricultural activities</b> in flood-prone areas due to extreme precipitation	<b>INTERMEDIATE</b>	=		??	High
Heatwaves	Risk for the <b>elderly</b> due to heat waves.	<b>INTERMEDIATE</b>	<b>Increase</b>		<b>Increase</b>	High
	Risk for <b>tourism and fisheries</b> due to heatwaves.	<b>LOW</b>	<b>Increase</b>		<b>Increase</b>	High
Drought	Risk for <b>sports and recreational activities</b> due to drought.	<b>LOW</b>	<b>Increase</b>		<b>Increase</b>	High
	Risk for <b>agricultural activities and crops</b> due to drought.	<b>LOW</b>	<b>Increase</b>		<b>Increase</b>	High

# Baseline and optimal climate scenarios

Joint\_SECAP | SDEWES | Nikola Matak

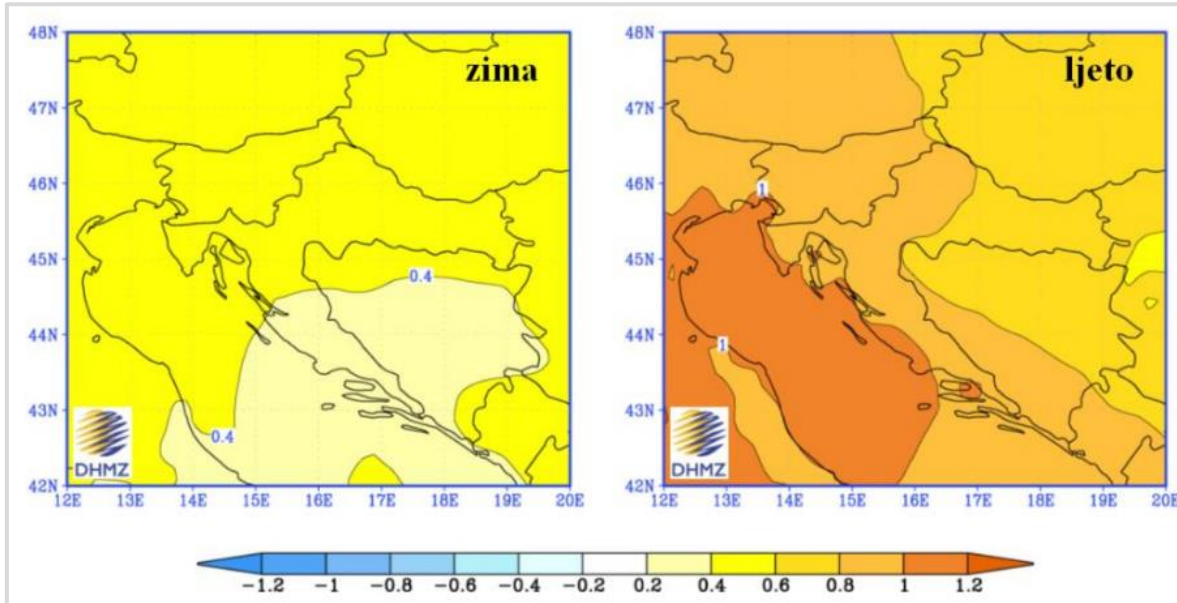
2nd International workshop | Online | 29th April 2021

# Introduction

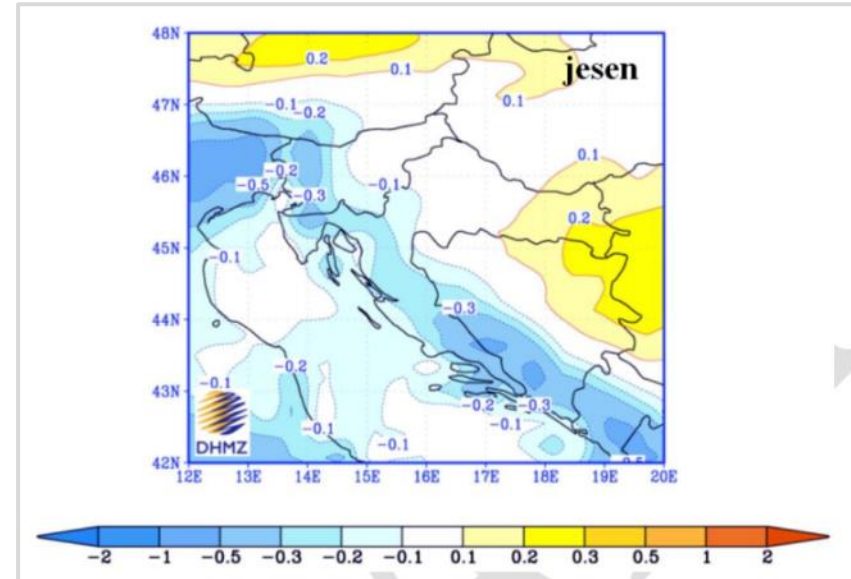
- SECAP and scenario area:
  - City of Dubrovnik
  - Municipality of Konavle
  - Municipality of Župa Dubrovačka
  - Municipality of Dubrovačko primorje
  - Municipality of Ston
- The southernmost part of Croatia.



