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AMAL-CRAB BAY COMMUNITY RESOURCE MANAGEMENT INITIATIVE

Vanuatu

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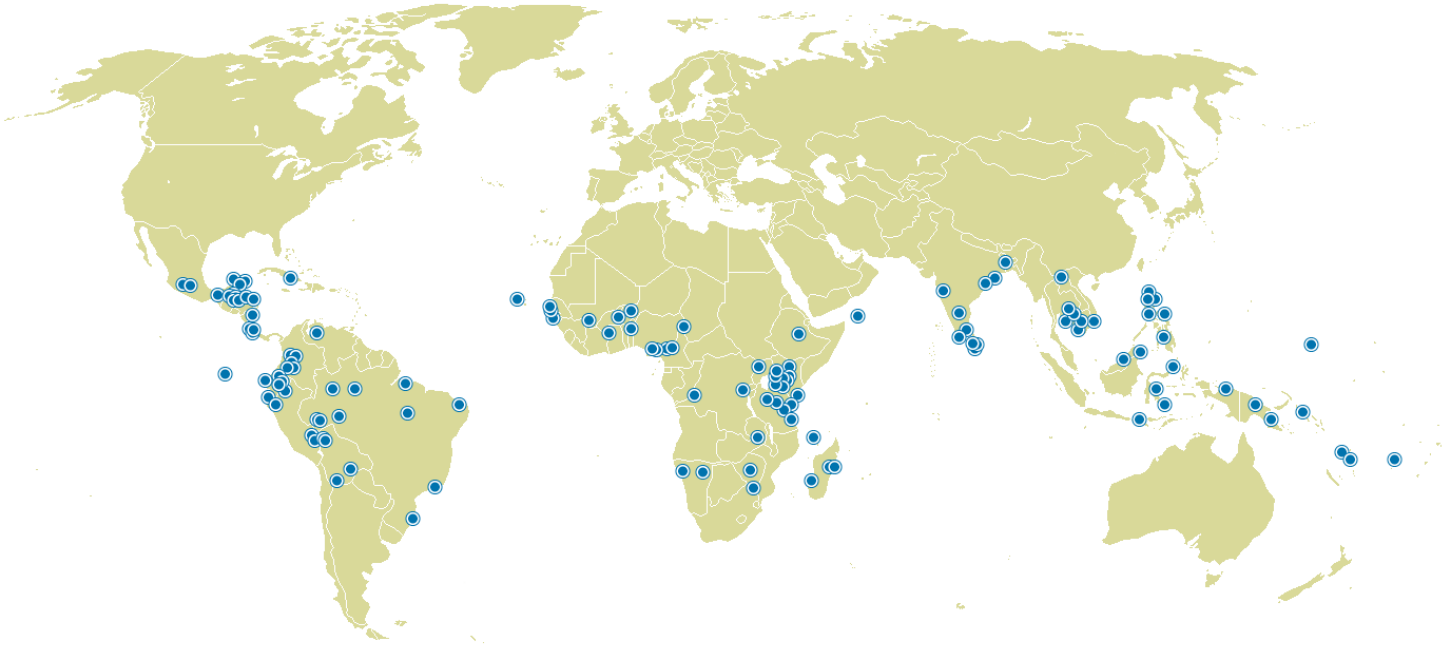
Local and indigenous communities across the world are advancing innovative sustainable development solutions that work for people and for nature. Few publications or case studies tell the full story of how such initiatives evolve, the breadth of their impacts, or how they change over time. Fewer still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

To mark its 10-year anniversary, the Equator Initiative aims to fill this gap. The following case study is one in a growing series that details the work of Equator Prize winners – vetted and peer-reviewed best practices in community-based environmental conservation and sustainable livelihoods. These cases are 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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Vanuatu

PROJECT SUMMARY

The successes of the Amal-Crab Bay initiative in conserving marine resources in their *tabu* area, located on the eastern coastline of the island of Malekula, Vanuatu, has been underpinned by the use of a traditional resource management system and innovative awareness-raising efforts. The bay forms part of the Port Stanley mangrove area, and is home to extensive fringing reefs, sea grass beds, and a high abundance of crabs. This resource is critical for local livelihoods and food security, and has been the focus of sustainable harvesting regulations since 2002, when community chiefs instituted a ban on harvesting within the mangrove forests.

