Impacts Of Climate Change on the Spanish Coast - ES

1. Policy Objective & Theme

- ADAPTATION TO RISK: Managing impacts of climate change and safeguarding resilience of coasts/coastal systems
- ADAPTATION TO RISK: Preventing and managing natural hazards and technological (human-made) hazards
- ADAPTATION TO RISK: Integrating coherent strategies covering the risk-dimension (prevention to response) into planning and investment

2. Key Approaches

- Knowledge-based

3. Experiences that can be exchanged

It is a widely spread idea to associate climate change coastal effects with sea level rise; this factor being important, but not the most important, in the assessment of coastal impacts. Waves are the main factor shaping the coast and climate change affects the wave regime. This project shows how the wave regime will change and what effects it will have on the coast, such as sea level rise and beach retreating, changes in wave direction causing a beach to swing with the subsequent sediment loss and beach retreatment, etc. The analysis offers results about the coast, including the insecurity infrastructures to face climate change effects, etc.

4. Overview of the case

This project aims to provide the Ministry of Environment with the scientific knowledge, methodologies and tools to propose and design strategies to tackle climate change effects along the Spanish Coast.

5. Context and Objectives

a) Context

The Spanish State, just like the other Member States, is required by the United Nations Framework Convention on Climate Change (UNFCCC) to implement specific measures to adapt to sea level rise and climate change effects on the coast. Specifically, the UNFCCC establishes that all Parties must formulate, apply, publish and regularly update national programmes which include measures to ease climate change adaptation. The Directorate General for Quality and Environmental Assessment, from the Ministry of Environment and through its Spanish Agency for Climate Change, is responsible for developing the Spanish policies on Climate Change and therefore must meet the requirements imposed by the UNFCCC. The lack of scientific studies and tools to support the public policies and strategies on climate change was the main driving force of this project. This initiative has been developed at the national level.

b) Objectives

The main objective was to define and establish the scientific, technical and economic mechanisms to provide the Ministry of Environment with the scientific knowledge required to establish adequate policies and strategies regarding climate change for the Spanish coasts. There were 3 specific objectives: (1) evaluation of changes in Spanish coastal dynamics, (2) assessment of the effects that climate change and related coastal dynamics can produce in the natural areas and human uses along the Spanish coast, and (3) establishment of policies and strategies to tackle climate change effects. The timescale associated with implementation and goals achievement was 2 years (2004-2006)

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The Ministry of Environment (through its Spanish Office for Climate Change, from the Directorate General for Quality and Environmental Assessment) is the institution demanding and funding the project. The University of Cantabria (through its Environmental Hydraulics Institute IH Cantabria) is the technical research group developing the work.

b) ICZM tools

This technical tool is the base to develop an adequate coastal planning considering climate change effects. The technical tool is based on a collaboration agreement between the Directorate General for Quality and Environmental Assessment and the University of Cantabria in terms of “Research on the Impacts of Climate Change on the Spanish Coastal zone”, signed in 2002.

The specific tasks carried out were the following:

- Compilation of data and information
- Technical analysis of coastal data and dynamics
- Morphological zoning of the Spanish coast
- Analysis of climate change effects on the Spanish coast
- Proposal of a set of indicators to provide objective information for the establishment of policies and strategies to prevent, mitigate or adapt to climate change effects on the Spanish coast.
- Proposal of strategic actions to tackle climate change effects:
    - Increase the knowledge on the driving forces produced by climate change and on the methodologies to analyse them
    - Quantitative and qualitative analyses of the vulnerability of the coastal zone
    - Social awareness of the problem caused by climate change effects
    - Climate change effect mitigation through indirect actions
    - Coastal Setback strategies
    - Coastal Adaptation strategies
    - Coastal Protection strategies.

7. Cost and resources

The budget for the design and implementation of this tool was €600.000. The manpower used for the implementation of the project was approximately 10 people.

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The general objective of providing scientific knowledge and tools to the competent administration was achieved, as well as the specific objectives of the project.

9. Success and Fail factors

Factors that were helpful in achieving the objective were the support and the willingness of the Directorate General for Quality and Environmental Assessment to develop this tool and the availability of budget. The fact that the UNFCCC required the Member States to include climate change in their coastal planning; the awareness of the Ministry of Environment about climate change and the effects of rising sea levels; and the willingness of the Spanish institutions and research centres to share their data.

Factors that hindered the achievement of the goals were: the lack of long-term data about some important parameters for

especially vulnerable areas (i.e. the low-lying Ebro Delta and the National Park of Doñana), such as subsidence data; the widespread social awareness about climate change and the access to information (which although apparently positive) result in the use of scientific information by non scientific people. This makes for inexact scientific information and data transmission, distortion of the scientific results, and loss of value and lack of trust in the scientific research.

10. Unforeseen outcomes

The exceptional database created for this project, thanks to the collaboration of the Spanish institutions and research centres.

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13. Sources

- Impactos en la costa espeñola por efecto del cmabio climático (2004). Ministerio de Medio Ambiente y Universidad de Cantabria.
- www.mma.es/secciones/cambio_climatico/areas_tematicas/impactos_cc/imp_cost_esp_efec_cc.htm

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