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## **Blue Ventures Environmental Education in Andavadoaka, Madagascar: Building Community Support and Capacity for Conservation**



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## Blue Ventures Environmental Education in Andavadoaka, Madagascar: Building Community Support and Capacity for Conservation



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## Introduction

Since 2003, the marine conservation organisation Blue Ventures has worked with coastal villages in the region of Andavadoaka, located along the southwest coast of Madagascar, to develop conservation plans aimed at protecting the natural resources local communities rely upon for survival.

Blue Ventures' research and conservation programmes in the region have evolved through close collaboration with local villagers, incorporating their traditional knowledge and socio-economic needs into conservation management interventions. Such partnerships are essential to ensure the community support needed to achieve conservation success.

Environmental education, scientific training and capacity building also are key tools used by Blue Ventures to foster community support and cooperation. Over the past four years, Blue Ventures has launched a variety of educational programmes in the Andavadoaka region aimed not only at improving communities' understanding of conservation issues, but also at empowering local communities by providing the skills they need to sustainably manage and protect their own natural resources.

While Blue Ventures has conducted its environmental education programmes in villages along the southwest coast of Madagascar, the lessons and skills taught have been transferred to other areas across the country and western Indian Ocean region – helping to foster national and

regional conservation awareness and success – as local scholars, conservation practitioners and staff have moved outside the region and gone on to work with a variety of governmental and non-governmental organisations.

Blue Ventures' environmental education programmes target the entire range of stakeholders and resource users in the Andavadoaka coastal region, including local fishers, community leaders, village elders, school children, commercial fisheries collection companies and women's associations. By building conservation knowledge and skills at the local level, Blue Ventures is also helping increase Madagascar's capacity at a national level for protecting its unique and threatened marine and coastal habitats. Blue Ventures shares its data, experiences and lessons learned with Malagasy institutions and government agencies to increase conservation success across the country.

This report provides an overview of the variety of educational and capacity building programmes that Blue Ventures has employed to develop the community support, understanding and skills needed to improve conservation of natural resources locally, regionally and across Madagascar.

Greater detail and explanation of all Blue Ventures' educational, research and capacity-building activities can be found on its website at [www.blueventures.org](http://www.blueventures.org).

**Table of Contents**

**Introduction..... iii**

**Table of Contents..... iv**

**Community Consultation and Participation .....5**

**Participatory Ecological Monitoring .....6**

**Alo Alo Children’s Environmental Club .....7**

**Women’s Association Capacity Building and Skills Training.....8**

**Eco-guide Training .....9**

**BV Environmental Scholarship Programme .....10**

**Dive Training .....11**

**Information Sharing.....11**

**Blue Ventures’ Open Days and Notice Boards .....12**

**Primary and Secondary School Scholarships .....12**

**English Tutoring .....13**

**Family Planning Education .....13**

**Fuel Efficient Cooking Programme .....14**

**Conclusion .....15**

## Community Consultations and Participation

In 2004, Blue Ventures worked with leaders of the village of Andavadoaka to create Madagascar's first community-run no-take zone (NTZ) for octopus. The project, which implements seasonal fishing closures, not only promotes the long-term sustainability of octopus, but also benefits local fisheries by increasing the size and number of octopus living in the region.

The substantial increases in octopus – the primary source of fisheries-derived revenue in the region – that resulted from Andavadoaka's NTZ prompted many neighbouring villages to ask for support in developing similar projects in their communities.

Community workshops were an integral part of the development of the first NTZ, and will continue to be critical tool as Blue Ventures expands its conservation activities and outreach to other villages in the region.

Before and following the launch of the Andavadoaka NTZ, Blue Ventures held regular meetings with village leaders and fishers to gather information about traditional fishing practices, locations of heavily fished areas, the busiest seasons for fishing, and other relevant fisheries and socioeconomic data. Blue Ventures then used the information to create NTZ strategies that were acceptable to and implemented by local villagers.