These community-led efforts have been strengthened with support from an array of international partners; as a result, the initiative has overseen an increase in marine and coastal resources, compiled an evidence base for the bay's mangrove ecosystem, and developed local ecotourism infrastructure.

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KEY FACTS

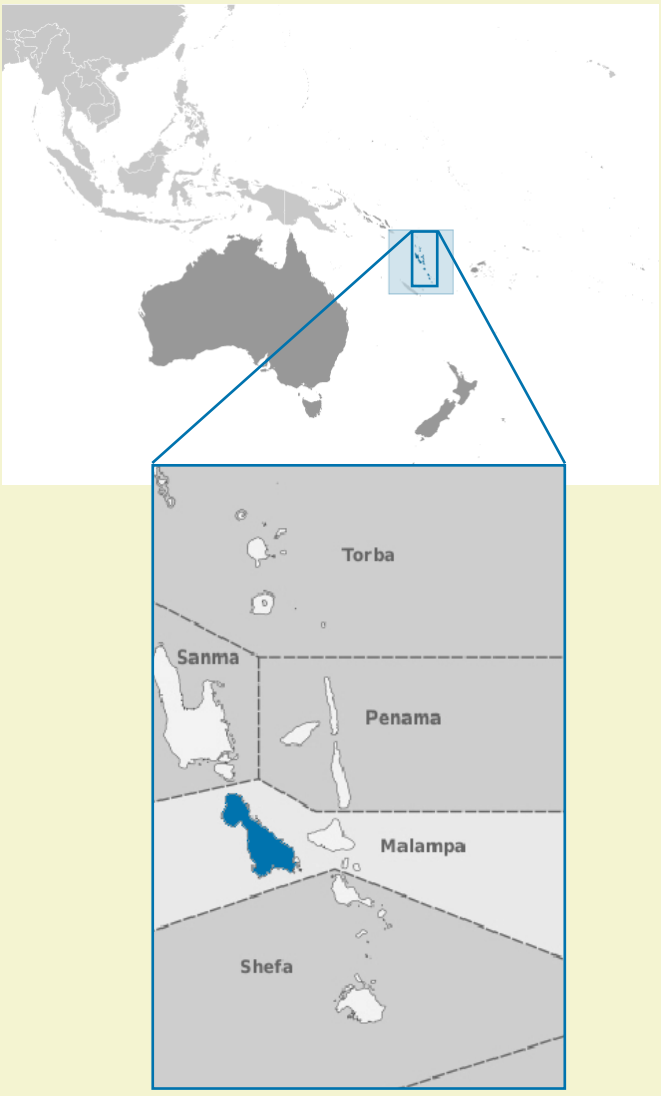
EQUATOR PRIZE WINNER: 2006

FOUNDED: 2002

LOCATION: Malekula island, Malampa Province

BENEFICIARIES: Indigenous Melanesian communities

BIODIVERSITY: Marine species in Crab Bay and Amal areas



Background and Context

Crab Bay is a critically important area for biodiversity in the Pacific archipelago of Vanuatu, situated in Malampa Province, on the central eastern coastline of the island of Malekula. The bay forms part of the Port Stanley mangrove area, and is composed of extensive fringing reefs with sea grass beds. The area is particularly well-known for its high abundance of crabs, hence its name; the bay is also home to a high diversity of invertebrate species and fin fishes, and provides roosting and feeding grounds for a variety of internationally endangered species such as turtles, dugongs, and some terrestrial mammals.

