

REGIONAL PLANS FOR  
climate adaptation  
& IMPLEMENTATION OF  
energy policies



**LA COP22**

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*Marrakech, 9 november 2016*



Covenant of Mayors  
for Climate & Energy



# CLIMATE ADAPTATION STRATEGY OF ABRUZZO REGION

## Decree of the Regional Executive n° 308 of 29 April 2015

Abruzzo Resilient Region: realization of **PACC**,  
the Regional Plan for Adaptation to Climate Change

**PACC**  
PIANO ADATTAMENTO CAMBIAMENTI CLIMATICI  
REGIONE ABRUZZO  
ABRUZZO RESILIENT REGION



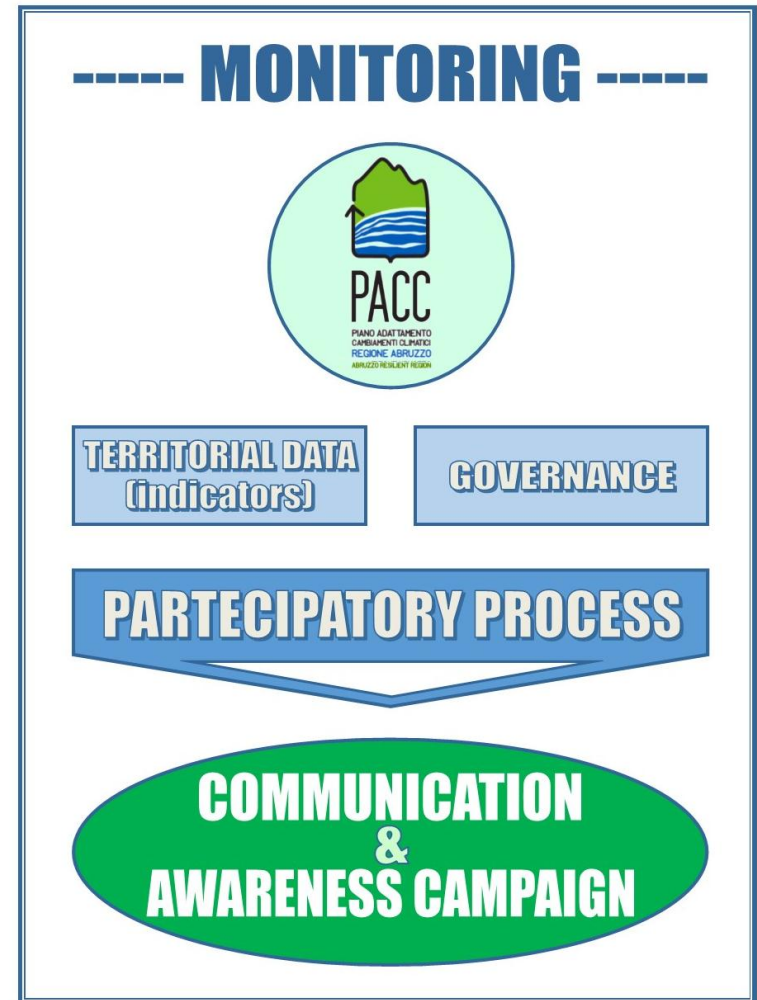
# OBJECTIVES

- ❑ **To realise a regional climate change adaptation plan** that involves the main local actors through an active process and which represents a **monitoring tool of the whole regional territory**;
- ❑ **To develop an innovative information system** on climate change and its effects at local scale. The information system will support the participatory planning process, the selection of the best strategies and actions as well as the monitoring of the plan;
- ❑ **To define pilot actions** that involve both public and private sectors;
- ❑ **To raise citizens and stakeholders awareness** about the risks and vulnerabilities connected to climate change;
- ❑ Integrate Regione Abruzzo in the **network of European Regions** involved in climate change adaptation policies.