# Climate scenario 0



Expected temperature change by 2040

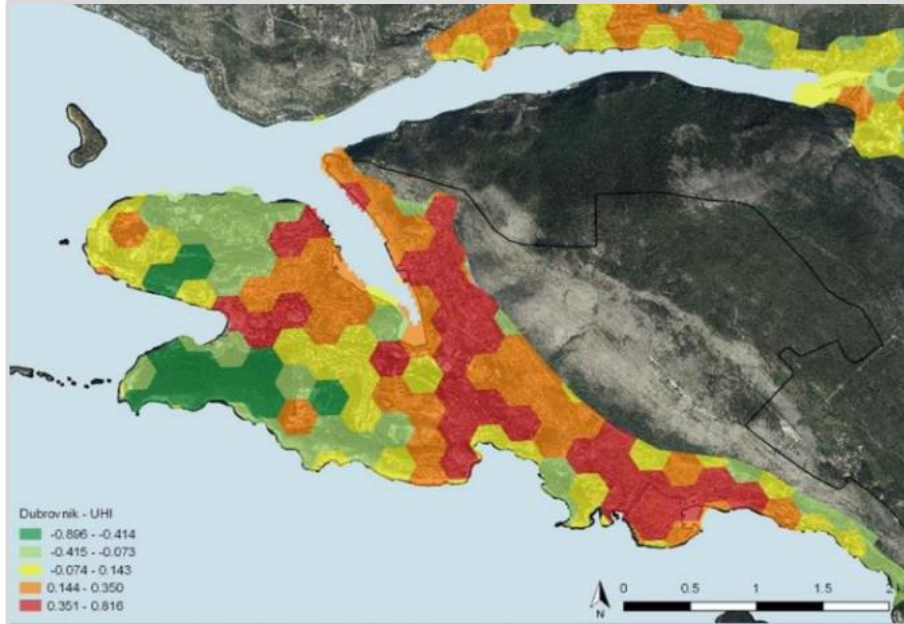


Expected precipitation change by 2040

Source: Croatian Meteorological and Hydrological Service

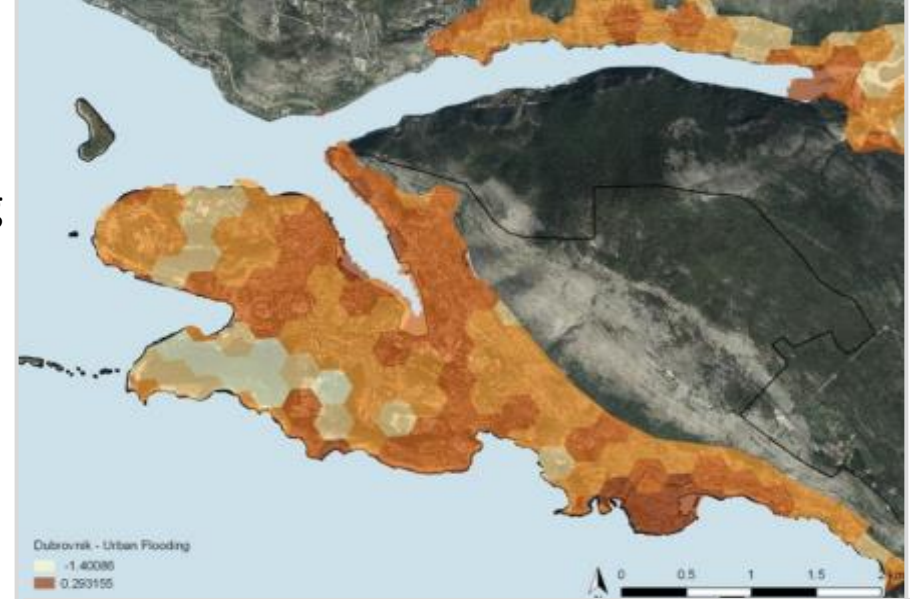
# Climate scenario 0

Urban heat islands

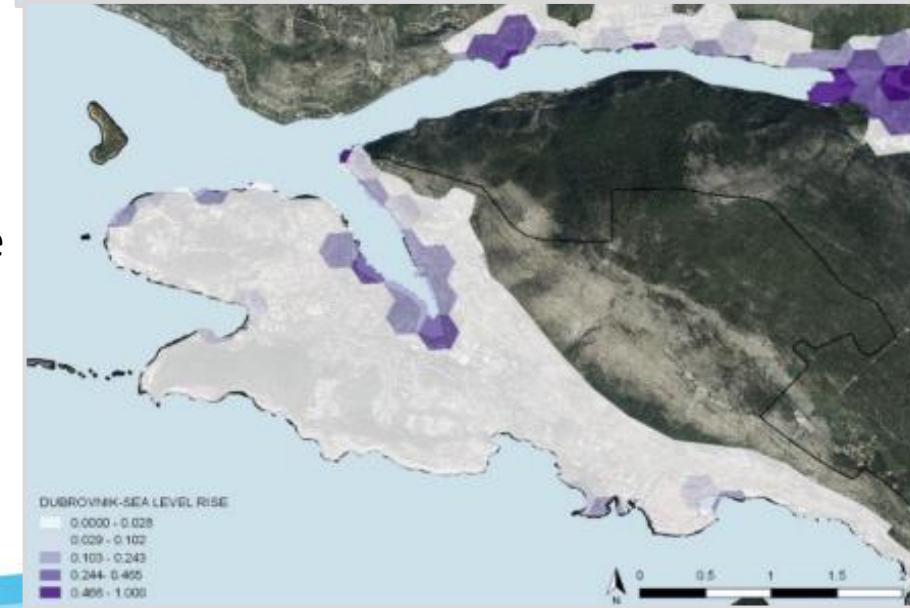


Source: Climate Adaptation Plan  
City of DUBROVNIK

Urban flooding



Sea level rise



# Climate scenario 0

RISK	RISK LEVEL	EXPECTED CHANGE IN INTENSITY	EXPECTED CHANGE IN FREQUENCY	RELIABILITY OF ESTIMATION
Risk of drought in agriculture	!!	+	+	**
Risk of heatwaves for the healthcare	!!	+	+	***
Risk of drought in water supply	!!	+	+	**
Risk of heatwaves for the tourism	!!	+	+	***
Risk for fishing sector and aquaculture	!!	+	+	*
Risk for the shoreline flooding	!!	+	+	**

!: Low; !!: Moderate; !!!: High

+: Growth ; -: Decline ; =: no change; ? = not know

\*: Low; \*\* Moderate; \*\*\* High



# Focus groups

- Three focus groups were organized in Dubrovnik from October 6 to 8, 2021. Discussion on adaptation and mitigation measures was held with representatives of local government, county, NGOs, agencies and academia.



# Optimal climate scenario

SECTOR	HAZARD	MEASURES
Buildings	Extreme high temperatures	Citizens education on energy efficiency
	Extreme low temperature	Increasing of energy efficiency in buildings
	Extreme precipitation	Green roof and faced technology for buildings in public sector
	Storms	
Floods		
Transport	Extreme high temperatures	Analysis of the impact of climate change effects on transport infrastructure and proposal of an adaptation plan
	Extreme precipitation	Construction of green canopies that provide protection from the sun (and precipitation) at public transport stops
	Storms	
	Floods	Sustainable management of road surfaces because of climate change adaptation
	Landslides	
Sea level rise		

# Optimal climate scenario

SECTOR	HAZARD	MEASURES
Water supply and wastewater management	Extreme high temperatures Extreme low temperature Extreme precipitation Floods Droughts Sea level rise	Education of general population on the necessity to save water
		Reducing water losses in the water-supply system and expansion of water-supply and drainage system in the City of Dubrovnik
		Irrigation system development
		Reducing water consumption in the maintenance of public green surfaces, nurseries and sports and recreation surfaces
		Rationalization of water consumption in buildings owned by the City of Dubrovnik and the 4 municipalities
		Preparation of analysis of waste-water recycling for reuse
		Analysis of the potential for construction of structures for use of rainfall and/or construction of desalinization plants
Energy infrastructure	Extreme high temperatures Extreme low temperature Extreme precipitation Storms Floods	Analysis of the existing electrical power distribution systems and strengthening their resilience to climate change effects
		Ensuring a reliable electricity supply

