INTERLAYER

The complex interlink of safeguarding water availability and quality to mitigate and adapt to hydroclimatic extremes in Europe

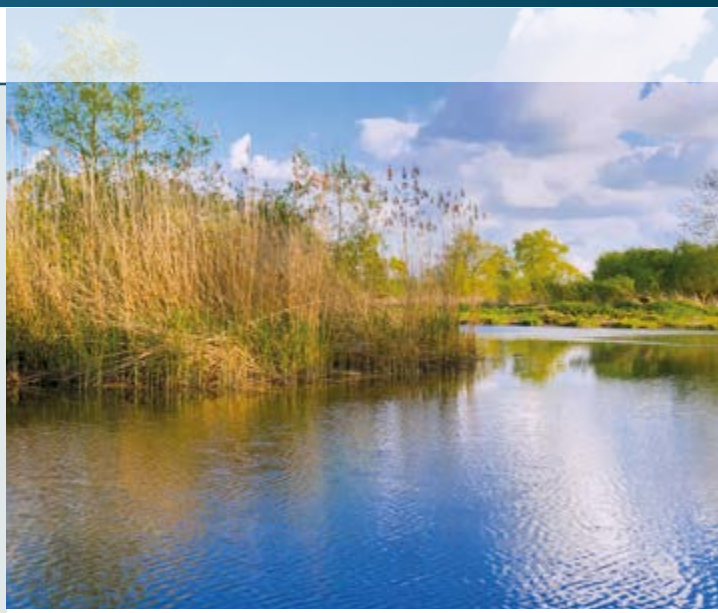
Water4All
Water security for the planet

Abstract

INTERLAYER main objective is to develop cumulative adaptation strategies in the complex interlink between surface and groundwater management, using water retention measures to reduce water runoff and fill-up groundwater storages, to minimize hydroclimatic extreme events' impacts in water quantity and quality. INTERLAYER will tackle eight (8) Specific Objectives, contributing to address the Call Topics 1, 2 and 3, as follows: Call Topic

- (CT) 1.1: INTERLAYER will address knowledge gaps in our understanding on how surface water and groundwater interrelate in the advent of extreme precipitation, water scarcity, drought events and seasonal variability in four European watersheds and contribute to the development of innovation adaptation and mitigation measures taking different climate scenarios into account;
- CT1.2: INTERLAYER will demonstrate improved societally acceptable adaptation and mitigation strategies, as it will focus on the refinement of water retention measures at regional (DK, RO) and watershed scale (AT, PT/SP) to promote both slow hydrology to protect against flooding and guarantee the availability and quality of water (simultaneously at surface and groundwater level);
- CT1.3: INTERLAYER will contribute to the improvement of adaptation capacity of water infrastructure, particularly related to stormwater management in rural systems;
- CT2.1: INTERLAYER will develop a decision support tool for the adoption of best practices that have additive results in water quantity and quality retention both at surface and in the aquifers (to be applied in regional or watershed contexts). INTERLAYER results will contribute to the validation of the practices thus contributing to future payments for ecosystem services to be adopted;
- CT2.2: INTERLAYER will develop a hydrological (near) real time groundwater-surface water model including scarcely monitored areas (Guadiana Watershed PT/SP);
- CT2.3: INTERLAYER will further develop and make use of (near) real time monitoring and modelling to create a digital twin of the shallow and deep groundwater storage for monitoring recharge capacity of surface storage of discharged streamflow and overall water balance;
- CT3.1: INTERLAYER will take advantage of DK experience in governance practices involving co-creation and co-design and will ensure that best practices are passed on and adopted in other European contexts (PT/SP);
- CT3.2: INTERLAYER will develop and kick-off a living lab in one of the driest Transboundary (PT/SP) Watersheds in Europe – the Guadiana - taking advantage of the DK experience and governance models.

INTERLAYER will contribute to the water diplomacy as it will integrate technicians, researchers and farmers in the co-creation and co-design for shared transboundary problems. Higher level policy and decision makers will be included in the co-creation and co-design in a later stage in an attempt to "secure contamination from past" management malpractices and litigation. INTERLAYER novelty is related to shared interdisciplinary knowledge on the complex interlink of generating resilience to hydroclimatic extreme events to minimize flood risk and maximize water availability and quality. INTERLAYER will develop and demonstrate novel water retention technologies that favour slow hydrology entrance in the system for adaptation of European river basins to hydro-climatic extreme events and simultaneously obtain resilience in agricultural productive land, the adjacent ecosystems, and downstream cities. Hydro-climatic water balance models will be demonstrated to describe the spatio-temporal exchange of water within the river basins between highland and lowland and between shallow and deep groundwater, in response to suggested changes in terrain, drainage and land-use practices. It will provide country specific overviews of key actors for implementation of change and suggested guidelines, serving as front runners for the adoption of water retention methods for slow hydrology.



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Project partners

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- KOBENHAVNS UNIVERSITET - DENMARK
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KEYWORDS

Habitat and species restoration and rehabilitation, Spatial development and architecture, land use, regional planning, Ecosystem services provided by catchment areas, Ecosystem-Based Approach, Fresh water biodiversity, Flood Management, Surveillance of zones under humanitarian risk (migratory flow, drought)