# MAIN PHASES

- RoadMap for Climate Change Adaptation
- Regional Climate Profile
- Participatory Process
- Communication & Awareness Campaign
- Tools of Governance
- Adaptation Strategy
- Monitoring



# 1. ROADMAP FOR CC ADAPTATION

***Status: Already developed as a basis to the strategic plan – monitored and eventually updated in accordance to National and EU initiatives and policies***

- Objective:** to map useful resources and tools to define the Strategy.
- Key indicators and contents:**
  - Data to develop the Regional Climate Profile and Socio-Economic Impact;
  - Climate, environment, economic and health indicators (also through the involvement of stakeholders and participatory process);
  - Tools of governance;
  - Mapping of regional sectors to be involved in the strategy (also through the involvement of stakeholders and participatory process);
  - Mapping of the existing financial tools (Rural Development Programme -PSR, European Regional Development Fund - ERDF, European Social Fund - ESF, etc.);
  - Identification of available EU, national and regional fundings;
  - Identification and implementation of pilot actions also within the identified fundings;
  - Information and awareness campaign.



## 2. REGIONAL CLIMATE PROFILE (1)

*Status: ongoing*

- Objective:** to define the climate profile and evaluate climate change risks and vulnerabilities of Abruzzo Region.
- Monitoring indicators:** m2 of area subjected to adaptation measures.
- Final output: an informative system with the following characteristics:**
  - local climate scenarios;
  - risk census/maps and vulnerabilities to the heat islands;
  - risk census/maps and vulnerabilities to flooding and inundation;
  - evaluation of water scarcity risks;
  - potential factors of current resilience and adaptation.
- Support & Cooperation:** Climalia, CDCA, ARTA Abruzzo (Regional Environmental Protection and Prevention Agency), Universities of L'Aquila and Pescara-Chieti – involvement of regional stakeholders , other national universities - networking and sharing actions with EU and worldwide countries.



# 2. REGIONAL CLIMATE PROFILE (2)

## Indicators

### ECONOMIC INDICATORS

Winter tourism (number of people in hotels and facilities, number of open days, variations related to snow cover days)

Summer tourism (variations related to days of extreme weather: heat waves, maximum temperature, expansion towards other seasons)

Damages to marine infrastructures (coast operators)

Oil production (quality and quantity variations)

Wine production (quality and quantity variations, farming migration towards higher altitudes)

Infrastructures (street maintenance, Energies, territory)

Agriculture (figs, carrots, potatoes, beet, tobacco, saffron, licorice)

Breeding cattle

Damage request to local administrations

### ENVIRONMENTAL INDICATORS

Land use

Hydrological instability

### HEALTH INDICATORS

Child and elderly mortality during heat waves

Childhood allergies

Fractures during winter months

### CLIMATE INDICATORS

Temperatures (average anomalies, min. max);

Temperatures (extreme values);

Precipitations (average anomalies, intensity);

Precipitations (extreme values, number of consecutive days with no rain, number of days with precipitation higher than 90mo percentile);

Snow cover (days and surface);

Heat waves (frequency);

Glacier (Calderone in an excellent thermometer of climate, extension, uncovered days) ;

Rivers (discharges, floods);

Distribution and abundance of marine and mountain flora and fauna;

Water (consumption, scarcity, effects on productivity);

Fires (number and destroyed surface areas);

Coastal erosion (Port Captainty, Region);

Coastal storm intensity (the Port Captainty could own these indicators);

Insects (tiger mosquitos)



## 2. REGIONAL CLIMATE PROFILE (3)

### Main faced problems

- Datasets are discontinuous or the temporal range is recent;
- Data (apart for the climate ones) are not homogeneous;
- Many data are not available in electronic format (only paper).



## 2. REGIONAL CLIMATE PROFILE (4)

### Opportunities and challenges

- To make **data omogeneous**;
- To **organize** data;
- Regional (University of L'Aquila, University "G.D'Annunzio" of Chieti-Pescara) and national universities (University of Torino) are cooperating through **analytical studies** on the topic;
- Collected data:**
  - historical temperature, rainfall and precipitation series measured on the ground from 1850 in the main stations (Functional Centre of Regione Abruzzo);
  - agro-forest indicators (VER – Verified Emission Reductions - CARBON CREDITS Project of the Municipality of Raiano).
- Pilot actions:**
  - “Climate Agreement” of Raiano Municipality (VER project);
  - Adaptation actions at the municipalities of Pescara, Caramanico Terme and Mosciano Sant'Angelo (2016 LIFE projects on Climate Adaptation).

## 2. REGIONAL CLIMATE PROFILE (5)

### Pilot project of the Municipality of Raiano (AQ)

A Pilot project for the development of a platform (Climate Agreement) for a local market of Voluntary Carbon Credits, derived from the agro-forest heritage of the Region.

