



MAINSTREAMING OF BIODIVERSITY IN THE TOURISM AND INSURANCE SECTORS

The Case of the Coastal Zone Management Trust in Quintana Roo, Mexico

Case highlights

A series of hurricanes hitting a stretch of the Mesoamerican coral reef and beaches triggered the world's first coral reef insurance policy, based on its protective service. It will pay out to repair and restore the reef in the event of a major storm.

The combination of an insurance policy for the coral reef and a well-organized post-storm response capacity proved a highly successful approach to help the reef recover, thus protecting both nature, people and business.

Similar coastal protection benefits are known from sandy coasts (e.g. dunes) and coastal wetlands (e.g. mangroves) so opportunities to apply this mechanism exist around the world.



FIGURE 6:
A brigade member learns to use a drill underwater during rapid response training. Following a hurricane, brigade members use drills to secure corals and repair the reef in the Mesoamerican Barrier Reef at Puerto Morelos National Marine Park. Puerto Morelos, Mexico. June 2018
Photo: ©Jennifer Adler/TNC



FIGURE 7:
Nursery with *Acropora palmata* coral colonies.
Photo: ©Oceanus A.C.



Issue addressed

In 2005, Mexico's Caribbean coast was struck by two hurricanes, causing US\$8 billion in damages and closing hotels and other businesses in Cancún. But some hotels and beaches in Puerto Morelos were protected by a stretch of coral reefs and suffered less damage. A healthy coral reef can reduce up to 97 percent of a wave's energy before it hits the shore. But coral reefs can themselves be damaged by severe storms which then greatly reduces the protection they offer for coastal communities. Local authorities often lack the financial resources to repair the damages by such fierce weather events.

Approach followed

To confront this threat in the Mexican state of Quintana Roo, various stakeholders—state government, hotel owners, The Nature Conservancy (TNC) and The National Parks Commission (CONANP)—have come together to pilot an innovative conservation strategy to build post storm response capacity: the Reef Brigades, representing a qualified team of community members (tour guides, diving instructors, park rangers, fishermen, researchers) trained and equipped to repair the reef after a storm. When broken corals roll around and get buried in the sand, they soon die. But pieces can be saved if they are fastened back onto the reef.

The same year, Quintana Roo government established the Coastal Zone Management Trust, in collaboration with the tourism industry, The Nature Conservancy (TNC), civil society organisations, the local science community, and the international insurance industry. It is designed to collect and manage funds for reef maintenance. The trust purchased the first ever coral reef and beach insurance policy to ensure these vital ecosystems have funding for repairs after extreme storms hit. Hotel and tourism operators with beach front properties pay a concession to the government. Twenty-five percent of this concession is put in a Trust Fund which is allocated for on-going coral reef maintenance and the purchase of the annual insurance. In 2020, the coverage extended across six municipalities and approximately 160 kilometres of coastline, including the towns of Cancún, Playa del Carmen, Cozumel and Puerto Morelos.

The insurance is a one-year parametric policy, an insurance in which the policy is triggered not by financial losses, but when a specified set of conditions are met. Parametric insurance has three elements: (i) a parameter (wind speed in this case) and the threshold that would trigger the insurance, (ii) a geographic area (polygon) where the measurement of the parameter (wind speed) must meet the threshold to trigger a payout, (iii) the amount of payout to the policy holder.

The parametric insurance in Quintana Roo is triggered if wind speed within the polygon is greater than 100 knots. The payout increases according to the maximum sustained wind speed since stronger winds result in greater damage and expenses.

Benefits obtained

On October 7, 2020, Hurricane Delta entered the polygon defined in the insurance policy and registered windspeeds of over 100 knots. The insurance policy was triggered and paid close to \$800,000 to the Trust Fund, allowing swift damage assessment, debris removal and initial repairs to be carried out by the Brigades, followed by a longer periods of restoration to restore the reef's value as a coastal barrier. The funds have substantially expanded the post-storm response and repair efforts on the reef. The pay-out is the first time ever that funding from an insurance policy is available to help reef recover.

Even though coastal protection is the direct benefit obtained from coral reefs, obvious co-benefits in this case are the tourism, recreation and fisheries industries and the conservation of biodiversity. This post storm response capacity, with its innovative funding system, helps protect the region's US\$10 billion tourism industry, encourage the conservation of a valuable natural asset and create a new market for the insurance industry—a model which could be applied to other regions and ecosystems.



Best practice lessons



The economic cost of not repairing the damage to the coral reef would be much higher to the local economy than paying for the restoration of the reef. Transferring the cost of restoration to the market via an insurance policy reduces the burden for local authorities. The insurance policy is a cost-effective financial investment to guarantee the availability of funding to implement a post-storm response.

TNC is now working to replicate the model developed in Quintana Roo for other reefs and investigate whether other ecosystems such as coastal wetlands could benefit from a similar approach. To date, TNC has engaged with the United Nations Development Program, international organizations and the insurance community. Prospective projects are currently being explored in the Caribbean, Asia, Australia and the United States.

Elsewhere: *The Upper Tana-Nairobi Water Fund in Kenya*

The Tana River supplies 95 percent of the water for 9 million residents in the watershed, including the capital of Nairobi. It also feeds agricultural areas and half of the country's hydropower output. Upstream land clearance, erosion and sedimentation can choke water treatment and distribution facilities causing service disruptions. The Water Fund is founded on the principle that upstream prevention of water problems is cheaper than it is to address them further downstream. Public and private donors and major water consumers downstream contribute to the Fund to support upstream water and soil conservation measures, resulting in improved water quality and supply. Highlights include 73,000 hectares of land in the watershed under sustainable management, including 36,000 hectares of public forests; 3.6 million trees planted; 8,500 coffee farms certified by the Rainforest Alliance; special subsidies for conservation inputs given to women and the elderly. The actions of the water fund will result in up to USD \$3 million in increased agricultural yields for smallholders and agricultural producers.

Additional information

- TNC: [TNC: Insuring Nature to Ensure a Resilient Future](#)
- Quintana Roo/TNC: [A Post-Storm Response and Reef Insurance Primer](#)
- IADB: [Increasing Infrastructure Resilience with Nature Based Solutions](#)
- EEA: [Nature-based solutions in Europe: Policy, knowledge and practice for climate change adaptation and disaster risk reduction](#)