



Equator Initiative Case Studies

Local sustainable development solutions for people, nature, and resilient communities

UNDP EQUATOR INITIATIVE CASE STUDY SERIES

Local and indigenous communities across the world are advancing innovative sustainable development solutions that work for people and for nature. Few publications or case studies tell the full story of how such initiatives evolve, the breadth of their impacts, or how they change over time. Fewer still have undertaken to tell these stories with community practitioners themselves guiding the narrative. The Equator Initiative aims to fill that gap.

The Equator Prize 2014 was awarded to 35 outstanding local community and indigenous peoples initiatives working to meet climate and development challenges through the conservation and sustainable use of nature. Selected from 1,234 nomination from across 121 countries, the winners were recognized for their achievements at a prize ceremony held in conjunction with the UN Secretary General's Climate Summit and the World Conference on Indigenous Peoples in New York City. Special emphasis was placed on forest and ecosystem restoration, food security and agriculture, and water and ocean management. The following case study is one in a growing series that describes vetted and peer-reviewed best practices intended to inspire the policy dialogue needed to take local success to scale, to improve the global knowledge base on local environment and development solutions, and to serve as models for replication. Case studies are best viewed and understood with reference to [The Power of Local Action: Lessons from 10 Years of the Equator Prize](#), a compendium of lessons learned and policy guidance that draws from the case material.



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PLATEFORME DE CONCERTATION POUR LE DÉVELOPPEMENT DURABLE DE LA BAIE D'ANTONGIL

Madagascar

PROJECT SUMMARY

Working in and around Antongil Bay – the largest bay in Madagascar and among the most productive in the Indian Ocean – Plateforme de Concertation pour le Développement Durable de la Baie d'Antongil (PCDDBA, Collaborative Platform for Sustainable Development of the Antongil Bay) brings together a diverse range of stakeholders to encourage the sustainable management of marine and coastal resources. Developed to address conflicts between artisanal and industrial fishing interests, declining fish populations, damage to marine ecosystems from illegal fishing and damaging fishing devices, and the conversion of mangroves to rice fields, this multi-stakeholder platform is the first of its kind in the country. PCDDBA provides a critical space for dialogue to facilitate coordinated resource management. Fish size and abundance has grown, endemic species have reappeared, marine ecosystem functioning has been restored, artisanal fisherfolk have been empowered, local incomes have improved, and a viable conflict resolution mechanism now guides resource access throughout the bay.

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KEY FACTS

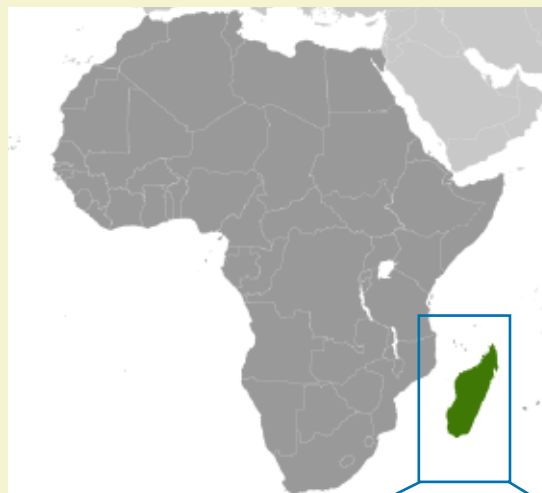
EQUATOR PRIZE WINNER: 2014

FOUNDED: 2002

LOCATION: Antongil Bay, Analanjirofo Region, Madagascar

BENEFICIARIES: 150,000 people living across 95 villages in 14 coastal municipalities

AREA OF FOCUS: Sustainable marine and coastal resource management, multi-stakeholder engagement



Background and Context



Antongil Bay is the largest bay in Madagascar and one of the most productive bays in the Indian Ocean. It is semi-enclosed and covers 2,800 square kilometres with 270 kilometres of coastline. The bay is surrounded by lush tropical forests and has nine rivers flowing into it. Waters reach a depth of 70 metres, shelter abundant populations of small pelagic fish, and serve as a mating and nursery ground for many marine species, including 140 species of fish, 19 species of shark, and three species of turtles. The waters in and adjacent to the bay also house threatened populations of humpback whales, dugongs, sperm whales, and bottlenose dolphins.

