



"LIVING MANGROVE"

Title:

"Vulnerability reduction to coastal flooding through ecosystem-based adaptations in the southern part in Artemisa and Mayabeque provinces."

Objective:

Reduce the vulnerability of communities -located in the coastal areas of the provinces Artemisa and Mayabeque in southern Cuba- in the face of phenomena related to climate change (CC), including coastal erosion, floods and saline intrusion.

Intervention area:

There are three municipalities in the south of Artemisa province: Artemisa, Alquizar and Güira de Melena (from Playa Majana in Artemisa municipality to Playa El Tomate; the limit between Güira de Melena and Batabanó municipalities). The southern dike and the coastal settlements of these municipalities: Cajío, Boca de Cajío, Guanímar, Majana, among others, are included.

Actions:

The objective of the project will be achieved through investments in three complementary components.

Component 1. Reduction of coastal flood impacts through the recovery of coastal ecosystems.

- Restoration of mangrove ecosystems between Majana and Surgidero de Batabanó.
- Eliminate and/or control invasive alien species.

- Reconstruction and enrichment of inland coastal forests.

Expected results:

Improvement in the conditions of coastal ecosystems, resulting in progress due to their contribution to adaptation to CC. They are measured by:

- Planting of red mangroves established along the coast.
- An Invasive Exotic Species Management Plan (EEI).
- Restored and enriched forests that border inland crops.

Component 2. Increase in the adaptation capacity of coastal communities to climate change.

- Ecosystem Based Adaptation (EBA), as the main activity integrated into the planning of the coastal zone, and activities of the productive sector.
- Purchase, participation and authority in local communities.
- Knowledge management systems at the community level.

Expected results:

Coastal communities have the required awareness and capacity to participate in an active, effective and sustainable way in actions through:

- Creation of volunteer groups dealing with environmental and adaptation matters.
- Local schools with study programs that incorporate adaptation issues.
- Communities planning and carrying out adaptation activities, due to the support received from local governments.
- Popular councils receiving economic benefits, resulting from the sustainable use and conservation of coastal ecosystems.
- Dissemination and awareness by gathering materials for adaptation issues, produced by local media.

Component 3. Ensure the effectiveness and sustainability of adaptation actions, by establishing a favorable environment at the regional level.

- Consolidated information about the costs and benefits of ABE, available to decision makers and planners.
- Strengthened institutions -provincial and municipal government, ranger corps, border guards and fishery departments) supporting ABE actions, within the framework of action plans, updated and actively implemented.

Expected results:

- Provincial and municipal development plans that have specific clauses on ABE,
- Provincial and 6 municipal governments, with knowledge management of systems in place related to EBA.
- Provincial and municipal governments, carrying out supervision visits to each coastal objective of the community/year.

The project will have a range of interrelated social, environmental and economic benefits; all of which will contribute to increasing the resilience and adaptive capacity of the community against variability and CC.

Project Benefits-Adaptation Benefits.

- The population of the selected districts -approximately 21,502 among men and women- will have beneficial protection from the impacts caused by climate change, like floods, erosion and brackish water intrusion; thus protecting their livelihoods, ensuring water supplies, reducing diseases and other impacts on human health.

Social benefits.

- About 270,705 local inhabitants (men and women) in the specific areas, where ABE strategies are implemented; in particular those whose livelihoods are based on agriculture, fishing and tourism. They will benefit from ecosystem protected and/or improved conditions; as well as the necessary services to protect their livelihoods.
- Improved food security for local farmers and fishermen.

- Increasing awareness and improving knowledge about the impacts of climate change, enrich communities' skills to undertake autonomous adaptation actions.

Economic benefits.

- Protection of land and crops against losses, due to the impacts of climate change (reduction of floods, erosion and brackish water intrusion); increased security of water supply for agricultural production.
- Protection of key habitats (mangroves) for commercial fishermen.
- Conservation of wetland ecosystems (including prevention of overly saline conditions), that will allow continued hunting, fishing and cultivation by local inhabitants.
- Most important infrastructure, e.g. roads and enclaves; protected from coastal erosion and floods.
- Avoided the cost/maintenance of levees (thus guaranteeing more funds for other national priorities, such as health, education, etc.).

Environmental benefits.

- Improved capacity of ecosystems (mangroves and coastal wetlands) to provide essential and regulatory services: flood control and prevention; erosion prevention; drinking water for human consumption and agricultural use; as well as a refuge for biodiversity.
- Increased carbon confiscation through the reforestation of mangroves and the conservation of wetlands.

PROGRAM OP/15-CPP.

CPP: COUNTRY ASSOCIATION PROGRAM in support to the implementation of the national program to combat desertification and drought.

The CPP includes the foundations that promote Sustainable Land Management (MST) and is made up of five projects.

PROJECT 2.

Title of the project:

"Strengthening capacities for the coordination of information and monitoring systems/Sustainable Land Management (MST) in areas with water resource management problems."

Objective of the project:

Strengthen the coordination of information and monitoring systems, in the management of water resources, based on the MST.

Expected results:

Result No.1

- Individuals and institutions have the necessary human and material capacities to undertake SLM, with an emphasis on water management.

Result No.2

- Strengthened biophysical monitoring, and information management system for decision-making on land use.

Result No.3

- Integrated Management Model in three intervention areas, for monitoring of the Integrated Management of Water Resources, IWRM/MST; increases in agricultural production, with potential for replication in other areas.

Result No.4

- Programmatic Control System of control and monitoring of the Project.

Intervention Areas:**"SOUTHERN PLAIN HABANA-MATANZAS.**

Project 2 will work on a small-scale landscape -based on hydraulic complexes and underground basins- strengthening the system for monitoring reserves and water quality; and will also verify and implement monitoring, evaluation and management practices of the information, integrated and developed by Project 1. This plain is of vital importance for the productive development of the capital; its selection provides the implementation of MST and IWRM practices; as a development model for the sustainable management of natural resources; and the conservation of groundwater reserves; the improvement of the

catchment areas and the training of the actors in IWRM.

Demonstration sites within the intervention area:

- Agricultural Enterprise Güira de Melena. (UBPC-CPA-CCS).
- Porcine Artemisa Enterprise. UEB Breeding Camilo Cienfuegos.

Replication site:

UCTB Field Experimentation of the IAGRIC “Pulido”, Alquizar municipality.

The project will promote a series of the best practices for water resource management in the intervention areas.