

Colombia – Coastal zones, settlements and infrastructure.



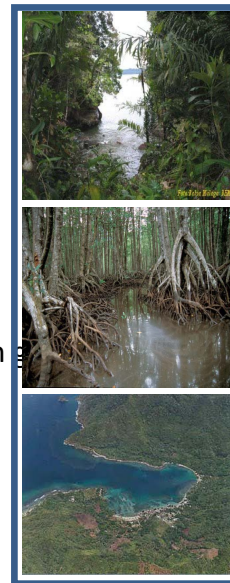
UNFCCC Technical workshop on Costs and Benefits of Adaptation Options.

Madrid – Spain
22 to 24 June 2010.

Coastal zones, settlements and infrastructure

Content

1. Background – Colombia coastal zones.
2. Vulnerability and development issues.
3. First National Communication (2002)
4. Current strategies, programmes and Practices.
5. Adaptation actions on coastal zones – On g
Colombia.
6. Lessons learned and good practices
7. Opportunities and challenges



2. Vulnerability and development issues

- Unplanned, progressive and growing tourism poor planning on the coastline.
- An increase in pollution along the more densely populated sections and heavily exploited, coastline erosion, degradation and loss of habitat and reduced progressive fishing.
- Lack of planification for the land use and coastal services use.
- Lack of capacity for management and monitoring of the zone by the public sector.

Current strategies, programmes and practices

Integrated National Adaptation Pilot Project - INAP :

Definition of the Vulnerability of the Biogeophysic and Socioeconomic Systems due to a Change in the Sea Level in the Colombian Coastal Area (Caribbean, Insular and Pacific) and Adaptation Measures.

- **Region:** Colombian Coastal Zones (Caribbean, Insular and Pacific).
- **Activities:** The project assessed the vulnerability of coastal zones to potential sea-level rise using the methodology proposed by the Intergovernmental Panel on Climate Change.



Adaptation actions on coastal zones – On going efforts in Colombia.

Institutional Capacity

MINISTRY OF ENVIRONMENT,
HOUSING AND TERRITORIAL
DEVELOPMENT



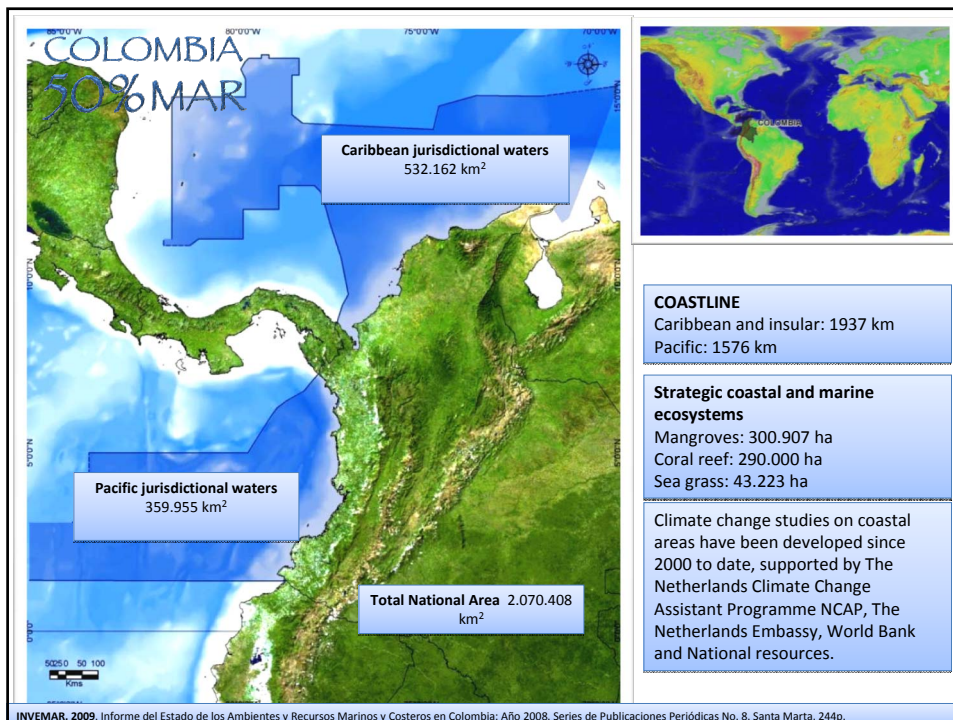
Political enhance, and international promotion for cooperation activities on adaptation.

