

# Improving runoff water quality through an innovative and sustainable drainage system

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## Introduction and Objectives

The goal of the LIFE DrainRain project is the mitigation of the environmental impact of runoff in water bodies (coastal, surface and ground waters). For this purpose, an innovative and economically viable system for drainage and treatment of runoff water are developed before storing for reuse.

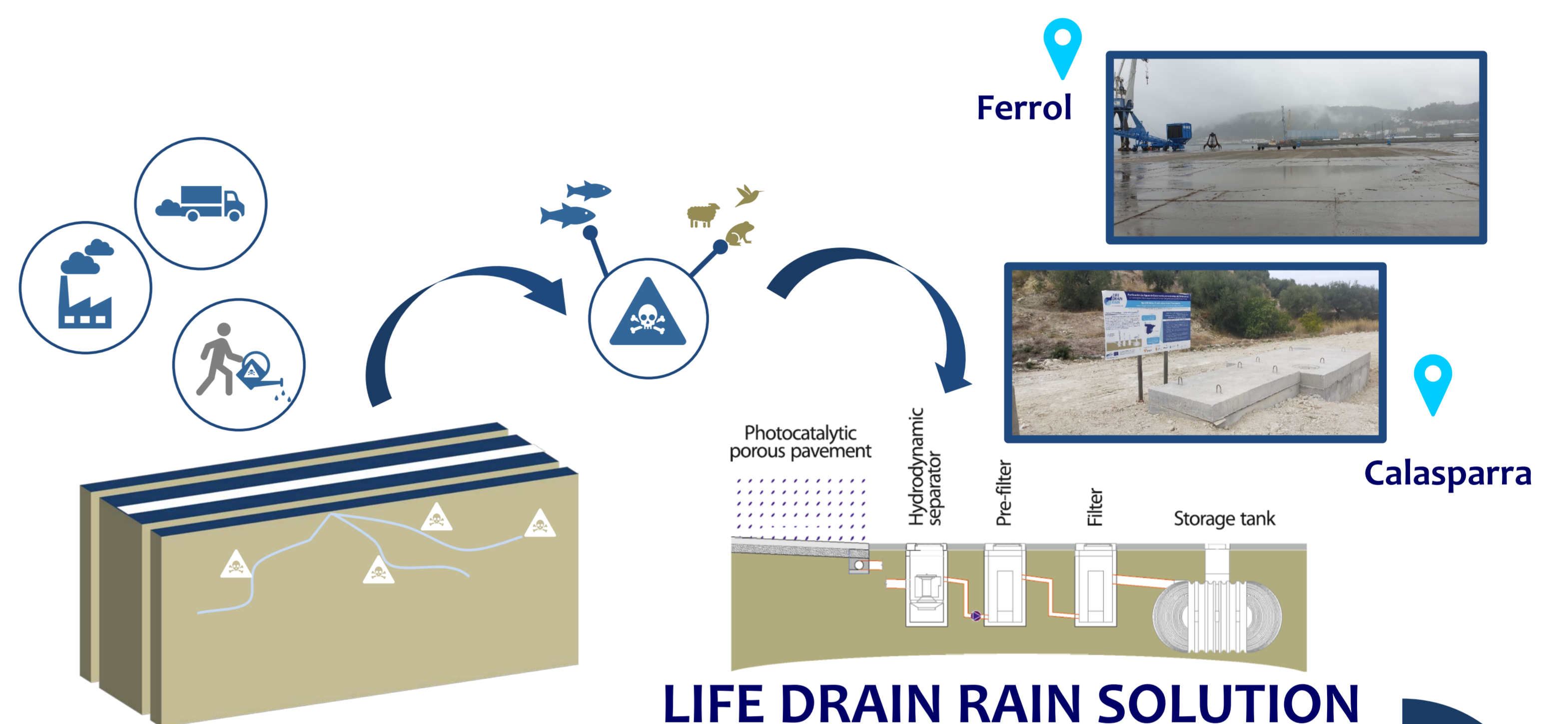
To achieve this goal, two pilot plants have been built based on a photocatalytic porous pavement combined with and in situ modular water treatment for removal the pollution from runoff water specially of heavy metals, polycyclic aromatic hydrocarbons (PAHs) or pesticides in order to improve the water quality.