# Optimal climate scenario

SECTOR	HAZARD	MEASURES
Agriculture and forestry	Extreme high temperatures Extreme low temperature Extreme precipitation Storms Floods Droughts Landslides Forest fires	Development of the irrigation systems
		Adaptation of fire protection plans to climate change effects
		Education of the farmers
		Develop cadaster of the agricultural fields
		Reforestation of neglected, degraded and fire-affected surfaces
Environment and biodiversity	Extreme high temperatures Extreme low temperature Extreme precipitation Storms Floods Droughts Landslides Forest fires Sea level rise	Training for preparation of habitat inventory and inventory of plant and animal species
		Biodiversity and tourism
		Analysis of potential and preparation of the plan to increase the share of green surfaces and green corridors

# Optimal climate scenario

SECTOR	HAZARD	MEASURES
Healthcare	Extreme high temperatures Extreme low temperature Storms Droughts	Altering the population and prevention of impacts of heat waves on human health
		Implementation of the Protocol on Actions and Recommendation for Protection Against Heat
		Preparation of analysis of disease burden caused by climate change effects
Economy and tourism	Extreme high temperatures Extreme low temperature Extreme precipitation Storms Floods Droughts Landslides Forest fires Sea level rise	Construction of tourist infrastructure adapted to climate changes
		Increase of resilience to climate changes in the tourism sector
		Support of entrepreneurship and establishment of enterprises dealing with climate change, energy efficiency, ecological production, sustainable development sectors

# Optimal climate scenario

SECTOR	HAZARD	MEASURES
Coast	Rising sea level Occasional short-term extreme sea level rise Flooding of the lower parts of the coast Erosion and landslides of parts of the coast Seabed erosion	Preparation of integral management plan for the coastal area of the City of Dubrovnik and the 4 Municipalities
		Integration of adaptation measures into the spatial development and planning system
		Capacity building for impacts of the sea on the water and municipal infrastructure and the coastal water resources in conditions of sea-level rise caused by climate change
		Protection against damage to the sea bed, sea weed and protected habitats for spawning by uncontrolled and irregular anchoring
Emergency actions	Extreme high temperatures Extreme low temperature Extreme precipitation Storms Sea level rise	Raising awareness of the public and key stakeholders in health and other priority professions on the consequences related to meteorological and climate effects
		Planning and construction of safe points in case of extreme meteorological conditions
		Expansion of competent work groups and responsible persons for individual types of hazards/risks related to climate changes
		Connecting the information systems of key stakeholders

# Optimal climate scenario

SECTOR	HAZARD	MEASURES
Fishery and aquaculture	Sea temperature rise	Aquaculture capacity building by adapting the quantity and quality of food in changed climate conditions
	Sea level rise	Aquaculture capacity building by breeding new (foreign) fish species
	Changes in sea circulation due to thermohallic causes	Fishery capacity building by increasing capacities, building the resilience of natural resources and developing new markets
	Increasing the acidity of seawater	Breeding new (foreign) fish species
	Increasing the salinity of sea water	Aquaculture capacity building by expanding breeding at lower trophic levels and by new forms of breeding
	Decrease in nitrate concentration in seawater	Aquaculture capacity building by selective breeding
	Decreased chlorophyll concentration in seawater	

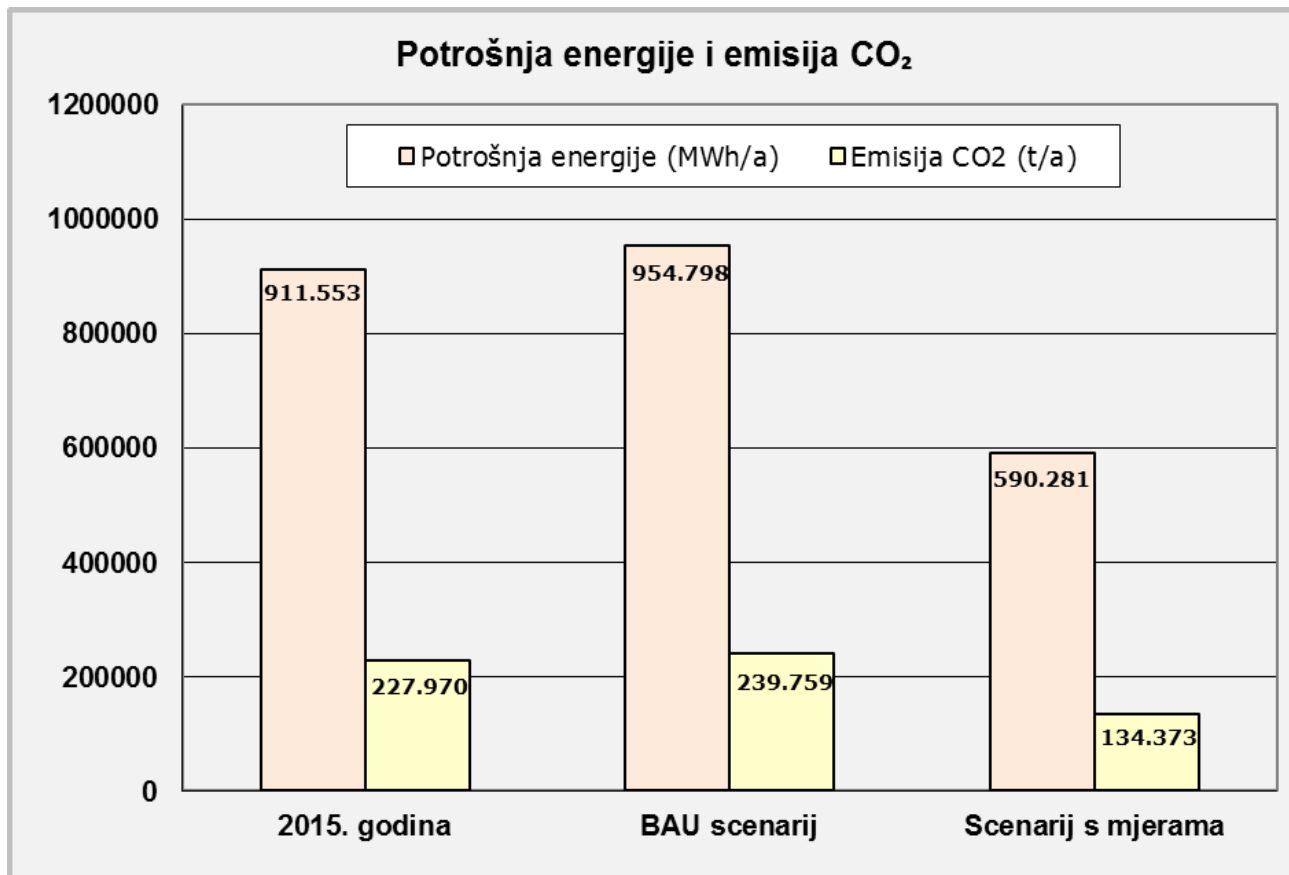
# BAU scenario for energy

- Energy consumption by 2030

Sector	Change (%)
Public sector - buildings	-8
Public sector - vehicles	+5
Public lighting	-15
Water supply	+20
Households	-7
Tertiary buildings	+15
Transport	+8
Waste and waste management	+10



