

Sustainable nature based solutions for optimizing the water-ecosystems-food nexus across Mediterranean basin.

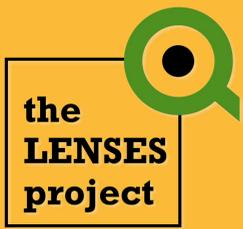
Focus on Italian pilot area

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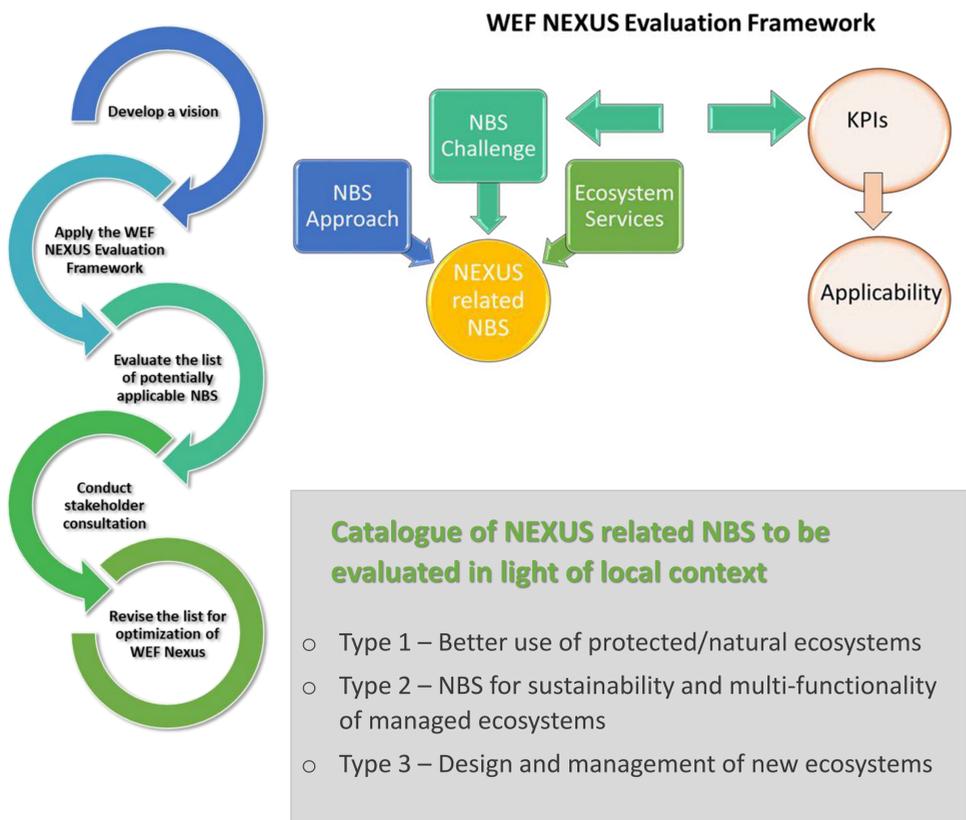


INTRODUCTION

The economic use of natural resources, such as water and land, in the Mediterranean region are constrained by resources limitations, climatic conditions and socio-economic stresses. The project **LEarning and action alliances for Nexus EnvironmentS in an uncertain future (LENSES)** aims to contribute to improve water allocation, enhance food security while preserving ecosystems and aiding climate change adaptation, through a collecting learning process which supports the operationalization of the Water, Ecosystems and Food (WEF) Nexus. Project activities involve 7 research centres, 5 SMEs and 1 NPO, with six demonstration pilot sites distributed across 6 countries in the Mediterranean basin. Among its 9 Specific Objectives (SO), LENSES aims to identifying Nature Based Solutions (NBSs) to co-achieve multiple Nexus Domain Objectives & Nexus Resilience Qualities that facilitate the transition (SO9). This poster shows the implementation of LENSES stepwise approach to address identified local WEF challenges through NBSs in the Italian pilot area: the plain of Tarquinia (Viterbo)



METHODOLOGY TOWARDS SO9

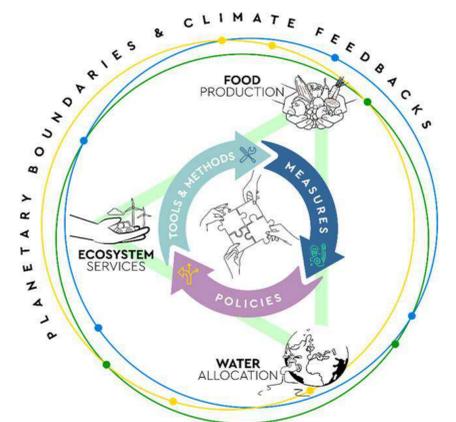


ITALIAN CASE STUDY: TARQUINIA PLAIN

Identified local WEF challenges

Water	Ecosystems	Food
<ul style="list-style-type: none"> Quality: undersized sewage treatment plants and intensive agriculture (large use of inputs) – Nitrate Vulnerable Zone Quantity: competitive use for tourism, residential, agriculture Climate change impacts: flooding (fall) and drought (summer) 	<ul style="list-style-type: none"> UNESCO World heritage Strong linkages among Agriculture Tourism – Ecosystems Biodiversity losses Intensive agriculture Significant erosion Poor maintenance of river beds Need to renew policy framework Land Use Change (LUC) and soil sealing 	<ul style="list-style-type: none"> Key horticultural production area for central Italy Climate resilience of agrifood systems Increased costs of farm inputs (e.g. energy; fertilizers, water) and low market price of products Land grabbing and competition in the use of agricultural land for energy production (photovoltaic)

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POTENTIAL NBS TO ADDRESSING LOCAL CHALLENGES

PROTECTION AND CONSERVATION STRATEGIES IN TERRESTRIAL, MARINE AND COASTAL AREAS ECOSYSTEMS

- Limit or prevent specific uses and practices
- Ensure continuity with ecological network (protection from fragmentation)
- Improving management of natural forests: protect forests from clearing and degradation from logging, fire, and unsustainable levels of non-timber resource extraction
- Maintain and enhance natural wetlands

MONITORING

- Assessment of NBS benefits
- Ecosystem services valuation methods
- Regular monitoring of bio-indicators

TYPE 1

AGRICULTURAL LANDSCAPE MANAGEMENT

- Agro-ecological practices
- Soil improvement and conservation measures
- Change crop rotations
- Agro-ecological network structure
- Incorporating manure, compost, biosolids, or crop residues to enhance carbon storage
- Produce and integrate biochar into agricultural soils
- Use soil conservation measures: cover crops; deep-rooted plants and minimum or conservation tillage; agroforestry; wind breaks
- Enrichment planting in degraded and regenerating forests (natural vegetation of riverbeds and mouths)
- Forest patches
- Coastal landscape management

NEXT STEP:

Sustainability evaluation of suggested NBS through identified Key Performance Indicators

TYPE 2

ECOLOGICAL RESTORATION OF DEGRADED TERRESTRIAL ECOSYSTEMS

- Systems for erosion control
- Soil and slope revegetation
- Strong slope revegetation
- Plant trees/ hedges/perennial grass strips to intercept surface run-off
- Re-vegetation of riverbanks
- Floodplain restoration and management
- Hedge and planted fence
- Flower strips

Graphic design by Eleonora Gerardi²



This poster reflects only the author's view and the PRIMA Foundation is not responsible for any use that may be made of the information it contains. This project is part of the PRIMA programme supported by the European Union. GA n° [2041] [LENSES] [Call 2020 Section 1 Nexus IA]