The local populations of Crab Bay and the neighbouring area of Amal totaled around 1,500 in 2005, living in sixteen communities dispersed along the eastern coastline. These indigenous Melanesian communities speak the *uripiv* dialect and share traditional customary beliefs typical of the "small Nambas" people of central Malekula. Approximately eighty percent of the population is engaged in fishing and farming to feed their families and earn cash income; the remaining twenty percent are paid workers at the area's two large employers: a cattle ranch and a coconut plantation. A high percentage of local people use the bay's marine resources to supplement their income and meet food security needs; the table below demonstrates the extent to which coastal communities are reliant on the area's natural resources for their subsistence and livelihoods.

Cardisoma carnifex: a critical local resource

One important source of protein is the land crab *Cardisoma carnifex* – these are harvested daily by women who trade surplus catches for cash at the local markets. Harvesting of land crabs for subsistence dates to the 1980s; prior to this, French plantation owners had restricted local access to the Crab Bay and Amal areas, allowing the species to flourish.

With an increasing population and the advent of a cash economy leading to an increased demand for cash income, the supply of land crabs in the bay began to decline in the late 1990s. Within a few years, crab collectors reported finding it increasingly difficult to harvest a sufficient number of crabs; their collecting methods were, conversely, seen as the cause of this decline. Collectors were using baits and nets to trap crabs, as well as digging out individuals from holes and using lights in night fishing to bundle enough crabs for sale in nearby markets. In September 2002, in response to the trend of declining land crab numbers, community chiefs instituted a *tabu* on the mangrove forests and reefs within the bay to prohibit crab collection, supported by the Malampa Provincial Authority. This use of a customary resource prohibition effectively established a temporary no-take zone, aimed at allowing the replenishment of crab resources. This created the *Amal-Krabbei Tabu Eria* (AKTE); a management committee was subsequently established to oversee its implementation, marking the beginning of the Amal-Crab Bay Community Resource Management Initiative.

The initial process of instituting the *tabu* was undertaken without providing clear information to the rest of the community about either its purpose or the rules they were supposed to observe, however. Consequently, poaching activities persisted in the *tabu* area. Weak management of the marine area was compounded by a lack of ecological information on land crabs, meaning that the evidence base for prohibiting their harvesting was lacking. Finally, existing national policies and legislation that could have supported local action were instead focused on high-value commercial species, and gave less consideration to resources such as the land crab that are used primarily for subsistence needs.

International support catalyzing improved management

In November 2003, the International Waters Project (IWP) chose AKTE as the site for its pilot programme on community resource management in Vanuatu. The IWP ran from 2000 to 2006, working with pilot communities in fourteen Pacific Island countries to find practical ways to strengthen environmental management in three

Table 1: Income sources recorded by IWPDP Household Survey (IWPDP 2005) in eighteen Crab Bay villages	
Village	**Sources of income mentioned**
Barrick	Copra, cocoa, pigs, chicken, timber
Bushman's Bay	Copra, cocoa, pigs, fish
Jinenarong	Copra, food crops, cocoa, pigs, *Cardisoma* crabs, fish, shell fish
Hatbol	Copra, cocoa, pigs, chickens, timber, pandanus handicrafts, bread & gateau, natangura thatch panels
Limap	Copra, cocoa, pigs, chickens, shell fish, timber, kava, pandanus handicrafts
Lingarakh	Copra, cocoa, chicken, timber, pandanus handicrafts, bread
Louni	Copra, food crops, cocoa, *Cardisoma* crabs, pigs, fish
Mapbest	Copra, cocoa, pigs
New Bush	Copra, food crops, cocoa, chickens
Port Nabe	Copra, food crops, pigs, chickens, *Cardisoma* crabs, fish, shell fish, pandanus handicrafts, octopus
Portindir	Copra, food crops, cocoa, pigs, chickens, *Cardisoma* crabs, fish, trochus, shell fish
Robako	Copra, cocoa, food crops
Taremb	Copra, cocoa, food crops, pandanus handicrafts, firewood
Tenbibi	Copra, food crops, cocoa, pandanus handicrafts, firewood
Tevaliaut	Copra, cocoa, food crops, pigs, chickens, fish, vanilla, beef
Tevri	Copra, food crops, pigs, chickens, *Cardisoma* crabs, fish, trochus, shell fish, pandanus handicrafts, firewood, octopus, rolls of pandanus leaves
Uri island	Copra, food crops, cocoa, chickens, *Cardisoma* crabs, fish, trochus, shellfish, mangrove, oyster, octopus, clam shell
Vilavi	Copra, trochus, pandanus handicrafts