# Results



	2015	BAU scenario	Optimal scenario
Energy consumption (MWh/a)	911.553	954.798	590.281
CO <sub>2</sub> emissions (t/a)	227.970	239.759	134.373

# Thank you for the attention!

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 email@: [sdewes@sdewes.org](mailto:sdewes@sdewes.org)

 Telephone number: +38516168493

 [www.italy-croatia.eu/jointsecap](http://www.italy-croatia.eu/jointsecap)

Organisation name: SDEWES Centre -The International Centre for Sustainable Development of Energy, Water and Environment Systems

Contact person: Nikola Matak,  
[nikola.matak@fsb.hr](mailto:nikola.matak@fsb.hr)

# ACTIONS FOR CLIMATE CHANGE ADAPTATION

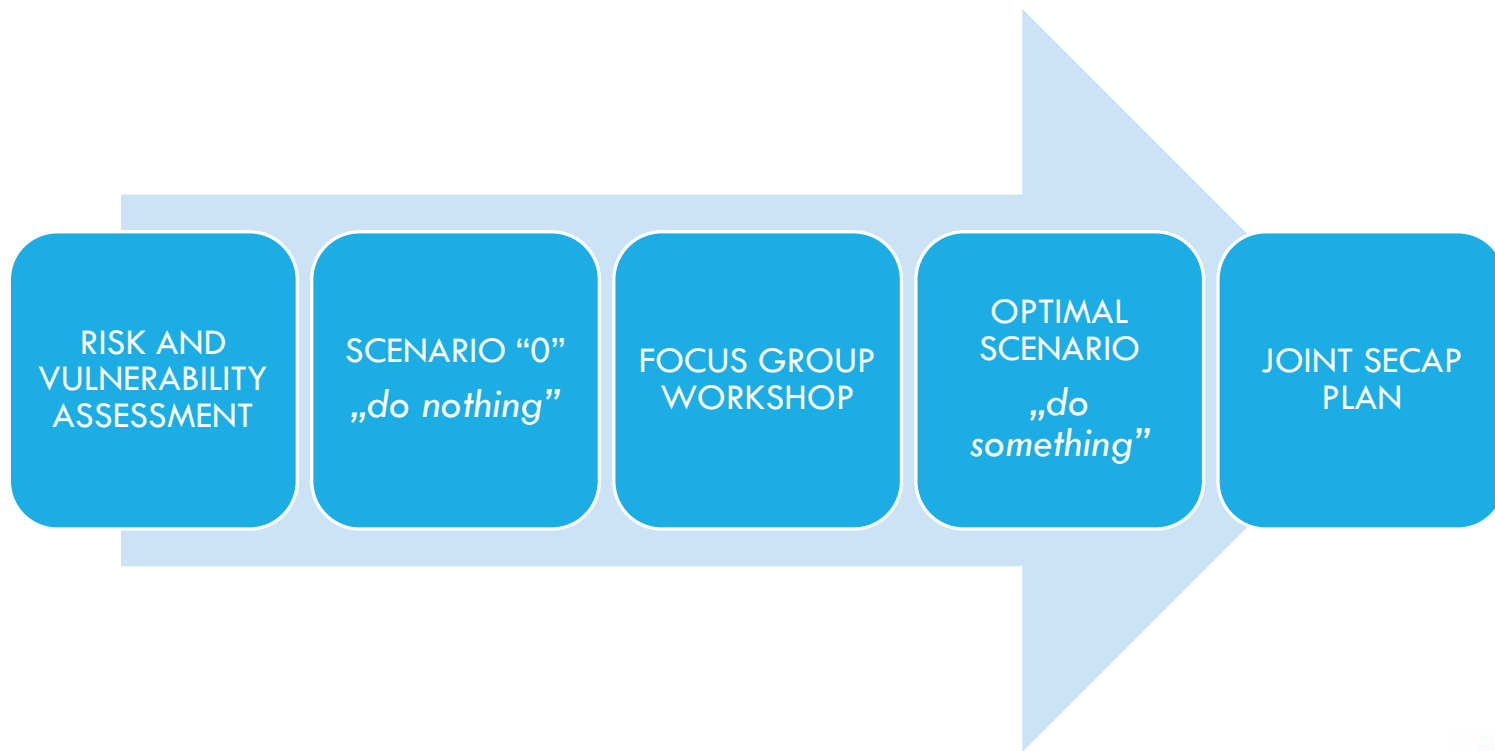
## JOINT\_SECAP: 2ND INTERNATIONAL WORKSHOP

### - PRIMORJE GORSKI KOTAR COUNTY -

Online project meeting

29/04/2021

# PRIMORJE GORSKI KOTAR'S TIMELINE



# FOCUS GROUP AS ONE OF THE STEPS IN DEFINING THE OPTIMAL SCENARIO

## FOCUS GROUP WORKSHOP: GENERAL INFO

**Date and place:** Šapjane, 6 October 2020

**Participants' profile:** representatives of PGKC target area municipalities, together with important stakeholders, such as the local utility companies, tourist offices, regional health centre and firefighters' community

**Number of participants:** 17

### Main topics covered:

Climate change mitigation measures

- Buildings
- Transport
- Public Lighting

Climate change adaptation measures

- Water Management and Environment
- Health and Civil Protection
- Economy and Tourism



SUN	MON	TUE	WED	THU
20%	20%	40%	60%	20%
8°	8°	4°	4°	0°
6°	-2°	3°	-3°	-3°



# FOCUS GROUP WORKSHOP: METHODOLOGY

- A solid COVID-19 situation allowed the organization of workshop **on-situ**;
- **Bilateral meetings with municipalities were held beforehand**, to define the individual measures that were to be discussed jointly;
- All the proposed **energy and climate measures were listed in a survey form**, giving the workshop participants an opportunity to score the measures' relevance on the Likert's scale (1- not important, 5 – very important);
- **Live discussion** during the workshop was focused mostly on the **three most important sectors** as defined in the RVA: Health, Water supply and Tourism;
- **Group work session** was held during the workshop to tackle the definition of additional measures, or further elaboration of existing ones;
- Further comments and inputs were received by municipalities via e-mail / phone;

# OPTIMAL SCENARIO – METHODOLOGY

Definition of the optimal (final) scenario was performed through several actions:



**The first action** consisted of bilateral meetings with the involved local governments (Kastav, Opatija, Čavle, Matulji, Viškovo). A list of proposed measures was developed, to be discussed further during the joint focus group workshop.