The pilot plants have been evaluated in two ubications, **Ferrol (A Coruña)** and **Calasparra (Murcia)** with different climate, Oceanic and Mediterranean.

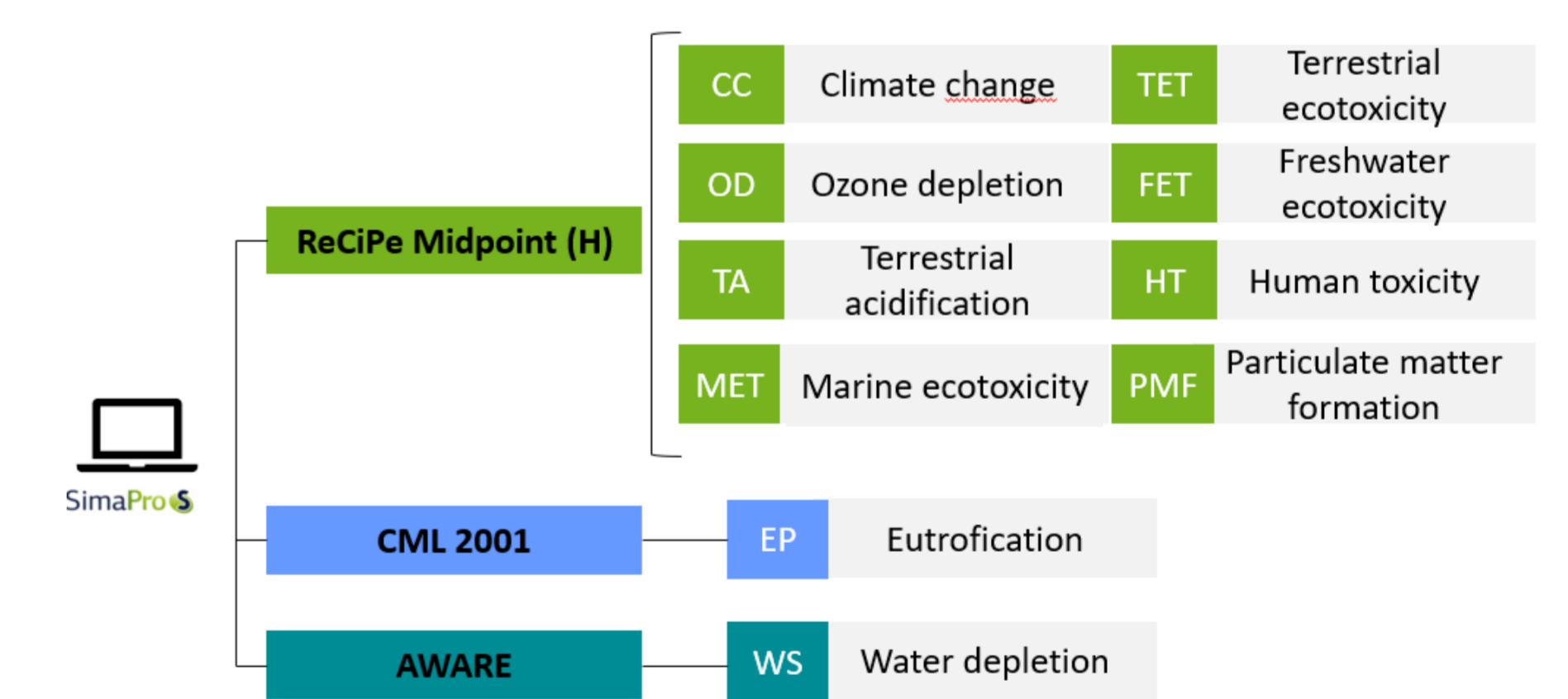
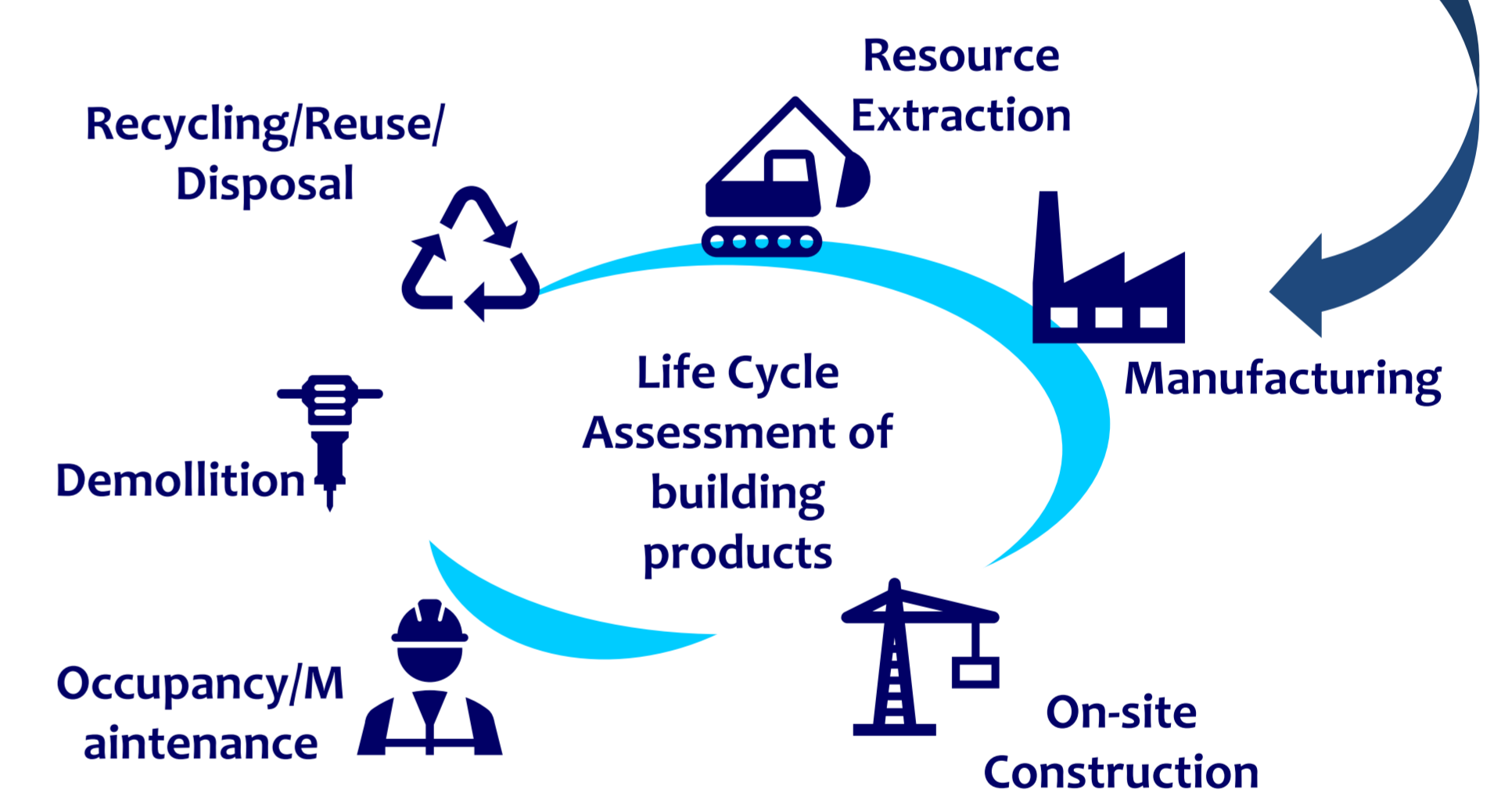
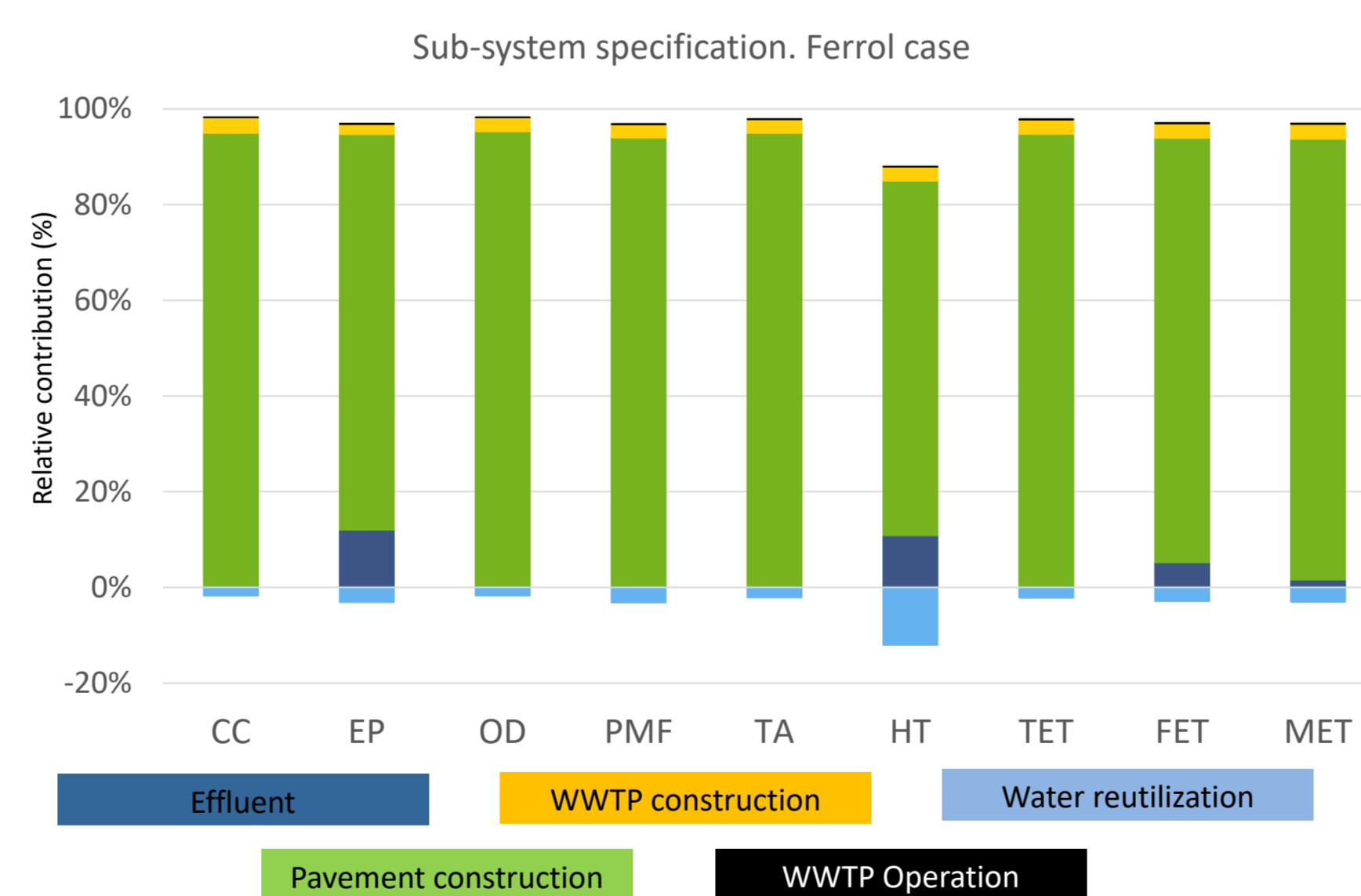