key areas: coastal fisheries, waste reduction, and freshwater protection. The project was funded through the Global Environment Facility (GEF) and co-managed by the Secretariat of the Pacific Regional Environment Programme (SPREP) and the United Nations Development Programme (UNDP). In Vanuatu, the IWP focused on promoting management systems at the community, provincial and national levels that would support sustainable management of inshore fisheries resources.

The combination of local ownership and international support has allowed the AKTE initiative to tackle the initial challenges it faced. As well as the lack of awareness of the need for conservation, the paucity of empirical data on ecological conditions, and the absence of institutional support, these challenges included the scattered distribution of the sixteen member communities, transport difficulties in accessing the project site, the lack of a freshwater source near the site, and rising sea levels. Financial and technical assistance have empowered local actors to overcome many of these challenges, steadily improving the efficiency and resilience of management efforts in delivering results for the coastal economy and ecosystem.

The achievements of the AKTE initiative to date include significant increases in the abundance of marine and coastal resources, improved local management capacity, national and international recognition, and an improved evidence base for the area's mangrove ecosystem. The *tabu* area has provided a site for the regeneration of other marine species in addition to land crabs: in 2003, the Vanuatu Fisheries Department released 400 adult trochus (*T. niloticus*) specimens in protective cages for spawning within the *tabu* area. Recent work has included the development of ecotourism capabilities and the building of an information centre for the area. In April 2011, the initiative's management committee voted to extend the implementation of the AKTE *tabu* area and resource regulations until 2016.

"The communities have experienced the impacts of climate change; the communities have adapted to these changes by promoting the natural regeneration of coastline species to combat coastline erosion, planting in subsistence gardening outside traditional farming calendars; planting trees on farm land; and reviving traditional farming techniques."

Kevin Mores, Amal-Crab Bay Community Resource Management Initiative

Key Activities and Innovations

The AKTE mandate includes two zones: the *tabu* area, in which harvesting is prohibited, and an access area that extends along the coast, in which regulations ensure that crab harvesting is conducted in a sustainable fashion. The AKTE Committee has established clear rules to govern both, on display within the bay area. The strict protection of biodiversity within the *tabu* area has spillover effects for the access area, ensuring a refuge area for breeding stocks of marine species.

Tabu area prohibitions:

- No terrestrial or marine resources, including plants and animals, may be killed or removed from the AKTE.
- No non-living resources, including dead wood, stones, shells, coral rubble, or sand, may be removed from the AKTE.
- All household waste must be disposed in disposal drums in the area.
- No person may make fires or cook food outside the area's barbecue house (constructed recently for tourism purposes.)
- No person may enter the *tabu* area without the authorization of the AKTE committee.
- Authorized visitors must pay 1,000 Vatu (approximately USD 10) per small truck and boat, or 1,500 VT (USD 16) per large truck, to enter the *tabu* area, and must be accompanied by a member of the AKTE committee. They are subject to all rules of the *tabu*.
- Passengers of yachts are allowed to swim and walk in the AKTE for a 1,000 VT usage fee. They are subject to all rules of the *tabu*.
- Members of the AKTE committee may enter for the purpose of maintenance and monitoring activities. They may cut branches on roads and paths, but are subject to all other rules of the *tabu*.

