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Managing Water- Ecosystem-Food Nexus using Participatory Approaches: Insights from an innovative methodological approach developed in two Mediterranean areas

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The final, formatted version of the article will be published soon.

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Natural resources security in view of current and future use is indispensable for fostering sustainable development. The formulation of effective policies to address both the present allocation and future conservation of natural resources

Nature-based Solutions (NbS) are gradually being advocated to enhance sustainable and resilient Nexus management efforts. Designing and planning NbS tailored to local contexts requires a thorough understanding of the specific challenges and perspectives, as well as the divergent perspectives among stakeholders. This paper presents and analyses an effective stakeholder engagement strategy, based on the Learning & Action Alliances (LAA) scheme and aimed at identifying Water-Ecosystems-Food (WEF) Nexus challenges and selecting NbS in two case studies in the Mediterranean area, namely the Agia watershed and the Pinios River Delta in Greece, and the Tarquinia plain in Italy, which are among the most resource-stressed basins in their respective countries (Greece and Italy). In total, 60 stakeholders were engaged in more than 40 events (workshops, seminars, open days, field trips etc), while 25 individual interviews were also conducted. By fostering collaboration and stakeholder ownership, the methodology provided actionable insights and promoted context-specific solutions. The stakeholders proposed 24 NbSs in the Italian case study, most of which were related to agricultural landscape management, while in the Greek case study, 2 of the 4 top-ranked measures were NbSs. The development of a

this work. The participatory processes structured within the LAAs provided the basis for the identification of the main sectoral challenges and supported the elaboration and validation of Causal Loop Diagrams that helped to identify pivotal nexus challenges, as well as key measures (including NbS) to address these. The findings underline the importance of participatory approaches and transdisciplinary tools in addressing Nexus challenges, offering a replicable framework for sustainable resource management in resourcestressed regions.

Keywords: stakeholder engagement, Causal loop diagrams, Serious game, SWOT Analysis, Mediterranean area, sustainability

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