2005 SEED Winner Madagascar's first community-run marine protected area

Madagascar's first community-run marine protected area (2005)

Overview

"Madagascar's first community-run marine protected area" is a partnership between local people, research institutes, NGOs and a commercial fishing company and focuses on marine conservation and sustainable livelihoods along the southwest coast of Madagascar. The partnership, led by NGO Blue Ventures (BV), was the recipient of the first round of SEED Awards in 2005. The locally managed marine area (LMMA) was successfully implemented, covers 650 square kilometres and operates under the management of an association comprised of elected leaders from 25 villages, with continued guidance from BV. The model has since been replicated to numerous other areas in Madagascar. BV's work has since expanded and diversified considerably, and has been recognised by several other awards and much acclaimed by the media.

Origins

From 2001-03, Alasdair Harris, BV's founder and current Research Director, joined a research and conservation project in Madagascar with the country's national marine research institute, *Institut Halieutique et des Sciences Marines* (IHSM). Through his research, he realised that the unique marine area was under threat due to detrimental fishing techniques and population pressures, and recognised both a need and an opportunity to design a research and conservation project that would be managed by local communities. In 2003, Harris created Blue Ventures (BV), a social enterprise registered in the U.K., and began working toward his goal. BV has funded its growing marine conservation initiatives through its volunteer tourism and dive research programme, which has provided a stable business to expand efforts over the last decade.

In 2004, supported by research data, Harris began forging partnerships between BV and other NGOs and working more intensely in Madagascar. BV and its partners selected the coastal fishing village of Andavadoaka to begin awareness raising and environmental education on the importance of managing marine resources, with the intention of establishing Madagascar's first community-run marine protected area. In 2005, BV won the SEED Award for its pilot project design, which pioneered the use of temporary octopus fishery closures to generate community trust and interest in wider marine conservation initiatives.

The key problem

With its high levels of endemism and species richness, Madagascar is consistently cited as a global conservation priority. The southwest coast of Madagascar is host to one of the West Indian Ocean's largest coral reef systems, stretching across 300 kilometers of coastline. However, the reefs are also critical to the livelihood of the local and largely poor community, the Vezo, whose economy is entirely based on fishing. Over-fishing is a threat to the reef system as well as to the livelihood of the local communities.

The solution

Marine Protected Areas are designated areas in which the fishing of a particular species is prohibited for a certain period of time so that the species has a chance to regenerate to healthier levels. In turn, this can result in better returns for fishermen as bigger fish can return better prices.

Growth and future prospects

From temporary closure to LMMA

The LMMA began with an experimental temporary octopus closure for octopus fishing grounds in 2005. Octopus is the most economically important species in the area with over 99% of the catch being sold for export. The notable increase in the size and number of octopus at the reserve opening half a year later convinced communities of the benefits of setting up a LMMA.

In 2006, 25 villages came together along the southwest coast to create Madagascar's first locally managed marine area, Velondriake (www.velondriake.org), meaning "to live with the sea."

The pilot closure was very successful and the initiative was replicated in several neighbouring villages, which came together in 2006 to form the Velondriake Locally Managed Marine Area (LMMA) (see box at left), to manage the continued implementation of temporary octopus closures. Velondriake has since inspired the creation of a growing number of similar locally managed marine and coastal conservation initiatives elsewhere in Madagascar. Now, over 12 similar conservation initiatives are in development, many of which are based on Velondriake's management design and 5 of which are directly supported by Blue Ventures. Furthermore, the temporary octopus closure model has been repeated over 150 times in Madagascar, and even in neighbouring Mauritius. In 2012, BV hosted Madagascar's first national networking and exchange event for LMMAs around the country, creating a new national platform for exchange and learning in local coastal management.

The work of Blue Ventures has now expanded considerably beyond coral reef protected area development, to include the establishment of protected areas in mangrove and seagrass ecosystems, a scholarship programmes for youth in Velondriake, and livelihood diversification initiatives, in particular community-run aquaculture farms. BV has also increased its staff and partnerships significantly and has created a national marine NGO network to support conservation efforts. Further, BV implemented the first coastal population, health and environment (PHE) programme[1] in Madagascar, incorporating community health service provision into its conservation work. Today Blue Ventures community health workers provide year-round reproductive health, WASH (water, hygiene and sanitation), and maternal and child health services in 40 villages in the southern Madagascar. Blue Ventures strives to fund its projects through innovative business-based approaches, such as eco-certification of the octopus fishery, aquaculture projects, and blue carbon research aimed towards establishing Payments for Ecosystem Services (PES) for communities. The lessons learned in establishing Madagascar's first LMMA have influenced the introduction of new fisheries legislation by both the governments of Madagascar and neighbouring Mauritius, and BV is now working with the Malagasy Ministry of Fisheries to expand its approach to other communities.