MARINE AND COASTAL RESEARCH
INSTITUTE – INVEMAR

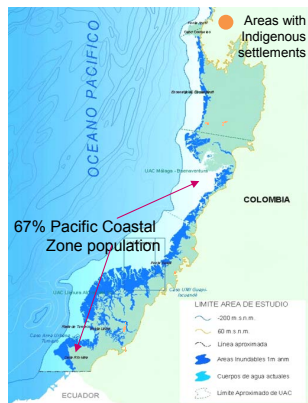
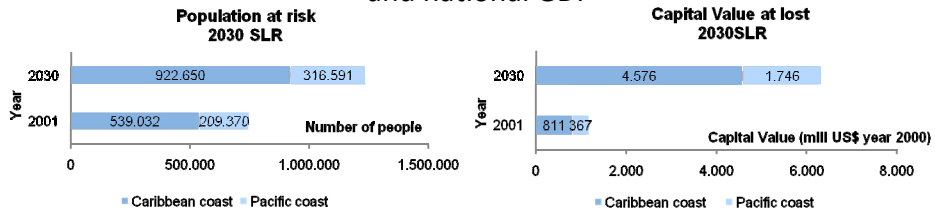


Technical and scientific advice for climate change adaptation politics, practices and programs.

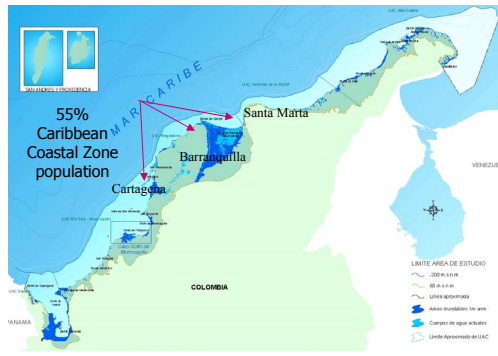
THE INSTITUTE OF HYDROLOGY,
METEOROLOGY AND
ENVIRONMENTAL STUDIES - IDEAM



Sea Level Rise (SLR) impacts on population and national GDP



Almost 3.1% of the national population is growing into risk of combined tidal and river flooding.



Critical areas



75 coastal municipalities are currently at risk from tidal flooding alone.

Caribbean Sea

COLOMBIA

1 m SLR

Most vulnerable sites:

1. Cartagena de Indias
2. Barranquilla
3. Santa Marta
4. Turbo
5. Ciénaga
6. San Andrés de Tumaco
7. Buenaventura
8. Guapi
9. Nuquí
10. San Andrés y Providencia Islands

Pacific Ocean

SLR Adaptation measures Cartagena de Indias and San Andrés de Tumaco

CARTAGENA DE INDIAS

1. Establishment of a new regulatory measures for the design and construction of infrastructure.
2. Definition of shoreline setbacks or buffer zones around vulnerable coastlines to avoid loss of human life as well as damage to infrastructure in case of natural hazards.
3. Public awareness activities



SAN ANDRES DE TUMACO

- Prohibition to develop anything below the 3.40 meter altitude line. The zone below the 3.40 meter line has to serve as an area where natural processes have the space to develop themselves without interference.
- Development of a regulatory system for land planning, including risk zoning.
- Public awareness activities.

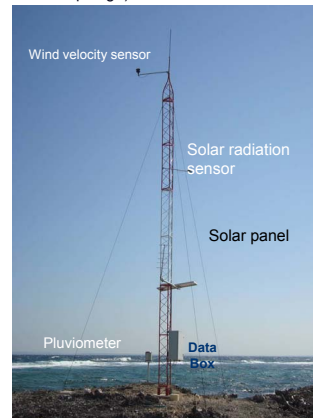
Integrated National Adaptation Pilot Project – INAP (GEF - WORLD BANK)



Adaptation measure 1:

Global Ocean Observation System (GOOS) supported by a meteorological station network, complementing the regional network under Caribbean Regional System.

