

AQUASALT - ERANETMED3-173

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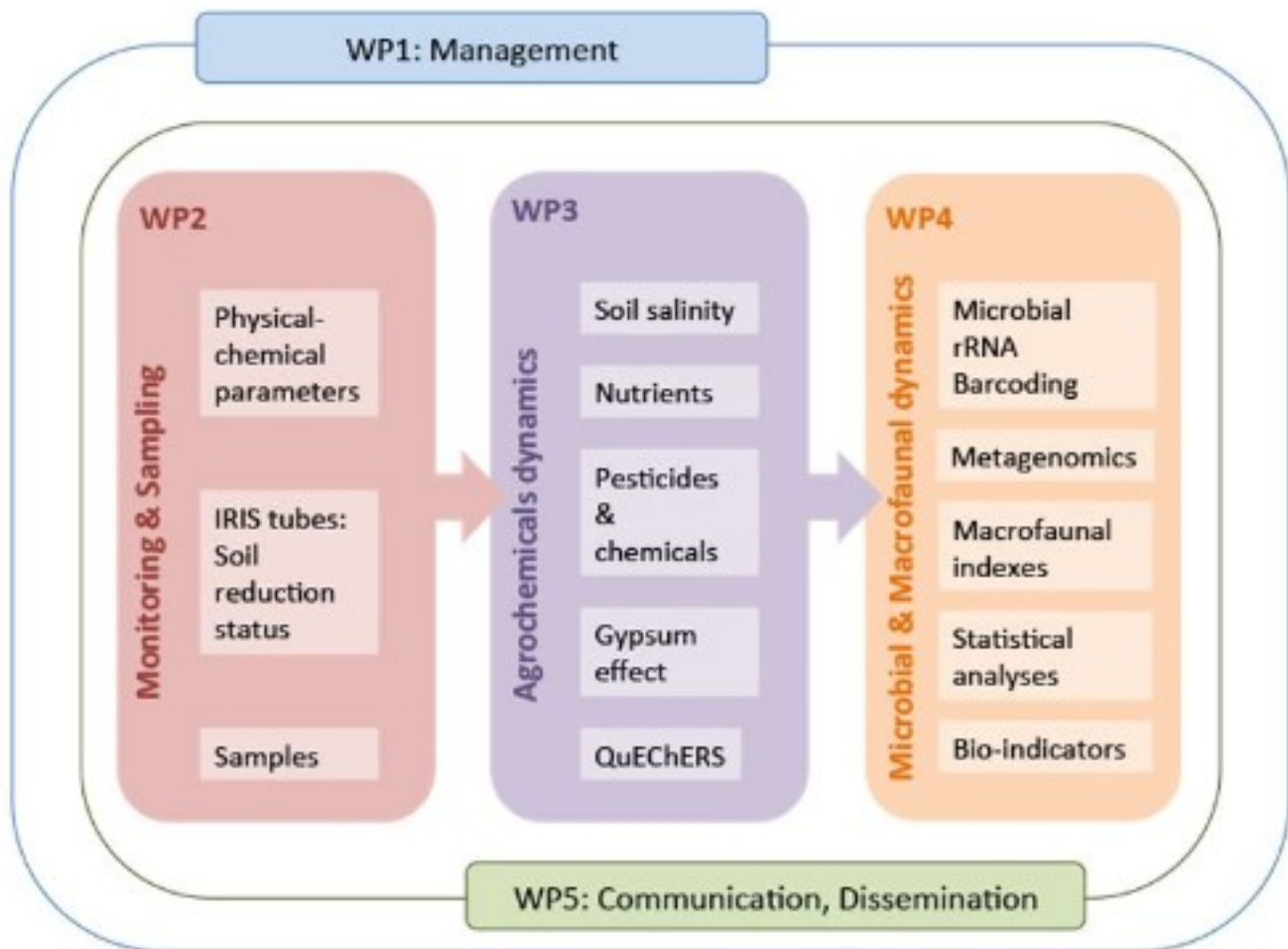
Agriculture in arid and semiarid areas involves the management of water scarcity and salinity – salinization. The AQUASALT project focus on the elaboration and interpretation of data collected in the field. The main objectives are to characterize the impact of agricultural activities on microbial communities and determine a set of indicators for assessing the environmental health in such saline/arid environments. Activities will be performed at the Central Ebro Valley (Spain), Gallocanta and Monegros (RAMSAR protected areas under Birds and Habitats Directives) and at the Ichkeul Lake/Bizerte Lagoon (Tunisia) hydrological complex (RAMSAR and UNESCO protected area).

The specific objectives of AQUASALT includes to:

- 1 . Determine the seasonal changes of soil/water salinity distribution in two Mediterranean arid areas.
- 2 . Determine the salinity trends in irrigated lands and the agricultural pollutants inputs following the dynamics of nutrients (N, P) and pesticides in range of agricultural saline and gypsum soils around the waters.
- 3 . Characterize the microbial communities dynamics according to agricultural activities and seasonal variations.
- 4 . Establish relevant indicators including microbial and macrofaunal bio-indicators adapted to the natural occurrence of salinity in arid basins. Such bio-indicators would report on the effects of agricultural activities in natural saline areas, useful information for the management of saline wetlands.



The AQUASALT structure follows the workflow of environmental characterisation (WP2-4). The whole project is driven by water management preoccupation with the focus to develop bio-indicators for water and more generally environment quality status assessment.



WP2 Site monitoring and sampling aiming to select sampling sites and design the seasonal sampling for piezometric data and redox soil conditions as base data for the subsequent seasonal sampling of soil and water.

WP3 Agrochemicals dynamics aiming to demonstrate the status of saline wetlands currently affected by agricultural waters in a range of saline waters under different agrochemical conditions.

WP4 Microbial and macrofaunal dynamics aiming to establish molecular inventory of microbial populations and macrofaunal indexes in order to define microbial bio-indicators for environmental quality assessment

The expected outputs of AQUASALT such as bio-indicators will provide the opportunity for the implementation of new management approaches. AQUASALT would enhance innovation capacity by exploring the microbial communities in extreme environments, hypersaline and saline fluctuating waters, which represent yet untapped environments for the exploitation of the microbial biodiversity offering biotechnology perspectives.

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