

# Protection of carbon pools and sinks in mangroves of Panamá

## Mangroves for climate change mitigation and adaptation

The mangroves of Panamá store and sequester enormous amounts of carbon not only in their leaves and branches, but also in their roots and soil. Wetlands International works together with UNDP and national authorities to find out how much exactly and to make sure that these carbon pools and sinks are better managed and protected. For their contribution to climate change mitigation, but also to maintain their broad range of ecosystem services in support of local climate change adaptation.

### Blue Carbon values

Blue Carbon is the carbon stored in mangroves, tidal salt marshes, and seagrass meadows within the soil, the living biomass above ground (leaves, branches, stems), the living biomass below ground (roots), and the non-living biomass (litter and dead wood). It does not remain stored for decades or centuries (like for example in rainforests), but rather for millennia. Blue Carbon represents more than 55% of the green carbon (carbon captured by photosynthetic activity) globally.

In Panamá, up to now the carbon stored (*pool*) and sequestration (*sink*) potential could only be estimated using calculations of studies from other countries with similar latitudes and apply these to the country's 169,700 hectares of mangrove cover.

With scientific measurements in field sites in two important mangroves areas in Chiriquí and Darién, experts are able to determine both how much carbon there is already in Panamanian mangroves and how much they sequester annually. To be able to do these calculations, the experts carry out measurements over a period of three years.

The data is to be incorporated in Panamá's reporting to the UNFCCC and are necessary to incorporate mangroves into its national climate change strategies. Additionally, we will investigate the broad range of ecosystem services from these highly productive areas.

### Training and advocacy

The initiative builds the capacity of a core group of conservation managers from national to local authorities as well as

community members from grassroots organisations.

Through trainings and learning-by-doing exercises, authorities are able to integrate climate change adaptation and mitigation into their landscape management planning and regulations. Local stakeholders will be able to incorporate these aspects into their practices as well as strengthen their capacity to make sustainable use and restore the mangroves that they depend on for their livelihoods.

At the national level, regulations and best practices are disseminated for implementation in the 70,177ha of mangroves within the National System of Protected Areas (SINAP) as well as Special Management Zones.

Mangroves protect Panamá City's high end housing investments



**Wetlands**  
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Carbon measurement in the Chiriquí Province of Panamá  
Dario Tovar

### Community projects

The initiative develops a portfolio of micro-projects in the communities of Chiriquí Province, which holds some of Panamá’s most extensive mangroves. The multi-disciplinary teams help build mangrove management capacities in the communities, identify climate-related risks and mangrove ecosystem services, and apply climate change adaptation measures.

These include reforestation as well as sustainable productive activities designed to diversify and increase community members’ income and reduce pressure on mangroves.

The goal is to make these mangroves an essential building block of local resilience to climate-related risks, as well as maintain their important contribution to global climate change mitigation, through their function as a carbon sink.

### Research, exchanges and outreach

Drawing from the existent wealth of knowledge (incl. traditional) and sustainable management experiences in the country as well as from new initiatives, learning exchanges between wetland-dependent communities in Panama are promoted. Existing measures and practices are thus “put into value” both inside and outside the community and can be replicated or up-scaled for a broader impact on national mangrove conservation.

Furthermore, a comprehensive communications strategy will raise awareness on mangroves’ importance for the climate and promote the involvement of different audiences, including women’s groups, in mangrove conservation.

### Quick facts:

169,700 ha of mangroves in Panamá in 2007  
from 361,500 ha in 1969

Majority on Pacific coast,  
only 16,382 ha Caribbean coast

5.2% of total forest cover

2.3% of total land cover

This project is part of the International Climate Initiative. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety supports this initiative on the basis of a decision adopted by the German Bundestag.



Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

### Our partners



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### More information

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