



Advancing transdisciplinary knowledge and procedures for mainstreaming WEFE Nexus: insights from the PRIMA NEXUS-NESS projects

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Science-informed models provided undoubtable indications of the crucial interlinkages that govern the Water, Energy, Food and Ecosystem (WEFE) dynamics. Managing natural and urban ecosystems without considering WEFE interlinkages may determine undesirable consequences in terms of safety and sustainability from multiple perspectives (e.g. environmental, social, economic). From short term operations to long term projections, science evidences depict the pivotal importance and multiple benefits of embracing WEFE Nexus approaches. Nevertheless, while science and technological advancements are pushing ahead such understanding, several technical and non-technical barriers still avoid the WEFE Nexus transition. WEFE-related Multi-Sector, Multi-Disciplinary and Multi-Actor cross-cooperation and mutual trust are still lacking in actual water and land management strategies. Moreover, stakeholders and citizens are not adequately informed and involved. WEFE Nexus policies are also generally missing.

The NEXUS Nature Ecosystem Society Solution or NEXUS-NESS project - funded by the PRIMA Programme under the 2020 Nexus Innovation Action - seeks to address this issue of paramount importance for the Mediterranean regions. NEXUS-NESS aims to co-produce and co-test with stakeholders WEFE Nexus management plans for fair and sustainable allocation of resources. At the same time a technological solution and tailored procedures are co-tested to provide actionable information and easy-to-follow guidelines for WEFE Nexus operators and stakeholders in selected case studies.

This contribution aims to specifically focus on the transdisciplinarity concept that was a guiding principle of the NEXUS-NESS project design and mission. The NEXUS-NESS solution transdisciplinary datasets and tools seek to interlink the WEF Nexus components with a three-fold conceptualization of the Ecosystem component (Environment, Economy, Engagement/Society). NEXUS-NESS will operationalize the adoption of a WEFE Nexus bottom-up approach in four different case studies employing Living Lab and Responsible Research And Innovation (RRI) principles. Results from the first year of project development are here illustrated with specific focus on the the Val di Cornia (Italy), Duero basin (Spain), Wadi Naghamish (Egypt) and Wadi Jir basin (Tunisia) Nexus Ecosystem Lab (NELs) initiation activities and feedbacks co-processed with local and regional stakeholders.

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