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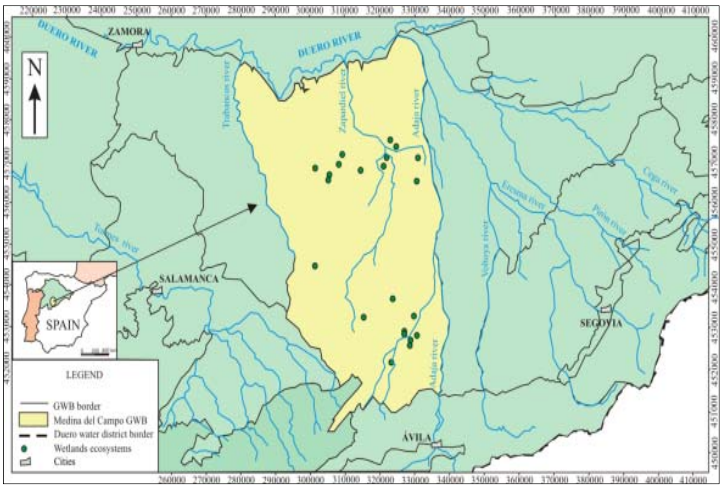
MAIN DEMO CONTACT:
Carlos Marcos - CHD

OVERVIEW OF DEMO AIM

To analyse and value the role of **groundwater-related ecosystem services** as natural insurance for hazard mitigation in a context of increasing climatic variability and to propose viable business options for the public/private financing of management measures that increase the provision of groundwater-related ecosystem services.

Medina del Campo Groundwater Body

Increasing irrigation and urban water use has caused the severe deterioration of the provision of ecosystem services in the área. Main threats idntified are lowering piezometric aquifer levels, diffuse agricultural pollution and elevated As content.



Nature based solutions

Artificial recharge of aquifers and the control of extractions.
Other additional or alternative measures, such substituting groundwater use for Surface resources or payments for reducing extractions, will be proposed based on stakeholders consultation to and analysis of their Environmental/Ecosystem impacts.

Key Stakeholders

Junta de Comunidades de Castilla-León, Local councils, Ministry of Agriculture and Fish, Food and Environment of Spain (MAPAMA), Consorcio de Compensación de Seguros (CCS), Association of Groundwater Users.

Methods and data to be used

Methods: Bivariate and multivariate methods; cartographic methods (GIS); economic modeling; damage valuation; risk assessment; Benefit Transfer; Cost-Benefit Analysis.
Data: Piezometric levels; surface water levels; chemical analyses of surface and groundwater; isotopic analyses of surface and groundwater; geological data; economic data on water uses; hazard losses estimates; estimates of ecosystem services values; etc

Partner participating

CHD: Key objectives: Potential for adopting insurance value in risk management strategies: The modelling and assessment results will be presented and discussed with stakeholders groups and end users to obtain the acceptabiolity, liability and other limits to NBS and respective economic instruments
Contact details: Carlos Marcos (cmp@chduero.es)

ICA: Key objectives: Analysis and integration of the results of all DEMOs and identification of main insights. Strategies for adopting the insurance value in risk management strategies.
Contact details: Elena López-Gunn (elopezgunn@icatalist.eu)

IGME: Key objectives: Hydrogeological study of the Medina del Campo groundwater body (MCGB) and impact assessment of water management options. Analysis of the impact of climate change and man-induced changes on PGRES.
Contact details: África de la Hera (a.delahera@igme.es)

UPCT: Key objectives: Evaluate the status and trends of priority groundwater-related ecosystem services (PGRES): propose and evaluate strategies to invert the negative trends and to recover functionality of PGRES; identify business risks and opportunities.
Contact details: Marisol Manzano (marisol.manzano@upct.es); Javier Calatrava (j.calatrava@upct.es)

INSURANCE VALUE OF ECOSYSTEMS

The analysis of the payments for groundwater-linked ecosystem services will be based on a **cost-benefit analysis** of the management scenarios proposed to recover the aquifer, including the assessment of the provision **costs of ecosystem services** and the valuation of their benefits and of the avoided damages, according to the methodologies set in the project.

The incorporation of uncertainties and risks will provide the **insurance value of ecosystems** and co-benefits of the different management scenarios analysed.

Payments for changes in the insurance value of ecosystems and co-benefits can be distributed between stakeholders based on the sharing of costs and benefits.

Combination of **public and private** financing options to be investigated: taxation, conservation/hábitat banking, private investments in nature based solutions and/or payments by ecosystem services by direct/indirect beneficiaries of the mitigation of risks, etc.

Main Outcomes Sought

1. Assessment of the impacts of artificial recharge activities on the MCGB.
2. Assessment of the risk management strategies.
3. Analysis of the ecosystem services provided by the aquifer and wetlands.
4. Analysis of the ecosystems resilience to climate change and human-induced changes.