- In May 2014, the municipality of Raiano launched a series of policies aimed at energy efficiency and CO<sub>2</sub> emissions reduction.
- The project codifies a system which quantifies the absorption of agro-forest originating CO<sub>2</sub>.
- It foresees interventions on an area covering the perimeter of the whole Municipality and considered representative of the whole region for management issues and its vegetation.
- Pilot area: Comune di Raiano (AQ)
- 3 macro-areas: Forest; Rural; 2 urban areas.



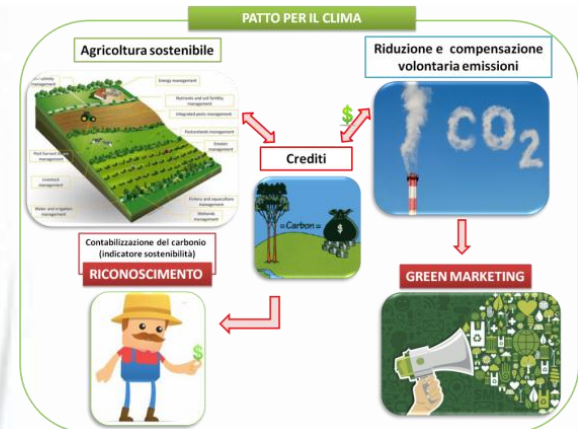
# 2. REGIONAL CLIMATE PROFILE (6)

## Pilot project of the Municipality of Raiano

### □ Main project activities:

- evaluation of the potentiality of CO2 absorption that the agro-forest heritage of the municipality has;
- drafting of a method for calculation and certification of carbon credits;
- drafting of the Manual for Certification that identifies the method of certifying carbon credits and the carbon credits market;
- evaluation of the reports and the methodologies for the calculation and certification of carbon credits;
- submission of the “Manual for Certification” to an approved Control Body for verifying the Manual's compliance.

The project has led to the proposal of a “**Climate Agreement**”, a bilateral agreement in the voluntary market of carbon credits.



## 2. REGIONAL CLIMATE PROFILE (7)

### Opportunities and challenges

#### 2 PROPOSALS ON CC ADAPTATION SUBMITTED WITHIN THE 2016 LIFE CALL FOR PROPOSALS:

##### □ **ADAPT FOR LIFE** - Strategies and Plans for Adapting to Climate Change

Development of two Local Adaptation Plans (Municipalities of Pescara and Caramanico Terme) in parallel to the Regional Adaptation Plan; development of an ecosystem based approach; identification of adaptation actions at the two municipalities (measures to tackle extreme rainfall events and hydrogeological risk; survey and management of abandoned lands; adapt to the new regime of rainfall).

##### □ **LIFE CAPACities** - Climate Change Adaptation Planning Application Tool for Cities

Development, testing and application on two pilot urban areas (Mosciano Sant'Angelo and Genova) of a web application able to assess territorial extreme weather events vulnerabilities, identifying and evaluating suitable adaptation options, enhancing resilience and supporting risk prevention-management (anthropic and natural risk). The application will be tested within the elaboration of a draft urban adaptation plan.





# 3. PARTICIPATORY PROCESS (1)

## Objective:

to develop and implement a bottom-up and replicable participatory process in order to transfer technical-scientific information to stakeholders and identify and implement adaptation measures.

## Identified actors:

- Local institutions;
- Public agencies for water and energy management, green management, state properties, civil protection department and consortiums;
- Province and Town Councils;
- Coastal Action Groups, Local Associations;
- Private Agencies, Industrial and Trade Confederations;
- Associations and civil Society;
- Research institutes and Universities.

## Identified tools:

questionnaires, dedicated meetings and focus groups, workshops, web portal.