Due to its resource abundance, Antongil Bay is the backbone of the local economy with three scales of fishing coexisting in its waters. Traditional fishing is conducted on foot or from small boats known as pirogues, and focuses predominantly on shrimp, lobster, crab, octopus, squid, sea cucumber, tuna, and algae, all of which can be found in shallower near-shore waters. More than 60,000 people make their living from traditional fishing. Artisanal fisherfolk operate at a slightly larger scale than traditional fisherfolk, with access to motorized boats that allow them to access a more expanded pool of marine resources and to venture further from shore for days at a time. Large-scale, industrial fishing is mostly export-oriented and focuses on near-shore fishing for shrimp or offshore fishing for migratory species, like tuna.

Antongil Bay has traditionally provided food security and fishing livelihoods for the poor communities living on its shores. Its coastline is home to about 150,000 people living in 95 villages in 14 coastal municipalities and two districts. The vast majority of this population is extremely poor and depends to a large extent on the collection and sale of marine resources. Due to the absence of roads and because the area is protected, there are fewer inhabitants in the eastern side of the bay. The western side of the bay contains Maroantsetra, the largest and wealthiest town of the area, as well as the villages of Rantabe and Mananara, which are all connected by a road. While the road is an improvement over the footpaths that serve as the only access to the eastern side, it is unpaved and in poor condition.

In the decades leading up to the inception of PCDDBA, the bay had been overexploited by the export-oriented commercial fishing industry. Conflicts between economically marginalized, traditional fisherfolk and industrial fishing fleets were commonplace. With increasing frequency, commercial fisherfolk were taking advantage of poorly defined and unregulated fishing zones to make incursions into the waters of local fisherfolk. As a result, the bay was becoming degraded by destructive fishing practices such as the use of beach seines – fine mesh nets deployed in shallow waters that catch everything in their path, including juvenile fish and vulnerable species – and illegal trawlers, which wreak irreversible havoc on seafloor vegetation and animals. Coastal ecosystems were also severely threatened by the conversion of mangrove forests to pasturelands and rice fields.

The Ministry for Agriculture and Fisheries retains responsibility for the management of fisheries in Antongil Bay. It defines the guidelines and policies necessary for the development of the fishing



and aquaculture sectors. Planning is based on research and good management practices for fish production and the development of new resources. Resource management plans have placed emphasis on increasing state revenues, satisfying the food security needs of the country in terms of fish and fish products, and increasing employment in the fisheries industry. Until recently, however, the Ministry for Agriculture and Fisheries did not adequately engage local fisherfolk in consultations or in decision-making processes on the zoning of coastal waters and formation of management plans, leaving the residents of Antongil Bay marginalized and disempowered.

Evolution of the initiative

National and local authorities have long recognized the environmental and economic significance of Antongil Bay to the people of the region and to Madagascar as a country. Lacking, however, was a platform through which the range of actors involved in fisheries, biodiversity conservation, and environmental policy could discuss mutually beneficial strategies. Lacking also was a

forum through which the rights and needs of local fisherfolk could be communicated. Plateforme de Concertation pour le Développement Durable de la Baie d'Antongil (PCDDBA, Collaborative Platform for Sustainable Development of the Antongil Bay) was created to address this gap and to turn local fisherfolk into active agents of change in the sustainable management of marine resources in Antongil Bay. The association was established on 22 September 2003 with the stated mission of (i) ensuring the integrity of the ecological, biological, and socioeconomic functions of Antongil Bay and (ii) promoting sustainable development through consultation with local stakeholders and concerted action.

PCDDBA has emerged as a highly effective, inclusive platform of dialogue, planning, and action. It is the first time that such a platform has been successfully applied in Madagascar, creating an environment that encourages all stakeholders to work together through a program of sustainable marine resource management and protection. Community associations of subsistence farmers and traditional fisherfolk spread along the inaccessible, remote eastern coast of the bay – who previously had no voice in decision-making



on natural resource management policies – have been empowered to share their needs and to identify, plan, and implement various strategies to promote sustainable development in Antongil Bay. Creating this political space for community voices has helped to improve the resource stewardship capacity of traditional fisherfolk and support collaboration between resident communities and government authorities, NGOs, and private companies. PCDDBA has been officially charged by the Analanjirofo Regional Government with identifying relevant actions for sustainable development, the rational management of fisheries resources, and the preservation of the environment in and around Antongil Bay.