Access area sustainable use regulations:

- A person may collect max. 30 crabs to eat, and 80 to sell, per day.
- Crabs must be larger than four fingers across their carapace to be harvested.
- Crabs with eggs must not be harvested.
- The access area is divided among the sixteen local communities. Each community access area is subject to local rules and regulations, which must be respected by all community members.

Can be harvested (over 4 fingers)

Cannot be harvested (under 4 fingers)

Enforcement:

For all violations of the *tabu* area rules, a 5,000 VT (approximately USD 53) fine is levied per entrance into the area. For instance, if a group or individual enters on three separate occasions to remove crabs or sand, the fine would be 15,000 VT. This fine must be paid to the AKTE Committee within a period of two weeks. Violations of local access area rules are the responsibility of the respective local communities, however.

Enforcement of the *tabu* area regulations, from monitoring infringements to giving and collecting penalty fines, is carried out by the AKTE Committee. In the case of disputed penalties, parties may state their claim to the committee, which will then make a final decision. Ensuring that violators pay fines is delegated to individual village chiefs; where necessary, the Malampa Police Department also has the responsibility to ensure that guilty parties pay the necessary fines.

Monitoring:

As well as governing resource use, the AKTE Committee is responsible for overseeing biological and socioeconomic monitoring. In 2004, community volunteers were trained in collecting baseline data and conducting ongoing studies. Five principal methods have been employed in these efforts: reef checks, monitoring marine resources including fish, invertebrates, and coral health; crab surveys, using regular land crab counts; market surveys, tracking sales of crabs at the local Lakatoro market; socioeconomic surveying, assessing the use of crabs and other resources at the household level; and trochus assessments, measuring stocks and harvest sizes of *T. niloticus* sea snails, a valuable local resource.

Impacts

BIODIVERSITY IMPACTS

The biodiversity benefits of the Crab Bay *tabu* area have been seen in increased populations of various marine species collected by local communities for consumption and sale in local markets, as well as marked improvements in the mangrove forests and reef ecosystems. In 2004, AKTE community volunteers took part in a stock assessment and reef check, recording the benefits of sustainable management for species including land crab, mangrove and terrestrial forests, trochus, turtle, dugong, clams, coral reefs, Crown-of-thorns starfish, humphead wrasse (*Cheilinus undulatus*), mangrove bats, and various seabird species.

