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LIFE
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Editorial

LIFE-CLINOMICS has completed the planning stage and has now entered the phase of demonstrating that adaptation measures with respect to climate change are viable, profitable and effective in the long term, in terms of protecting people, regions and productive activity.

We have created an overall strategy that establishes the criteria and principles for the adaptation of both areas and productive sectors and which marks those guidance and orientation points necessary for those parties interested. This is a frame of reference that facilitates and clarifies the actions to be undertaken.

We have provided three specific, clearly-established action plans that propose and detail over 100 actions (103) at executive level, and that are accurately-based on the specific characteristics of each region and each sector in the LIFE-CLINOMICS project. Six of these actions will be undertaken as pilot/demonstrative initiatives within the project itself.

Three participatory governance bodies (MeTACC)

have been established, which have managed project activity in the region. These bodies aim (and have the capacity) to continue their work after the completion of the LIFE-CLINOMICS project. This process has been accompanied by an intense training process that is open to all interested parties.

We have prepared a Pact for Adaptation that details those commitments that any region seeking to improve its resilience to climate change would have to make.

LIFE-CLINOMICS has created a system to ensure continuous climate change adaptation actions that are replicable in any other region, and that will ensure continuation in those three regions where its measures have already been implemented. All that is now required is to maintain the political and social commitment that we have been able to create.

Contact us at life.clinomics@diba.cat, and to stay up to date with the project, visit the website: <http://lifeclinomics.eu/ca/presentacio/>

Pilot initiatives in the Alt Penedès

As part of the LIFE-CLINOMICS project, a total of 6 face-to-face sessions were held in the Alt Penedès region, with representatives from the region who represent the following sectors: agriculture/wine-production, forestry, tourism and a cross-sector group. As a result of these sessions, an action plan has been established to adapt our region to climate change, and in which the practical application of two pilot actions has been established.

Action 1- The Agricultural Sector: extending the monitoring of hydric stress in vineyards in order to control the existing reserves of water in the sub-soil through the installation of humidity sensors, while coordinating this procedure with the input of meteorological data and the provision of greater technical assessment for wine-producers in terms of soil management.

The aim of these measures is to initiate the implementation of a public network of moisture sensors in the soil at three depths, which when added to climate projections, the expected water requirements and crop phenology, will permit recommendations to be made in the long term with respect to both soil management and good practices for improved rainwater use.

A second phase has been planned that will involve extending the sensor network through the inclusion of private initiatives that are already operating in the same manner.



Vineyards in the Alt Penedès.

Action 2- The Forestry Sector: the promotion and activation of an executive extensive livestock farming project that focuses on the prevention of forest fires and the creation and activation of a new rural economic sector at the service of forest protection.



Flocks in the forest.

Taking the current context of climate change into account, i.e. one in which an increase in the risk of forest fires is projected due to increased temperatures and periods of drought, the proposal was made to promote an executive extensive livestock project in the region. The main aim of this project will be the clearing of the forest floor in order to prevent forest fires.

Given the current high tree and shrub density and the limited accessibility to those forests in the county, measures involving clearing the forest floor and lower forest levels with herds of livestock to ensure longer-term maintenance is only viable in those forests that have been previously managed. However plans have also been made to include the upkeep of the fire prevention strips and perimeter strips used to separate housing estates located in the forest areas.

As such, detailed studies will need to be made beforehand in order to determine the state of forest management, accessibility to the forests and profitability, in terms of managing forest maintenance with livestock.

Pilot initiatives in the Montseny B.R.

Adaptation to climate change in forests and tourism and agricultural facilities in the Montseny Biosphere Reserve

The governance and research process implemented by LIFE-CLINOMICS in the Montseny Biosphere Reserve has resulted in an action plan that includes some 30 measures that have been organised into five strategic lines.

These actions seek to support forestry, agro-livestock and tourism business, while providing greater support to forestry practices (viewed as a traditional activity on the massif), and sustainably managing water resources, in addition to continuing the involvement of interested parties in the region and promoting sustainable tourism.