The association has built a holistic vision for multi-stakeholder, cross-sector engagement from the bottom up and leverages an impressive range of initiatives to enhance water access and management, farming, fishing, and widespread economic development. Members of the association include artisanal fisherfolk’s cooperatives (75 percent of membership), NGOs, industrial fishing companies, tourism operators, Madagascar national park authorities, regional district authorities, and local authorities, among others.

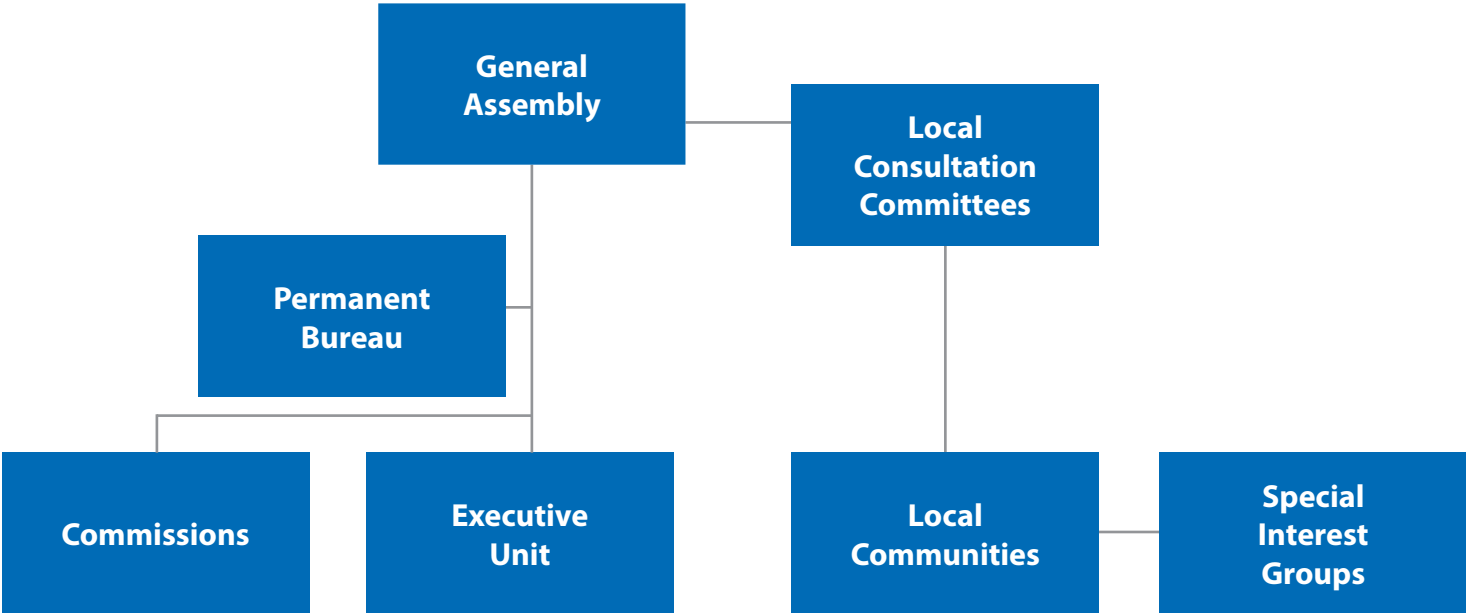
Governance and institutional structure

PCDDBA is composed of 80 member organizations and is governed by a General Assembly, a Permanent Bureau, an Executive Unit, and several different commissions. The General Assembly is the highest deliberative body of the association and is comprised of representatives from member organizations and member municipalities. Two representatives from each organization or municipality are authorized to take decisions for their respective constituencies. The Permanent Bureau is also represented in the General Assembly and is itself composed of a chair, two vice presidents, two secretaries, a treasurer,

and six councilors. Members in the General Assembly fall into three categories: founding, supporting, or participating members. Founding members guarantee the sustainability and cohesion of the association. Supporting members provide moral, material, and financial support for the activities of the association. Participating members help with the human capital needs of association activities. Membership fees per member are the same for an individual or an organization in each of these membership categories – 24,000 MGA per year (approximately US\$8 per year).

The centralized debate platform provided by the General Assembly is complemented by a decentralized process for consultation to ensure that all stakeholders, big and small, have a voice. All 14 communities in Antongil Bay have a local consultation committee. Groups with special interests, such as the network of locally managed marine area (LMMA) managers, also meet regularly to plan joint actions. Representatives from each local community and special interest group attend general assembly meetings with a wider collection of stakeholders, ensuring that local policy positions are integrated into PCDDBA’s planning and decision-making processes. This process ensures that the interests of villagers, government authorities, and private companies receive equal weight in the platform.

