Participatory approaches and cost-benefit analysis in coastal management

Carlos Coelho[1], Márcia Lima[1,2], Ana Margarida Ferreira[1], Blanca Mendiguren[1], Frederico Romão[1], Joaquim Pais-Barbosa[1,3]

1 – RISCO & Department of Civil Engineering, University of Aveiro.
2 – Lusofona University – Porto University Center (CUP).
3 – ProMetheus, Instituto Politécnico de Viana do Castelo.

The negative impacts of coastal erosion have urged measures to mitigate shoreline retreat and protect regions and their communities. INCCA (Integrated coastal climate change adaptation for resilient communities), COAST4US (Application of the COAST tool to the Portuguese coast) and AX-COAST (Cross-shore features and internationalization of the COAST) projects represented a step forward in participatory approaches to define coastal management strategies together with different stakeholders, supported by cost-benefit assessments and improved capacity to represent shoreline evolution projections.

Proactive coastal zone planning leads to increasingly effective coastal management. The involvement of stakeholders in participatory processes and decision-making is essential for delineating coastal management policies with greater acceptance and collective benefit (Figure 1). The decision on the most relevant coastal interventions should be weighed, keeping in mind the social potential and economic benefits of beaches and urban areas, as well as the ecological value of coastlines ecosystems in each region. Additionally, intervention costs should be defined to allow rigorous cost-benefit analyzes and adequate representativeness to the specificity of each location. Cost-benefit analysis provides crucial data to help responsible entities make strategic decisions for effective and sustainable coastal management, emerging as an indispensable component for defining intervention priorities in the coastal zone, enabling greater technical and economic sustainability in decision-making.

A participatory governance model, dynamic, iterative, flexible and supported by adequate tools, prepared to perform cost-benefit assessments, will be a growing need, bringing technologies, knowledge and stakeholders at the various stages of thinking, reflecting, planning, implementing and assessing strategies and measures to mitigate and adapt coastal zones (Figure 2).

FIGURE 1
A participatory session, developed in the aim of the INCCA project.

FIGURE 2
Books with the description of results, recommendations and conclusions of the projects were published and presented in the final seminars.