Among the proposed actions, two have been chosen for the application of the LIFE-CLINOMICS project framework. Firstly, **a measure focused on the forestry sector** that aims to increase resilience to climate change, and which involves "undertaking a detailed study of climate change impacts and identifying the forest areas (the forests and pastures of the massif) within the Montseny B.R. that are most susceptible to climate change, and to define management models that permit the adaptation of forests to climate change." In the initial phase, the

mapping and characterization of the forest masses that are most vulnerable to climate change will be undertaken. The second phase will specify the definition of reference management models for those forest masses that have been identified as being the most vulnerable.

The second action chosen is the "Characterization and Definition of Environmental Improvements in all Sectors and the Undertaking of a Pilot Test".

The aim here is to develop a diagnosis of the measures used for climate change adaptation in tourist and agricultural facilities. This diagnosis will take the following aspects into account (among others): water usage efficiency and saving, energy efficiency and the use of renewable energy sources, the promotion of sustainable mobility, as well as environmental improvements in the immediate environment of the facilities. This action must give rise to the creation of a manual of good practices for the adaptation of facilities of this type in the Montseny area, while more specific measures for application will also be identified.

The two pilot tests proposed will allow progress in the strategic lines established in the action plan, in order to better adapt the primary and tourism sectors of the Montseny B.R.



MeTACC joint Montseny.

Pilot Actions in the Terres de l'Ebre B.R.

The first of the climate adaptation measures chosen by the MeTACC of the Terres de l'Ebre region relates to the fisheries sector (specifically aquaculture) and involves evaluating the technical and economic feasibility of creating a hatchery for the breeding of oysters in the Ebro Delta.

The Ebro Delta is responsible for 98% of all oyster and mussel production in Catalonia. Increasing water temperature in the bays of the delta as a result of global warming is causing episodes of mortality with respect to large amounts of those molluscs being harvested. The adaptation of the aquaculture sector seeks to improve Japanese oyster production. This species is more resistant than the common mussel to these more recent climatic conditions. However, the delta area has not yet developed any activities that are directly related to obtaining seed oysters, and shellfish producers in the area are currently acquiring stocks from French producers; a practice that involves technical problems (the sanitary status of the French oyster) and commercial problems (subordination to the French market). Activities that centre on the production of seed oysters in the delta will avoid this dependence, increase the product's value chain, create new employment and make the sector more resistant to the dangers posed by climate change. The measure is being implemented by the Aquaculture School of Sant Carles de la Ràpita and FEPROMODEL (an association that comprises all the shellfish producers in the delta area).

The second action centres on the traditional dry farming in the inland regions of the Terres de l'Ebre.

In this area, increase frequency in terms of drought periods requires more efficient availability of support irrigation, in terms of both economic expenditure and in terms of saving an important environmental resource, i.e. fresh water. As such, the operation of a Drought Observatory will be

tested. The combined use of soil moisture data obtained by means of a network of sensors, together with data supplied by satellite image, and its interpretation, will allow the observatory to inform the agricultural sector of the most suitable periods for irrigation, and of those provisions that need to be made when irrigating the vineyards, olive groves and almond orchards. In this preliminary phase, the Drought Observatory will be established in the Terra Alta region, and it is expected to be replicable in other areas of Mediterranean agriculture. The body leading the project is the Observatory of the Ebro, which is contributing its know-how in the area of climate. The project also has the support of the Agricultural School of Gandesa with respect to the selection of those agricultural businesses that will be taking part in the action.



MeTACC joint Terres Ebre.

The Pact for Adaptation to Climate Change and the LIFE-CLINOMICS Transferability and Replicability Conferences

As part of the LIFE-CLINOMICS project, different partners have organized transferability and replicability conferences in their respective fields, with the aim of providing information on the results and the methodology used in the project in the climatic area of the Mediterranean arc. These parties have also signed the LIFE-CLINOMICS Pact for Adaptation to Climate Change, in which all entities and organizations are invited to replicate LIFE-CLINOMICS actions in other regions.

The **Barcelona Chamber of Commerce** organized the conference '**Adaptation to Climate Change in the Mediterranean**' on 21 November at the Medaweek, in a meeting organized by the Association of Mediterranean Chambers of Commerce (A.S.C.A.M.E.). This organisation comprises 300 members (chambers of Commerce and similar organisations) from southern Europe and throughout the Mediterranean.

