NEXUS Nature Ecosystem Society Solution: Fair and Sustainable Resource Allocation Demonstrator of the Multiple WEFE Nexus Economic, Social and Environmental Benefits for Mediterranean Regions
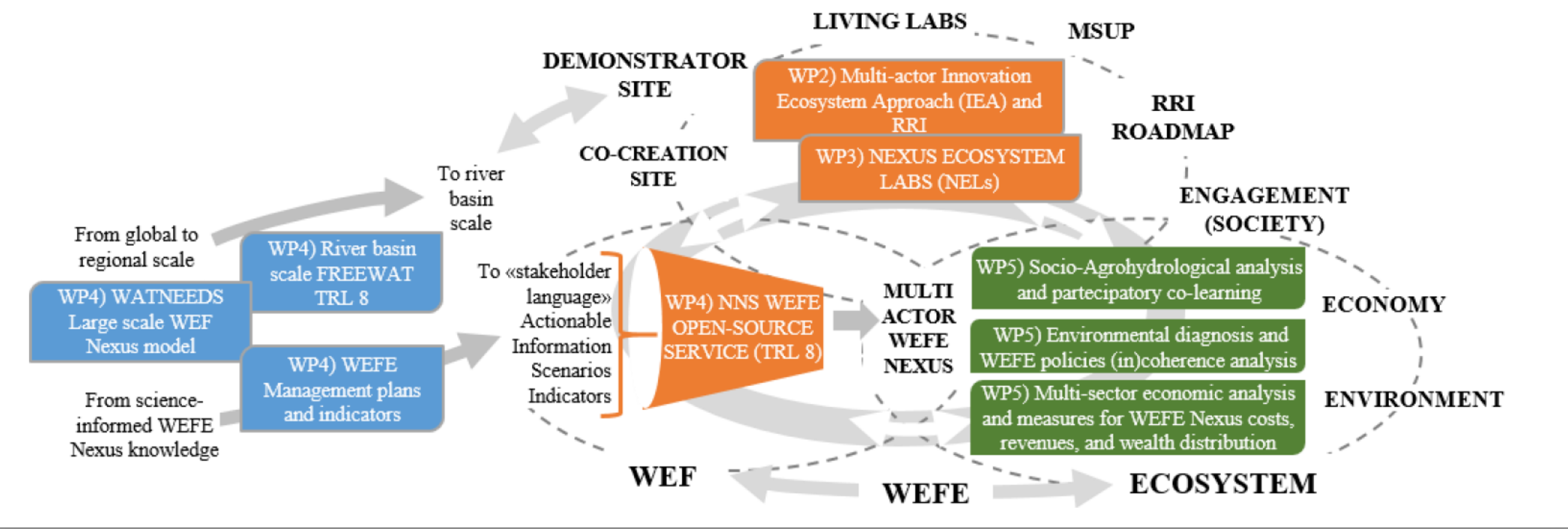
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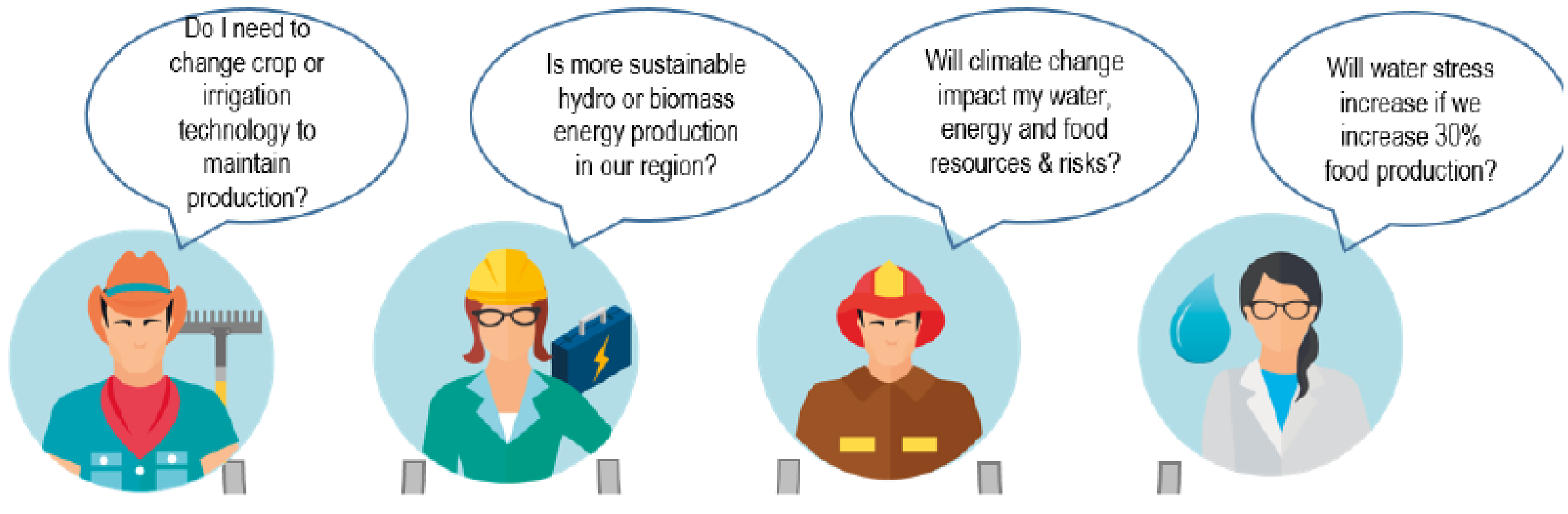
Concept

