1st Water JPI
Thematic Annual Programming (TAP) Workshop

"Developing Approaches for Assessing and Optimising the Value of Ecosystem Services"

June 12th 2019 Dublin

Ireland

Design of a methodology to increase flood resilience compatible with improved status of water bodies and sustainable management of water resources (DRAINAGE)

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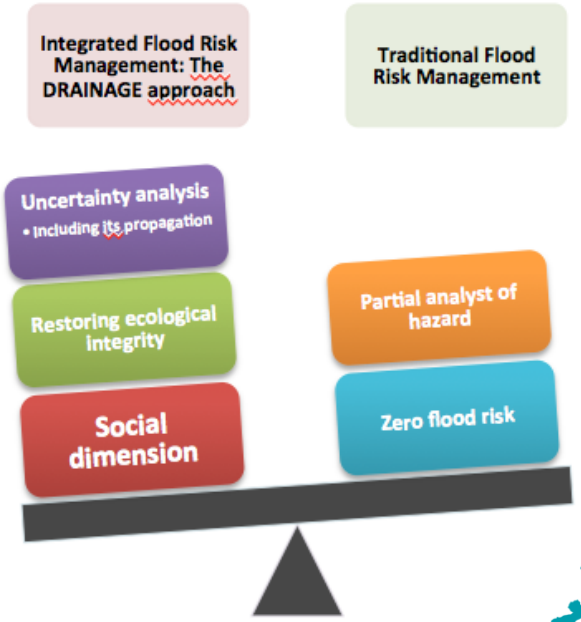
Water 2015 Works

Description of Project

Problematic to be addressed

The aproval in 2007 of the **European Flood Directive,** as well as the UN's endorsement of the **Hyogo Framework for Action** in 2005 and recently, in 2015, **the Sendai Framework** (in force for the period 2015-2030), is implying a change of paradigm from **a resistance model** (based on hard flood defences) towards another in which resilience improvement , or adaptability of urban and ecological systems is the main objective to be achieved in **flood risk management plans**.



Description of Project

Scientific challenges

- Precise characterization of **uncertainty**, including its propagation
- **Flood risk** management compatible with the **good status of water bodies** and the sustainable management of water resources.
- Characterization and valuation of **ecosystem services**.

Main hypothesis

- The restoration of **hydraulic connectivity** between the river and its alluvial plain (especially in the middle and lower reaches of rivers) makes it possible to meet the objectives set out in the **Water Framework Directive** (Directive 2000/60/EC) and in the **European Flood Directive** (Directive 2007/60/EC).

Description of Project

Specific hypothesis

- H1. The restoration of the **river-flood hydraulic connectivity** and, consequently, the recovery of the optimum lamination capacity of the fluvial system enables the reduction of the **flood risk**.
- H2. The recovery of **hydraulic connectivity** between the river and the flood plain implies an improvement in the **status of the water bodies**, in accordance with the criteria established in the WFD.
- H3. The restoration of the **river-flood hydraulic connectivity** allows the recovery or improvement of the **floodplain ecosystem services**. As a result, it facilitates the implementation of policies of sustainable management of natural flows, which also has a beneficial economic impact on the population.
- H4. People living in flood-prone areas have a **low perception** of flood risk and a mistaken perception of the best management practices to be applied to reduce flood risk and to ensure that they are environmentally sustainable.

Main Objective

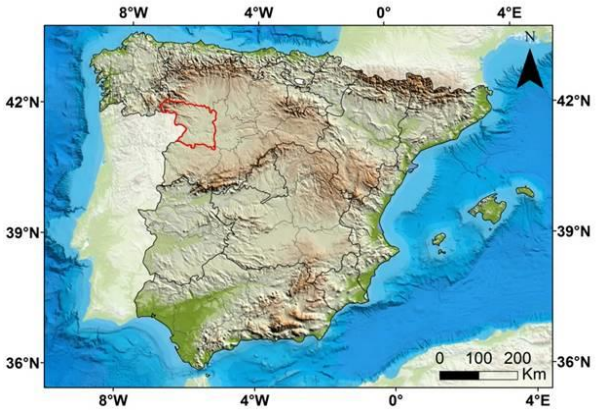
- Improve the resilience of urban areas to floods, through the design of risk mitigation strategies based on the use of **green infrastructures** that are also compatible with a good status of water bodies and with the sustainable management of water resources.