Through the General Assembly as well as these localized decision-making structures, all stakeholders work together to identify the environmental, social, and economic problems facing marine and coastal areas of Antongil Bay. To support all stakeholder groups to effectively participate in the implementation of planned actions, PCDDBA and its partners implement capacity-building activities. Local communities in particular are supported to defend their interests and to assume more responsibility for natural resource management in the bay.



Key Activities and Innovations



Plateforme de Concertation pour le Développement Durable de la Baie d'Antongil undertakes a number of activities to ensure that traditional fisherfolk are given a voice in natural resource management and that there are clear, non-partisan channels of communication between all stakeholders working in and around Antongil Bay. A primary focus for PCDDBA has been the development of a bottom-up approach that prioritizes extensive consultation with traditional fisherfolk. Through this process, the association has created official zoning and management plans for Antongil Bay, established the largest network of locally-managed marine areas in the Western Indian Ocean, advocated for sustainable fisheries policies through diverse media, and promoted agricultural diversification to enhance socioeconomic sustainability. Central to all of the organization's projects has been the creation of a singularly innovative platform for collaboration among communities, government authorities, private fishing companies, NGOs, and other stakeholders.

Creating inclusive zoning and coastal resource management plans

With support from the Wildlife Conservation Society and other partners, PCDDBA works to ensure that fishing communities and the population of Antongil Bay are included in the drafting and implementation of zoning policies and coastal resource management plans. To do this, PCDDBA has adopted an approach called integrated coastal zone management (ICZM), a process of governance through legal and institutional frameworks that ensures development plans for coastal zones are integrated with environmental and social goals. The purpose of ICZM is to maximize the benefits provided by the coastal zone, while minimizing conflicts among stakeholders and the harmful effects of development activities on the environment. PCDDBA has essentially taken the concept of integrated coastal zone management – typically a top-down strategy – and reengineered it from the bottom-up. This has enabled the association to take on some of the most severe challenges facing coastal ecosystems and communities today, including overfishing, deforestation, biodiversity conservation, and resource conflicts.

In 2008, PCDDBA undertook joint planning with a range of stakeholders to create a new zoning plan for Antongil Bay, the first of its kind made with the full consultation of all 14 municipalities along the bay's borders. In the Resource Zoning Plan for Antongil Bay, more than 80 square kilometres of marine and sensitive coastal habitat was prioritized for greater protection. Similarly, in September 2013, thanks to the combined efforts of PCDDBA and the Wildlife Conservation Society, the Madagascar Ministry for Agriculture and Fisheries passed a five-year plan for ocean co-management, outlining the rights and responsibilities of both artisanal and industrial fishing groups. The Antongil Bay Fisheries Co-Management Plan covers 3,746 square kilometres of marine habitat and bestows management authority to the local communities of the bay. This is the first time that such a plan has been put in place in Madagascar and has set a new standard for the inclusion of local communities in natural resource management.

Creation of a locally managed marine area network

One of the most important outcomes from the 2008 Resource Zoning Plan for Antongil Bay was the creation of 20 locally managed marine areas spread over ten communities along the 200 kilometres of Antongil Bay coastline. This now constitutes the single largest network of LMMAs in Madagascar. The 20 community management groups associated with the LMMAs are all members of PCDDBA and work with relevant government authorities on the implementation of projects, particularly enforcement and management rules in each LMMA. The groups monitor each of their areas for destructive and illegal fishing practices. Studies show that the LMMAs have been effective in protecting marine life and rejuvenating fish stocks, with significantly higher fish biomass documented in LMMAs than in areas outside community management.

The LMMA model has emerged as an effective solution to the various challenges facing traditional and artisanal fisherfolk in Antongil Bay. The use of LMMAs has enabled communities to integrate traditional

and modern approaches to create management plans that best suit their needs. The approach is cost-effective, resilient, and more socially adaptable than the top-down policies that were favored previously. Importantly, LMMAs have shown real promise in addressing coastal poverty and issues of food security by mitigating overfishing and establishing temporary or permanent no-take zones that allow fish stocks and threatened marine species to regenerate.

