

# REXUS Project Pilot Areas: Peninsular Territory of Spain

## Overcoming administrative barriers for effective Water-Energy-Food Nexus management

The potential for Nexus resource conflicts in Peninsular Spain is intensified by unequal availability of water between the more water-rich northern regions and the arid southern regions, high demand for water for irrigation, and significant nuclear and hydroelectric power production. This is threatening the effectiveness of national and regional policies, including national and regional climate adaptation plans.

Working in close collaboration with national, local and river basin authorities, REXUS aims to evaluate the Water-Energy-Food-Climate Nexus on a national scale and devise solutions that cut across administrative barriers and can be effectively integrated into national planning.

## General Characterization

### Peninsular territory of Spain

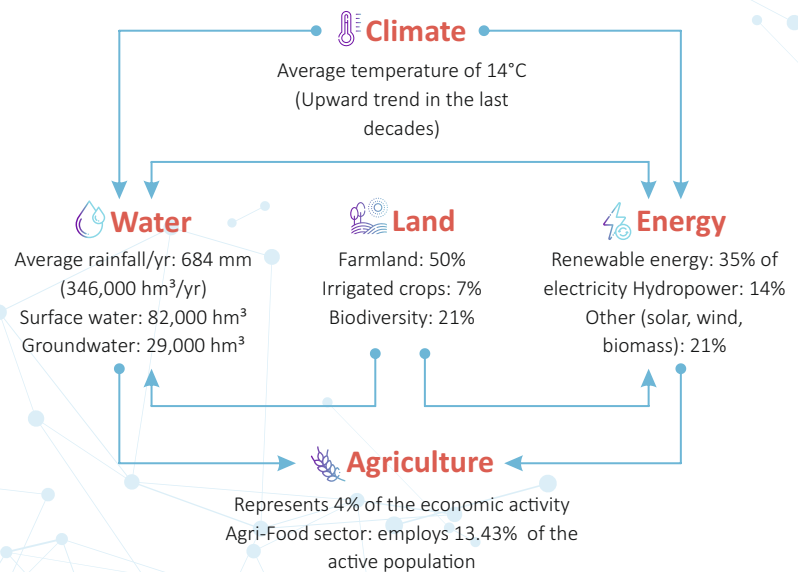
**Total population** 47,394,223

**Area** Spain: 505,944 km<sup>2</sup>;  
Peninsular Territory: 493,475 km<sup>2</sup>

### Pilot within the Pilot: Júcar River Basin

The Júcar River Basin, on the South-East Mediterranean coastal area, has been selected because of its location in a scarcity risk area.

- Surface area: 42,735 km<sup>2</sup>
- Population: > 5 million
- Climate: Mediterranean
- Precipitation: Around 500 mm, oscillating between maximum annual values of 780 mm for the wet years and just over 300 mm for the dry years.
- Land-use: Agriculture (80%), urban (16%), and Industry and Energy (4%).



## REXUS Goal

The main goal of the REXUS project in the Spanish Pilot Case is to help overcome administrative barriers that lead to fragmented natural resources management, by providing a comprehensive Nexus framework that will allow implementing exemplary practices in Nexus management (from Nexus thinking to Nexus doing).

### Objectives:

- Agriculture- Ecosystems- Energy- Climate Nexus interactions. REXUS will examine specific policies focused on one sector, analyzing their impact on other Nexus sectors for possible direct or indirect positive or adverse effects.
- In light of the analysis of Nexus dynamics between sectors, REXUS will provide a blueprint for sustainable practices on a national scale that involve the entire Nexus.
- REXUS will seek to overcome administrative fragmentation between regions and watersheds. In Spain, many entities perform effective management separately, but it is necessary to integrate them. Therefore, REXUS will work by bringing together different stakeholders.



# How will REXUS work?

- Stakeholder Engagement
- Participatory Systems Dynamics Modelling (PSDM) development
- Integrated Modelling
- Earth Observation (EO) and Climate Risk Assessments
- Policy Analysis
- Identification and planning of feasible Ecosystem based Adaptation (EbA)
- Socio-Economic analysis



# How will the Nexus be analysed?

## Through the Learning and Action Alliances (LAAs)

The active cooperation of different stakeholders from the Ministry of Agriculture, Fisheries, and Food (MAPA), the Ministry for Ecological Transition and Demographic Challenge (MITECO), Hydrographic Confederations, down to small farmer communities, will improve the understanding of the Nexus and contribute to the development of strategic decision making. A community willing to learn and grow in resource management issues will be formed. In addition, the LAA proposes to foster discussions with the other pilot cases of the REXUS project throughout the project, following a process of problem identification, evaluation of possible solutions, and finally validation of results.

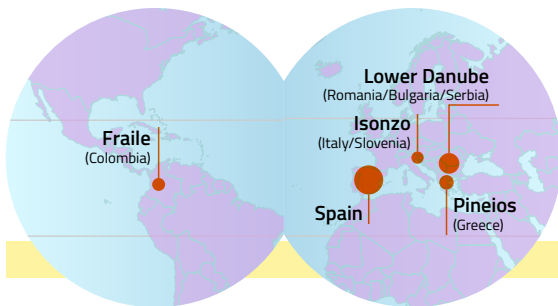
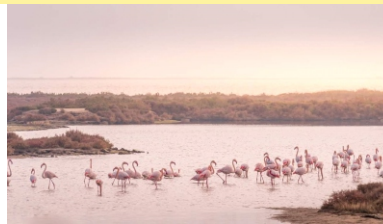
# Future perspective: Call to Action

*“As a Mediterranean country, Spain will be hit hard by climate change. To protect natural resources and the economic sectors that crucially depend on them, we need to integrate Nexus cross-sectoral dynamics in national, regional and basin level policy, otherwise management efforts may cancel each other out and imperil our best efforts to ensure resilience.*

*REXUS will provide an inventory and analysis of the Nexus at the national level with regions and watersheds. It will link national and regional climate adaptation plans and will help introduce resilience and Nexus thinking/action in upcoming policy measures (WFD 3rd cycle implementation, CAP post-2020/green deal, climate emergency).*

*This effort will only succeed thanks to the unique insights and first-hand experience of the different stakeholders, who will validate Nexus analysis and help forge a consensus for more effective and resilient coordination.* ”

**Dr. Anna Osann, Agrisat**



# Country pilots Regional Team

The leader in the Spanish case will be AgriSat Iberia SI. AgriSat is a company born among people who work in the field, so its priority is to be helpful to the farmer or technician, who needs information to make decisions on a daily basis. Its products and services are not designed to be dazzling technological achievements, but must first and foremost be practical and straightforward tools for agronomic management.



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