In the interview given for this case study, Harris sums up the success and growth of BV in Madagascar by highlighting that the enterprise has expanded its focus from setting up one LMMA to supporting the development of LMMAs nationally. BV's approach to protected marine areas now places a greater emphasis on building and supporting new grass roots conservation initiatives that can help to scale up and replicate local conservation efforts. Blue Ventures has also begun working in other countries, such as Belize, to replicate the model. Future prospects include working with the Velondriake Association, Velondriake's community management body, to develop ecotourism in the region, and working toward creating a regional LMMA network across the broader western Indian Ocean.

Social, environmental and economic benefits and outcomes

The establishment of the LMMA and the ensuing work by BV and its partners have brought clear social, environmental and economic benefits; outcomes that are highly interdependent. Bans on destructive fishing practices have helped to increase local fish stocks, which have in turn contributed to local income and improved food security.

a. **Social:** BV's activities are no longer focused solely on marine conservation and research. It has expanded into a broader PHE approach, which has had a multiplier effect – making social benefits difficult to enumerate. An estimate in 2012 is that BV directly benefits over 20,000 local people by working in 50 villages and boosts earnings by over 1,100 USD per village (Gradl, et al, 2012). Specific social benefits include:

   i. Family planning and community health clinics reaching 40 villages;

1 The Population, Health, and the Environment (PHE) approach integrates health or family planning with conservation efforts to seek synergistic successes for greater conservation and human welfare outcomes than single-sector approaches [from Wikipedia - http://en.wikipedia.org/wiki/Population_Health_and_Environment_(PHE)].

ii. Capacity building support to 5 LMMAs and their community management associations (supporting environmental governance):

   a. Be Andriaky LMMA

   b. Velondriake LMMA

   c. Teariake LMMA

   d. Manjaboake LMMA

   e. Barren Isles LMMA (in development)

iii. Hundreds of educational scholarships; by 2011, 700 educational scholarships had been given to a private school at a total cost of $30,000. Nearly 200 additional scholarships were given in 2012 alone, with increasing numbers through an online donation programme.

iv. Livelihood diversification through women's associations and aquaculture projects, including both seaweed and sea cucumber farming

v. Support to other NGOs that act as multipliers of social and environmental benefits.

b. **Environmental:** Initially, the project sought to protect 650 km^2. Now it is running protected areas summing 3000 km^2. The specific environmental benefits include:

   i. Establishment of 3,000 acres of seasonal octopus reserves resulting in significant increases in the size and quantity of octopus, specifically an increase catch per unit effort (CPUE) for at least 6 weeks following a reserve opening,

   ii. Permanent and temporary reserves that benefit several small-scale fisheries

   iii. Creation of nearly 1,000 acres of permanent marine reserves and 700 acres of protected mangrove forests

   iv. Policy: aid in establishing environmental laws such as fisheries management planning prioritising sustainability of the octopus fishery (gleaned predominantly by women).

   v. Generation of important environmental data and knowledge: Pioneering research on the condition of reefs along the coast of Southwest Madagascar, as well as baseline research in current turtle and shark populations to support future conservation.

   vi. Environmental advocacy: BV has an environmental policy expert based in Antananarivo to advocate for marine conservation issues, and has published research on Madagascar's tuna fishery in relation to European Union policies

c. **Economic:** BV, as a social enterprise, currently now employs approximately 100 permanent staff, up from 1 in 2003. The growth and increased revenue of ecotourism offerings by the enterprise now provides approximately one third of the organisation's turnover. In terms of the economic benefits it provides to beneficiaries of its projects, besides improved livelihoods through greater fish stocks, the community-based aquaculture farms provide the families of 56 sea cucumber farmers with an alternative and profitable source of income; the village of Tampolove received a total net income of US$7,290 from 2009 to mid-2012. Furthermore, 35 active seaweed farmers, plus an additional 65 in pre-production, operate in 6 villages, up from 3 at the start in 2010. By mid-2012, seaweed production brought in a total of US$2771.