# 3. PARTICIPATORY PROCESS (2)

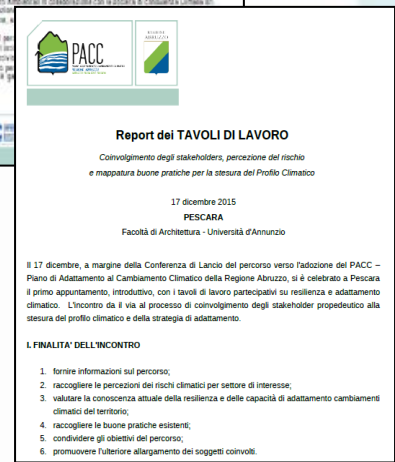
## Main workshops and seminars organized so far

### □ PACC Conference and working groups

*Pescara, 17 December 2016*

- **Main target:** local stakeholders
- **Objective:** give information of the cc regional strategy; get information on climate risk perception as regards as different sectors; evaluate the current knowledge on resilience and capacity of adaptation of the region to cc; map best practices; sharing the objectives of the stratgy; promote the strategy between all stakeholders
- **Tools:** Public conference and technical working groups; questionnaire
- **Report and outputs** of the technical workshops are available at:

<http://www.regione.abruzzo.it/xAmbiente/index.asp?modello=PAA&servizio=xList&stileDiv=mono&template=default&b=paacresi>



# 3. PARTICIPATORY PROCESS (3)

## Networking and sharing experience workshops

### □ **2015 United Nations Climate Change Conference, COP21** *Paris, 2-5 December 2015*

- **Main target:** representatives of EU and worldwide regions and countries
- **Objective:** share the experience of the region in the field of cc with other countries; foster networking and cooperation on the field.
- **Tools:** workshops; presentation of the regional strategy:
  - "Education and Training in the field of climate change and energy", Halle Pajolle, 2 December 2015;
  - "Partnering with non-state actors for climate change adaptation: which potential in different world regions?", EU Pavillon, 2 December 2015;
  - "Concrete experiences in tackling climate change challenges, sustainability and renewable energy sources", Halle Pajol, 3 December 2015;
  - "Resilient cities, Sustainable Urban Development and Human Settlement Initiatives", RTCC Pavillon, 5 December 2015.



Information of the events and outputs:

<http://www.regione.abruzzo.it/xAmbiente/index.asp?modello=climateChange&servizio=xList&stileDiv=mono&template=default&b=climatec>



# 4. COMMUNICATION & AWARENESS CAMPAIGN (1)

## □ World Wide Views on Climate & Energy

*Chieti, 6 June 2015*





# 3. COMMUNICATION & AWARENESS CAMPAIGN (2)

## □ 100 projects for climate

*April, 22th - July, 6th 2016*

- International competition on climate change;
- Regione Abruzzo is the only coordinator for Italy;
- 587 projects have been submitted from all over the world including 19 from citizens, municipalities and schools of Abruzzo Region.

**The ONLY winner project from Italy is the one of the Municipality of Collarmele, from Abruzzo Region.**

Information and results of the contest are available at:

<http://www.regione.abruzzo.it/portale/index.asp?modello=eventoSing&servizio=l&stileDiv=sequence&template=default&tom=1157&msv=evento>



### ElectricVehiculeSystem

Shade shelters for electric cars and bikes



Renewable energy



Innovation and infrastructure



Sustainable cities and communities



# 3. PARTICIPATORY PROCESS and COMMUNICATION & AWARENESS CAMPAIGN

## FUTURE INITIATIVES

- During next months, technical workshops, seminars and ad hoc meetings will be organized and promoted through the regional website and by email with the aim to involve regional stakeholders.
- Through the experience gained thanks to the «**Energiochi**» contest and the collaboration with the network of **Regional Centers for the Environmental Education (CEAs)**, a campaign on education and training in the field of climate change will be launched, taking into account that the contest normally involved about 12.000 between students, teachers, mayors and experts in the field and that CEAs represent the whole regional territory.





# 4. GOVERNANCE (1)

## The Multilevel Governance Model

### THE COVENANT OF MAYORS INITIATIVE

- ❑ **Regione Abruzzo** has endorsed the **2030 objectives** for a **minimum 40% CO2 reduction, 27% increase in energy efficiency and renewables**, and supported the integration of **mitigation and adaptation** to climate change under a common umbrella;
- ❑ **All 305 municipalities in Abruzzo Region** and the **4 provinces** joined the CoM;
- ❑ We are working with our municipalities to fully implement the **New CoM for Climate & Energy** in the Region.



