

Integral fire defense of Wildland Urban Interface areas (WUI)



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WHAT IS WUI PROTECT®?

Active defense tool for WUI areas against wildfires based on the creation of green firebreaks through prescribed irrigation.

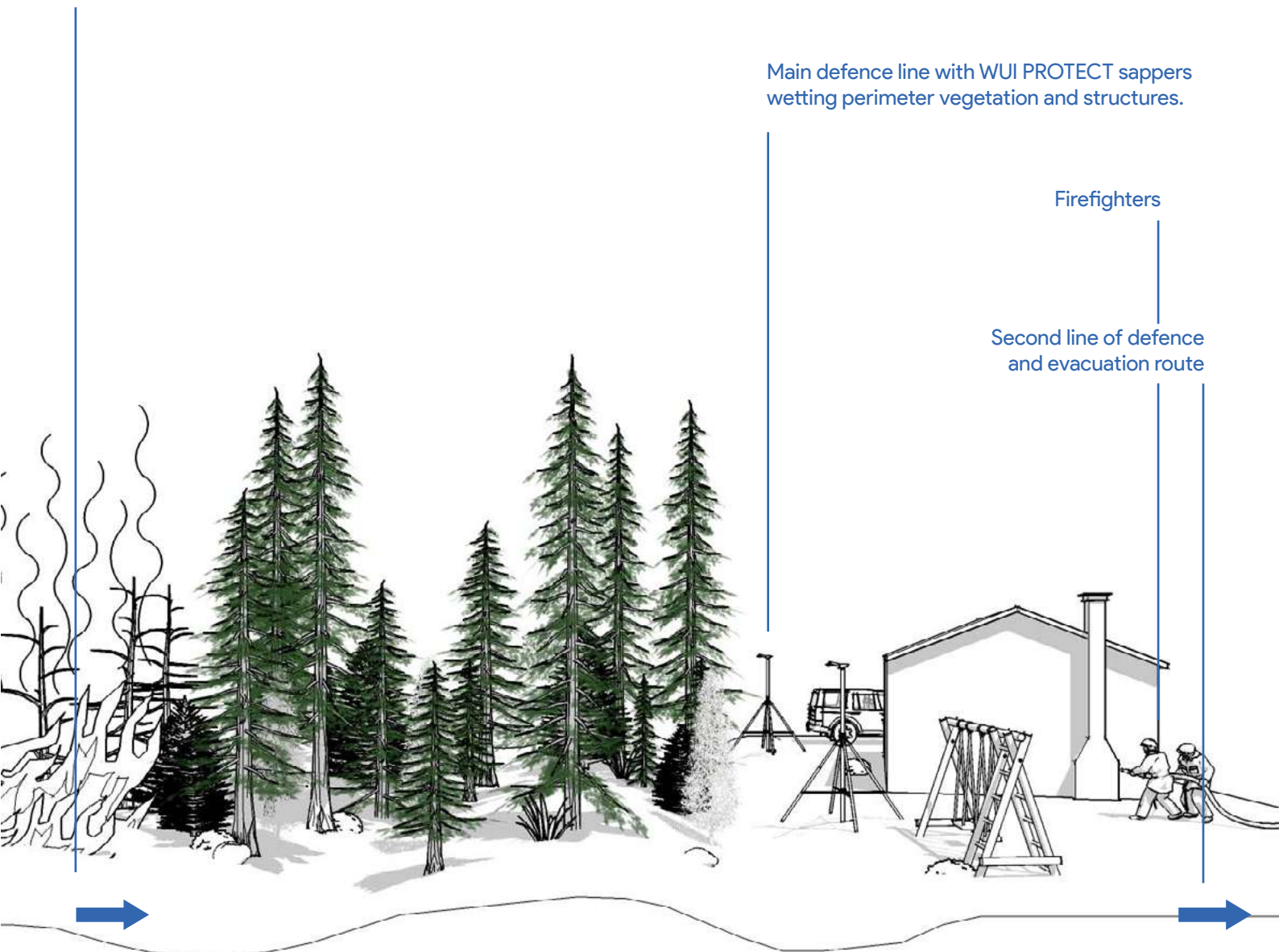
It is not an extinguishing system, but a prevention and self-protection system.

