

Full Solution

Changing Climate Patterns, Changing Flows, Changing Minds: restoration of mangroves and hydrological flows



by CONANP Mexico
National Commission of Natural Protected Areas

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Summary

When Marismas Nacionales, Nayarit, Mexico, was declared a biosphere reserve, there was community resistance to change of their current productive practices. CONANP developed a long-term strategy for changing perception of the context of climate change impacts, that was focused on raising awareness, capacity development, and continual technical support. A specific measure has been the rehabilitation of mangrove ecosystems through the reestablishment of natural salt and fresh water flows.

Classifications

Region

North America

Scale of implementation

Local

Ecosystem

Estuary, Freshwater ecosystems, Mangrove, Marine and coastal ecosystems, Wetland (swamp, marsh, peatland)

Theme

Adaptation, Fisheries and aquaculture, Protected area management planning, Restoration, Sustainable livelihoods

Challenges

Floods, Land and Forest degradation, Loss of Biodiversity, Salinization, Tropical cyclones / Typhoons, Unsustainable harvesting incl. Overfishing, Poor governance and participation

Sustainable development goals

SDG 6 – Clean water and sanitation , SDG 13 – Climate action , SDG 14 – Life below water

Aichi targets

Target 1: Awareness of biodiversity increased , Target 4: Sustainable production and consumption , Target 5: Habitat loss halved or reduced , Target 6: Sustainable management of aquatic living resources , Target 10: Ecosystems vulnerable to climate change , Target 11: Protected areas , Target 14: Ecosystem services , Target 15: Ecosystem restoration and resilience

(I)NDC Submission

Mexico

Location

Lib. de Mazatlán, Tepic, Sin., Mexico | Reserva de la Biosfera Marismas Nacionales Nayarit (RBMNN), México

Challenges

Environmental:

Tropical storms damage shrimp farms, mangrove systems and channels, which, combined with a loss of water flow in the rivers entering the estuary (because of agricultural use and less rainfall), is causing an increase in mangroves' salinity, damaging the socio-ecosystem.

Socio-economic:

The underpricing of fish by the fishing communities results in the inability of the latter to cover costs and livelihood needs. This can result in over-fishing to make up for the gap.

Beneficiaries

- Local fishing communities and authorities.
- Local oyster industry.

Building blocks

Transforming perceptions on ecosystem-livelihood connection

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Using natural processes in mangrove rehabilitation

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Integrating payment programmes into a larger strategy to promote sustainable livelihoods and long-term ecosystem conservation

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Using a flexible approach for defining conservation and production areas based on local knowledge

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Adoption of innovative technology

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How do the building blocks interact?

At the core of the solution in Marismas Nacionales, Nayarit Biosphere Reserve is the institutional flexibility (building block IV) necessary for CONANP to be able to take into account evidence from the field, as well as fieldworkers and local community knowledge and opinions, in order to adapt its policies to create a sustainable agreement on ecosystem rehabilitation and local livelihood maintenance that is relevant to the people and ecosystems (building blocks I, II and III). This institutional flexibility, along with partnerships with the community in terms of long term support and mentoring, enables the community to positively change its mind and attitude with respect to its sense of belonging to the reserve (building block I), thus creating an environment in which innovative practices can be adopted by the community (building block V). A change of mind (building block I) and correct timing of payments for supporting mangrove rehabilitation (building block III) directly support the creation of an eager local workforce for mangrove rehabilitation (building block II).



Impacts

Environmental:

Inner lagoon mangrove ecosystems have experienced an unprecedented rehabilitation. Rather than an indiscriminate replanting of mangroves, biodiversity is benefiting from a strategic rehabilitation of mangroves through the reestablishment of natural salt and fresh water flows, via effective channel management. This is leading to a reduction in salinity and an increase in nutrient exchange. As a result, the local shrimp industry has seen positive impacts on its productivity.

Social:

CONANP and local communities are effectively collaborating to generate mutual benefits for ecosystems and livelihoods. Local communities and authorities have benefited from improved knowledge and collaboration, linking sustainable ecosystems and livelihoods.

Economic:

The local oyster industry, closer to the estuarine zone, has implemented innovative adjustments in their practices and benefited from increased sources of income, reducing long-term costs and maintaining productivity. Local fishing cooperatives are rethinking to price their products above their real costs and their livelihood needs. In spite of the pressure to sell their products at low prices, through intermediaries, CONANP is focusing on strengthening price setting capacities to reduce economic pressure.

Story

Marismas Nacionales Biosphere Reserve is one of the youngest protected areas in Mexico (established in 2010). Most of its territory is under either communitarian, “ejidal”, or private ownership, rather than federal control. This has compelled CONANP to take a different approach when working with communities in order to adapt to climate change from an ecosystem-based perspective. The reserve and its communities are under threat from hurricanes, phenomena that cause losses of mangrove ecosystems and fish nurseries. It also suffers of changes in rainfall patterns, which cause economic losses in productive activities such as oyster and shrimp production, and agriculture. These threats are increased due to climate change, making the reserve more vulnerable. When the reserve was established, there was a lot of community opposition to make changes on its productive practices. CONANP embarked on a long-term strategy for influencing local perception by awareness raising, capacity development and continuous technical and moral support, rather than solely on financial support linked to payments for ecosystem services or subsidies. The intention was that communities would change because they believed in the ecological and long-term value of livelihoods and their work, not just because they were paid for it. CONANP has provided more opportunities for the local communities by implementing flexible policies about the use of mangroves. This has allowed the community to adopt a range of secondary productive activities based on the sustainable use of the mangrove ecosystems, which function as buffers when climate threats affect fisheries. This has also led to a reduction in conflicts and a greater community appreciation of the value of the ecosystems in which they live. As a result, local fishing communities have been responsible, with CONANP’s support, for rehabilitating local mangroves, leading to a win-win for both biodiversity and livelihoods.

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Portals

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