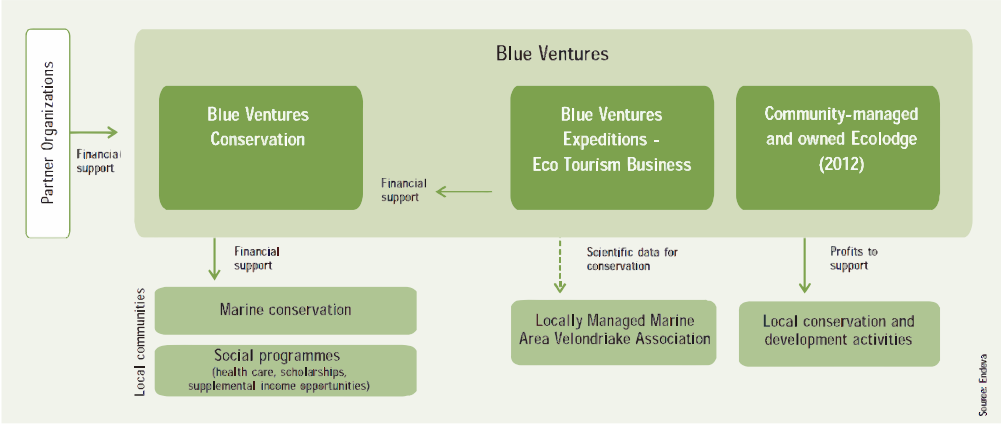
Blue Ventures' business model and key stakeholders

Blue Ventures' enterprise comprises a conservation component – Blue Ventures Conservation (BVC) - and a business component - Blue Ventures Expeditions (BVE). BVC works together with a number of largely informal partners and affiliates, including NGOs, government Ministries, and businesses in order to promote marine conservation and implement social

programmes, as shown in the diagram below. The revenues brought through the expeditions contribute to approximately one third of the overall organisation's turnover. Other sources of funding come from:

- Foundations and grant programmes (e.g. the John D. and Catherine T. MacArthur Foundation, Ruffords Small Grant Foundation)
- International aid agencies (e.g. and the U.S. Agency for International Development (USAID); the Norwegian Development Agency (NorgesVel))
- UN programmes (e.g. United Nations Population Fund (UNFPA); the United Nations Children's Fund (UNICEF))
- Development Banks, including the African Development Bank

Figure 1. Illustration of Blue Venture's business model (source: Gradl et al., 2012).



BV also has business partnerships for diving equipment (Aqualung) and receives in-kind support for legal advice (Hogan Lovells) and satellite imagery (Digital globe).

BV works with a range of stakeholders. These include beneficiaries (local communities as well and a fishing company); research and implementation partners; and networking partners. The relationship of these groups with BV is outlined as follows.

a. Beneficiaries

- **Local Communities:** The main beneficiaries of BV are the 25 communities that united to form the Velondriake LMMA. These communities have access to a range of reproductive health and environmental youth education programmes and benefit from increased fish stocks due to temporary and permanent reserves. The Velondriake Association, the LMMA's management body made up of elected community representatives from all 25 villages, also receives extensive training in conservation planning and management. As the key stakeholder, the local community is responsible for the enforcement of the *dina*, which are locally created laws banning destructive fishing practices and regulating the LMMA.
- **Businesses and NGOs:** Another important alliance for Madagascar's first LMMA was with Copefrito, a commercial fishing company. Copefrito participated by providing market incentives to communities for temporary reserve implementation, such as paying a higher price for bigger octopus on reserve opening days. (Heid & Streets, 2006; Dunn, 2009.)

b. Research and implementation partners: BV's conservation model is strongly rooted in scientific research of the region's marine resources. Implementation of research requires raising awareness within local communities and the presentation of scientific and socioeconomic research to communities surveyed - a priority for BV. Research and implementation partners include:

- **International Organisations:** An early partner involved in the creation of the pilot temporary closure was the Wildlife Conservation society (WCS), but now BV works closely with many local and international NGOs, including WWF and Conservation International. BV has worked with these and other conservation and development NGOs to create a national NGO networking platform in the country's capital, Antananarivo, to improve learning and coordination of conservation of Madagascar's vast 5,500 kilometres of coastline. A more recent key partner is Rare Conservation, which worked with local BV staff to establish a Social Marketing campaign called Vezo Aho, or "I am Vezo", which focused on emphasising the Vezo's cultural pride in their marine resources and encouraging compliance with the LMMA's dina by writing messages on the sails of pirogues and t-shirts (see box at right).