Using traditional social conventions to protect biodiversity

Underpinning the work of PCDDBA and the creation of LMMAs has been the reintroduction of dina and fokonolona systems. Dina are local rules based on traditional Malagasy social codes. They are created and enforced by communities and can be recognized by Madagascar's regional courts, making them enforceable as law. Dina are developed from the common, accumulated knowledge of communities and deployed against non-regulated operations in marine reserves. Fokonolona is a complementary system to dina and can be understood as village self-governance. It often involves a village council composed of village elders and other local stakeholders. Fokonolona tie individuals together in a network of mutual obligations and bring together people of different kinship groups to create an atmosphere of amity and solidarity, the basis for sincere cooperation. After having been alternately suppressed and encouraged by French colonial authorities, Malagasy authorities officially revived the fokonolona in 1962 in an attempt to involve local communities in plans for rural economic and

social development. In 1975, the fokonolona was given constitutional recognition as the 'decentralized collective of the state' responsible for economic, social, and cultural development at the local level.

In partnership with the Wildlife Conservation Society and the Development and Environmental Law Center, PCDDBA has worked to revitalize the dina and fokonolona systems with regards to management of marine resources. These social conventions have been used to great effect in banning beach seines and other forms of destructive fishing practices that lead to the capture of premature fish and other rare or threatened marine animals. Dina have also been used to institute areas of biological recovery in areas that may have been overfished or are particularly vulnerable and in need of restoration. As an outreach and resource management strategy, the reintroduction of dina has been hugely effective in ushering in better fishing practices and reigning in illegal, destructive fishing.

Radio to raise awareness

PCDDBA uses radio programming as a way of reaching its members and communicating priority issues in the fishing sector to the general public. Radio was seen as a particularly important and appropriate tool to communicate about the status and implementation of the Analanjirofo Region Order No. 008/2012, approved in April 2012, which provided for the establishment of *ad hoc* committees in each of the districts of the region to focus on the prohibition of beach



seines and other destructive fishing equipment. Because this law introduced new rules, as well as penalties for those that break them, PCDDBA elected to use radio as a tool to raise public awareness. The intention was to accurately communicate the various dimensions of the new law so that traditional fisherfolk and others could work in compliance with the ordinance.

In order to do this the association allocated VHF radios, or marine radios, to communities throughout Antongil Bay. Within each community an individual was selected to be the radio keeper charged with sharing any information or alerts communicated by PCDDBA to their community. This radio outreach is part of a broader strategy pursued by PCDDBA to defend the interests of local fisherfolk by equipping them with as much information as possible on their rights and responsibilities under new laws. When dealing with outreach and communication, the association has struggled at times to overcome the vast geographic distribution of its members and the overall remoteness of the region. Radio has been an equalizer in this respect, allowing PCDDBA to connect with members and local communities in the most far-flung corners of Antongil Bay.

Data collection on environmental health and traditional fishing

PCDDBA has positioned itself as a reliable collector of data on environmental health in Antongil Bay and on other socioeconomic information related to traditional fishing. The association has been mandated by regional authorities to develop an 'information system' for Antongil Bay known as *Système d'Information de la Baie d'Antongil* (SIBA) that provides policymakers and practitioners with accurate, up-to-date information on ecosystem health and local fishing practices. This information system is seen to be a central tool by regional government authorities in promoting sustainable development and adaptive management of marine and coastal resources across the region. The system is currently under development in partnership with the Wildlife Conservation Society and the World Bank. PCDDBA members are responsible for collecting data from traditional fisherfolk and feeding this information into a centralized database. This role has allowed the association to promote local fisherfolk as holders of traditional knowledge and to involve them as central stakeholders in the management of the bay.

Addressing poverty reduction and food insecurity

The association also works on sustainable agriculture as a tool of poverty reduction and food security. PCDDBA was selected to work with the Wildlife Conservation Society as a partner of the Group of Technological Researchers tasked with a 30-month project called FIAVOTANA. The aim of the project is to improve the living conditions of the local population of Antongil Bay by improving agricultural techniques and providing strategic investments in the small-scale agriculture sector. Household incomes in the region depend heavily on exported cash crops such as vanilla and clove. These products are subject to extreme price point variations, making local farmers highly vulnerable to market fluctuations. When markets for these products decrease, deforestation increases as local farmers turn to the sale of mangrove and other timber to meet their basic needs.