These workshops also informed villagers about the science behind conservation planning, the growing threats to fisheries, coral reefs and related habitats in the area, the need for conservation action, how to implement and monitor the NTZs and what outcomes to expect.

Following the reopening of the NTZ's first seasonal closure, Blue Ventures continued consultations and workshops with villagers in Andavadoaka to discuss the benefits and downsides of the initiative, adjusting strategies as needed to maximize community support and conservation success.

Blue Ventures also participated in a national workshop in Toliara following the opening of the Andavadoaka

NTZ. The government-led workshop, Madagascar's first such gathering on cephalopod fishery management, drew on the results of the Andavadoaka project to create similar seasonal restrictions across the country aimed at enhancing the sustainability of octopus populations and fisheries.



*Blue Ventures trains and pays women in Andavadoaka to monitor the catch of local fishermen. The programme not only provides critical data for conservation scientists, but also increases environmental awareness among villagers.*

Alongside development of the NTZs, long-term monitoring of fisheries and marine habitats has been carried out in Andavadoaka to determine how fishing and other activities are impacting the marine environment. Blue Ventures has recruited and trained villagers – mostly women – in Andavadoaka to monitor the catch brought in by fishers. Fish identification materials have been given to the trained monitors, who conduct fortnightly surveys on all the fish being brought into the village, recording the number, weight, size and species of catches.

These data are then analysed to identify changes in local fish populations, and are used by scientists to support conservation planning. The monitoring programme not only provides critical data for conservation scientists, but the villagers also gain awareness of changes in fish populations and the need for conservation planning.

Building on the success of the Andavadoaka projects, Blue Ventures is now partnering with 25 additional villages in the region to create an 800-square kilometer network of marine and coastal protected areas. The network, which villagers have named Velondriake meaning “to live with the sea,” will protect a variety of threatened habitats including coral reefs, mangroves, sea grass beds and baobab forests. With the launch of Velondriake, Blue Ventures is expanding its educational programmes to reach all 25 villages within the network.



*Villagers from two-dozen communities participated in a series of workshops to identify coastal habitats they wanted to protect and map the borders of the Velondriake network of protected areas.*

In the months leading up to the creation of the Velondriake network, Blue Ventures organised dozens of meetings and workshops in Andavadoaka and other villages in the area to discuss the need for the conservation project and to gather information from villages about which habitats they wanted to protect.

Blue Ventures compensated people from surrounding villages for their time spent traveling to Andavadoaka to participate in the workshops, since participation in the meetings often necessitated representatives foregoing their daily fishing activities.

After several weeks of meetings, villagers were asked to draw their own maps of the region and use coloured pencils to highlight areas they felt should be protected.

Conservation scientists used these maps, supported by ecological data gathered through field surveys, to determine zoning plans of Velondriake and targeted areas for protection.

Blue Ventures continues to hold monthly conservation workshops in Andavadoaka, funding transportation costs for villagers from more distant communities to attend. During the workshops, villagers are taught about the growing threats to local habitats from expanding coastal populations, destructive over-fishing, poorly managed development and other human activities.

Blue Ventures worked with village leaders to create a community management committee and regional subcommittees to oversee Velondriake and its conservation activities. Members of the committees receive ongoing training on conservation strategies and monitoring through workshops and direct participation in field research and conservation planning, working alongside conservation scientists.

This training forms part of a long-term plan for Blue Ventures to step away from facilitating Velondriake activities, and leave daily implementation and monitoring solely in the hands of local villages.

Along with conservation planning and monitoring, Blue Ventures is training villagers to develop sustainable businesses that offer economic alternatives to destructive fishing practices. Initially in Andavadoaka, and now expanding to other villages within the Velondriake network, Blue Ventures is training locals to work as eco-tour guides (see Eco-guide Training below) as well as to manage their own mari-culture projects (see Women’s Association Training below).