- Terrain GOES station and Center of Data Administration (INVEMAR - Santa Marta)
- Data collection stations in Tesoro Island (CRSBelf) and Johnny Cay (San Andrés & Providencia Archipelago)



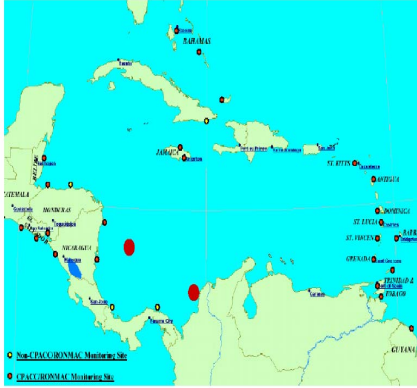
Adaptation measure 2:

Designation of a marine protected area system in the *Seaflower Reserve* (San Andrés and Providencia Archipelago) and the *Corales del Rosario, San Bernardo e Isla Fuerte* (CRSBelf)

- Colombian Caribbean Insular monitoring stations in coral reefs for climate change effects
- Coral Reef management guidelines under climate change scenario
- Definition of priority conservation areas (No- take zone)

PROJECT - COMPONENT C

1. Operation and maintenance of Ocean automatic monitoring stations system



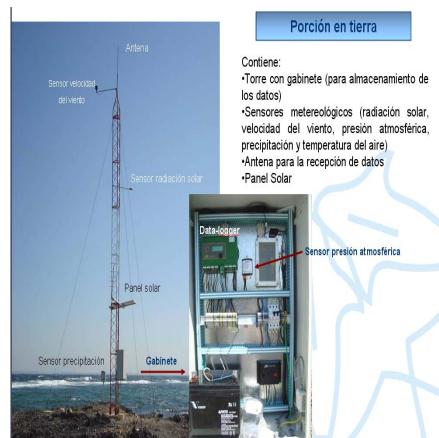
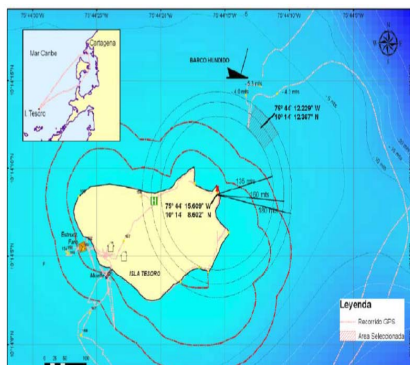
Increase in the number of monitoring stations in the Caribbean.



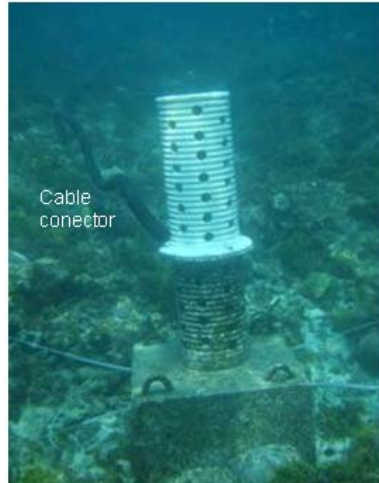
-Center of Data established in Santa Marta

PROJECT STATUS-COMPONENT C

One monitoring station established in Isla Tesoro – San Andres Island.



PROJECT STATUS-COMPONENT C



PROJECT STATUS-COMPONENT C

2. Integrated water resource management: Design and implementation of rain fed communal water supply systems

Design of rainwater harvesting and a wastewater recovering system SMIA in 2 pilot areas: Tom Hooker y Ciudad Paraíso: It includes water collection, storage and treatment; maintenance; water quality monitoring; education and training.

- Tom Hooker benefits a 7 households and y 40 people.
- Ciudad Paraíso benefits 25 households and 125 people.



3. System for sustainable management of aquifer reserves in San Andres.

-Preparation of an updated ground water management plan for SAI and the development of technical tools for monitoring the aquifer.