Wildfire

Main defence line with WUI PROTECT sappers wetting perimeter vegetation and structures.

Firefighters

Second line of defence and evacuation route



1

Planning

2

Forestry and
pyrogardening

3

Infrastructures

4

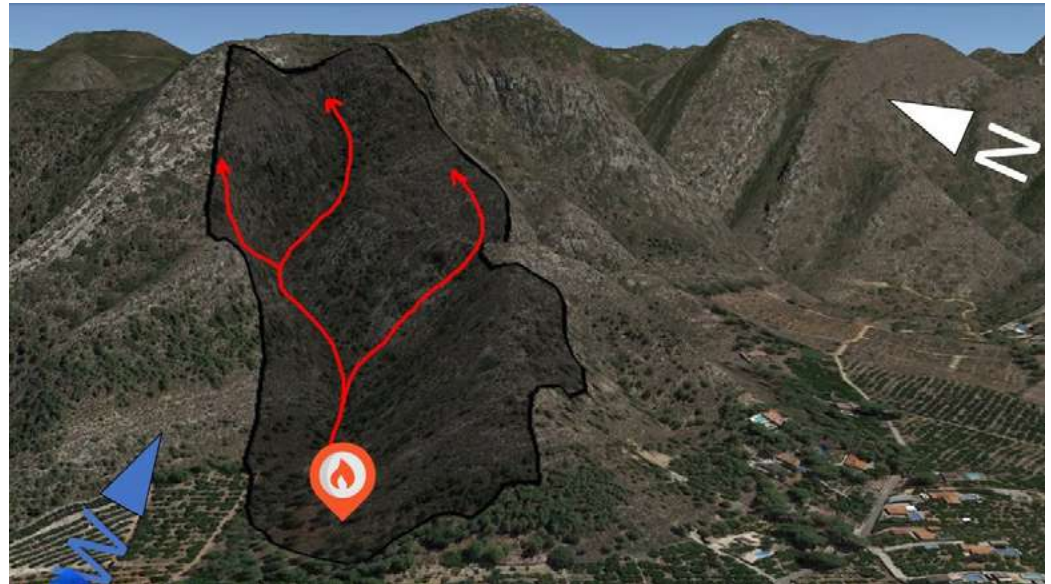
Training/
Education

**WUI PROTECT[®] is based on
a combination of 4 main
cornerstones**



1

Planning



Analysis of forest fires spread for the design of prevention actions.

Preparing the house, garden, urbanisation...

Pre-emergency actions:

- ✦ Prevention plan
- ✦ Self-protection plan

Knowing how to act, being part of the solution and not part of the problem:

Actions during the emergency:

- ✦ Emergency plan

Post-emergency actions:

- ✦ Restoration plan



Static and dynamic signage to improve inhabitants of Wildland Urban Interface areas safety. We work with physical, augmented reality and virtual reality systems.



Radiation mapping of a WUI area for the identification of the working zones within it based on specific irrigation parameters.