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## Participatory Ecological Monitoring

To help ensure community involvement and support for Velondriake, Blue Ventures is working to train local villagers in “participatory ecological monitoring.”

Through workshops, representatives of the Velondriake management committee are being trained to monitor

selected key environmental and social indicators within the different habitat types included in the reserve network, with emphasis on indicators that have particular importance to local communities. These include, for example, the number of large fish caught by villagers, the number of sea cucumbers harvested, the number of small mesh nets owned by fishers and the number of trees felled in mangrove areas.

Once trained to collect this data, villagers will regularly monitor habitats and communities within Velondriake and share the results with conservation scientists. The data will then be used alongside Blue Ventures' long-term monitoring data to analyse, develop and adjust conservation strategies.

Participatory monitoring not only gathers scientific data needed for conservation planning, but because it targets indicators that have tangible meaning to local communities, it reveals the direct human impacts that result from conservation projects.

In addition, it enhances the sense of project ownership within local communities. Such community involvement is necessary to ensure conservation success.

Blue Ventures is now working with Madagascar's department of national parks, ANGAP, to organise workshops within Velondriake to develop this programme further.

### Alo Alo Children's Environmental Club

The Alo Alo ("barracuda") Club was developed by Blue Ventures to teach the children of Andavadoaka about local habitats and species. The goal of Club Alo Alo is to create a new generation of conservation-minded people with the skills needed to improve their lives and their communities through the long-term protection of local natural resources.

Blue Ventures has employed and trained two members of Andavadoaka to run Club Alo Alo, meeting with children each Sunday to provide lessons on such issues as the life cycles of local species, how destructive

fishing practices impact marine animals and the connectivity between ecosystems such as mangroves and coral reefs.



*Blue Ventures created Club Alo Alo to teach the children of Andavadoaka about marine environments, the threats they face and how to protect them.*

Lessons are taught through songs, games, field trips, snorkeling expeditions and other activities that allow children to become personally involved in the lessons. Among the activities undertaken by Club Alo Alo are:

- Beach clean-up competitions: Participants are taught about the damage garbage can inflict on local marine systems and species. Supported by Blue Ventures volunteers, the children are divided into teams and race to see which team can collect the most garbage from the beach. The garbage is then disposed of and the children discuss what they found and how to better manage local garbage in the future.
- Snorkeling field trips: Blue Ventures supplies children with snorkeling gear and leads near-shore snorkeling expeditions to provide an introduction to the different benthic and fish species that live on local reefs, seagrass beds and mangroves. Children are taught to identify different species and learn about threats to habitat health.

- **Environmental plays:** Blue Ventures staff work with Alo Alo members to write and produce plays that contain messages about ecology. The children recently wrote and produced a musical that highlighted the benefits of marine protected areas and how the destruction of mangroves can lead to fewer fish in the reefs. All plays and musicals are performed to the broader village and other communities within Velondriake, helping to further raise awareness about conservation and other environmental issues.

The club has its own meeting house which has been painted by children and Blue Ventures volunteers with colorful pictures of marine species. Alo Alo members elect their own president, vice-president, treasurer and secretary, instilling in them a sense of responsibility and a vested interest in the club's activities and finances.

The Club has proven so popular that neighbouring villages have requested support in establishing similar children's programmes in their communities. Blue Ventures is now developing set lesson plans and other curriculum-based educational materials that will be distributed to schools and villages to provide teachers with locally-relevant training resources to introduce children to environmental science and awareness.

All activities and materials used by Club Alo Alo are funded through donations from Blue Ventures volunteers, staff and other supporters.

### Women's Association Capacity Building and Skills Training

The women of Velondriake have not traditionally had the same opportunities to benefit from fishing revenue as male villagers. While women glean octopus in shallow waters, they do not fish for octopus by boat in deeper areas nor do they participate in fishing for fin fish.

