Rehabilitation of the hills (Cabezos) of Lorquí

LIFECITYADAP3

Lorquí (Spain)	248,017.08 €	6 months

CO-FINANCING COMPANIES

acciona

ACTÚA Servicios y Medio Ambiente

GRUPOGAM

AUXILIARES HERMON S.L.

ELSAMEX GESTIÓN DE INFRAESTRUCTURAS

SERVIMAN MURCIA

MAIN OBJECTIVES

1

Implement **methodological and innovative nature based solutions** to adapt the territory of Lorquí to climate change

2

Mitigating the effects of climate change on the hills urban areas with **the support of local businesses and their social responsibility**

3

Stop the erosive and degenerative process of the Lorquí hills

4

Rehabilitate a cave house recovering traditional systems updated, economical and easy replication, which serves as an example to reverse the tendency to abandon the hills

5

Improve the urbanisation standards of the area

6

Stabilise pending

CLIMATE RISKS ADDRESSED

- Extreme weather processes: heavy rain and consequent runoff
- Extreme heat
- Landslides

To request the full technical paper on the design of this pilot action, please email **lifecityadap3@fmrm.es**

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DESCRIPTION OF THE ACTION

- **Rehabilitation of the cave house "Las Trillizas" and its surroundings in the Cabezo de Las Polacas**: Innovative recovery of traditional brick tabulated vaults as a system of economic structural reinforcement and easy replication. Use of mortars and lime concretes in vertical and soldered walls due to their lower carbon footprint and greater global sustainability. Reuse of the own lands extracted from the interior of the cave house to improve the upper lands. Installation of sensors to confirm the bioclimatic advantages of a cave house.

- **Conditioning of Cuesta del Catecismo Street in the Cabezo de Las Polacas and the viewpoint of Cabezo de la Ermita and its accesses:** replacement of concrete mutts or blocks with gabion walls. Replacement of gunite in slopes by geogrids or geocells and plantations by native species. Sealing of the road by hot bituminous mixture. Installation of furniture and wooden shades. Replacement of luminaires with other solar.

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IMPACT OF THE ACTION

You can consult the barometric pressure data; the ambient temperature (in sun and shade) and of the soil (on asphalt and natural soil) of the hill; and the temperature outside and inside the cave in:

https://ayuntamientodelorqui.es/sensores-meteorologicos/

The first months of monitoring allow us to draw the first conclusions of the impact of pilot actions in the municipality:

- The **temperature in the cave house remains stable** during the course of the day, both in warm and cold days. Thus, it proves to be a house adapted to the climate and efficient in cooling. During the month of August, the cave house recorded a constant temperature around 22 °C, while outdoors values of almost 45 °C were reached.

- The **temperature in natural terrain** remains more constant and temperate than the **temperature on asphalt**. The temperature curve remains similar on both surfaces until noon. At those times, the temperature on the asphalt skyrockets, becoming more than 10 °C higher than on the ground.

- The difference between the **ambient temperature in the shade** (under the wooden structures placed) **and in the sun** on Calle Cuesta de Catechismo is very light. It follows that the shadow elements placed are not giving the expected result. To solve it, the City Council has placed climbing plants next to the structures, which generate a greater coverage area and, therefore, fulfill the desired function. It is expected that in the coming months the difference between temperatures in the sun and in the shade will be greater.