

## PERCEPTION OF THE CLIMATIC CHANGE AND POTENTIAL OF ADAPTATION IN THE ESTUARY OF BAHÍA BLANCA

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Climate Change is undoubtedly the most important environmental phenomena of nowadays, and the adaptation to its consequences is a key goal of the millennium. The development of these adaptation activities necessarily requires a previous recognition of the main impacts and the zones with higher potential of vulnerability to climate change.

According to the Second National Communication of the Argentine Republic to the Conference of the Parties to the UNFCCC, most of the Argentine territory exhibits remarkable climate trends during the last 3 or 4 decades, very likely related to the global warming trend, which have produced important impacts on natural and socioeconomic systems that require adaptation responses. Furthermore, according to the climate scenarios projected by climatic models developed by the experts, global warming would create new vulnerabilities and enhance most current ones.

Coastal zones are potentially within the most vulnerable areas of the country, because of the erosion. This situation may be even worse in some coastal areas of the Province of Buenos Aires, due to the urbanization process along the coast, which increases the risk of flooding and loosing higher extensions of the beach. This is clearly the case of the coastal zone of the Bahía Blanca Estuary<sup>1</sup>.

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<sup>1</sup> Argentina Republic. Second National Communication of the Argentine Republic to the Conference of the Parties to the UNFCCC. Buenos Aires City, October 2007.

In that context, this paper has been written in the frame of an international co-financed project titled COMET-LA<sup>2</sup>. The main objective of COMET-LA project is *identifying sustainable community-based governance models for the management of natural resources in different socio-ecological systems, in a frame of Climate Change and increasing competition for the use of natural resources. In Argentina, the study area is the Monte Hermoso - Bahía Blanca Estuary region, located on the southwestern coast of the Buenos Aires Province, and composed by three different zones: Bahia Blanca, which includes General Daniel Cerri (GDC), Ingeniero White (IW), Pehuen-Có (PC), Villa del Mar (VM) and Monte Hermoso (MH).*

Therefore, the key objective of the present work is to recognize the impact of the climate change according to the *perceptions* of both local stakeholders and decision makers on socio-economic problems and possible solutions related to the environmental context in the coastal area.

Participative techniques have been preformed. Methodology has three principal instances: 1) Realization of a mapping of key stakeholders and decision makers; 2) Separate participative workshops with stakeholders and decision makers to picture their perceptions about the problems and their solutions, using the brainstorming technique; 3) Second meetings, where the main responses to the questions (which have been previously systematized) were presented to the attenders and deeply discussed.

Within the more relevant results, there is the characterization of population and its main economic activities. These are service and commerce, petrochemical industry and artisanal fishery in IW; livestock (mainly slaughterhouses) and fruit and horticultural activities besides fishery in GDC; service, commerce and artisanal fishery in VM; and a marked dominance of tourism activities followed by fishery in the cases of PC and MH.

In IW, GDC and VM, the perception about the climate change indicates: 1) increases in water temperature in the last years; 2) decreasing in rainfalls and a higher soil salinity in GDC and VM; 3) changes in winds off-shore in fishing areas. The perception about the consequences of climate change is mixed with consequences due to the dredging activities, the overexploitation as well as the high pollution for sewages, affecting mainly fisheries activity.

In MH and PC perceptions of stakeholders highlight: 1) The relevance of the problem of coastal erosion, as a joint result of the Climate Change and urbanization (in concordance with the observed by the 2<sup>o</sup> Communication previously mentioned), and the consequent socioeconomic impacts. Touristic

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<sup>2</sup> See <http://cometla.nilu.no/>

activities are directly affected by the reduction of the beach and the increases in the dangerousness of the coastal zone, also affecting daily lives. 2) The increases in the average minimum water temperature of the estuary and the changes in the wind patterns, jointly with pollution and overexploitation, resulted in seasonal, yearly or decadal variability of the species and in fishery resources. 3) The reduction of the intermediate seasons as improved the touristic activity as summer season has enlarged .

With respect to the adaptation activities, we do not find integral initiatives but isolated individual actions and proposals in response to the perceived effects of the climatic phenomena over the traditional economic activities.

Therefore, the main conclusions of this work are: 1) There is a clear perception about the necessity of an integral management plan, for both fishery and touristic activities, so that socioeconomic impacts of Climate Change can be attenuated; 2) The absence of a Community based and integral management plan for the coastal and marine resource seems to be enhancing the natural consequences of climate change, impacting on both the population economy and quality of life. 3) There is a clear absence or insufficiency of adaptation actions, which has taken the inhabitants of the zone to a potential risk and vulnerability situation in the medium and long term.