FIAVOTANA is designed to work with local communities to strengthen food security, diversify agricultural options, and explore alternative livelihoods in order to reduce vulnerability to market trends. PCDDBA identifies priority areas of intervention, improved agricultural practices, and areas where improved irrigation systems and agricultural dams can be most effective. A network of farmers has been identified and trained to test, adapt, and disseminate techniques that provide for local livelihoods and restore the landscape. FIAVOTANA's network of trained farmers alone produces over 1 ton of quality rice seeds per season. As one example, the association has promoted cultivation of mucuna (*Mucuna* spp.), a nitrogen-fixing plant able to enrich the soil after a period of rice farming. Promoting the use of mucuna during fallow periods has increased soil fertility in existing plots, thereby decreasing the need to deforest new land for continued farming. The project's focus on water management has likewise provided 240 farmers living on the periphery of Mananara National Park with improved irrigation systems that have reduced the risk of both flooding and drought in their rice fields. The program has further promoted a technique known as 'thermotherapy', which requires cassava cuttings to be soaked in hot water before planting in order to reduce incidences of cassava mosaic virus. In addition to agricultural improvements, the project promotes the harvest and sale of non-timber forest products as an alternative income strategy that reduces deforestation for timber.

To promote sustainable fisheries management and food security, the project has established fisherfolk 'control and surveillance committees' to ensure compliance with dina rules and community sanctions in locally managed marine areas. Diversification of sustainable fishing techniques have served to maintain catch sizes while simultaneously enabling recovery of overfished species. The construction of ovens to smoke and preserve fish catches has also been a valuable resource to ensure families have food stores for lean periods. All FIAVOTANA activities have been pursued as a complement to traditional and artisanal fishing practices, with a focus on increasing income generation while promoting environmental sustainability. These diverse agricultural improvements and livelihood diversification strategies together lead to increased food security for local families and decreased pressure on local forest resources.



Impacts



ENVIRONMENTAL IMPACTS

Antongil Bay contains more than 200 species of fish, of which 19 are sharks. Three turtle species also find a home there: green turtles (*Chelonia mydas*), hawksbills (*Eretmochelys imbricata*), and leatherback (*Dermochelys coriacea*). At least 13 marine mammal species are reported to live in the bay and the adjacent offshore region: dugong (*Dugong dugon*), pinniped (*Arctocephalus tropicalis*), and 11 species of cetaceans including humpback whales (*Megaptera novaeangliae*), southern right whales (*Eubaleana australis*), sperm whales (*Physeter microcephalus*), beaked whales (*Ziphius cavirostris* and *Mesoplodon* spp.), bottlenose dolphins (*Tursiops* spp.), spinner dolphins (*Stenella longirostris*), pantropical spotted dolphins (*Stenella attenuate*), Fraser's dolphins (*Lagenodelphis hosei*), false killer whales (*Pseudorca crassidens*), and melon-headed whales (*Peponocephala electra*). Antongil Bay is the most significant breeding, calving, and nursing ground in the Western Indian Ocean for humpback whales, home to between 5,000 and 8,000 individuals. Complementing the marine biodiversity, the forests surrounding Antongil Bay host an estimated 50 percent of Madagascar's floral and faunal diversity, and are designated as part of three protected areas – Masoala National Park, which is a natural World Heritage Site, Mananara National Park, which is a UNESCO Biosphere Reserve, and Makira Protected Area. Antongil Bay was identified by UNESCO as a potential marine World Heritage Site in 2012 and is unquestionably a national and global biodiversity hotspot.

The bay, however, faces severe threats. Overexploitation of resources – particularly from overfishing and mangrove deforestation – has been a persistent problem threatening the long-term health of the marine ecosystem. Since its inception, PCDDBA has successfully addressed many of the underlying drivers of biodiversity loss and overexploitation. Its conservation and sustainable management activities – and its emphasis on empowering local communities – have had a profoundly positive effect on marine biodiversity and mangrove conservation. By bringing together the full spectrum of stakeholders

working in the bay, the platform has been able to implement a new zoning plan for the coastal waters. It successfully engaged all 14 municipalities of Antongil Bay, putting local communities on an equal playing field with powerful governmental and private sector actors. The new zoning plan identifies environmentally sensitive and degraded areas in order to bring more than 80 square kilometres of marine and coastal habitat under official protection.