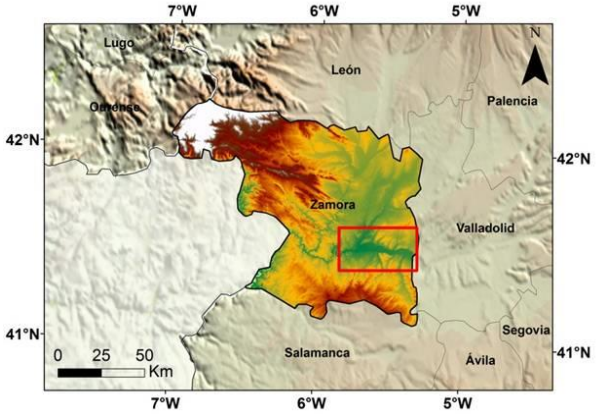
Specific objectives

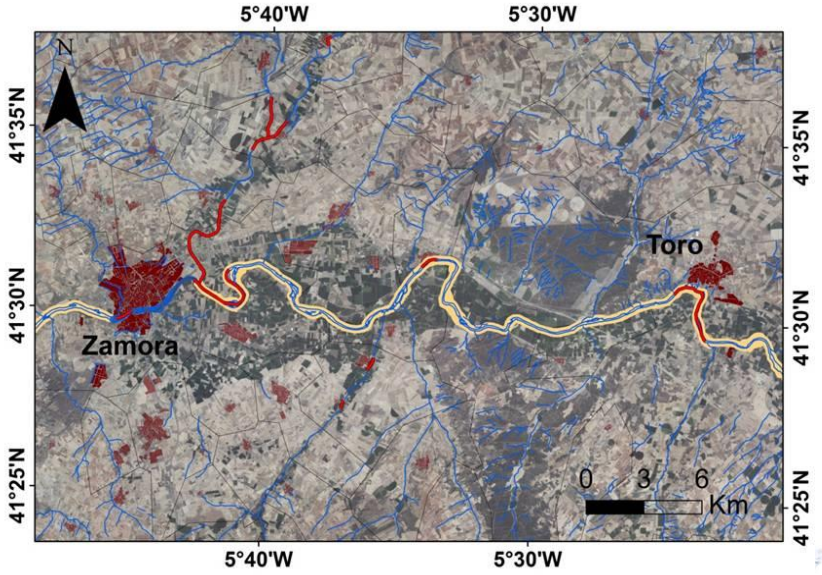
- Improved flood frequency analysis by extending systematic recording with non-systematic information.
- Incorporation of the solid load in the hydrodynamic modelling, analysing its influence as an amplifying factor of hazard and risk.
- **Cost-benefit analysis of green infrastructures** as a risk management tool. Its capacity to mitigate risk, the improvement of the status of water bodies and the potential economic impact as a result of the restoration of **ecosystem services** will be considered.
- Incorporate into the management plans risk perception and its communication to the stakeholders and the public in general.
- Implementation of value-generating knowledge dissemination and transfer strategies.

Description of Project

Study Site







Leyenda

- Límites municipales
- Núcleos urbanos
- LIC 'Riberas del Río Duero y afluentes'
- Hidrografía
- ARPSIs

Project Team

Research partners

UCLM Universidad de Castilla-La Mancha

Universidad Europea de Madrid

Universidad de Valladolid

Universitat de València

Gobierno de España · Ministerio de Economía y Competitividad · Instituto Geológico y Minero de España

Politécnica

Universidad Politécnica de Valencia

Gobierno de España · Ministerio de Fomento · Ministerio de Agricultura, Alimentación y Medio Ambiente · CEDEX Centro de Estudios y Experimentación de Obras Públicas

Universitat d'Alacant
Universidad de Alicante

Stakeholders involved

Junta de Castilla y León

Gobierno de España · Ministerio de Agricultura y Pesca, Alimentación y Medio Ambiente

Ayuntamiento de Toro

Gobierno de España · Ministerio de Agricultura, Alimentación y Medio Ambiente · Confederación Hidrográfica del Duero

INCLAM GRUPO

Ayuntamiento de Zamora

Expected Outcomes

- DRAINAGE will facilitate compliance with the WFD. It will also contribute to the improvement of the **ecological status of water bodies**
- The results of the project will contribute to the re-establishment of several **ecosystem services p**rovided by floodPlains.
- The results of DRAINAGE will contribute to the improvement of biodiversity by promoting **ecosystem-based management** in floodplains
- Characterization and valuation of **ecosystem services** associated with the design and implementation of green infrastructure for flood risk mitigation.

Identify Possible Synergies with other projects

Given the multi-disciplinary nature of the DRAINAGE project, synergies can be established with all the projects and especially with those that are focused on the fluvial environment.

What would we would like to gain from today

The creation of a network of projects focused on the characterization and valuation of ecosystem services from different approaches.