Adaptation and Prevention Measures - 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
- Ecosystems based approach
- Socio-economic
- Technical

3. Experiences that can be exchanged

The application at the regional-local scale of the results and predictions of climate change effects obtained at the national scale. This initiative had to combine and tackle the general climate change problems with local-specificity, (i.e. specific problems, conflicts, personal interests, political situation, etc.) to propose adequate mitigation and adaptation measures.

4. Overview of the case

The study defines different potential climate scenarios for the Ebro Delta, analyses the vulnerability at an ecological, economical and social level, and defines the impacts and potential risks for the different components. Then an action plan for climate change adaptation is designed for each scenario.

5. Context and Objectives

a) Context

The Ebro Delta, the biggest Delta in Spain and the second largest in the Mediterranean after the Nile Delta, is located in the Ebro River mouth and was created between the XIV - XVIII centuries. This river, the second widest and most plentiful river in Spain, brings and deposits in its mouth the materials transported from its sources in the Pyrenees, Iberic System and Cantabrian Mountain Chain. The deposits have formed a 320km2 arrow which penetrates 22 km offshore in the Mediterranean Sea. This wetland is very rich in terms of ecological values, being an internationally important site for 8 plant species and 69 fauna species, most of them birds, hosting half of the total birds in Europe. 7736 ha. of the delta were declared a Natural Park in 1983. The economic activities carried out include agriculture (since the last century the delta has been dedicated to rice crops (20.000 ha.), fruits and vegetables), fisheries and aquaculture and tourism. 20% of the delta is a natural area, 75% a cropping area, and 5% an urban area (it hosts 50.000 people). Nowadays, there are important environmental problems, such as: the big hydro-electric dams that hinder the delta’s growth; coastal erosion larger than the sediment deposit resulting in a worrying coastal retreat; delta subsidence; a marine salt wedge; invasive species; river water transfers; river flow decrease; water pollution, etc. The problems for which this initiative was developed are related to the delta retreat (i.e. the delta lighthouse is currently submerged) and climate change effects in an already vulnerable area. The geographical scale for implementation is the local level.

b) Objectives

The specific objectives of the project were (1) defining different potential climate scenarios for the Ebro Delta; (2) analysing the vulnerability at the ecological, economical and social levels; (3) defining the impacts and potential risks for the different components: coast, wetlands, dune systems, habitats, endangered species, health, agriculture, population and other socio-economic components; and (4) designing an action plan for climate change adaptation in each scenario. The timescale associated with implementation and goal achievement was 1 year (Dec. 2007-Dec. 2008)

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

a) Project Management

The initiative was funded by the Department of Environment (Government of Catalonia) and managed and executed by the University of Cantabria. Therefore, the level of entities involved is mainly regional.

b) ICZM tools

The study is a technical tool, a base for a regional coastal planning considering climate change effects. The specific tools applied were the following:

Among the different products there are included:

- Stocktaking of meteorological episodes, studies and projects
- Analysis of the Evolution of climate variables and its effects
- Integrated Vulnerability to climate change effects analysis, considering the physical, ecological, socioeconomic and administrative subsystems
- Integrated Risk analysis on the economic, natural and social goods and services
- Definition of a management plan, including adaptation and prevention measures regarding habitats and ecosystems.

7. Cost and resources

The budget for the Diagnosis and Planning Phases of this initiative was €123.000. The manpower used for the implementation of the tool was approximately 6 people.

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

The described objectives were achieved in the timescale defined. The realistic and specific image of the climate change effects on the area has allowed the creation of specific adaptation measures, including budget, timeframe, etc.

9. Success and Fail factors

Factors that were helpful in achieving the objective were (1) the multidisciplinary technical group, (2) the multidisciplinary approach (3) all the information that was already collected and analysed by the previous work on climate change effects at the national scale.

Obstacles that was unhelpful in achieving the objectives were (1) the lack of long-term data on some crucial parameters which make areas such as the subsidence area so especially vulnerable, (2) some adaptation measures came into conflict with the social and political interests: i.e. coastal setbacks to permit a limited coastal retreating to achieve a new delta equilibrium mode was not supported by any local council representative as they were in close contact with and were representing those future affected neighbours; therefore, adaptation measures for the common benefit were at risk due to individual interests and ownerships, all of which generated conflicts.

10. Unforeseen outcomes

A methodology to assess the climate change coastal effects in a highly vulnerable area, considering the local-specificity and based on a multidisciplinary technical work, which can be reproduced elsewhere. The adaptation measures for the common benefit were at risk due to political will and individual interests.

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13. Sources

None