2

Forestry and pyrogardening*



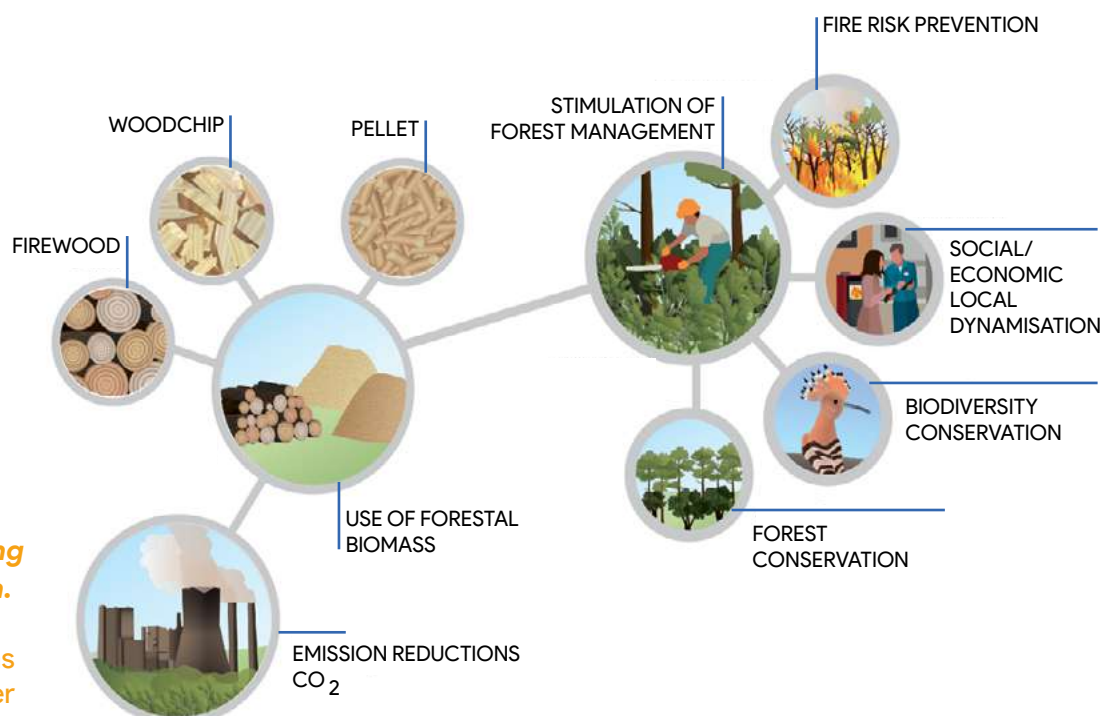
Implementation of the planned works in the Local Forest Fire Prevention Plan in Cantagallet, May 2018, Alcoi, Alacant, Spain. Prescribed burning in a WUI area.

Fuel management:

- ✦ Forestry work
- ✦ Biomass projects
- ✦ Extensive farming
- ✦ Pyrogardening services
- ✦ Prescribed burning services
- ✦ Prescribed irrigation services - reclaimed water



Sustainable forest management work. Silvicultural work to improve forest stands and increase their resilience to forest fires.



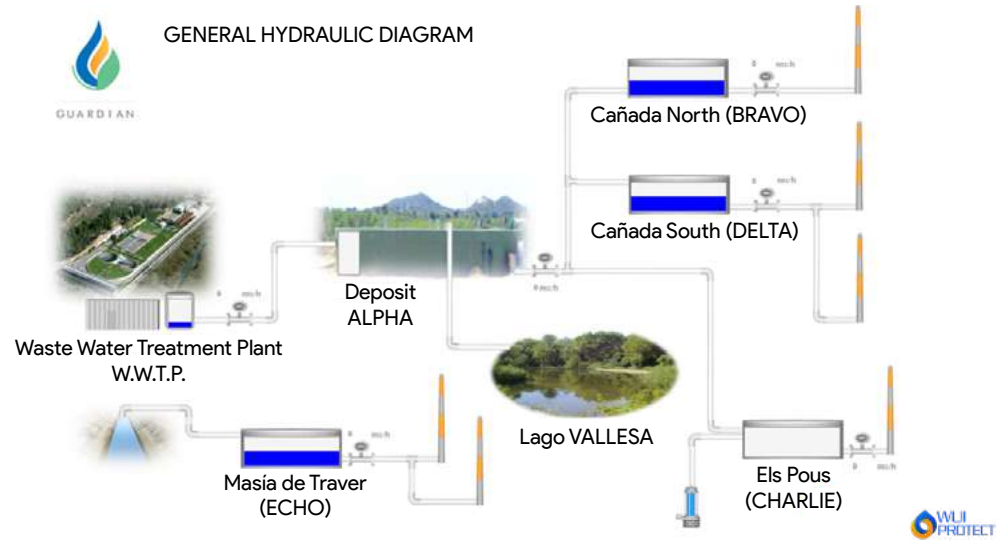
***Pyrogardening:**
Fire resistant gardening for wildfire prevention.

It helps to make gardens safe spaces and a buffer zone for buildings.