- **University research centres:** BV works closely with Madagascar's marine research institute, **IHSM**, which has been involved in the LMMA project since the beginning, providing academic support and frequently sending students to the area to conduct research projects. Masters and Doctoral students from universities abroad and Madagascar's University of Antananarivo (ESSA Forets) also carry out marine research in the area. BV strives to integrate local research and university systems into its projects as much as possible in order to maintain local ownership of projects and retain national support.

- **Government ministries and programmes:** BV works with the Malagasy Ministry of Fisheries to provide input into proposed fisheries legislation. It also collaborates with Madagascar National Parks (MNP) to develop conservation strategies that benefit both people and nature.

c. **Networking partners:** These are organisations in which BV participates as a member and contributor of information related to conservation and research and in return has access to the contributions of the networks' members. Key networking members include Ashoka, IUCN, Arkive, Centre de Surveillance de Pêche, Kew: Millennium Seed Bank Project and Oceans 12.

Success factors

- **The Conservation Business Model** – BV has crafted a unique community-based approach that combines conservation and poverty alleviation, while providing revenues to the BV enterprise through its volunteer tourism and dive research programme. Because BV is not completely dependent upon grants to cover its operating costs, it has a definite advantage in terms of the long-term continuity of its conservation and social work, and marine research.

- **Visionary leadership with the ability to network** – Alasdair Harris and his team have managed to significantly scale up and replicate Blue Ventures' original objectives in a relatively short time. They have done this through successfully engaging community members and creating partnerships with key NGOs, as well as by training local staff and building strong in-country and international support networks. An openness to project expansion to fit the needs of communities was key in catalysing the continued development and expansion of BV's approach and reach.

- **Existence of strong, traditional community organisation and authority structures** – The Velondriake LMMA is managed through local leaders through the application of the dina, traditional rules and regulations created and enforced by communities (See box at right). Attempting to control and manage the LMMA would have likely failed if it were dependent on official national policing or enforcement by outside authorities.

- **Initiative backed by solid scientific research** – Certain aspects of the creation and management of the LMMA require technical expertise. In particular, zoning and monitoring must be based on sound scientific understanding for management to be effective. Examples include the scientific mapping of the LMMA's habitats, fulfilling the requirements for national legalisation and official recognition (Cripps & Harris, 2009). Armed with scientific data, BV is able to gain trust and raise awareness in the local community.

The role of the Dina in the MPA

Along with the establishment of the LMMAs, a series of local management committees were created from north to south along the coast. These committees have an important tool they use to manage the LMMA called "dina". Dina are the local conventions between all the fishermen in the village to manage their fishing zones. They include rules about the permitted fishing methods and gear, fishing closure times.

Dina is proposed by each village within the LMMA, then the Velondriake Association standardises the proposed measures into an LMMA-wide dina. Afterwards, it is sent to the courthouse in Toliara to be approved. Once it is approved it becomes a by-law.

(Ramahery, 2012)

- **Social marketing** – Scientific data is necessary, but not sufficient, to create the enthusiasm and compliance required for a successful LMMA. The strategic and systematic application of social marketing campaigns, from reproductive health to cultural pride messaging, to achieve cultural acceptance and endorsement of the LMMA and its activities has been a crucial component in the success of this model.

Challenges and how they have been met

BV's development has met many challenges in supporting marine conservation and coastal poverty alleviation in Madagascar. These include:

- **Systemic problems in the area (erosion, poverty and nutrition issues):** From the outset it was recognised that, in order to have successful conservation in the region, poverty alleviation issues would have to be dealt with simultaneously alongside conservation. To do this, BV takes an integrated population, health and environment (PHE) approach and works on several fronts together with key international development agencies, attacking the problems of poverty from various angles, such as family planning education, health care provision, community organisation (including women's groups), and alternative livelihoods creation. It has also implemented mangrove protection reserves in order to combat erosion and protect these significant carbon storage sources.

- **Achieving buy-in of the local communities in setting up the LMMA:** With fishing being the main livelihood, convincing fishermen that temporary pauses in fishing can provide long-term benefits initially represented a big barrier. This was dealt with through extensive outreach and raising awareness about the potential benefits of creating temporary and permanent marine reserves. Further, the temporary octopus closure model was chosen because results are extremely tangible; closures do not represent a definitive loss of fishing resources and generally result in improved catch size and income and were therefore a feasible "sell" for the local leadership. "The success of the temporary no-take zones constituted a conservation action that brought a tangible benefit to the community and was what made them buy into further actions" (Cripps and Harris, 2009).