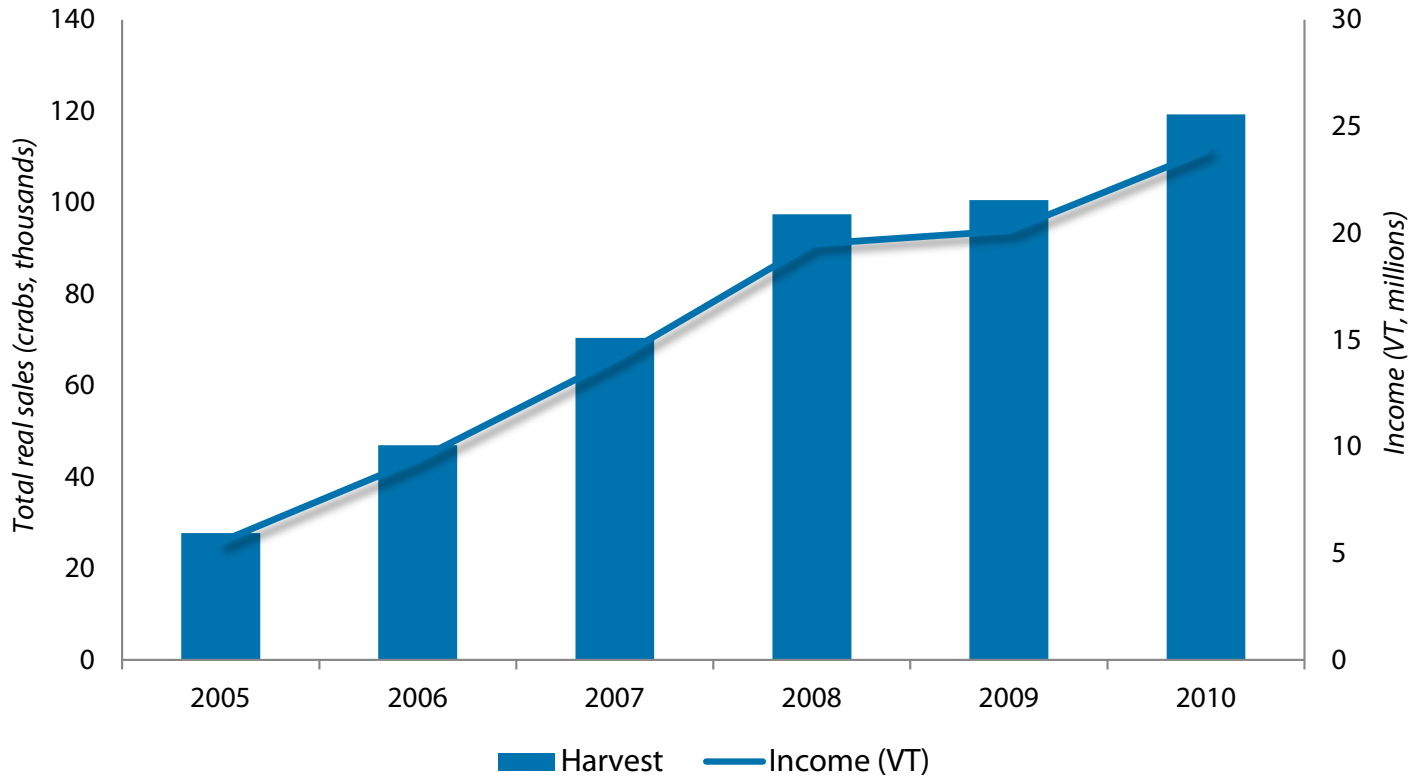
Resource use regulations have positively benefitted the AKTE target species of land crabs, as demonstrated by regular surveys of *Cardisoma* crab harvests taken from the project's access areas. Between 2005 and 2010, the crab harvest increased from 27,760 to 119,300, representing an increase of around 430%. This steady increase in annual harvests has validated the efficacy of the *tabu* and access area regulations for the Crab Bay and Amal communities, and has resulted in the extension of the AKTE period until 2016.

SOCIOECONOMIC IMPACTS

The AKTE initiative has generated economic benefits for the members of its constituent communities through two main channels. The organization collects money through fees for access to the conservation site, as well as an anchorage fee for mooring yachts in the access area. This is an income stream that the project hopes to exploit through the further development of ecotourism. The AKTE Committee has also begun collecting revenue from the use of the newly-constructed information centre. These revenues have been reinvested in building a water system at the project site.

The second source of economic benefit for the communities of Amal and Crab Bay has come through increased sales of land crabs at market. The increase in harvests noted between 2005 and 2010 of 430% has translated into an increase in annual sales from 555,200 VT (USD 6,019) to 2,386,000 VT (USD 25,868) over the same period, emphasizing the substantial benefit of sustainable crab harvesting to local communities. Cardisoma crabs are also a common source of meat for villagers within the project area. While most meats are eaten a few times a month, Cardisoma are typically gathered 1 to 4 times a week by 95% of local households; the increase in their availability has therefore also improved local food security.

Fig. 1: Annual Land Crab Harvests, 2005-2010



Source: AKTE.

The economic value of the area's natural resources extends beyond cash income realized from the sale of commercial species. For instance, several types of mangrove and other tree species are used as door posts, fence posts, poles in gardens, place markers, bows, arrows and spears, axe handles, and house rafters. Socioeconomic surveys conducted in 2004 and 2005 detail the high degree of reliance on coastal and marine biodiversity for a variety of uses; the sustainable management of these resources since 2002 has ensured that communities have continued to benefit from Crab Bay's range of provisioning ecosystem services.

