Evaluation summary

Restoration, conservation and sustainable management of mangroves in Costa Rica and Benin in the face of climate change

Countries: **Costa Rica, Benin**

Topic: **Integrated management and resilience of coastal and marine areas**

Assessed by: **Nature et Développement (Costa Rica), Biotope (Benin)**
Assessment date: **April to August 2024**

Key FFEM support data

Project name: Restoration, conservation and sustainable management of mangroves in Costa Rica and Benin in the face of climate change

Project number: CZZ 2190

Amount financed by the FFEM: €1,270,000

Project grant date: 02 February 2017

Duration: 6.5 years

Context

Mangroves are fragile ecosystems that are vital for the survival of several endangered species. These environments are crucial for food security and combating climate change. Costa Rica and Benin possess extensive coastal wetlands that include mangroves. Given the context of climate change and increasing anthropogenic pressure, it has not been possible to ensure the sustainability of the services provided by these coastal ecosystems. Between 1980 and 2005, 35% of mangroves were lost in Costa Rica (FAO, 2005), while a quarter of their coverage in Benin disappeared between 1980 and 2006.

The FFEM supported the implementation of a project for the restoration, conservation and sustainable management of mangroves at 3 pilot sites along the Pacific coast of Costa Rica and at 1 site in Benin.

Participants and operating methods

Project implementation was assigned to the National System of Conservation Areas (SINAC) in Costa Rica, with the subsequent support of the NEOTRÓPICA Foundation and the CORCOVADO Foundation. These organisations worked alongside the EPOMEX Institute (Autonomous University of Campeche) in Mexico on the project's scientific aspects, while the NGO CORDE oversaw project implementation in Benin. Formal and informal partnerships were also established with community organisations


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Objectives

Restoring the mangroves and promoting their sustainable management allow the coastal wetlands of Costa Rica and Benin to better mitigate, and adapt to, climate change.

Specific objectives:

- Restore 58 hectares across 3 sites in Costa Rica and 30 hectares at 1 site in Benin (environmental diagnostics, community reforestation, scientific monitoring)
- Enhance the mangrove ecosystems and services provided to communities (environmental education, supporting sustainable economic activities)
- Strengthen institutional capabilities
- Encourage skills transfer and experience-sharing between Mexico, Costa Rica and Benin
- Develop scientific capitalisation by involving the academic sector

Performance appraisal

Relevance

The project demonstrably capitalised on the momentum generated by public institutions in Costa Rica (SINAC, MINAE) through a robust policy of forest conservation – with a particular focus on mangroves – and in Benin, where development initiatives that respect these ecosystems have been bolstered. It also enabled the effective restoration of sites in areas that are particularly sensitive in this regard.

Coherence

The activities planned in Costa Rica and Benin were perfectly coherent with the objectives of South-South cooperation, as well as the ambition to implement methods that have proven effective in certain regions of the world (Mexico, etc.) and transfer technology to other countries in the Global South (Costa Rica, Benin). The proposed methods were similar and consideration was given to adapting to the local context.

Effectiveness

The main factors that enabled conditions conducive to effective restoration included the use of proven methods, technical assistance provided by EPOMEX, the involvement of foundations (Neotrópica and Corcovado), the legitimacy of the NGO CORDE, and the unwavering commitment of local communities (especially APPRAMAR, COOPEMUJER and API MANGLE in Costa Rica and village associations in Benin).

Efficiency

The financial scale of the project seemed appropriate for the activities planned. The contribution from communities was contingent on the remuneration needed to mobilise women (nurseries, transporting plants) and men (often fishermen in Costa Rica) for the extremely difficult task of digging channels. Research activities were underfunded for the initial objectives. Participants highlight the importance of finding new financing to ensure the long-term maintenance of the restored sites.

Impact

The project has made a significant impact by restoring 13 hectares of mangroves in Costa Rica and 9 hectares in Benin, training a number of participants, raising awareness in schools, developing income-generating activities (ecotourism, bee-keeping, food trucks, etc.) and, more generally, by transferring skills and boosting interest at national level.

Viability/sustainability

A number of indicators (bioindicators, vibrant and thriving restored areas, the heights of the mangroves planted, the return of crabs, birds and other fauna, a reduction in salinity, restoration of physico-chemical parameters in the soil, etc.) are testament to the success of restoration measures in Costa Rica and Benin. The project activities are viable because the communities – particularly in Costa Rica – have gained expertise and knowledge of the ecosystem. In order to maintain this sustainability and ensure the ongoing maintenance and monitoring of the sites, new financing would be needed to enable communities to serve as intermediaries and guardians.

Added value of FFEM support

Aside from the objectives of effectively restoring mangrove sites, training, raising awareness, and cross-cutting capacity-building of legitimate actors, the added value of FFEM support lies in the ability to engage and mobilise communities around the project sites and facilitate the transfer of knowledge and skills across different countries (Mexico, Costa Rica, Benin), despite the geographical distance between them.

Recommendations & learnings

In Costa Rica, swathes of mangroves are disappearing, largely as a result of agricultural pressures and urbanisation. The projects that have already been implemented by SINAC must be expanded and enhanced. The following are recommended avenues to explore:

- Expand scientific research into mangroves and their associated ecosystems (seagrass beds, corals), harness their functions and the services they provide, broaden biodiversity inventories (insects, birds, crabs), and gain better understanding of invasive species.
- Raise awareness among users and reduce the use of agricultural pesticides in the vicinity of mangroves (cane fields). These pesticides inevitably find their way into mangrove sediment through run-off.
- Develop ecotourism and, in particular, respectful and responsible birdwatching in the mangroves. Tourists are increasingly eager to immerse themselves in nature, and to visit sites that are home to projects restoring the natural environment.
- Encourage healthy and sustainable economic activities around the mangroves. Adopt projects such as healthy bee-keeping (following strict specifications) that encourage communities to preserve the mangroves, while capitalising on the ecosystem to improve their livelihoods and, in so doing, become guardians.
- To ensure sustainability of the restoration project, continue monitoring the growth and expansion of the mangroves and maintenance of the channels, and make arrangements to hire dedicated local “project officers” in the longer-term.

In Benin, mangroves play a major ecological role in the water catchment of the Mono-Ahémé-Couffo river-lagoon complex, which is highly vulnerable to flooding. In view of the development challenges facing the area, priority measures would include:

- Large-scale restoration of mangrove sites in the Bouche du Roy region.
- Demonstrating the pivotal role of nature-based solutions to climate hazards, including mangroves.
- Boosting the involvement of competent national institutions (the Directorate-General for Energy & Climate - DGEC, Benin Environment Agency - ABE, the Agency for the Integrated Development of Lake Ahémé and its Channels - ADELAC, etc.) in the restoration.
- Diversifying the number of stakeholders involved in restoration projects to scale-up these initiatives.