

## Submitted Abstract

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>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

## Abstract

The Traditional and Historical Irrigation Systems (T&HIS) of Sierra Nevada range (South Spain) are communal water management and governance systems, documented as far back as the 9th century.

The MEMOLab, has been researching and empowering T&HIS in the Sierra Nevada range (Southern Spain) for more than 10 years based on bottom-up collaboration with the local irrigation communities governing these communal systems. Research has shown the social and environmental resilience and sustainability inherent to these systems: T&HIS follow the approaches of integrated water resource management, nature-based solutions, and the recovery of ancestral Local Traditional Knowledge for water management. Additionally, results have pointed out the current water management and governance problems that threaten both the environment and its resources, including climate change (decreasing rainfall and temperature increase), rural depopulation, insufficient governance and policy implementation at supra-local scale, power imbalance between water stakeholders leading to water grabbing, and increasing demand.

At the local level, our project work is based on bottom-up collaborations with local irrigation communities governing these systems to pass 5 years governance and management plans, sign supporting agreements with local administrations and institutionalize their relations with other stakeholders based on social and environmental sustainability and resilience.

At a higher scale (e. g. river or basin scale) on one hand we are facilitating collective plans involving several irrigation communities. The aim is to gain recognition for those mountain communities practicing WS&H from those communities downstream benefiting from the T&HIS upstream, while institutionalizing mutual support agreements. Another key goal is to empower and underline the legitimacy of T&HIS as decision makers at supra-local scale and balance the power inequities with other speculative or unsustainable water uses. On the other hand, we are adapting the concept of River Contract: voluntary contractual agreements for water territorial and sectoral planning. River Contracts represent innovative fora and Social Innovation processes for allowing public government bodies and settled communities to participate in governance, management and conservation of water/river ecosystems and territories.

Empowering T&HIS and replicating some of its key local approaches at higher landscape scales have a huge potential to mitigate current water management and governance problems in Sierra Nevada but, even more important, this approach based on bottom-up social contracts can be replicated in other Mediterranean mountainous areas and elsewhere.

This work is part of Smart EcoMountains, the Thematic Center on Mountain Ecosystems of LifeWatch-ERIC.