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Marche Region

Presentation &
Experience in Nature-based Solutions for Carbon Offsetting

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REGIONE MARCHE

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What kind of organization we are:

Marche Region (Regional Government)

Marche is an autonomous Region within the unity of the Italian Republic and within the European Union. Its own functions and competences are exercised in respect of the Constitution and according to the norms of the Regional Statute.

REGIONE MARCHE

PP02 Marche Region - Italy (Italia)

INFRASTRUCTURE, LAND AND CIVIL PROTECTION DEPARTMENT

"Environmental Evaluations" sector

Is the competent authority for the EIA and SEA procedures previously explained. It is responsible for the mitigation of territorial transformations, climate change adaptation and carbon dioxide absorption.It is also responsible for the regional inventory of air emissions

"Internal territories, parks and regional ecological network" sector

Manages the development of internal territories and mountain areas. It manages biodiversity, the regional ecological network, parks and natural reserves.

"Energy Resources, Waste Management and Quarries and Mines" sector

Is in charge of waste and energy management in the region and manages the projects connecting climate change.

Territory we work in & for:

Objectives and expected results for the Marche Region

In the Marche Region, climate change policies are developed through the implementation of sectorial plans and programmes. The **Strategic Environmental Assessment (SEA)** is the specific procedure, according to directive 42/2001/CE, granting the integration of sustainability. Similarly, the Environmental Impact Assessment (EIA) ensures the sustainable implementation of certain categories of projects.
On a regular basis, during the SEAs and the EIAs, measures to minimize and to compensate the adverse effects of plans and projects are identified.

Territory we work in & for:

Objectives and expected results for the Marche Region

The driving principles of sustainability for the Marche Region are set in the **Sustainable Development Strategy (SDS)**, which has been approved by the Regional Act No. 25 of December 13, 2021. The SDS of the Marche Region strongly includes the principles of adaptation to and mitigation of climate change.

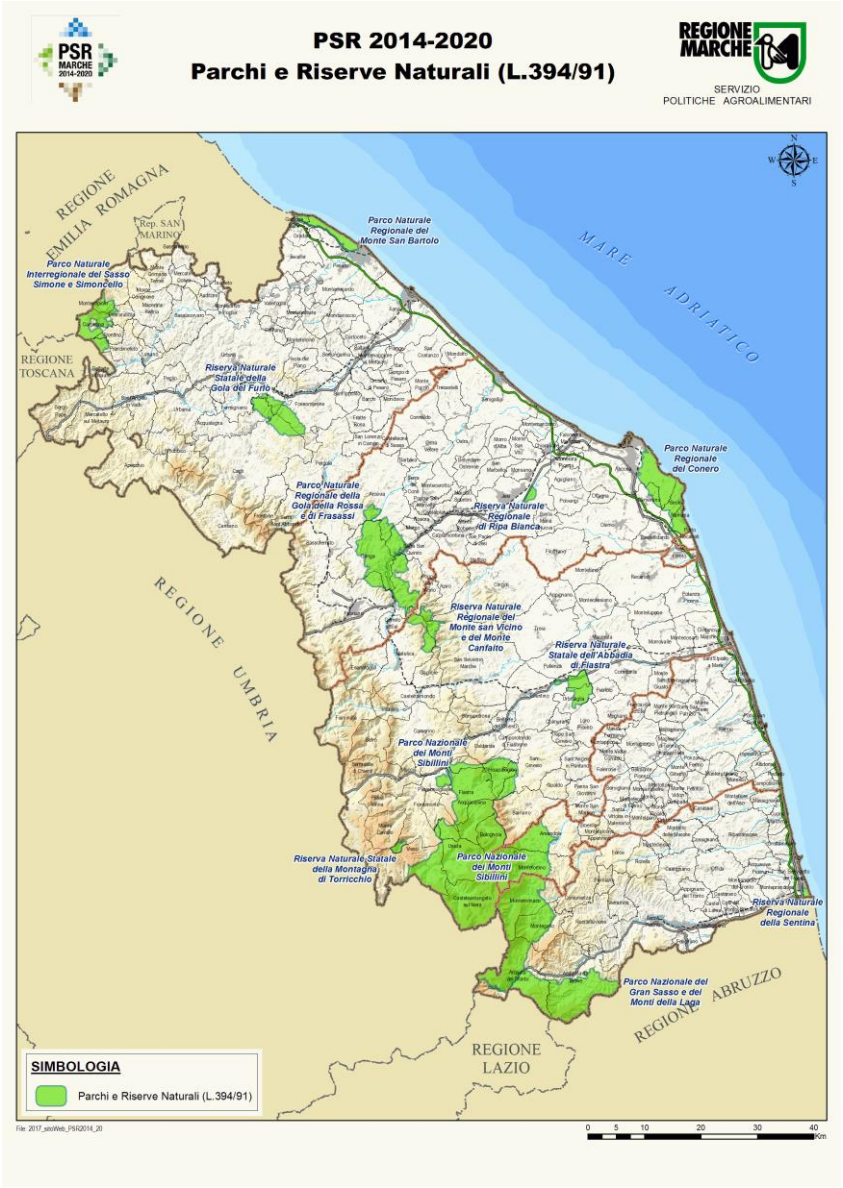
One of the main output of the Sustainable Development Strategy is the regional **Climate Change Adaptation Plan.**
It carries out an integrated approach to accelerate climate actions in sectoral policies and it is strongly focused on a nature base approach. The plan is now in the approval phase.

