

# Water reservoirs to fight forest fires in the province of Castellón

A CAP-funded infrastructure project to reduce the risk of forest fires or to minimise their impact

## EAFRD-funded projects

**Location:** Castellón, Valencia, Spain

**Programming period:** 2014-2020

**Priority:** P5 - Resource efficiency & climate

**Focus Area:** Carbon conservation & sequestration

**Measures:** M08 - Investments in forest areas

**Funding:**

Total budget	1 208 164 (EUR)
EAFRD	640 327 (EUR)
National/Regional	567 837 (EUR)

**Timeframe:** 2018 to 2019

**Project promoter:** Dirección General de Prevención de Incendios Forestales de la Generalitat Valenciana

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## Summary

CAP support financed the construction of five water reservoirs by the regional administration of Valencia in the province of Castellón. This is a very mountainous area, with a sparse population, and is prone to forest fires caused by lightning. The water reservoirs were built to facilitate fire prevention and extinguishing and to reduce the loading and unloading times of water by helicopters, making fire-fighting interventions more efficient.

## Project results

- This infrastructure increases the water discharge rate by helicopters during fire extinguishing operations.
- The faster the rate of the water discharges, the better the chances of being able to control the fire in a shorter period of time, thus reducing the affected area.
- The permanent water sources can be used as water troughs for livestock and the surplus water can feed ponds that attract wildlife.

## Key lessons and recommendations

- One of the main problems for the development of this type of work

is the availability of land, as the location of the infrastructure has to be on public land owned or managed by regional or local authorities.

- It is also important to ensure administrative coordination, transparency and visibility with regard to the available public support, so that various parts of the administration can consider these funds when deciding where to invest and implement projects.

## Context

The inner part of the autonomous community of Valencia is a very mountainous territory. It has a warm and semi-arid climate, which means that the availability of water in summer, both in terms of quality and quantity, is insufficient to deal with forest fire emergencies. From 2012 to 2021, there have been 3 446 fires in the Valencian Community. Less than 5% of them have progressed to Large Forest Fires (<500 ha), but these have affected more than 90% of the total forest area. The trend is towards a gradual decrease in the number of fires, with a slight increase in naturally occurring wildfires (e.g. caused by lightning).

The Valencian Community authorities have prepared a regional plan for the prevention of forest fires. The plan establishes and quantifies the actions required to reduce the number of forest fires and the necessary infrastructures to facilitate surveillance, management, rapid access to resources and safety in extinguishing operations.

In this context, this project, which is co-financed by the Rural Development Programme of the Valencian Community 2014-2020, foresees the construction of five water tanks for the prevention and extinction of forest fires. The water reservoirs will be constructed in the forest areas managed by the regional administration, located in Cabanes, Cincorres, Morella, Rossell and Xert.

## Objectives

**The aims of this infrastructure project were:**

- Building reservoirs - artificial basins - that store water to be used when necessary, so as to reduce travel and loading times for extinguishing vehicles.
- Reducing the risk of forest fires in areas where there is a lack of water available for firefighting means.
- Improving access to these reservoirs by forest tracks, to facilitate fire-fighting work.
- Completing the planned firefighting network approved by the Regional Council.



## Activities

The five water reservoirs are located in the province of Castellón. The first condition for building this type of infrastructure is the availability of land to carry out the work. In the case of the Valencian Community, 30% of land is public and belongs to, or is managed directly, by the regional administration, while the rest is private land. The reservoirs are built following a uniform standard for the whole of the Valencian Community, which sets general rules for the construction of such water basins. Minimum common requirements (in terms of volume, location, signalling, prevention of drowning of wildlife, valves and complementary accessories, etc.) guarantee the quality of the service they provide and the safety of operations, especially for aerial means. The capacity of the water reservoirs ranges between 350 000 and 500 000 litres of water.

At first, the vegetation was cleared and grubbed. Next, the access to the reservoir and catchment works were concreted. The land was prepared, the foundations and the reservoirs were built. Then, the pipes, valves and various manholes and water intakes were assembled. Once completed, the perimeter was fenced to prevent access by unauthorised people, a ramp was built for the fauna to prevent drowning and handholds were installed. In four of the reservoirs, water troughs and ponds were built to make surplus water available for livestock and wildlife. Once everything was built, signposts were put in place to improve the visibility of critical elements, thus improving the safety conditions for loading operations by rotary-wing aircraft (helicopters).

The improvement of the roads between the forest and the reservoirs is of significant importance, not only for the construction of the reservoirs themselves, but also to facilitate their maintenance and the loading and unloading of fire-fighting vehicles during the extinguishing of a fire.

## Main results

- The result of the action is not easy to evaluate given that it is aimed at reducing a potential risk, which is expected not to occur or to have minimal impact thanks to this project.
- The reservoirs are located four or five kilometres in a straight line from each other to ensure that, in the event of a fire, a helicopter can establish a discharge rate every five to six minutes at the most (discharging on the fire, going to the reservoir, loading and discharging again on the fire).
- A faster rate of water discharge means that a shorter period of time is needed to be able to control the fire, resulting in a smaller affected area. In fact, one of the tanks has already been used very effectively to limit a fire in spring 2023, preventing further damage.

## Key lessons and recommendations

- One of the main problems for the development of this type of work is the availability of land as the location of the infrastructure has to be on public land owned or managed by regional or local authorities.
- Difficulties were encountered not only in the planning of the work, but also when executing the works on one of the reservoirs. This was located on the dividing line of the mountain and passed close to a hut hosting a nest with bearded vulture chicks - a protected species that is being reintroduced into a natural park. This delayed the construction works.
- The existence of a regional plan was a key enabling factor. This action complements the regional planning of a network of water reservoirs for the prevention and extinction of forest fires, filling the gaps that remain in the territory and thus improving the effectiveness of the plan. In addition, the action helps the environment by improving access to forest tracks.
- It is also important to ensure administrative coordination, transparency and visibility with regard to the available public support, so that various parts of the administration can consider these funds when deciding where to invest and implement projects.

***“The construction of the fire reservoirs is an infrastructure that is a civil work [...] it gives very good results, it is quite visible and above all, very useful”.***

**Generalitat Valenciana**

### Additional information:

N/A



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