Success story. Forest fire prevention project cycle in I-UF areas with energy use included in its management. Generates direct benefit at the local level on an economic, social and environmental scale. Source: Diputació de Barcelona.

3

Infrastructure



System for monitoring the state of operation of the forest fire defence network WUIProtect.

System

- Collective defense
- Building defense
- Portable defense

Technologies

- Sensory network
- APP / Software
- Signals



Sensory network for the control and motorisation of natural spaces.



WUIProtect Sprinklers.

WUIProtect NETSense platform for visualisation of sensor network data and remote activation of the WUIProtect Sprinklers system.

4

Training/ Education

- Gamification
- Operational drills
- Virtual reality



Operational drills.



Community of Owners training at a WUI area.



Virtual reality for environmental training.



Gamification. Serious games used for unit training.

WUI PROTECT®

can cover 3 defense areas



1

Collective

Urban area,
town perimeter...

2

Domestic

Individual building,
isolated house...

3

Portable

Support for
emergency
operations...



Collective

Urban area,
town perimeter...



Domestic

Individual building,
isolated house...



Portable

Support for
emergency
operations...

Project evolution WUI PROTECT®

2005 / 2006

CARCAIXENT
Urbanisation La Colònia Santa Marina in La Barraca d'Aigües Vives

Drafting for the execution and installation for the first time of the WUI PROTECT® project.



2007

CARCAIXENT
Urbanisation Sant Blai, Tir de Colom

Drafting for the execution and installation of the WUI PROTECT® project.

2012

UN HABITAT
FOR A BETTER URBAN FUTURE

United Nations Award (ONU)



2010

Step II
Installation of the WUI PROTECT® project.

2008

TORRENT
Urbanisation El Vedat TORRETA tank area

Step I
Drafting for the execution and installation of the WUI PROTECT® project.

2016

CARCAIXENT
Urbanisation La Colònia Santa Marina in La Barraca d'Aigües Vives

Wildfire impact.



2018

CHIVA
Urbanisation Ciudad Residencial El Bosque

Drafting for the execution project of the WUI PROTECT®

VALÈNCIA
Devesa del Saler de l'Albufera, Avinguda de la Gola area

Drafting for the execution and installation of the WUI PROTECT® project.

TORRENT
Urbanisation El Vedat GESMIL tank area

Drafting for the execution of the WUI PROTECT® project.

2020

TORRENT
Urbanisation El Vedat GESMIL tank area

Installation of the WUI PROTECT® project.

Drafting for the execution project to extend the WUI PROTECT®

XÀBIA
Private estate located on the road to the Monastir 18

Drafting for the execution of the WUI PROTECT® project.



MEDI XXI joins as a partner in the project GUARDIAN - Green Urban Actions for Resilient fire Defence of the Interface Area. UIA - Urban Innovative Actions.

2019

2021



MEDI XXI GSA collaboration agreement with AGBAR
It will provide its technology in water regeneration to make use of the effluent from population centres to feed the SIDEINFO® defence system.

RIBA-ROJA DE TÚRIA & PATERNA
Urbanisations of Masia Traver and Els Pous and La Canyada in the framework of the GUARDIAN project.

Drafting of the project for execution of the installation of WUI PROTECT®.

Installation of the WUI PROTECT® project.