Marche Region is situated in the middle of the eastern side of the Italian peninsula. It is faced on the Adriatic Sea off the coast of the Balkans with which it has historically maintained strong contacts and recently an intense territorial cooperation.

1.500.000 inhabitants

The Region is made up of 227 Municipalities and 5 Provinces included in the territory of the Marche.

The Region's capital is the city of Ancona (100,000 inhab).



Residents (n):
1.489.789

Total area (km2):
9.401

Per capita GDP at market price (€):
26.179

December 2021, approved the Regional Strategy of Sustainable Development

227 Municipalities and 5 Provinces

Experience in the different project sub-fields:

Experience on Green Carbon Solutions & related Instruments:

Multifunctional forestry and plant models and techniques for compensation and mitigation measures in EIA proceedings (VEC)

The project, developed in collaboration with the Polytechnic University of Marche, Department of Forestry Sciences, has developed a new approach to quantify the biotope to restore in the case of deterioration/destruction by project implementation. This approach considers the ecological value of different typology of biotope and allows improving not only the mere carbon absorption, but also the adaptation functions and the other ecosystem services.

The Q-CUMBER protocol

The Q-CUMBER protocol between Ministry of ecologic transition, Marche Region, Abruzzo Region and Umbria Region, aims to share and test a tool for the support to decision-making in planning, programming, design and validation to different territorial and environmental contexts in environmental evaluations (EIA and SEA). For the SEA, the protocol is testing a common approach in urban planning, based on the implementation of ecological network, for some Municipality in the Apennine area shared by the three Regions (for Marche, three Municipalities are currently participating to the test). For EIA, the tool is tested for different project categories: Marche Region is testing the tool for projects interacting with river ecosystems.

Experience on Green Carbon Solutions & related Instruments:

VAUTERECO (Evaluation of Urban and Territorial Assets for resilience of communities)
in the framework of the SDS, the project analyses the role of open space in the urban planning and the potential for ecosystem services. It includes a territorial analysis for ecological network at trans-regional level, to provide a common framework for the SEA of urban planning.

Regional Strategy for Urban Greenery

As part of the SDS, the strategy will act as a connector with extra-urban trees, forests and the Marche ecological network/connectivity, in order to strengthen the environmental functions of greenery. It, also, will aim to actively involve citizens by highlighting the relative economic benefits, social and psycho-physical well-being that can derive from it. The Strategy must indicate guidelines / operational tools for local Administrations called to prepare Urban Green Plans; design the interaction between the green system / mobility network / buildings and raise awareness of sustainable development.

Experience on Green Carbon Solutions & related Instruments:

The green roof of the Marche Region's Leopardi Palace.