The conference centred on a global climate problem that extends beyond our borders, one in which the transfer of knowledge will be of vital importance with respect to increasing the adaptability of the agricultural, forestry, fisheries and tourism sectors in the entire Mediterranean area. The visions and pragmatism of these sectors were shared at the meeting, so providing further detail and context to the results of the project.



Conference Barcelona Chamber of Commerce, Medaweek.

The conference was held at MedaWeek, a meeting of entrepreneurs and representatives from the private sector, company support organizations and public authorities in southern Europe and the Mediterranean. The conference provided information and awareness to help replicate the project's actions in the regions of origin.

The farmers' trade union organisation **Unió de Pagesos** organized the conference '**The Farming Community in the Mediterranean and Adaptation to Climate Change**', in which it presented the results of the LIFE-CLINOMICS project, which analyses the impacts of climate change and possible adaptation measures in the sectors of agriculture, livestock and forestry, among other areas.

These conferences also shared the views and vision of the agricultural sector with the participation of representatives from agricultural professional organizations and included, in addition to Unió Pagesos, the participation of Coldiretti, from Sardinia, Unió de Pagesos de Mallorca, the Union of Valencian Region Farmers, and Farmers and Livestock Farmers Ranchers of Andalusia; an organization associated with the Union of the Unions of Livestock Farmers and Ranchers.

At the end of the conference, the participating organizations signed the Pact for Adaptation to Climate Change in order to promote the actions proposed in the LIFE-CLINOMICS project. The signatories are thereby committed to identify factors of vulnerability and to establish action plans, so as to implement climate change adaptations in a concerted manner with other interested parties in the region.

The agricultural organisations stated that the pact needs to demand the sustainable management of resources, such as water, energy and land, in accordance with the principle of solidarity and environmental and economic sustainability, in

addition to seeking fair incomes within the farming sector. They also requested that it promote efficient distribution systems and that it endorses new technological innovations that allow consumption to be adapted to real needs.

The trade union organisations, the **U.G.T. and C.C.O.O. of Catalonia** organized the trade union seminar **“The World of Work in the Face of Climate Change”** on 9, 10 and 11 April in Barcelona with the aim of publicising the main objectives, actions and results of the LIFE CLINOMICS project.



LifeClinomics day, Unió de Pagesos.

These conferences were held in the Convento de Sant Agustí Civic Centre in Barcelona.

The talks focused on actions of replicability and transferability, and aimed to provide information on project methodology and its results in order to promote the implementation of climate change adaptation initiatives by administrative bodies and social and economic parties in the regions of the Mediterranean arc.

On the afternoon of 9 April, a group of some 15 people visited the Delta del Llobregat nature reserve. A guided tour was conducted by a specialist from the reserve, who showed participants the most outstanding elements of this area of high ecological value.

On 10 and 11 April, the main purposes and results achieved in the LIFE-CLINOMICS project during its 2016-2019 implementation period were discussed,

while several specialists made presentations on the following topics: the repercussions of climate change in the world of work and health, employment opportunities in the agro-livestock, forestry, tourism and fishing sectors, experiences of adaptation to climate change and European trade unionism and fair transition procedures.

Another aim of the project is to achieve its transferability to new regions in the Mediterranean Arc, through the commitment of other unions to replicate the methodology or the Clinomic actions in their own countries. To this end, several Italian trade union representatives attended the seminar, as well as a Moroccan union representative, and several members of regional structures of the Spanish trade union organisations, the C.C.O.O. and the U.G.T. at a Spanish regional community level.

The seminar ended with the presentation of the Pact for Adaptation to Climate Change (P.A.C.C.) by a representative from the Barcelona Regional Government. At the end of the event the pact was signed by three trade union organizations: the Catalan U.G.T., the Catalan C.C.O.O. organisation and the F.S.D.C. from Tangiers, (Morocco).

The attendees showed a great deal of interest with respect to the contents of the seminar and stressed the importance of having areas in which to discuss and share knowledge and environmentally-related experiences within the framework of trade union action.



LifeClinomics trade union seminar, UGT and CCOO.



Coordinator



Partners



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