PROJECT STATUS-COMPONENT C

4. Development of guidelines and implementation of pilot management plans for atolls, keys and corals, accordingly with established MPAs guidelines (SF-MPA and CRSBeIF-MPA).

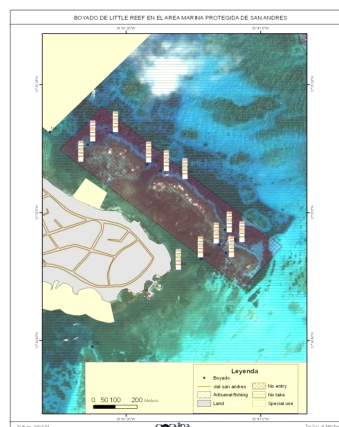
- Expeditions to Key Bolivar to get basic data and develop a management plan.



PROJECT STATUS-COMPONENT C

5. Marine Protected Areas. Support to the implementation of the marine protected areas system in Seaflower reserve area as well as in the CRSB e IF in order to contribute to the conservation of marine ecosystems.

- Demarcation plan for coral conservation areas in SF-MPA and CRSBeIF MPA. Technical support of the Florida Keys National Marine Sanctuary. It includes installation of equipment of anchoring; installation of boyas in conservation and special use areas.
- Establishment of marine and coastal resources guidelines and implementation of management actions for remote keys and banks.
- Preliminary enforcement strategy to prevent marine ecosystems degradation in the MPA.
- Training activities to local students.



Cost of actions.

INTEGRATED NATIONAL ADAPTATION PROJECT - INAP

- Approved by GEF in 2005. Started in July 2006.



- Implementing Agency GEF: World Bank

- Executing Agencies: IDEAM (Coordinator) INVEMAR, INS, CORALINA.
- Administrative coordinator : CI-Colombia

- Duration: 5 years

- Funds : US\$ 5.4 Millions given by GEF, through the WB
US\$ 7.4 Millions given by the Colombian Government
US\$ 2.4 Millions given by other donors, including Conservation International, MRI – Meteorological Research Institute of Japan, e IRI – International Research Institute of Climate Prediction.

Financial Flows INAP Project, March 31 2010.

Budget Executed

COMPONENT		BUDGET US	EXECUTED US	%
A	SCENARIOS	\$ 1.000.000	913.559,5	91%
B	HIGH MOUNTAIN ECOSYSTEMS	\$ 1.570.000	1.077.820,4	69%
C1	INSULAR CONTINENTAL	\$ 650.000	626.821,5	96%
C2	INSULAR OCEANIC	\$ 650.000	497.114,3	76%
D	HEALTH	\$ 1.000.000	792.578,5	79%
E	MANAGMENT	\$ 530.000	492.897,5	93%
	TOTAL	\$ 5.400.000	4.400.791,7	81%

Source: IDEAM, 2010.

Opportunities and challenges

- Colombia is currently under the review process of the territorial planning instruments.
- The National Climate policy (in formulation) is aimed to generated legal instruments to forced local decision makers to integrated climate change in the developing instruments – cost assessment is crucial in that way.
- There is an increasing political will, at national level to strength the integration of adaptation policy across the sectorial and regional levels.

Lessons learned and good practices

- The construction of two Water integrated Systems with the participation of the inhabitants of San Andres Island.
- Assembly of a Data Manager Center with two oceanographic and meteorological monitoring stations and a monitoring system for coral reef areas in the Colombian Caribbean islands.
- The It was incorporated climate change criteria on the management plan for marine Island protected areas at the Colombian Caribbean.
- Outputs of the study set demonstrative pilot actions in the preparation of the country for the establishment of a Climate Change Adaptation National Policy.
- Capacity building through research, institutional training strategies and public awareness as effective mechanisms to improve the adaptability of the Cartagena de Indias and Tumaco coastal areas.



Opportunities and challenges

There is a need to make the adaptation measures “politically attractive”. (Combination between long and short term actions). To achieve this objective the economic evaluation, and specially the economic and social benefits assessment of adaptation actions is urgent!

THANK YOU!

Lorena Santamaría R.
ssantamaria@minambiente.gov.co
Ministry of Environment, Housing and Territorial Development.
Climate Change Group.
Bogotá – Colombia