The so-called "heat island" phenomenon causes a substantial increase in air temperature in areas surrounding urban agglomerations in which the presence of roofs characterized by high solar radiation absorption coefficients and high-infrared radiation emission is found. The benefit of the presence of green roofs is the mitigation of the phenomenon of urban air overheating and consequently an advantage in energy consumption for summer air conditioning, resulting from the lowering of the sensible heat loads of homes.

The green roof located on the roof of the Leopardi Palace of the Marche Region is a good practice of natured based sustainability solution in buildings. It's characterized by a non-uniform distribution of vegetation as a result of a technical choice of the designers who intended to experiment with crops of both intensive and extensive nature, all in order to analyze the effectiveness of each of them on the overall performance required of the system. The roof in question can be considered a mixture of the three possible types of green roofs, namely: intensive, semi-intensive, and extensive. According to this classification, the "intensive" or "semi-intensive" types have substrate thickness of about 15 to 30 cm for an overburden weight of 120 to 350 kg/m², considering maximum water retention, and has strong root and aerial vegetation of horticultural type, including shrubs.

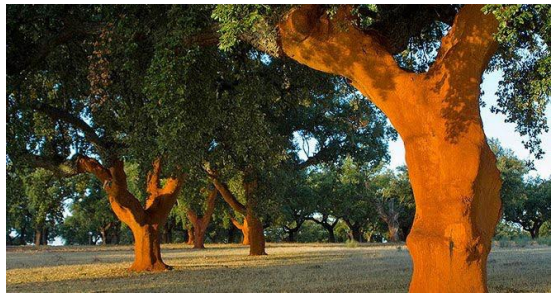
The height of the plants characterizing the last type generally does not exceed 25 cm, and the association of several varieties gives these covers a time-varying multicolored appearance. In fact, the area involved in the experimentation has wide parallel strips of land cultivated with broom, lavender, rosemary, and grass, respectively, characterized by degrading shrub heights and different development of the leaf apparatus.

Green roofs and roof gardens contribute to reducing the impact of heat waves through water and vegetation: cooling by evaporation causes a lower temperature. This reduces radiant heat transfer and cooling requirements. These technology approaches reduce cooling requirements and improve thermal comfort in summer. They can also influence outdoor temperature at the urban scale, not just at the building level. Plants and water establish biodiversity and also attract birds and insects. Appropriate water management can also be beneficial in floods and droughts.

Experience on Blue Carbon Solutions & related Instruments:

Lack in experience in blue infrastructures. Despite of 180 km of coastline and several rivers and lakes inside the region, an ecological approach for management and development of blue infrastructures have not yet been developed in Marche Region.

Experience on Emissions Markets & Nature-based solutions in them:



MARCHE REGION PARTNER IN EU PROJECT "LIFE CO2RK“ FOR PROPER FOREST MANAGEMENT OF CARBON FLOWS

Marche Region has taken part in the LIFE CO2RK project, recently approved by the European Commission.
The project develops a series of integrated actions in three member states, at national and regional levels.
The project coordinator is the Secretaría General de Medio Ambiente, Agua Y Cambio Climático of Andalucía (Spain), which will develop the project together with other Spanish and Portuguese partners and, for Italy, with the Marche Region and the Università Politecnica delle Marche.

The establishment of carbon trading schemes has enabled significant reductions in greenhouse gases, creating economic incentives to reduce CO2 emissions from many activities. However, these systems need to be strengthened especially to promote emission reductions for diffuse sectors (residential, transport, waste, agriculture...) as well.

To do this, regulatory and operational frameworks also need to be developed at the regional level to channel the offsetting interests of these sectors toward actions capable of sequestering Carbon additional to that set by the natural environment. Marche Region will quantify, precisely, carbon fluxes in the management of certain forest types and to create a computer system for their monitoring.

Pilot projects will be developed in cork oak (in Spain and Portugal) and beech forests (in the Marche region). By participating in LIFE CO2RK, the Marche region will be able to use the carbon allowance mechanism as an offsetting tool for all activities that involve not only emissions, but also reduction of uptake (such as the construction of infrastructure), while at the same time incentivizing better management of the natural heritage.