The platform, in partnership with Wildlife Conservation Society, created a network of 25 locally managed marine areas spread over 10 communities and along 200 kilometres of coastline between



2005 and 2009. This is the largest LMMA network in the country. The network has been particularly effective at enforcing laws that limit destructive fishing practices including beach seines and trawlers. The LMMAs are monitored by local community members who ensure compliance with rules on catch size, nets, and no-takes zones. Studies have shown that the LMMAs have higher reef fish biomasses than the regional average for fished areas (760 kg/ha in LMMAs vs. a regional average of 314 kg/ha). The LMMAs also demonstrated a tenfold increase in fish fin biomass between 2013 and 2015. These excellent impacts – which greatly outstrip those documented within the government-managed Marine National Park – point to a strong role for LMMAs and community-based management for the future of biodiversity conservation in the bay.

With support from the Wildlife Conservation Society, PCDDBA has been particularly effective at reducing incursions from commercial and illegal fishing vessels into coastal waters. The platform has worked with the Ministry for Agriculture and Fisheries as well as commercial fishing fleets to reduce industrial shrimp trawling in LMMAs. They have successfully collaborated with local and national authorities to institute a 2-boat cap on the number of industrial fishing boats allowed to operate in the bay at any given time. Similarly, PCDDBA works with the Ministry for Agriculture and Fisheries to uphold prohibitions on shark fishing in the bay. One-third of the shark species native to Antongil Bay are threatened, according to the IUCN Red List.

Antongil Bay is regularly hit by cyclones, the intensity and frequency of which are growing as climate change intensifies. Healthy coral reefs and mangroves provide a natural buffer that protects coastal villages when natural disasters strike. PCDDBA's work to maintain ecosystem integrity through LMMAs therefore is an important climate change adaptation strategy. According to reports from local 'control and surveillance committees', PCDDBA's promotion of environmental conservation and alternative livelihood strategies have substantially reduced mangrove deforestation. Since 2010, the platform has also taken a lead on annual surveys to monitor the impacts of climate change on coral reefs in Antongil Bay. These surveys show that coral

reefs in this region are resilient to coral bleaching due to their species composition and have provided additional information that support adaptive management.

SOCIOECONOMIC IMPACTS

Antongil Bay is home to over 150,000 people living in 95 villages in 14 coastal municipalities. The vast majority are economically marginalized and depend on the collection and sale of marine resources for a large part of their food security and income. The long-term health of Antongil Bay is therefore inextricably linked to local well-being and livelihoods. PCDDBA has been a force for positive change in the fishing sector, bringing traditional fisherfolk into planning, zoning, and policymaking processes that previously excluded them. The creation of LMMAs has led to greater fish diversity and abundance. Participatory assessments conducted by the association to determine perceived change by local fisherfolk in ecosystem health and resource abundance in LMMAs consistently show perceptions of increases in catch per unit, increases in the size of fish caught, increases in juvenile fish, and the rejuvenation of certain species like sardines. Community members also emphasize the gradual restoration of marine habitats, increased local capacity to manage resources, a decrease in the use of beach seines, and increased economic returns from fishing. Scientific monitoring of fish resources in Antongil Bay support these findings, showing that fish catch and fish biomass is increasing in locally managed marine areas.

Equally important has been creation of a platform that brings together the full range of stakeholders working in the bay to address shared challenges and discuss policy options. This effort has substantially reduced conflicts over resources and improved overall fisheries management. It has greatly improved the relationship between communities and local authorities and set a new bar for responsible fishing that has improved food and economic security in coastal areas.

With the long-term economic viability of Antongil Bay fisheries in mind, PCDDBA and its partners are promoting the diversification of fish catches. The platform and its member fisherfolk associations are testing the adoption of selective new fishing gear that targets small, fast-growing, and abundant pelagic fish species. These efforts have been coupled with work to improve the fish marketing capacities of local fisherfolk, leading to increases in local food security and income. The platform and its member agricultural associations have also worked to improve agricultural practices for rice farmers working in areas along the coast.

Women are among the main stakeholders in the initiative. They are active members in all committees and participate in the PCDDBA general assembly, community forums, LMMA committees, and local vigilance committees that monitor illegal fishing practices. PCDDBA and its partners have designed certain interventions with women in mind, including strengthening women's associations in Antongil Bay by ensuring they are legally incorporated. Many of these women's associations are involved in the marketing and sale of local fish products. In 2013, for instance, 40 women members of various LMMA committees were trained on new, more effective techniques for processing fish.