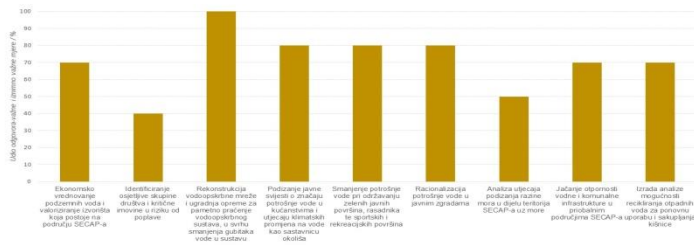
**The second action** was holding a focus group workshop which gathered a diverse group of attendees (presentations, discussion, filling out an onsite survey, group work session)

**The third action** was fine tuning of the measures and the optimal scenario, bilaterally with representatives of each municipality/city, based on additional criteria (urgency, feasibility, etc.).

# FOCUS GROUP WORKSHOP: SURVEY RESULTS



- Workshop participants ranked the importance of every individual measure on a Likert scale (from 1 – Not important to 5 – very important);
- Detailed results are presented in a local language report;
- The survey results were then used as one of the criteria in the optimal scenario analysis.





# FOCUS GROUP WORKSHOP: GROUP WORK RESULTS

Group work session resulted with the proposal of three new measures to be included in Joint SECAP plan:

- 1. Supporting the development of tourist services that are resilient to extreme weather conditions**
- 2. Analysing the possibility of waste water recycling and its re-use, together with rain water harvesting**
- 3. Building “green infrastructure” in the urban heat islands areas (areas significantly warmer than its surrounding urban areas due to human activities)**



# FOCUS GROUP WORKSHOP: CONCLUSIONS

**Education, information and promotion** (even though they are soft measures) are generally considered as important types of activities. In other words, behaviourism is of high importance when it comes to energy efficiency and climate change;

**Electric mobility is considered important** for the region (which is in line with the fact that the Primorje Gorski Kotar is currently among the leading regions in Croatia when it comes to e-mobility);

**Investments in the water infrastructure** are imperative;

**Tourism is also considered important** for regional economy and needs to adapt to climate change consequences;





# MEASURES (I)

## WATER MANAGEMENT AND THE ENVIRONMENT

SECTOR	HAZARD	ADAPTATION MEASURE	TAGS
<b>WATER MANAGEMENT AND THE ENVIRONMENT (9)</b>	<b>Drought</b>	Assessing the economic value of groundwater and valorisation of water sources in target area	VOD-01
		Identifying social groups and assets critically endangered by possible floods	VOD-02
		Reconstruction of the water supply network and smart equipment installation in order to enable the monitoring of the water supply system	VOD-03
		Raising public awareness on the importance of water consumption in households and the impact of climate change on water as an environmental component	VOD-04
		Reducing the water consumption in the maintenance of public green spaces, plant nurseries, recreational and sports areas	VOD-05
		Reducing the water consumption in public buildings	VOD-06
		Analysing the impact of the sea level rise in the coastal part of target area	VOD-07
		Increasing the resilience of the communal and water infrastructure in the coastal part of target area	VOD-08
		Analysing the possibility to introduce wastewater recycling methods and rainwater harvesting solutions	VOD-09



## MEASURES (II)

# HEALTH SECTOR AND CIVIL PROTECTION

<b>HEALTH SECTOR AND CIVIL PROTECTION (7)</b>	<i>Heat waves</i>	Implementation of the national Protocol on procedure and recommendations for protection from heat	ZDR-01
		Analysing the potential of the increase in the incidence of disease due to the effects of climate change	ZDR-02
		Upgrading the healthcare infrastructure in order to meet the requirements imposed by extreme weather conditions and seasonality in tourism	ZDR-03
		Upgrading the infrastructure and programs implemented by retirement homes and hospices in target area	ZDR-04
		Planning and building shelters which could be used in case of extreme weather events	ZDR-05
		Installing sun blinds and awnings on public transport stations	ZDR-06
		Installing automated external defibrillators in public buildings and conducting courses of cardiopulmonary resuscitation for employees	ZDR-07



## MEASURES (III)

# ECONOMY AND TOURISM

<b>ECONOMY AND TOURISM (6)</b>	<b>High temperatures and precipitation (Extreme weather conditions)</b>	Encouraging entrepreneurship and establishing business incubators focused on areas of energy efficiency, climate changes, organic production, sustainable development, and green technologies	TUR-01
		Increasing climate change resilience in the tourism sector (public display of the current UV index and air temperature, also indicating the availability of potable water in public spaces and catering establishments, and offering UV protection tips)	TUR-02
		Developing and encouraging tourism activities which are compatible with extreme weather events (service diversification in target area)	TUR-03
		Raising awareness among tourism industry professionals concerning the impact, risks, and the possibility to adapt to climate changes	TUR-04
		Increasing the resilience of the tourism industry infrastructure to various weather extreme events (construction of swimming pools, indoor spa & wellness services, air-conditioned areas, areas with snowmaking facilities)	TUR-05
		Raising climate change awareness among students enrolled in all levels of tourism and hospitality education	TUR-06

# OPTIMAL SCENARIO – CRITERIA USED

CRITERIA	DESCRIPTION	EVALUATION
<b>Importance</b>	The potential to reduce the risk	Likert scale (1- not important to 5- very important)
<b>Urgency</b>	Are there consequences already? Is the measure implementation process long?	Yes/no
<b>Feasibility</b>	Are there any obstacles for the implementation? If yes, what and how intense are they?	Yes/no
<b>Cost effectiveness</b>	What is the ration between the adaptation impact and invested finances?	High/medium/low
<b>Multiple usefulness</b>	Does the measure bring welfare regardless of climate change?	Yes/no
<b>Synergistic effect</b>	Does the measure have positive effects on other sectors/areas as well? If yes, which one?	Yes/no

