

Management of lagoon and estuary systems - joint knowledge production to improve communication and cross disciplinary boundaries

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Introduction: The ARCH research project (EU-FP7, 2011-2015) aims to overcome the boundaries between the multiple scientific disciplines involved in the management of lagoon and estuary systems. This includes the challenges of communicating technical information and scientific results, which are essential elements in the sustainable management of these complex systems. A central objective of the ARCH research project is to develop participative methodologies in collaboration with stakeholders to manage the multiple problems affecting lagoons in Europe. Two important components towards this goal include (i) the promotion of an integrated research approach and (ii) the employment of a true participatory process. Ten different European case study sites are involved in the project (**Fig. 1**).



Fig. 1: Location of case study sites in the ARCH project.

Methods: The ARCH project is organized in order to facilitate communication and knowledge transfer among partners representing the environmental, economic and social-sciences. The main objective of the participatory process is to produce “collaborative roadmaps for local lagoon management” in close interaction with local lagoon managers, policy makers, stakeholders and scientists. The participatory

methodology which is employed to achieve this, includes a series of workshops, which are ideally linked to an ongoing policy process in the area. The scientific “State-of-the-lagoon” report for each case is the starting point for a joint process that is directed towards (i) problem identification, (ii) sharing knowledge, and (iii) identification of desired solutions. During this whole process, policy makers, stakeholders, scientists, local users and managers are involved to identify realistic measures at the local scale. Different types of knowledge: scientific, local (tacit) and procedural knowledge, must be considered when communicating results as all provide valuable input to managing complex systems.

The workshop activities at each case study site were for the most part successful in reaching their aim of promoting a better understanding of the current environmental state, their key problems, and management challenges as illustrated in the jointly produced roadmaps. Stakeholders provided valuable information, which helped to gain a realistic view of the required measures.

Discussion: Working in a highly interdisciplinary way emphasizes the processes of communication and interaction between stakeholders and important factors include: working towards a common vocabulary and shared understanding, openness to other disciplines, acknowledging the value of other disciplines, face to face meetings, trust building and joint knowledge production. ARCH builds on the supposition that scientific limitations, including the communication of results at the end of a study, can be overcome by consciously minimizing the boundaries between multiple scientific disciplines.

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