POLICY IMPACTS

The inclusive processes behind PCDDBA have created a powerful platform for informing policy. The association's action led to a ministerial decree in 2008 that banned the use of beach seines and mosquito nets in Antongil Bay. This fishing equipment had been used indiscriminately, leading to the degradation of marine and coastal ecosystems. This decree was the first of its kind in Madagascar, representing a coup for local fisherfolk. Building on this decree, PCDDBA successfully lobbied for the entire Analanjirofo Region to strengthen its laws and enact a regional ban on the sale, manufacture, and possession of beach seines.

Although important for its political precedent, the regional ban lacked an action plan for how the prohibition would be applied in practice. The resulting legal vacuum made implementation difficult. In February 2012, with support from Wildlife Conservation Society, PCDDBA worked as part of a team that organized a workshop to elaborate policies to enforce the ban. The Secretary General of the Analanjirofo Region attended the workshop along with the Chief of the Maroantsetra District, representatives of Public Safety, the

media, and other key stakeholders. The result was the formation of an ad hoc committee charged with taking the decree from policy to practice.

Also in 2012 PCDDBA, Wildlife Conservation Society, the Ministry for Agriculture and Fisheries, and other stakeholders advocated for the creation of the Committee for Integrated Coastal Zone Management in the Analanjirofo Region. This represents an unprecedented platform for local fisherfolk to engage in policy discussions around the management of natural resources in Antongil Bay. The committee's work has led to the first landscape-scale, co-management fisheries management plan in Madagascar. Adopted in September 2013, the Five-Year Plan for Fisheries in Antongil Bay was established through a horizontal approach that included 108 meetings, 6 workshops, and 1466 participants. The plan covers 3,746 square kilometres of marine habitat and confers official fisheries management authority to local communities, recognizing the importance of LMMAs in the sustainable management of Antongil Bay. Importantly, the plan was jointly designed and signed by the Ministry for Agriculture and Fisheries, PCDDBA, regional authorities, industrial fishing companies, and small-scale, traditional fisherfolk's organizations.



Sustainability and Replication



SUSTAINABILITY

The platform has seen considerable achievements over the past decade, despite political instability, corruption, and persistent rates of poverty across the country. PCDDBA is a highly unique initiative with deep social and cultural roots. The platform's emphasis on local leadership, multi-stakeholder decision-making, and a network of accountable authorities at all scales bodes well for its sustainability and longevity. Financial sustainability for the association is less secure than institutional sustainability. All staff of PCDDBA are unpaid volunteers. The platform relies to a large extent on this volunteerism. As such, financial sustainability will be an ongoing challenge. The platform needs donors that appreciate the landscape level impacts achieved by the association and that understand the high return on investments from supporting rare multi-stakeholder platforms like PCDDBA.

REPLICATION

PCDDBA is actively sharing its model across the country. Delegation visits from the platform to Antananarivo and Fianarantsoa, both outside the Analanjirofo Region, are among the many efforts PCDDBA is making to replicate its model in other jurisdictions. The association also meets with civil society platforms that are working in sustainable development to share their experience in cultivating fair and inclusive resource governance systems. PCDDBA's successful work in and around Antongil Bay has created a critical model that establishes credibility for community-based natural resource management in Madagascar.

PARTNERS

PCDDBA has developed several effective partnerships. Among the most effective has been with Wildlife Conservation Society, who has supported PCDDBA to design and implement an integrated approach to coastal zone management in Antongil Bay. In 2011, PCDDBA also developed partnerships with IUCN France and Région Bretagne Aid. IUCN France finances PCDDBA activities – including

the establishment of LMMAs and capacity building – through the Global Environment Facility. Région Bretagne Aid works specifically with PCDDBA on development of the fisheries sector in Antongil Bay. In 2012, PCDDBA developed partnerships with several NGOs including Group of Technological Researchers, Wildlife Conservation Society, and Madagascar National Parks in order to launch a new project funded by the European Union to replicate the LMA approach south of Antongil Bay.

The platform has also established itself as a highly credible partner for local, regional, and national government authorities. In 2006, the Analanjirofo Regional Government officially recognized PCDDBA as responsible for directing sustainable development, environmental protection, and management of fishery resources in Antongil Bay. The agreement was subsequently renewed.

The platform has also forged a number of beautifully unconventional partnerships between historically disparate stakeholders, including through the agreements signed by PCDDBA, the Ministry for Agriculture and Fisheries, and the Group of Industrial Fishing for the sustainable management of marine and coastal resources in Antongil Bay.



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