Experience on Engagement of Organizations & Citizens in Nature-based offsetting of emissions:

Organizations and enterprises are involved during project realizations requiring forest compensation according to the regional low on forest. These aspect will be discussed in the presentation on best practice

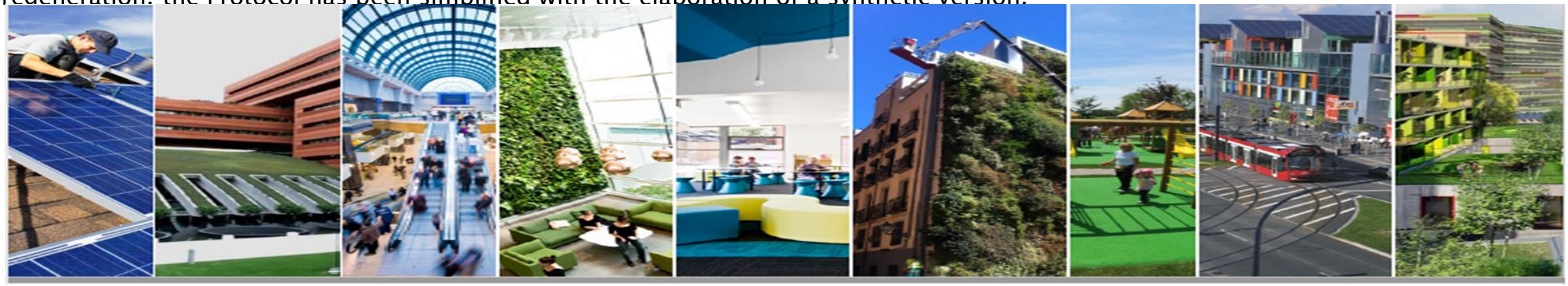
Nature based for emission offsetting is addressed in SEA procedure where citizens are involved in public consultations

Experience on Carbon Offsetting Solutions not nature-based:

ITACA Protocol Urban Scale

ITACA Protocol Urban Scale is a multi-criteria assessment system for the evaluation of environmental sustainability of an urban context. Starting from a set of basic assessment items, the ITACA Protocol Urban Scale aims to provide a final performance score, indicative of the sustainability level of the urban settlement. The constituent elements of the evaluation method can be summarized as follows:
- a set of evaluation items, called criteria;
- a set of quantities, called indicators, which allow to quantify the performance of the urban area in relation to each criteria. The criteria were distributed in a series of thematic areas that try to define the complexity of urban quality; governance; urban morphology; landscape integration; quality of the design (bld./site); public spaces; urban metabolism; biodiversity; adaptation; mobility / accessibility; social and functional diversity; economic-social effects.

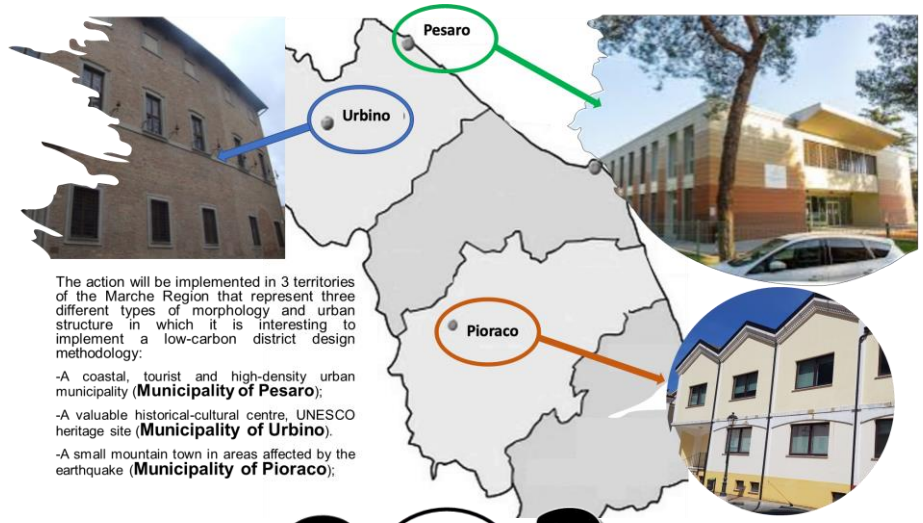
The objective of this protocol, which will act in synergy with other protocols relating to building sustainability and facilitate appropriate responses to urban regeneration, is to provide a cross-scale assessment that will measure the sustainability level of interventions in urban environments ranging in size from the block to the city. This protocol will be useful for public planning bodies and all those stakeholders in developing or transforming urban areas. In order to implement its use also in support of financing programs at national level for urban regeneration, the Protocol has been simplified with the elaboration of a synthetic version.