NEXUS-NESS integrates trans-disciplinary datasets and scenarios available from consolidated breakthrough applied research and knowledge on WEFE Nexus (large scale WATNEEDS and river basin scale FREEWAT) models for building an operational NEXUS-NESS Service (NNS). NNS is deployed to **empower stakeholders with actionable information** demonstrating its operational use in tackling WEFE Nexus challenges. The **multiple socio-environmental and economic benefits and the distributional impacts** of WEFE Nexus approach are quantified and shared in "stakeholder language" to tackle the pressing needs and issues in real case conditions while promoting prevent fair and sustainable use of natural resources. **NEXUS-NESS aims to test and prototype an operational WEFE Nexus service or NNS** channelizing science-driven data, actions and indicators "like a funnel" into real case studies, for its operational use by stakeholder also employing integrated socio-environmental and economic assessment models.

NEXUS-NESS Services

Nexus Ness services provide WEFE Nexus actionable information to help individuals and organizations make Nexus smart decisions

- Do I need to change crop or irrigation technology to maintain production?
- Is more sustainable hydro or biomass energy production in our region?
- Will climate change impact my water, energy and food resources & risks?
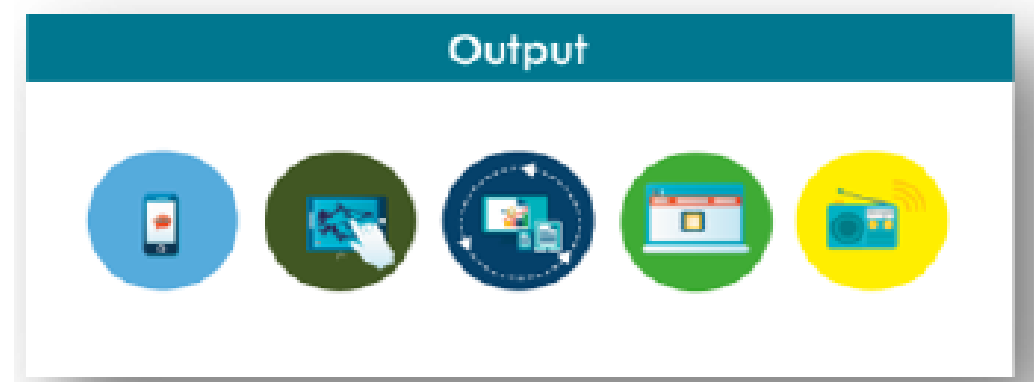- Will water stress increase if we increase 30% food production?