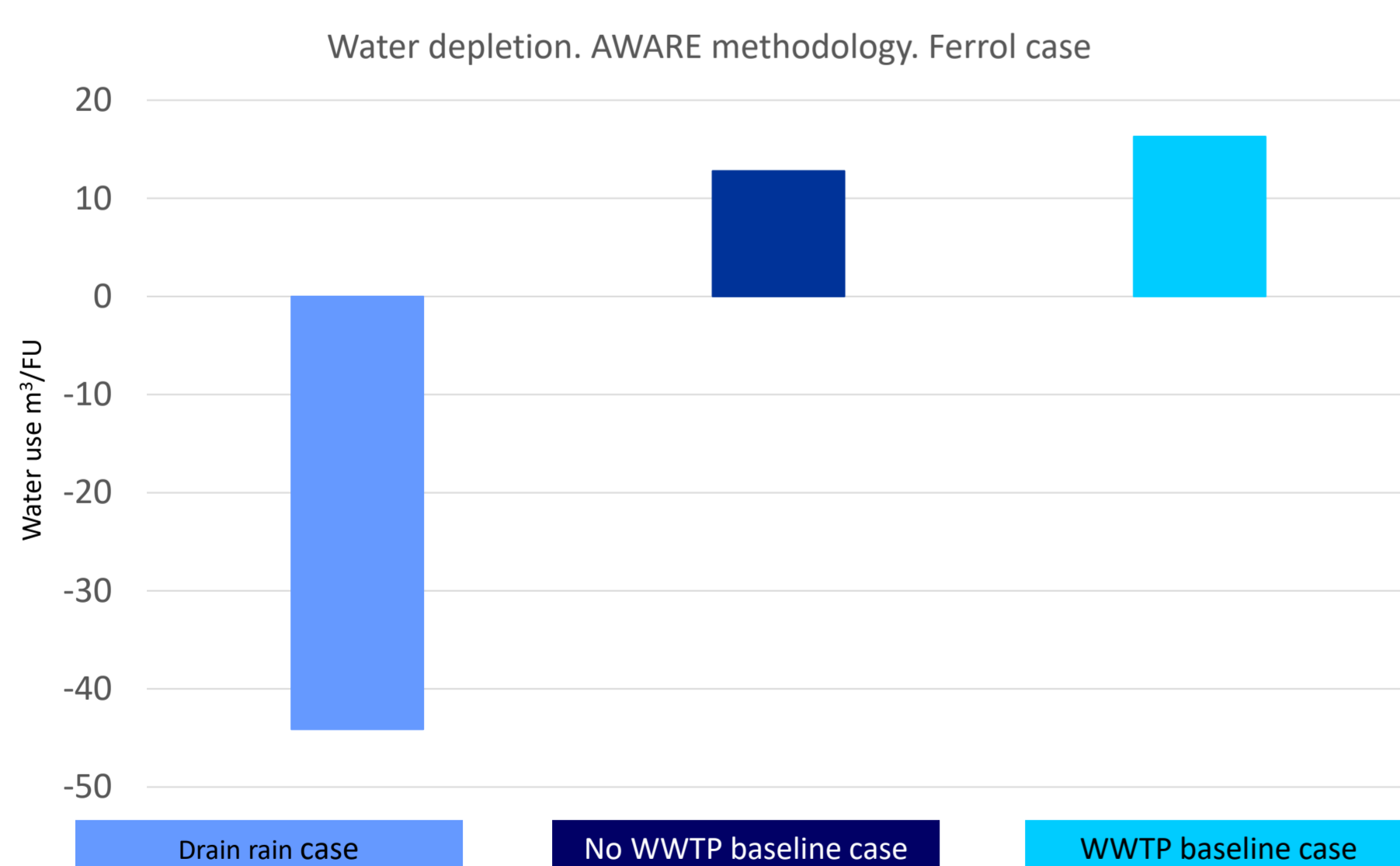
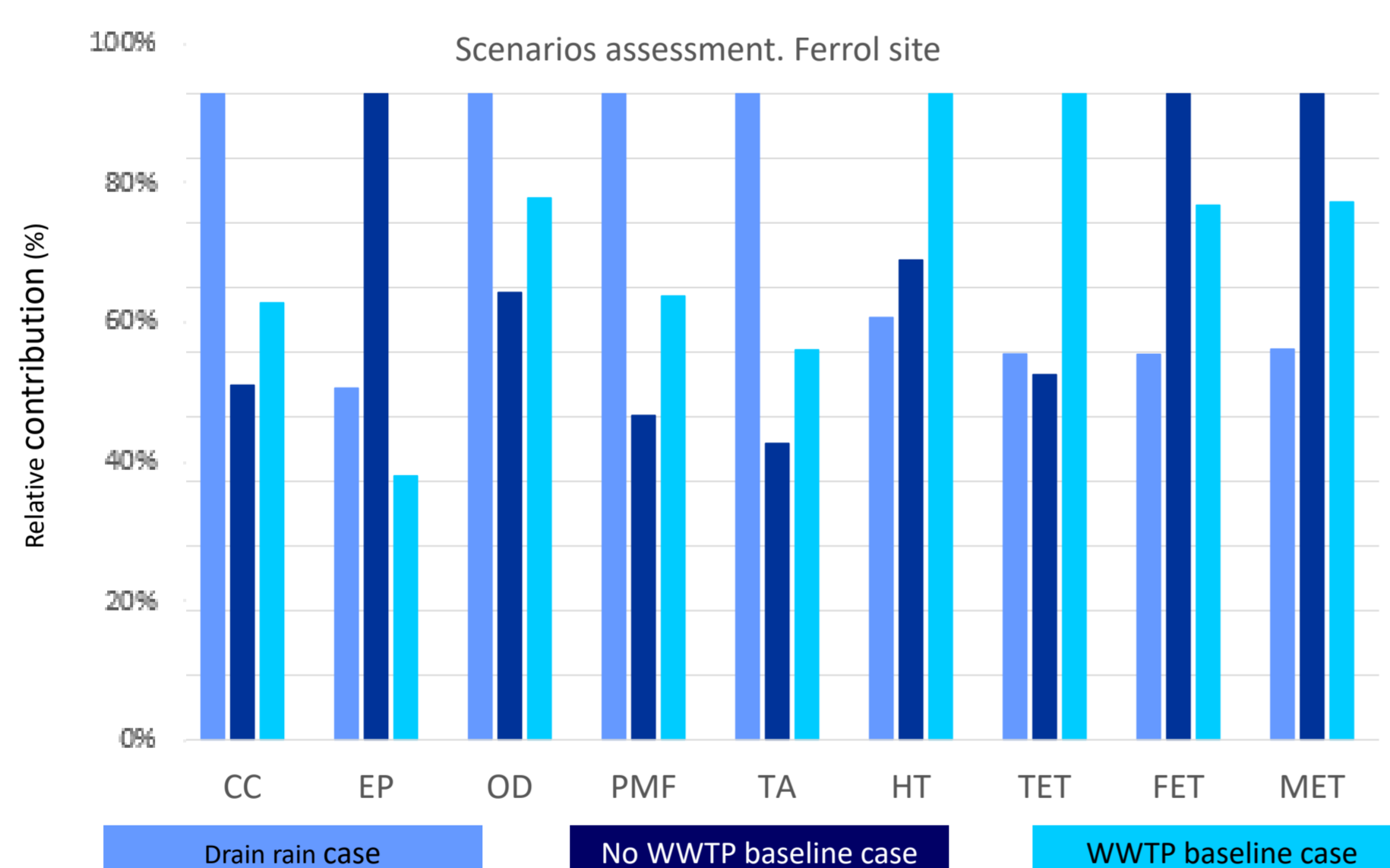
The technology's impact on the environment have been monitoring and comparing by Life Cycle Assessment methodology.

## Methodology

LCA methodology was applied from cradle-to-grave considering all stages. The two pilot plants were compared with a conventional pavement without treatment. Software Simapro 9.0 was used to calculate the most representative environmental categories, in this case they are climate change (CC), eutrophication potential (EP), Ozone depletion (OD), Particulate matter formation (PMF), Terrestrial acidification (TA), Human toxicity (HT), Terrestrial ecotoxicity (TET), Freshwater ecotoxicity (FET), Marine Ecotoxicity (MET) and Water use (WD).



## Results and Discussion



## Conclusions

The inclusion of this innovative pavement followed by a wastewater treatment reduces the environmental impacts: **impacts directly related to water quality are improved.** Thus, this alternative can be a good option for improving the water quality or recovering water for reuse.

## Partners



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