# EVALUATION OF ADAPTATION MEASURES (I)

CRITERIA	VOD-01	VOD-02	VOD-03	VOD-04	VOD-05	VOD-06	VOD-07	VOD-08	VOD-09
<b>Importance*</b>	high	moderate	high	high	high	high	moderate	high	high
<b>Urgency</b>	yes	no	yes	yes	yes	yes	yes	yes	yes
<b>Feasibility</b>	yes	yes	yes	yes	yes	yes	yes	yes, demanding	yes
<b>Cost effectiveness</b>	high	medium	high	high	medium to high	medium	medium to high	medium to high	high
<b>Multiple usefulness</b>	yes	yes	yes	yes	yes	yes	yes	yes	yes
<b>Synergistic effect</b>	yes	yes	not particularly	yes	not particularly	not particularly	yes	yes	yes

# EVALUATION OF ADAPTATION MEASURES (II)

CRITERIA	ZDR-01	ZDR-02	ZDR-03	ZDR-04	ZDR-05	ZDR-06	ZDR-07
<b>Importance*</b>	high	moderate	high	high	moderate	moderate	high
<b>Urgency</b>	yes	yes	yes	yes	yes	yes	yes
<b>Feasibility</b>	yes	yes	yes	yes	yes	yes	yes
<b>Cost effectiveness</b>	high	medium	medium to high	medium to high	medium	high	high
<b>Multiple usefulness</b>	yes	not particularly	yes	yes	yes	yes	not particularly
<b>Synergistic effect</b>	yes	not particularly	yes	yes	not particularly	yes	not particularly



# EVALUATION OF ADAPTATION MEASURES (III)

CRITERIA	TUR-01	TUR-02	TUR-03	TUR-04	TUR-05	TUR-06
Importance*	high	high	high	high	high	high
Urgency	yes	yes	yes	yes	yes	yes
Feasibility	yes	yes	yes	yes	yes	yes
Cost effectiveness	high	medium to high	medium	medium	medium	medium to high
Multiple usefulness	yes	yes	yes	yes	yes	yes
Synergistic effect	yes	yes	yes	yes	yes	not particularly

# THANK YOU!

Ivana Kosovac, Msc. Traff.  
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T: +385 51 351 910

# CLIMATE SCENARIOS - RESULTS

## Island Brač

Actions for climate change adaptation  
Joint\_SECAP: 2nd International Workshop | online | 29th April 2021

# CLIMATE SCENARIOS

- ✓ Document fully completed in October 2020 and available in Croatian
- ✓ Template 4.1.1. fully completed for island of Brač
  
- ✓ Focus group
  - held on 8th October 2020
  - stakeholders with diverse background
  - Additional consultations held
- ✓ Template 4.1.2. fully completed for island of Brač



# CLIMATE SCENARIOS

Climate scenarios considered:

- a) **Scenario “0”** (“business as usual” scenario) which assumes that in the near future there will not be any legislative, strategic, technological, economic, behavioural or priority changes keeping the usual circumstances unaltered and, accordingly, possible consequences of climate change
  
- b) **Final (optimal) scenario** which assumes that in the near future there will be certain changes i.e. adaptation measures will be implemented which will result in avoidance or a reduction of climate change negative effects or increase the resilience to climate change



Important input from focus group

✓ Analyses done on municipality level and for sectors analyzed in RVA

# SCENARIO „0”

RISK	RISK LEVEL	EXPECTED CHANGE IN INTENSITY	EXPECTED CHANGE IN FREQUENCY	RELIABILITY OF ESTIMATION
Risk of drought in agriculture	!!	+	+	**
Risk of heat waves in health sector	!!	+	+	**
Risk of drought in water supply system	!!	+	+	**
Risk of extreme temperatures and precipitation in tourism sector	!!! (Sutivan, Supetar, Bol, Milna, Postira) !! (Selca, Nerežišća, Pučišća)	+	+	**
Risk to fisheries due to sea temperature rise, changes in water circulation, sea level rise and increase in sea acidity	!!! (except sea level rise !!)	+	+	**
Risk of coastal flooding	!!!	+	+	**

# SCENARIO „0”

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## ✚ Agriculture sector

- lower yields followed by a decrease in incomes and consequently decrease in employment
- higher needs for irrigation
- changes in duration of the vegetation period (e.g. earlier maturation of olives, shorter vegetation period for wine)
- decrease in the number of family farms

## ✚ Forestry sector

- damages of forest ecosystems and decreased value of their functions of general benefit
- reduced possibility for economic exploitation of forests followed by a decrease in incomes and consequently decrease in employment

## ✚ Water supply sector

- Lack of water for households and / or more frequent and longer periods of unavailability of healthy water for human consumption
- Lack of water for industry (including tourism)
- Lack of water for irrigation

## ✚ Health sector

- Increase in mortality and hospitalization due to, above all, circulatory diseases
- Overload on the health system due to higher number of patients and treatment costs

# SCENARIO „0”

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## ✚ Tourism

- Reduced tourist demand in the summer months (high temperatures, extreme weather conditions) which can lead to a drop in income and thus employment
- Reduction and loss of ecosystem services due to climate change
- Occurrence of damages and / or reduced functionality of various infrastructure systems such as: beach infrastructure, horticulture, and ecosystems, biodiversity and culture in general, heritage important to tourism due to the indirect and direct effects of climate change

## ✚ Fisheries

- Decline in catch and consequently a decrease in income and employment

## ✚ Coastal management

- Direct damage on property (in settlements, on infrastructure etc)
- Direct damages to the environment, protected areas, cultural heritage which decreases the attractiveness of the area



# FINAL SCENARIO – CRITERIA FOR EVALUATION

CRITERIA	DESCRIPTION	EVALUATION
Significance	The potential to reduce the risk	High/medium/low
Urgency	Are there consequences already? Is the measure implementation process long?	Yes/no
Feasibility	Are there any obstacles for the implementation? If yes, what and how intense are they?	Yes/no
Cost effectiveness	What is the ration between the adaptation impact and invested finances?	High/medium/low
Multiple usefulness	Does the measure bring welfare regardless of climate change?	Yes/no
Synergistic effect	Does the measure have positive effects on other sectors/areas as well? If yes, which one?	Yes/no

# FINAL SCENARIO

- ✓ final scenario encompasses 27 measures:
  - Agriculture – 2
  - **Forestry and fire protection – 5**
  - **Health – 6**
  - **Water supply and drainage – 7**
  - **Tourism – 5**
  - Coastal management – 1
  - Spatial planning - 1