## 4. GOVERNANCE (2)

### Plans for different fields

**Several Plans** in the field of energy, environment and management of the territory have been realized and implemented at Regional level, namely:

- Water Protection
- Water management
- Hydrogeological Asset
- Flood Protection
- Flood risk management
- Air Quality
- Energy
- Waste management
- Quarrying and mining activities**

## 4. GOVERNANCE (3)

### Regional Plan for Quarrying and Mining Activities (P.R.A.E.)

**P.R.A.E.** is a **regulatory tool** whose main objectives is to **achieve in the short and medium period a better level of environmental, social and economic sustainability** of mining and quarrying activities, through the containment of the land use, rationalization of the farming methodologies, qualification of environmental recovery, valorization of mining and quarries.

As such, it is not a “urban plan” but a **tool for the sustainable planning and management of the territory** as it aims to:

- Restrict the opening of new quarries and mines;
- Give priority to the completion and expansion of existing activities;
- Increase the number and quality of environmental restoration measures of disused and not recovered quarries;
- Increase the use of "best practices" and improve the quality of environmental recovery;
- Encourage the use of environmental certifications;
- Promote the economic development of industries.



## 4. GOVERNANCE (4)

### Regional Plan for Quarrying and Mining Activities (P.R.A.E.)

- PRAE establishes the parameters of compatibility/acceptability of mining activities in **respect to the constraints of the territory**, thus scaling possible interventions depending on the presence or absence of **impeding and conditioning constraints**.
- Quarrying and mining activities are thus evaluated in relation to the **features of the environment and territory** according to the principle of case-by-case assessment.
- The Plan does not identify specific areas where to allow or restrict mining and quarrying activities but foresees the definition of **common rules to follow**.

**Because of its features, PRAE is a tool to map and manage the whole territory according to the principle of sustainability.**



# 4. GOVERNANCE (5)

## The River Contract (RC)

- **Decree of the Regional Executive no. 915 of 10 November 2015** establishing the governance of RC (appointing of: the regional assembly of RC, the «Think Thank» made up by representatives of universities; «cabina di regia» for each RC made up by representatives of the municipalities involved; technical secretariat and observatory) and approving the template of RC MoU.
- **RC is a process of negotiated governance** (T DFA - Territorial Development Framework Agreement) to restore the eco-landscape of river basins through multi-sector actions.
- **Objective:** consolidation of the governance within the full basin, where actions to lower hydraulic risks are integrated with the protection and valorization of the river, the reduction of pollution of both surface and groundwater, the restoring of the landscape and historical cultural sites and the protection of biodiversity.
- **The process is developed in stages:** construction of the network; definition of rules and tools; building the vision and prioritization of shared objectives; execution of the agreement; implementation and performance monitoring; communication and training.
- Regione Abruzzo has implemented **16 initiatives**, including Tordino, Sagittario, Tavo-Fino, Alento, Aterno, Arielli, Liri, Nora, Piomba, Sangro, Saline, Trigno, Pescara and Vomano-Mavone.
- The Region is currently working, within a programme of “Agenda 21” and through the “**Fiume Feltrino**” River Contract, to make **the REGIONAL GUIDELINES FOR RC.**





# 5. ADAPTATION STRATEGY

**The Adaptation Strategy** will be based on the analysis and feasibility assessment of the best national and EU practices in Abruzzo territory. The involvement of stakeholders will strengthen and inspire the entire plan process.

**Focus on:** coastal and mountainous area management, risks related to obsolete infrastructures, green growth in urban and rural areas.

## **Main activities foreseen:**

- Identification of best practices;
- Details of implementing measures and strategies;
- Validation by a Scientific Board;
- Selection and final review of implementing measures and strategies;
- Adoption of the political commitment plan of adaptation.

# 5. MONITORING

- **Monitoring** in the long term climate change risks and vulnerabilities.
- **Evaluate** how the whole process contributed to promote different adaptation measures (planning, investments, analysis of risks , information management).
- **Information** on project results, involvement of citizens and stakeholders.
- **2 different protocols** are expected:
  - Monitoring of climate change impact** (risk and vulnerability) on the basis of the Regional Climate Profile
  - Monitoring of implementation level** of actions provided by the Adaptation Plan.

# GANTT CHART OF ACTIVITIES

ACTIVITY	DATE
CLIMATE PROFILE OF THE REGION	<i>DECEMBER 2016</i>
REGIONAL STRATEGY	<i>FEBRUARY 2017</i>
REGIONAL PLAN	<i>End of 2017 or beginning of 2018 depending on gathering of data, definition of activities, fundings</i>