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From site-specific to the next day: transferring local knowledge to climate resilient management – NECCA paradigm

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Abstract Constructive local participation is crucial for the effective governance of protected areas (PAs) in Greece, for which NECCA is the competent authority. In the framework of the H2020 ARSINOE project, NECCA has conducted workshops in the area of Prespa Lakes, focusing on climate adaptation challenges in water resources management, attended by stakeholders representing all environmental, economic and social sectors related to water use. Common mental mappings of the issues discussed led to drafting innovation pathways that generated important insights into the complex interconnections between various domains, the areas where intervention is required, as well as local community equilibria. Although current work focuses on the Prespa Lakes case, its scope can be extended to address the needs of "the next day" for NECCA. Successful transfer of gained experience and knowledge can enhance the management of protected areas with similar ecosystem characteristics and challenges. These methods could be used both for the Local Management Committees (LMCs) as well as the informal engagement of local stakeholders, ensuring regular monitoring and input to common expectations for shaping climate resilience.
Keywords: Protected Areas, ecosystems services, participatory processes, stakeholders, Prespa Lakes

1. Introduction

The Prespa Lakes area is a significant aquatic system extending in Greece, Albania and North Macedonia, providing habitats for several endemic and protected species. Significant drop in the water level of Prespa was attributed partly to climate change (van der Schriek & Giannakopoulos, 2017) among others (Matzinger et al., 2006), possibly affecting Prespa water quality and biodiversity, as well as agriculture, fishery and tourism sectors. Their intricate connections require multidisciplinary approaches.

It is anticipated that many PAs in Greece will be similarly affected by climate change. Various sectors are involved in the management of natural resources, however lacking central coordination. Considering conflicting interests of involved stakeholders is essential for effectively addressing these challenges. Although the establishment of LMCs by NECCA (consultative bodies supporting the Protected Areas Management Units) is expected to strengthen local participation, it could be better supported by further informal and more flexible approaches of stakeholder engagement (Hammond & Jones, 2021).

In the framework of the H2020 ARSINOE project, a Systems Innovation Approach (SIA) was applied via participatory processes, to meet the complex challenges posed by climate change. The case of water scarcity was the main issue on which workshops focused, leading to common mental mapping of the system, a future vision and potential innovation pathways. The applied methods could be used as guidelines, adjusted to each region's particular characteristics and necessities, eventually contributing to productive recommendations for all-inclusive management of PAs and effective policy making.

2. Implementing innovation

2.1. Methodology

SIA methodology focuses on the functions of the cross-sectoral system as a whole and on the variety of actors, instead of solely specific functions or individual/sectoral benefits. It was applied through Living Labs, bringing together a group of key stakeholders to explore a focal issue (La Jeunesse et al., 2023).

Stakeholders were carefully selected aiming to represent all relevant sectors (administration/water management, environment, agriculture, fishery, tourism, education, forestry, engineering), categories (government/policy makers, research/academia, NGOs/associations, business and local citizens) and scales (local, regional, national). Three successive workshops were organized both at national and transboundary levels, spaced 6 months apart from each other in order to have progress in the EU project. Objectives were to define systems boundaries, mapping of the system, problem isolation and envisioning, and eventually identifying Innovation Pathways to resilience.

2.2. Implementation and results

The connections between various sectors were found to be particularly complicated (Figure 1). Possible synergies as well as differences in perceptions were identified, thus enabling a deeper understanding of the all-comprehensive system. An important outcome was that human - economic activities may also contribute to the climate resilience of an ecosystem such as the one of Prespa Lakes, provided that the economic aspect is integrated in a holistic as well as sustainable approach with the protection of ecosystems in its core. Moreover, implementing participatory methods without follow-up could undermine the belief in them (Hatzilacou et al., 2007). Therefore, further supporting stakeholders' engagement on a well-planned roadmap has emerged as both a result and a necessity.

3. Conclusions & Outlook: towards sustainable management of PAs

SIA methodology and produced knowledge can be transferred to further protected areas' management in Greece and serve as a valuable user-centered tool for the LMCs. Stakeholder selection, mental mapping and envisioning can be applied through a series of workshops and similar methods (training sessions, group discussions) that facilitate local involvement, to address specific themes of importance for the PA. The outcomes can further be forwarded to the LMC for consultation and submitted to NECCA for consideration, taking into account the relevant legal provisions applied in each specific PA. Innovative participatory processes can empower communities to shape promising future visions and set common expectations for the area's climate resilience and sustainable well-being

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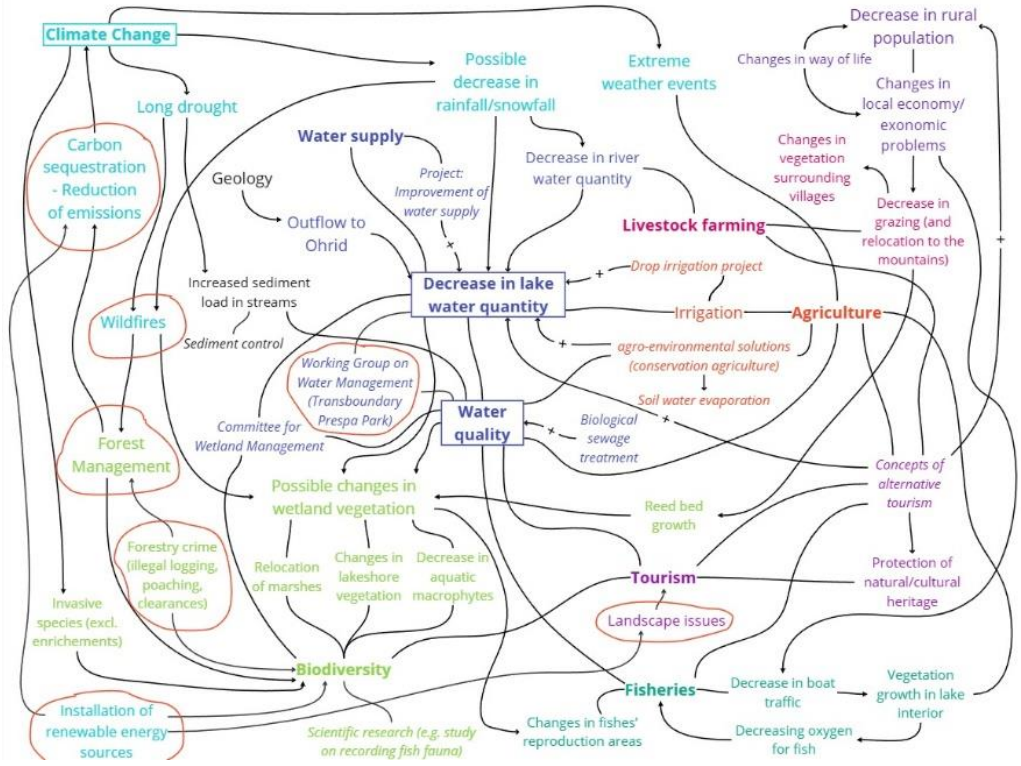

Figure 1. Mental map of the Greek part of Prespa, indicating further elements – February 2023

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