# FINAL SCENARIO

SECTOR	HAZARD	ADAPTATION MEASURE
Agriculture (2)	Drought	Education of farmers with regards to financial support and entrepreneurial skills, with emphasis on drought protection
		Financial support for building mini and micro irrigation accumulations
Health (6)	Heat waves	Full implementation of the national Protocol on practice and recommendations for protection from heat
		Establishing an incentive system for medical staff
		Integrating green infrastructure in spatial planning
		Implementing eco-smart roofing of public transport stops, parking lots and seaports/piers
		Purchase of an emergency boat
		Building and putting in full function mode the helidrome in Mirca (Supetar)
Water supply and drainage (7)	Drought	Reconstruction of the water supply network
		Implementing educational programs on efficient usage of water
		Reduction of water consumption in public buildings
		Renewal of rainwater storage tanks
		Implementation of eco-smart showers on public beaches
		Prescribing conditions related to water treatment and circular water management in spatial planning documentation for planned touristic zones
		Development of an integral public drainage system, including treatment in order to be recirculated


# FINAL SCENARIO

SECTOR	HAZARD	ADAPTATION MEASURE
Tourism (5)	High temperatures and precipitation	Integrating climate change into general and tourism related strategic and planning documents
		Stimulating the development of the sport-recreational tourism
		Stimulating the development of the gastro-eno tourism
		Stimulating the development of the cultural tourism
		Preparing a Marketing plan for tourism development of the entire island of Brač
Coastal management (1)	Sea level rise and floods	Vulnerability assessment of the Brač coastline to climate change
Spatial planning (1)	All	Education of decision makers on integrated spatial planning
Forestry and fire protection (5)	Fires	Continuous maintenance and construction of new forest fire prevention infrastructure
		Construction of fire stations
		Improvement of fire protection services through enhanced cooperation between Croatian Forests Ltd and volunteer fire departments
		Education of population on fire prevention
		Definition of a model for timely vehicle renewal

# Thank you for your attention!

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# CLIMATE SCENARIOS - RESULTS

## Island Korčula

Joint SECAP

05/11/2020

# CLIMATE SCENARIOS

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  - held on 10th July 2020
  - 17 stakeholders with diverse background

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Risk of drought in agriculture	!!	+	+	**
Risk of fire in forestry	!!! (Korčula, Blato) !! (Lumbarda, Vela Luka, Smokvica)	+	+	**
Risk of heat waves in health sector	!!	+	+	**
Risk of drought in water supply system	!!	+	+	**
Risk of extreme temperatures and precipitation in tourism sector	!!! (Lumbarda, Korčula) !! (Vela Luka, Blato, Smokvica)	+	+	**
Risk to fisheries due to sea temperature rise, changes in water circulation, sea level rise and increase in sea acidity	!!! (except sea level rise !!)	+	+	**
Risk of coastal flooding	!!!	+	+	**

# SCENARIO „0”

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- Reduced tourist demand in the summer months (high temperatures, extreme weather conditions) which can lead to a drop in income and thus employment
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Cost effectiveness	What is the ration between the adaptation impact and invested finances?	High/medium/low
Multiple usefulness	Does the measure bring welfare regardless of climate change?	Yes/no
Synergistic effect	Does the measure have positive effects on other sectors/areas as well? If yes, which one?	Yes/no

# FINAL SCENARIO

- ✓ final scenario encompasses 22 measures:
  - Agriculture – 3
  - **Forestry – 4**
  - Health – 2
  - **Water supply – 4**
  - **Tourism – 7**
  - Coastal management – 1
  - Spatial planning - 1

	HAZARD	ADAPTATION MEASURE
<b>Agriculture (3)</b>	Drought	Education of farmers with regards to financial support and entrepreneurial skills
		Selection of locations for irrigation accumulations
		Building irrigation accumulation
<b>Forestry (4)</b>	Fires	Introducing fire prevention video surveillance in state forests
		Improving fire surveillance in private forests
		Constructing forest fire protection infrastructure in private forests
		Education of population on fire prevention
<b>Health (2)</b>	Heat waves	Full implementation of the national Protocol on practice and recommendations for protection from heat
		Improving population's health care coverage – employing new doctors
<b>Water supply (4)</b>	Drought	Implementing educational programs on efficient usage of water
		Reconstruction of the water supply network
		Research of possible local water supply sources
		Putting local water supply sources into function
<b>Tourism (7)</b>	High temperatures and precipitation	Integrating climate change into general and tourism related strategic and planning documents
		Stimulating the development of the sport-recreational tourism
		Stimulating the development of the gastro-eno tourism
		Preparing a Marketing plan for tourism development of the entire island of Korčula
		Stimulating the development of the cultural tourism
		Stimulating the development of the health tourism
		Establishing Working group of tourist boards of island of Korčula
<b>Coastal management (1)</b>	Sea level rise and floods	Vulnerability assessment of the Korčula coastline to climate change
<b>Spatial planning (1)</b>	All	Education of decision makers on integrated spatial planning



# THANK YOU

Duška Šaša, Msc.

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✉ [duska.sasa@sensum.hr](mailto:duska.sasa@sensum.hr)

# Questionnaire for the 2nd Joint\_SECAP International workshop

Thank you for participating in the online event Actions for climate change adaptation which was a 2nd Joint\_SECAP International workshop whose topic covered the Joint\_SECAP Support System platform and Climate scenarios for our target areas.

We prepared a short survey with a couple of question and would be grateful if you could answer them.

How were you satisfied with the presented topics and the format of the workshop? \*

	1	2	3	4	5	
Unsatisfactory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Excellent

Were the introductory presentations of the different projects informative? \*

	1	2	3	4	5	
Uninformative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Very informative

Was the presentation on the JOINT\_SECAP - Support System Platform informative? \*

	1	2	3	4	5	
Uninformative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Very informative



Was the methodology behind climate scenario development clearly explained? \*

1      2      3      4      5

Not clear at all                                    Everything was clear

Was the presentation of climate scenarios for each target area well elaborated? \*

1      2      3      4      5

Poor                                    Excellent

Thank you for your cooperation! Any additional comments or suggestions?

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Google nije izradio niti podržava ovaj sadržaj.

Google Obrasci

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Unsatisfactory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Excellent

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Uninformative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Very informative

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Uninformative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Very informative

Was the methodology behind climate scenario development clearly explained? \*

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Unsatisfactory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Excellent

Were the introductory presentations of the different projects informative? \*

	1	2	3	4	5	
Uninformative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	Very informative

Was the presentation on the JOINT\_SECAP - Support System Platform informative? \*

	1	2	3	4	5	
Uninformative	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	Very informative

Was the methodology behind climate scenario development clearly explained? \*

1      2      3      4      5

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Was the presentation of climate scenarios for each target area well elaborated? \*

1      2      3      4      5

Poor                                    Excellent

Thank you for your cooperation! Any additional comments or suggestions?