Innovation Ecosystem Approach (IEA), RRI Roadmap and a Multi Stakeholder User Platform (MSUP) for stakeholder engagement and WEFE Nexus innovation in the Nexus Ecosystem Labs

How do Nexus Ness Services work?

National and international databases provide high quality data on water, energy, food and ecosystem conditions, as well as maps, risk and vulnerability analyses, assessments, and long-term projections and scenarios. Regional and local databases are built to provide challenge and site specific conditions (**WEFE Nexus Management plans**)
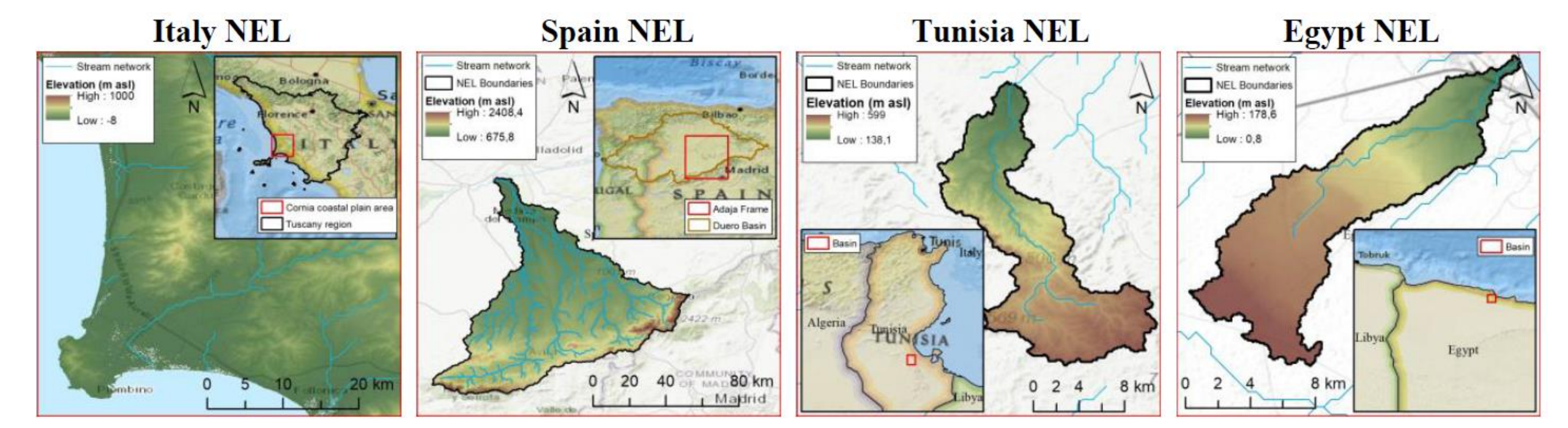
Socio-economic variables such as agricultural production trends, energy source and demographic change, land development and urban plans, infrastructure maps and trade routes for WEFE resources, may be combined, depending on regional strategies and stakeholder needs.
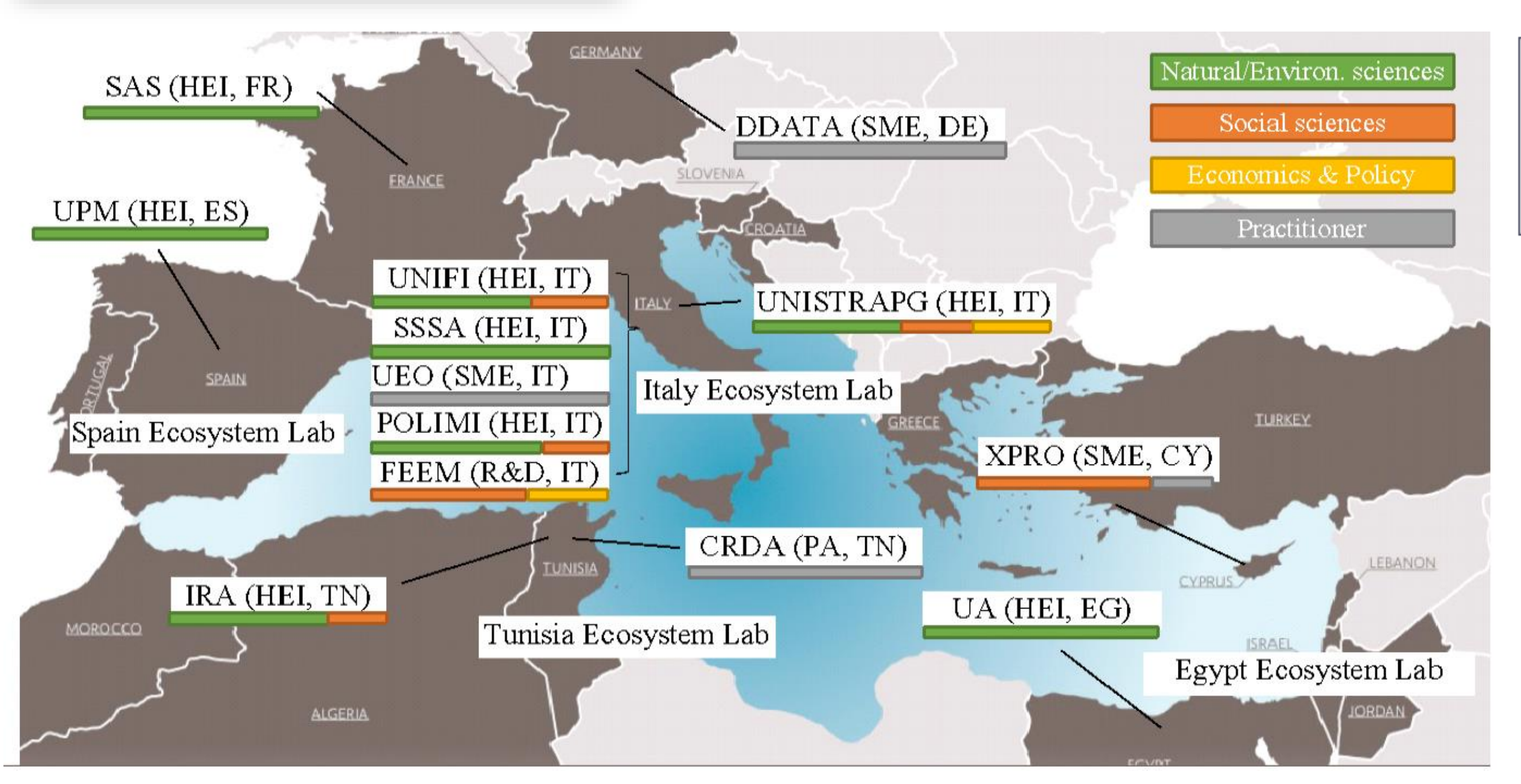
Nexus Ness Services equip decision makers with WEFE Nexus data, scenarios also including integrated socio-environmental and economic analyses. The Service supports the delivery of actionable information and shared guidelines for the different (often conflicting) economic sectors where knowledge about WEFE Nexus trade-offs is fundamental to help society increase security and sustainability of natural and human resources while adapting to social, environmental and climate change.

The Nexus Ecosystem Labs (NELs)

NEXUS-NESS will develop with stakeholders a Nexus-Ness Service to co-validate WEFE Nexus strategies for fair access to resources in four Nexus Ecosystem Living Labs supported by the RRI Roadmap, a Multi-Stakeholder User Platform and a WEFE Nexus forum for promoting the solution in the Euro-Med area.

Partners

RESULTS AND IMPACTS

- Co-produce with stakeholders WEFE Nexus management plans for fair and sustainable allocation of resources
- Develop and co-validate a novel NEXUS-NESS Service transferring the state of the art of hydrological and environmental sciences of the WATNEEDS and FREEWAT models
- Adopt bottom up approaches, supported by the RRI Roadmap and the novel Multi Stakeholder and User Platform, to engage stakeholders and citizens to promote WEFE Nexus Innovation Ecosystem in the four Living Labs