Experience on Carbon Offsetting Solutions not nature-based:

CERTIDISTRICTS Design and test a LOW CARBON DISTRICT applying an environmental certification tool on buildings and on an urban scale.

Design a low-carbon district by applying the ITACA Protocols, modulating interventions to obtain a high score and thus certify high energy and environmental performance. URBAN scale protocol certifies a territorial area that has various elements such as infrastructures, services, green spaces, etc., as well as buildings. Building scale protocol therefore allows to obtain an environmental energy certification of each single building and its immediate surroundings. The application of an energy-environmental certification is a guarantee of the high quality of the proposed intervention. Therefore, by applying the right monitoring indicator proposed within the LC Districts project - Energy saving: Target 2023 (GWh) CO34 reduction of GHG emissions (Tons eq CO2) - it is possible to concretely measure the energy-environmental benefits of the proposed action . This action is included in the INTERREG Europe LC District project Action Plan. It's ongoing, at the moment, it will end on January 2023.



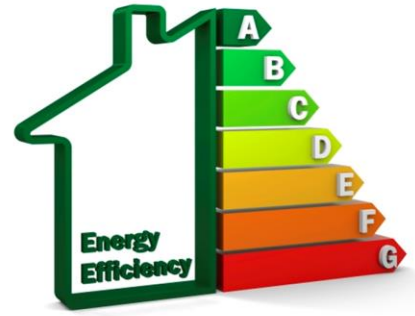
The action will be implemented in 3 territories of the Marche Region that represent three different types of morphology and urban structure in which it is interesting to implement a low-carbon district design methodology:

-A coastal, tourist and high-density urban municipality (**Municipality of Pesaro**);

-A valuable historical-cultural centre, UNESCO heritage site (**Municipality of Urbino**).

-A small mountain town in areas affected by the earthquake (**Municipality of Pioraco**);

HOW DO WE TRY TO REDUCE CO2 ?



The purpose is to determine a monitoring indicator suitable for providing the prerequisites to measure the energy-environmental benefits of the action to assess how much a "certified low-carbon district," with demonstrated fully certified high-energy environmental performance, could contribute to a territorial low-carbon policy.

To support the choice of the best-performing performance index, the criterion of the **ITACA Protocol C.1.2.** will be considered, according to which the value of the annual equivalent CO2 produced for the operation of the reference building (DM minimum requirements).

The calculation of $C0_2$ equivalent emissions will have to be done for all buildings where at least one of the cooling, heating and DHW production services are present.

Policy Instrument involved in the project:

Regional Operational Programme Marche funded by the European Regional Development Fund (ERDF) 2021-2027 (POR Marche ERDF 2021-2027)

The POR Marche ERDF 2021-2027 intends to contribute to the achievement of Europe 2030 Strategy and the objectives of the European Green Deal.
It includes 3 Strategic Objectives (OP): 1 - A smarter and more competitive region, 2 - A Greener Region, 5 - A Region closer to the citizens, articulated in 12 specifi c objectives (OS).
The numbers are not correlatives because ROP Marche Region has selected only 3 Objectives from the wider list. For each OP, Marche Region has defined a number of specific objectives (OS).
The Strategic Objective (OP) 2 "Greening, resilient and low carbon emissions Europe" is the one to be impacted by the project, specifi cally the specifi c objectives 2.4 - Promote climate change adaptation, disaster risk prevention disaster risk and resilience, taking into account ecosystem-based approaches; and 2.7 Enhance the protection and conservation of nature, biodiversity and green infrastructure and reduce every kind of pollution.

In particular, the project could impact positively the Regional Operational Programme bringing the approach of carbon offsetting through nature-based solutions inside OP 2.4 and 2.7, developing projects that integrate specifically the aim of carbon offsetting through interventions in nature.

Time for questions

Thank you!

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