POLICY IMPACTS

The Amal-Crab Bay Community Resource Management Initiative has had a significant impact on policies aimed at the sustainable management of marine and coastal resources within Vanuatu, forming a key component of the International Waters Project strategy for the country and within the Pacific region. This has been solidified by the presence of three representatives of the AKTE communities being given positions in the Vanuatu Department of Forestry, Fisheries and Agriculture. Technical experts from the department in these respective fields have also visited the site to provide assistance.

The profile of the group has been boosted in recent years by its inclusion in the IUCN Mangroves Ecosystem for Climate Change and Livelihoods (MESCAL) project, with support from UNDP in Vanuatu. The MESCAL project focuses on activities in five Pacific Island Countries – Fiji, Solomon Islands, Tonga, Vanuatu and Samoa – to address key challenges for mangrove management and conservation. The Crab Bay initiative has been selected as a pilot site for this project, running from 2011-2013, in recognition of the positive impacts of community-based conservation efforts for the area's mangrove ecosystems, seen as vital for local adaptation to climate change. In turn, this has supported the group's claim for legal recognition of the conservation site by the Vanuatu government.

In addition to having an impact on national policy, AKTE Committee members play important roles in local institutions. The organisation is represented by thirteen members on the boards of two local secondary schools and four primary schools, while two representatives work in private enterprises in local coconut plantations. At the level of Malampa province, five AKTE Committee members sit on the Provincial Authority's Technical Advisory Committee. The initiative's sixteen village chiefs are members of the provincial Malmetenvanu Council of Chiefs, an umbrella body bringing together the province's traditional leaders.

Sustainability and Replication

SUSTAINABILITY

The sustained impact of the AKTE initiative is largely based on the strong support it enjoys among its sixteen constituent communities. This is evidenced by the internal replication of the tabu approach to conserving the area's natural heritage. Five member communities have established similar restricted access arrangements to their river resources, replicating the success of the AKTE model on smaller scales.

In addition to this social sustainability, the organisation is attempting to become financially self-sustainable through the development of ecotourism. Beginning in 2008, the AKTE Committee's Eco-cultural Tourism Project used funding from the Global Environment Facility to start work on the AKTE Information Centre. This was supplemented by funds raised from a one-time harvesting of trochus in 2009; these funds were used to begin the construction of a barbecue house that will serve tourists. In 2010, the outer walls of both constructions were completed, while an AKTE community member has participated in an eco-guide workshop. An increase in tourism numbers over the next few years would generate revenue from conservation area entrance fees and associated enterprise growth.

Environmental education and awareness-raising

Another strategy being employed to improve long-term sustainability is that of environmental education. With the support of the provincial government authority and from international JICA volunteers, AKTE has developed a pilot Crab Bay Environmental Education programme. The organization educates young pupils from local schools and communities about traditional methods of conservation. Designated community representatives act as knowledge resources for this programme, while the management committee has recently identified future representatives to succeed the sixteen current representatives of the member communities. In 2010 and 2011, the organization provided environmental training

to five schools and all sixteen communities with funding from the provincial government.

This has also used traditional drama to convey educational messages on conservation, supported by the Wan Smolbag Theatre group. This Vanuatu-based group of actors works with communities on social, health, human rights and environmental issues, and has successfully developed an awareness-raising 'River Play', emphasizing the importance of community conservation of coastal rivers and streams as freshwater sources.

PARTNERS

The various partners to the AKTE initiative have clearly defined roles and responsibilities; the multi-stakeholder approach to sustainable management has been a key factor in the project's sustainability.