- **Remote location and a lack of basic infrastructure:** The Velondriake LMMA is extremely remote, requires several hours of driving on a bumpy dirt road from the nearest city. Further, there is no grid electricity, sporadic cellular reception and few to no health services available. Besides exacerbating existing social problems, this situation discourages greater tourism and investment in the area, though the village of Andavadoaka has seen a very large increase in development and tourism over the last decade with BV's presence. The Velondriake LMMA has also created tourism brochures in English, French and Malagasy that can be distributed to all the hotels in the capital and has developed the Velondriake website (www.velondriake.org).

- **Dealing with 'free riders' and poachers in marine reserves:** After opening the initial pilot closure, fishermen from other communities came and fished everything out of the grounds (Heid & Streets, 2006). Free riders now include commercial trawlers that are moving into the area who do not respect or know about the marine reserves and temporary closures, but reap benefits from the increased fish stocks to the detriment of those who respected the LMMA and reserves. Poachers include fishermen who do not respect the local dina, whether they are locals or migrants from other coastal communities. The poaching problem has not been solved, but it has been improved through raising awareness among the communities about the importance of marine preservation and enforcement of the dina.

- **Challenges in setting up the dina and getting government approval and validation:** According to Ramahery (2012), "when people break the dina they often break both local rules and national fisheries rules. But, there are not enough personnel in the government to help enforce the dina. That's why we need a clearer framework for the local fishermen to be able to enforce the rules". To combat this problem, BV along with Madagascar's wider marine conservation network is now trying to clarify the legal power of the dina as well as secure institutional support from the Ministry of Fisheries to sponsor an official Resource Management Officer for the fishermen.

- **Government instability:** BV's efforts have also met with ongoing political instability, particularly during Madagascar's 2010 military coup. This resulted in tourism trickling to a near halt, affecting revenues and research flows, and interrupting work with ministries. This remains a potential source of future instability, albeit an external one that BV has no control over.

Current needs and types of support BV requires now

Harris: "As BV expands its programmes and scope of work to combat the enormous conservation and poverty challenges faced by Madagascar's coastal communities, BV requires more resources, research and personnel". As Harris commented, "The biggest challenge faced by Blue Ventures at the moment is handling the rapid growth of the enterprise". BV believes that this rapid expansion is a sign that its work is truly making an impact and that communities value its presence.

Some items highlighted include (a) networking, developing learning networks; (b) academic support; (c) legal support; (d) communications and marketing -web design, branding graphic design, communicating online, emarketing; (e) new controls and balances, financial services.

Lessons Learned from the Blue Ventures Case Study

This case illustrates that it is indeed possible for a social enterprise to establish marine protected areas run by and benefitting local communities and thousands of households, while turning a profit. There are numerous lessons learned throughout the history of BV's work in Madagascar, which have been documented by BV and are easily accessible in publications such as *Cripps, G. and Harris, A. (2009) Community creation and management of the Velondriake marine protected area. Blue Ventures Conservation Report.*

What is perhaps most striking in this case is the number of different social and environmental outcomes that BV has been able to catalyse in less than a decade. This seems to be due to the founder's early recognition that, in order to meet conservation objectives, systemic problems would have to be addressed in a holistic manner, including poverty alleviation, population pressures and destructive fishing practices; effectively turning a marine researcher into a specialist in local community management, networking, institution building, and policy influencing.

In terms of scaling up the enterprise, the case clearly shows that strategic partnerships, networking and responding to the needs of communities are key to the ability to work on so many fronts. Further, research and monitoring, both scientific and socioeconomic are fundamental for gaining credibility and the support of key stakeholders, as is tapping into strong traditional authority structures and applying strategic social marketing campaigns.

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- World Conservation Service -Madagascar http://www.wcs.org/where-we-work/africa/madagascar.aspx
- Marine Conservation Agreements practitioner's toolkit –country analysis of Madagascar http://www.mcatoolkit.org/Country_Analyses/Madagascar.html
- SEED Initiative pages relevant to this winner: http://www.seedinit.org/en/awards/winners-database/2005%20Awards/madagascars-first-community-run-marine-protected-area.html

Interviews

- Dr Alasdair Harris, Blue Ventures Research Director .
- Analisa Bianchesi, Rare Conservation