



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

Budget

3 million €
(2.85 M€ PRIMA and 0.15M€
co-financing SME)

Financing program

Partnership for Research
and Innovation
in the Mediterranean Area (PRIMA)
supported by Horizon 2020

Duration

3 years (may 2021- april 2024)

Country and coordinating body

Italy
Università per Stranieri di Perugia



RESULTS & IMPACTS

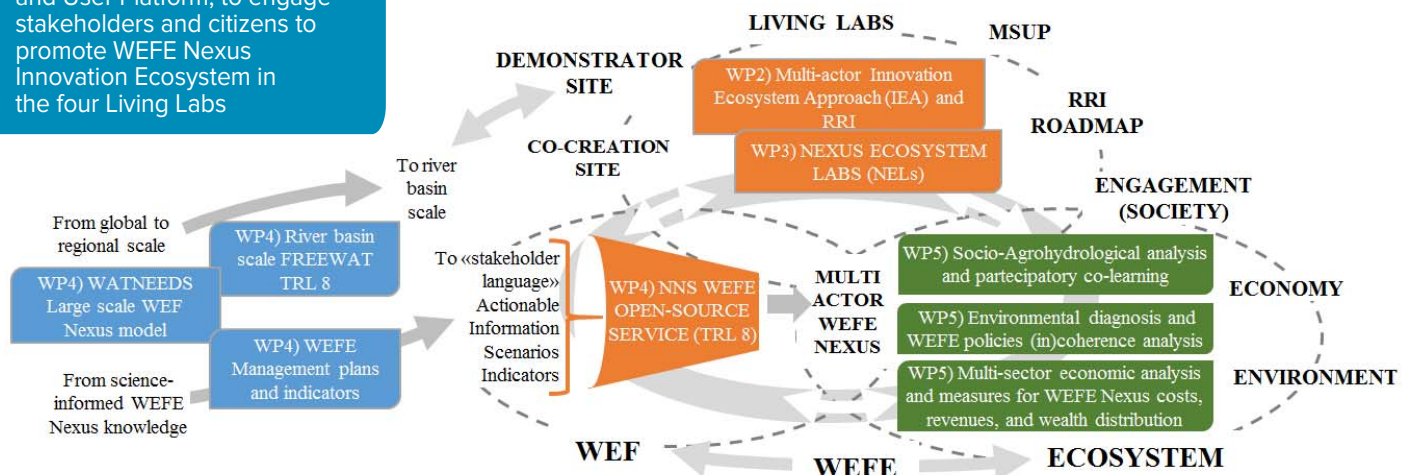
- ✓ Co-produce with stakeholders WEFE Nexus management plans for fair and sustainable allocation of resources
- ✓ Develop and co-validate a novel NEXUS-NESS Service transferring the state of the art of hydrological and environmental sciences of the WATNEEDS and FREEWAT models
- ✓ Adopt bottom up approaches, 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

Framework

Water scarcity, climatic and demographic change stressors impact most of the Mediterranean regions. Governors are called to take important decisions to support fair allocation of resources, mitigate conflicts and sustain social cohesion while managing socio-economic pressures and support environmental sustainability. Science studies validated methods and data for investigating and quantifying the interlinkages of the Water-Energy-Food-Ecosystem (WEFE) Nexus components providing solid proofs of the fundamental importance of embracing a Nexus approach. Nevertheless, WEFE Nexus knowledge and technology transfer is still falling behind. Several technical and non-technical barriers still avoid the transition towards WEFE Nexus approaches. Multi-Sector (among different economic - growing and often resource competing - sectors), Multi-Disciplinary (merging efforts of earth, environment and social sciences towards transdisciplinarity) and Multi-Actor (i.e. Multi-Stakeholder also including citizens) cross-cooperation and mutual trust are still lacking in actual water and land management strategies. Social and economic governing dynamics are still bounded within sector-confined decision making frameworks. Heterogeneous data, different solutions and unbalanced policies characterize water, energy, food and ecosystem management strategies that tend more to overlap rather than work in synergy. Stakeholders and citizens are not adequately informed and involved perceiving to receive technological and policy advancements as a top-down enforcement, like a burden, rather than understanding their multiple benefits towards safer and healthier water, energy, food production.

Objectives

The NEXUS Nature Ecosystem Society (or NEXUS-NESS) solution aims to co-produce and co-test with stakeholders WEFE Nexus management plans for fair and sustainable allocation of resources. NEXUS-NESS will deploy trans-disciplinary methods and multi-sector scenarios by integrating large scale WATNEEDS and river basin scale FREEWAT ecosystem-hydrological models for building a dedicated service to operationalize the proposed WEFE Nexus approach, namely the NEXUS-NESS Service. This new service will transfer and test science-driven WEFE Nexus knowledge to address real case study issues. The NEXUS-NESS solution will interlink the WEF Nexus components with a three-fold conceptualization of the Ecosystem component (Environment, Economy, Engagement/Society). NEXUS-NESS will adopt and test the proposed WEFE Nexus bottom-up approach in four different climatic, environmental, socio-economic and cultural demonstration sites employing Living Lab and Responsible Research and Innovation principles. Four Nexus Ecosystem Labs in Italy, Spain, Egypt and Tunisia will be set up. A WEFE Nexus Innovation Ecosystem Approach supported by a novel Multi Stakeholder and User Platform will effectively engage all stakeholders, including the private sector for creating long-lasting Innovation Ecosystems that are based on collaboration among academia, industry, different levels of the public sector and citizens.



The project NEXUS-NESS has the ambition to conceive, develop, validate and deploy a novel WEFE Nexus Service and WEFE Nexus management plans to address real problems co-identified with stakeholders in the four Nexus Ecosystem Labs. NEXUS-NESS will not merely conceive data, guidelines and services on paper to only understand how to tackle the major challenges, but effective problem-oriented services will be tested and demonstrated to lay a basis for real technical and cultural change embracing WEFE Nexus strategies. The four diverse labs of Val di Cornia in coastal Tuscany (Italy), the Duero basin (Spain), the Wadi Naghamish (Egypt) and the Wadi Jir basin (Tunisia) will share successful experiences as well as lessons learned from failed attempts engaging a wide range of WEFE Nexus governmental actors and stakeholders. A novel WEFE Nexus Forum will support a roadmap for wide awareness and application of the NEXUS-NESS solution to promote a collaborative WEFE Nexus space across and beyond the Mediterranean regions. The project will also pave the way to new market opportunities, strengthen competitiveness and growth of companies supported by data and tools linked to the WEFE Nexus services and management plans unveiling the multiple socio-economic and environmental benefits for society of mainstreaming Nexus compliant strategies.

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