- AKTE Committee: the central actor in the initiative; responsible for implementing management and monitoring activities, keeping financial and event records, accompanying visitors into

tabu area, maintaining roads and paths in tabu area, enforcing the tabu, disseminating information from committee meeting decisions to local communities, making changes to rules and management decisions of the tabu, and recommending any changes of AKTE Committee membership to chiefs.

- Village Chiefs: approve changes in the AKTE Committee membership after consulting communities; assists the AKTE Committee in enforcing rules and regulations.
- Fisheries Department: provides advice and technical support for the management of AKTE and collecting monitoring data.
- Forestry Department: provides advice and technical support for management of AKTE.
- Environment Department: provides advice and technical support for the management of AKTE and analyzing data.
- Provincial Authorities and police: provide enforcement support to the AKTE Committee, if necessary.
- Mapest and Bushman's Bay plantations: two private plantations play a role in monitoring entrance into access areas.
- Local facilitators: provide information on management decisions and tabu regulations to the communities.
- Local communities: assist in monitoring activities and consent to management decisions taken by AKTE.

International support has come from UNDP, the Global Environment Facility (GEF), and the International Waters Project (IWP) through the Departments of Forestry and Fisheries. The project has also benefitted from the support of international volunteers through JICA, the Japanese International Cooperation Agency.

Wan Smolbag Theatre was created in 1989 by a group of part-time actors to work with communities on social, health, human rights and environmental issues. With only one small bag to carry a few costumes ('Wan Smolbag' in Bislama, pidgin English), the troupe produces plays and drama sketches, and conducts participatory drama workshops in Vanuatu's most remote villages. The success of the theatre has triggered interest from government agencies, non-governmental organizations and development programmes looking to raise awareness about sustainable development. The Wan Smolbag Theatre has produced short (20- to 50-minute) theatre pieces and videos on environmental, health, human rights and population issues in remote villages located on more than seventy islands.

FURTHER REFERENCE

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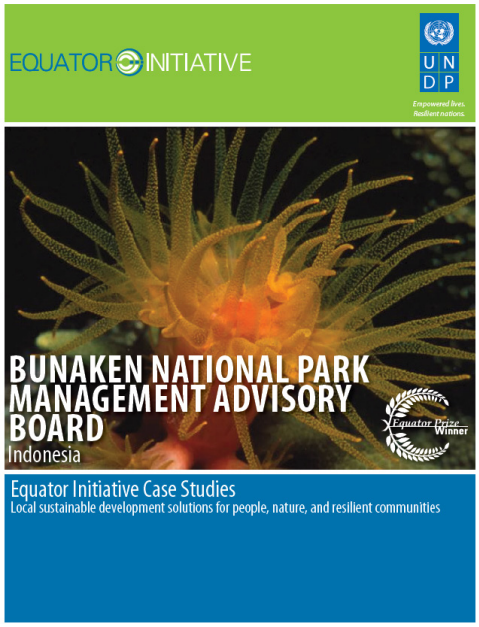

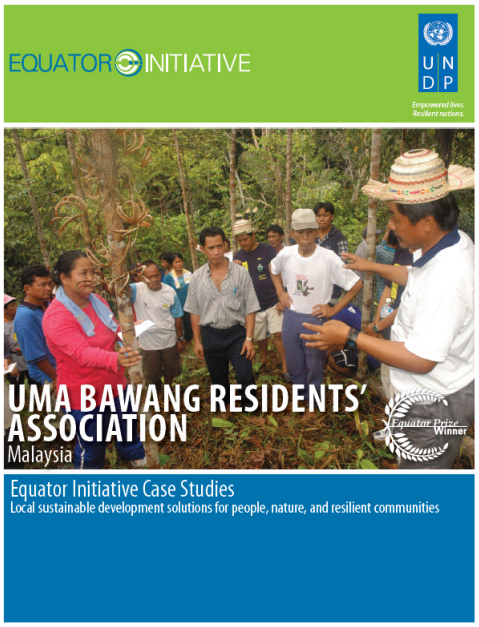

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