



# Building fire resilience in Riba-Roja de Túria using recycled water

**Riba-roja de Túria, Spain**

## IN A NUTSHELL

*The municipality of Riba-Roja de Túria, together with the neighbouring municipality of Paterna, is setting up a hydraulic infrastructure for the treatment of wastewater and holding awareness raising workshops to build their resilience to forest fires.*

### Context

The municipality of Riba-Roja de Túria, adjacent to the natural park 'Parque Natural del Túria' in Valencia, is subject to the growing risk of forest fires. This hazard, exacerbated by the effects of climate change, agriculture abandonment, and insufficient forestry management, not only causes direct harm to natural resources and citizens, but it can also deteriorate city infrastructure, air quality, and increase soil erosion. Only between 2000-2016, the municipality suffered 40 forest fires, which are becoming increasingly destructive due to the rapid urban development in the area. Along with this risk, climate change is increasingly affecting the availability of water resources, which are vital in the prevention and mitigation of forest fires. To address this double threat, Riba-Roja de Túria has partnered with the neighbouring municipality of Paterna and research organisations to launch the project GUARDIAN. Through the implementation of green urban actions, the project builds the Spanish municipalities' resilience to prevent and reduce the risk of forest fires.

### Building fire resilience

Riba-Roja de Túria has developed a fire resilience strategy based on the use of recycled water to prevent and protect against fires, providing preventive irrigation and fire suppression systems. To carry out this strategy, the project is building hydraulic infrastructure to supply recycled water from the city wastewater treatment plant to the wildland-urban interface of the area. The recycled water, through the installation of high-pressure cannons and sprinkler towers, will be used to restore the national park and maintain the necessary green barriers to prevent forest fires.



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## RIBA-ROJA DE TÚRIA



**Population:**  
23,000

**Area**  
57.49 km<sup>2</sup>

**Signatory to the Covenant of Mayors since:**  
2016

**CO<sub>2</sub> emission reduction target:**  
-40% by 2030

Riba-Roja de Túria has also worked towards the elimination of contaminants thanks to a water treatment system that removes chlorpyrifos, a common pesticide, and guarantees the safe use of recycled water in the natural park.

Riba-Roja de Túria is also building green firebreaks to increase the resilience of the area. Green firebreaks are low flammability strips of vegetation that are established in strategic areas of the territory to slow down or stop the progress of forest fires. The green firebreaks are made up of strategically planted fire-resistant trees and hydraulic infrastructure to moisten vegetation in the area. The objective of this strategic planting, known as silviculture, is to form a thick green wall facing the prevailing wind to block the ashes and heat. At the same time, in other areas of the forest, the Spanish municipality has reduced tree density and increased the presence of fire resilient and less flammable vegetation. The criteria for identifying the plant species include low flammability, structural properties to reduce wind speed, fuel load reduction, ability to generate the growth and maintenance of fungi to improve soil condition, and a combination of herbaceous plants to favour soil moisture.

## Awareness raising

To streamline climate resilience, Riba-Roja de Túria has also engaged in awareness raising to train citizens in fire prevention. The training sessions target both schoolchildren and residents living near the fire risk zones. The schoolchildren, aged 6 to 11 years old, are taught about climate change, including its causes and effects, and the consequences fires can have on homes depending on the fire resilience measures adopted. The residents are taught about fire prevention and how the project can help minimise fire risks, including a demonstration of the water cannons being installed throughout the area. As part of these training sessions, the city is also holding workshops on fire resilient gardening to further develop citizens' skills in fire prevention.

## Main success factors

Cities surrounded by forests and wishing to integrate nature in their urban planning, such as Riba-Roja de Túria, face a significant risk of forest fires. While the management of forests through the reduction of vegetation has traditionally been done to prevent fires, this leads to the modification of nature by human action. Riba-Roja de Túria has successfully developed an action plan for an integrative solution that reduces fire risks while providing a safe natural environment for citizens. Key factors to consider are: the availability of water, the existence of an urban forest interface in which to build the infrastructure and, of course, citizens' awareness and involvement.

The municipality has set a list of indicators to measure the success of the project: a minimum surface area for silvicultural treatments (105 Ha), a minimum quality in the regenerated water of their treatment plant (pesticides like chlorpyrifos, concentration in recycled water ( $\mu\text{g/L}$ ), with a target of  $<0.03 \mu\text{g/L}$ ) and a minimum number of inhabitants and residential areas protected by the defence system.



**15,000** inhabitants potentially affected by fires in the area

**35** hectares of surface area to protect

**80,000** m<sup>3</sup> of annual recycled water



## FINANCING THE PROJECT

- + **Financing source(s):**  
80% financed by the EU Urban Innovative Actions (€4,395,804)
- + **Total project budget:**  
€5,494,755

## USEFUL LINKS

► <https://proyctoguardian.com/en>



## CONTACT

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