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Google Obrasci

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It was very interesting and for next time step up event promotion.  
.....

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Google Obrasci

- KŠ Karmen Štifanić
- KS Katica Smojver
- LG Leona Gela
- LD Lorena Dropulić
- LM Lorenzo Massimiano
- MD Mariangela Di Giosia
- MB Marijana Butkovic Golub
- MM Mato Mojaš
- MM Maura Mantelli
- NC nenad crnić
- PR paola reggio
- RE Regional Energy Kvarner
- RC Roberta Cocci Grifoni
- RT Romana Tomić
- SS Sara Sorvillo
- SS Serena Sgariglia
- ST Sergio Trevisani
- SF Silvia ferrante
- SM stefano magaudda
- SM stefano Mugnoz
- TG Tea Gjivić Puzović
- TS Tonči Sanader
- VM Valentina Madžarević
- VP Vedrana Petrović
- ZČ Zuzka Čuliet



# SCENARIO „0”

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## Agriculture sector

- lower yields followed by a decrease in incomes and consequently decrease in employment
- higher needs for irrigation
- changes in duration of the vegetation period (e.g. earlier maturation of olives, shorter vegetation period for wine)
- decrease in the number of family farms

## Forestry sector

- damages of forest ecosystems and decreased value of their functions of general benefit
- reduced possibility for economic exploitation of forests followed by a decrease in incomes and consequently decrease in employment

## Water supply sector

- Lack of water for households and / or more frequent and longer periods of unavailability of healthy water for human consumption
- Lack of water for industry (including tourism)
- Lack of water for irrigation


## Health sector






- Increase in mortality and hospitalization due to, above all, circulatory diseases
- Overload on the health system due to higher number of patients and treatment costs










**PENTAHELIX** PentaHelix project 2

- Horizon 2020 project
- 11 partners from 5 countries: Norway, Belgium, Latvia, Spain and Croatia
- Project coordinator: Faculty of Mechanical Engineering and Naval Architecture, University of Zagreb



www.pentahelix.eu



Panelists (13) Attendees (46)

Search

- ID Ivana Derežić
- JM Jasna Maričić
- KŠ Karmen Štifanić
- LM Lorenzo Massimiano
- LK Lucija Krizmanić
- MD Mariangela Di Giosia
- MB Marijana Butkovic Golub
- ME Matija Eppert
- MM Mato Mojaš
- MM Maura Mantelli
- RE Regional Energy Kvarner
- RB Robert Bedoić
- RT Romana Tomić
- RD rosalba d'onofrio
- SS Sara Sorvillo
- ST Sergio Trevisani

- KS Katica Smojver
- AG Ana Goatti
- AT ANA TESIJA
- AP Antun Pfeifer
- CN Chiara Napoli
- CM Claudia Magri
- CP Corinne Pozzecco
- DJ Dado Jakupović
- DŠ DAMIR ŠAREC
- DR Daniel Rodik
- DŠ Danijela Španović
- DD Danilo Di Pietro
- DM Dario Miculinic
- ET Elio Trusiani
- ES Erica Scatizza
- FC Francesco Cuddemi
- GC giorgio caprari
- GM Giuliana Marroncelli
- GK Goran Krajačić
- GP Goran Pavlovic
- GD Grad Dubrovnik Upravni odjel za ur...
- HH Hrvoje Hucika
- IS Igor Sutlović
- IK Inga Kreicmane



PENTAHELIX

## PentaHelix method- benefits

10

## Benefits of an integrated approach to planning and implementation

- Step up from generic measures to measures tailored to the city/municipality and stakeholders
- Getting a broader picture of the impact of certain measures on other sectors
- Increase of the social inclusion in the implementation of CO2 reduction measures and adaptation to climate change
- Improved coordination of measure implementation
- A plan that presents realistic and preferred measures, and at the same time serves to attract investment

[www.pentahelix.eu](http://www.pentahelix.eu)

Ana Lovrak

Panelists (13)

Attendees (53)

Find a participant

NM	Nikola Matak (Me)		
VV	Vladimir Vidovic (Host)		
	Hrvoje Dorotić		
AL	Ana Lovrak		
AF	Antonio Franković		
BM	Bučan Martin		
BM	Bučan Martin		
CB	Chiara Barchiesi		
EZ	Ester Zazzero		
IK	Ivana Kosovac		
PP	Prof. Piero Di Carlo		
TB	Timothy Brownlee		
TB	Timothy Brownlee		

FSB  
100

100 godina Fakulteta  
strojarstva i brodogradnje  
Sveučilišta u Zagrebu  
100 Years of Faculty of  
Mechanical Engineering  
and Naval Architecture  
University of Zagreb



## EUKI programme

- EUKI programme, [link](#)
- Opportunity to **expand network**, develop **international clusters** and think-tanks
- Call for proposals on annual level: **not for SMEs**
- **Focus on EU member states** from Central, Eastern and Southern Europe as well as the Baltic states
- EU candidate states also eligible (in some cases)

On behalf of:

Federal Ministry  
for the Environment, Nature Conservation  
and Nuclear SafetyEuropean  
Climate Initiative  
EUKI

of the Federal Republic of Germany



Hrvoje Dorotić

Panelists (15)

Attendees (53)

Q Search

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- GD Grad Dubrovnik Upravni odjel za ur...
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- RT Romana Tomić
- RD rosalba d'onofrio
- SS Sara Sorvillo
- CC ...

## D4.1.

### Activity details 4.1

Definition of climate scenarios for each territory

Trough the analysis of collected plans, measures and financing tools presented in the web platform the Joint Action Coordinators, selected for each district area, will start-up the process to define, manage and implement Joint Actions for climate change adaptation.

A.4.1.1 The Joint Action Coordinator will coordinate for each target area the activity designed to define possible scenarios for interventions of climate change adaptation: by reviewing, comparing and evaluating different measures, the activity will deliver a final climate scenario for each target area in order to define and implement Joint Actions for the territories.

### Activity deliverables

The deliverables for this activity will be two reports that will collect the results of the practices from each target area:

D.4.1.1 For each district area there will be the description of the final climate scenario, with a synthesis of the criteria undertaken to its definition;



Bučan Martin



2





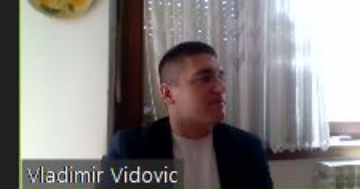
Ester Zazzero

Ivana Kosovac

Chiara Barchiesi

Duška Sasa

Arch. Maria Piet...



Vladimir Vidovic

View

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- CC chiara camaioni
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Recording



Vladimir Vidovic