GUARDIAN project

Europe's largest forest fire fighting facility
- Turia Natural Park, 2022



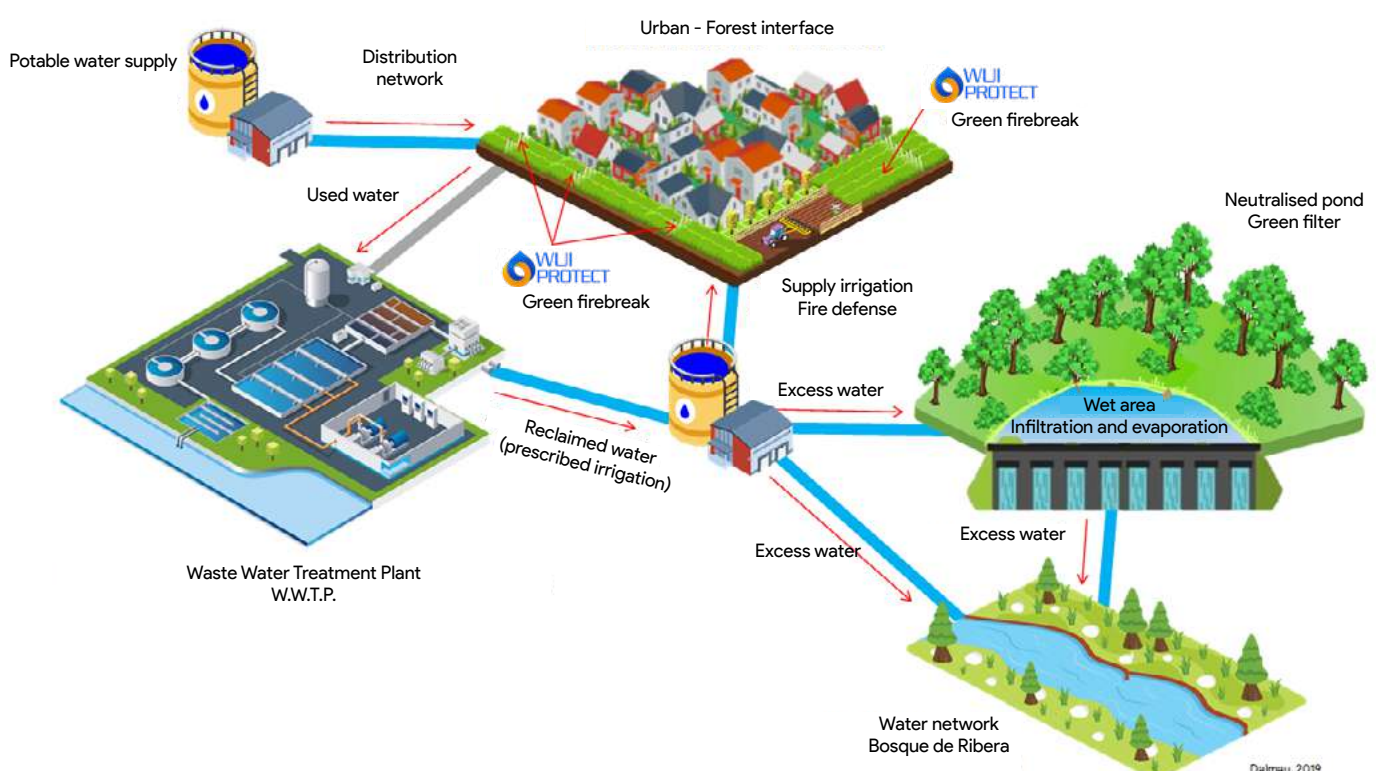
Circular economy

So far, safe drinking water is distributed for use. After that, the water is treated in a WWTP (Waste Water Treatment Plant) and discharged into the river.

The GUARDIAN project introduces the regeneration and valorisation of this effluent.

How?

After the water flows through the WWTP a tertiary treatment is applied and again, water is put into circulation in the WUI PROTECT system. A new use is thus assigned to the water.





Wildfire in Carcaixent, 2016.

Here we can see the impact area against the green firebreak.

No houses were damaged inside the complex.


A picture tells a thousand words
Result of our work

Integrated forest fire defence strategy and the effects of Climate Change for WUI areas


#ReclaimedWater #PrescribedIrrigation #GreenFirebreak
#Training #Self-Protection #EcohydrologicalForestry





CONTACTE


 @Medi_XXI_GSA


 [linkedin.com/company/medi-xxi-gsa/](https://www.linkedin.com/company/medi-xxi-gsa/)


 [youtube.com/user/Medi21GSA](https://www.youtube.com/user/Medi21GSA)

 +34 622 241 567

 Medi XXI GSA (Oficina Central)
C/Sebastián Hernández, 4
46740 Carcaixent (Ribera Alta - València)

 (+34) 962-012-112 // (+34) 633-784-684

 info@wuiprotect.com

 wuiprotect.com