

ADAPTATION TO COASTAL EROSION AND CLIMATE CHANGE IN PORTUGAL: ENGAGING LOCAL COMMUNITIES FOR A SUSTAINABLE COAST

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European coasts are increasingly threatened by coastal erosion phenomena, which are expected to worsen as a result of climate change. The Portuguese coast is one of the most energetic in Europe. Coastal erosion has been increasing mainly due to the reduction in sediment supply and sea level rise (SLR), which was about 15 cm in the 20th century and an average of 2.5 mm per year⁻¹ over the 2000-2009 decade. In the past two decades the coastal retreat rate has increased significantly, reaching 7 m per year on some stretches.

This makes the Portuguese coast one of the most at risk due to climate change, coastal erosion and economic vulnerability, especially in the current context of economic recession. The Portuguese coastline concentrates most of the country's population and economic activity, and over the last decades the State has been unable to hold urban sprawl, illegal dwellings and tourism pressure.

Meanwhile, in the current context, public authorities have increasingly less funds to build and maintain heavy defence infrastructures and new adaptation strategies are starting to be considered by experts and policy-makers. Solutions such as the relocation of people, buildings and economic activities, previously avoided, may have to be carried out in the near future.

On the other hand, recent studies on climate change suggest that sea level rise and other phenomena – such as changes in wave patterns – may lead to significant impacts on Portuguese coast.

This double jeopardy – economic recession and climate change – makes Portugal an interesting coastal case study, whose results may be usefully extrapolated for other coastal countries in Europe.

To face these new challenges and implement future adaptation strategies on a densely populated coastline, fostering public participation in coastal policies, through a greater involvement of local stakeholders and populations, is critical.

Moreover, it is fundamental to understand how stakeholders and population (re)act according to the most recent and localized future scenarios developed for each of the studied regions (within this project) by: a) showing coastal zone areas according to their degree of vulnerability; b) sharing practical guidance in the selection and prioritization of adaptation measures; c) visually (2D map) distinguishing flood prone areas, run-up and overtopping phenomena; and d) communicating the uncertainty associated with SLR projections based in the IPCC 4th Assessment Report and in more recent scenarios.

It is also crucial to measure the impacts of past and current coastal policies on the sustainability of these coastal areas. In Portugal the “hold the line” policy, with little public involvement, has been dominant until now. The Integrated Coastal Zone Management (ICZM) approach is just beginning to take ground. However, in the near future other

alternatives may have to be considered, following cost-benefit analysis, which have been nearly absent from policy-making processes.

A national strategy for ICZM has been approved in 2009, and the second generation shoreline management plans (SMP) are just starting to be elaborated. These are expected to take into account the impacts of climate change. There's an opportunity for an appropriate evaluation of the implementation of the first plans - most of these plans have been in force for more than 10 years - as well as the coastal defence infrastructures and initiatives in which governments have been investing over the last decades.

It is crucial to assess whether ICZM initiatives have been delivering economic, social and environmental benefits and to what extent they contribute to improve sustainability on the coast. This paper captures the representations of coastal populations on coastal erosion and climate change, but it also addresses their perceptions on the effectiveness of coastal policies and planning.

The research is also innovative in the way it addresses the financial issue of coastal defence and management. It not only questions stakeholders on possible reduction of funds from public budgets, it also addresses the willingness of local actors to pay for further protection of their coastal areas and their possible direct involvement in alternative funding schemes in the future.

The social sciences approach to coastal issues in Portugal is still rare. Aiming to fill this gap, this paper includes some of the results of the project CHANGE – Changing Coasts, Changing Climate, Changing Communities (2010-2013) – which combines the approaches of social and natural sciences.

The study is focused in three coastal stretches in Portugal, all of them characterised by a recent history of accelerated settlement and tourism investment. In these three cases, isolated historical communities, mainly fishermen, were joined in recent decades by an amalgam of people coming from different places with various interests on the coast that overwhelmed the weak municipal authorities.

This research combines: a) scientific assessments on the past and future evolution of the shoreline, taking into account the expected impacts of climate change; b) social research based in interviews with policy-makers, coastal experts and interested stakeholders, as well as local extensive surveys; c) the outputs of a model for coastal governance and community building, based on local discussions through focus groups and community workshops.