Blue Ventures has established formal Women's Associations within the villages of Andavadoaka and Lamboara, and is teaching them new skills to help them find independent and sustainable sources of income.

Blue Ventures has recruited and trained village women to monitor the marine species caught by local fishers. Women in the villages of Andavadoaka, Lamboara and Andranomboala are employed by Blue Ventures to conduct fortnightly surveys of all fish brought into the villages, recording the number, weight, size and species. These data are then analysed by Blue Ventures to identify changes in local fish populations and fisheries, and to advise ongoing conservation planning.

The monitoring programmes not only offer local women a sustainable source of income, but also increase their awareness of changes in marine health and the need for conservation planning.



*The village Women's Association has been trained to raise sea cucumbers. A local fishing company has agreed to buy the sea cucumbers for sale to an international market, with all profits going directly to the women.*

Blue Ventures has also recruited women to oversee a new sea cucumber farming project launched in three villages in the Velondriake network. Sea cucumbers are a highly valuable commodity, sold to Asian markets as a culinary delicacy and herbal medicine.

However, because of their high market value, sea cucumbers are being over-fished in the region. Sea cucumbers are a multi-billion dollar industry in Asia. While they once were plentiful in shallow, near-shore waters across Madagascar, they are becoming more

difficult to find and fishers in some villages are now resorting to using old and discarded SCUBA gear to locate deepsea specimens. Diving not only threatens the sustainability of sea cucumber populations, but also is extremely dangerous and has resulted in a number of deaths in the region. While diving for sea cucumbers is banned under national and local law, it is still practiced by villagers eager to earn income from sea cucumbers.

Blue Ventures has launched the sea cucumber farming project as a way of protecting wild populations of the species and offering locals a safe and sustainable form of income.

Juvenile *Holothuria scabra* sea cucumbers are being provided by Aqua Lab/IHSM, a marine lab based in Toliara, and are transported to shallow-water pens near Andavadoaka, Ambolimoke and Belavenoke, where they are supervised and monitored by village women supported by Blue Ventures researchers. After building the pens Blue Ventures trained the women to monitor the growth of the sea cucumbers, weighing them and checking their health every two weeks.

Although still in its pilot year, a working collaboration is being developed for the project between Blue Ventures, AquaLab/IHSM and the international fishing company Copefrito, which provided initial funding for the farming project and guarantees purchase of the sea cucumbers once they have reached marketable size.

In due course any profits raised by the project will go directly back to the villagers, providing them with a new and sustainable source of income.

In addition, the Women's Associations have started to create handicrafts, such as embroidered materials, woodcarvings, clothing and hammocks, that they sell to tourists and the dozens of Blue Ventures volunteers who continuously rotate in and out of Blue Ventures' scientific research site located near Andavadoaka.

At the urging of Blue Ventures, the women also offer cooking lessons for a fee to Blue Ventures staff and volunteers, providing them with additional income.

## Eco-guide Training

Eco-tourism is among the fastest growing industries in Madagascar. It is currently estimated that at least half of all tourists arriving in Madagascar each year visit a coral reef area. But the small number of basic hotels currently operating within the Velondriake region employ few local villagers and provides little or no benefit to surrounding communities.



*Blue Ventures has trained more than a dozen villagers from Andavadoaka as eco-tour guides. Blue Ventures is also building an eco-lodge in the village that will be fully owned and managed by the community.*

Blue Ventures is working to develop an eco-tourism industry in Andavadoaka that will provide locals with sustainable economic alternatives to over-exploitation of natural resources. Eco-tourism will also offer villages a financial incentive to keep local habitats healthy and attractive to visitors. As part of this effort, Blue Ventures has trained more than a dozen villagers from Andavadoaka as eco-tour guides.

The training course involved two months of weekly classes, fieldwork and role-playing sessions. Students were taken to potential tourist destinations including mangroves, reef flats, baobab forests and beaches, and were taught to lead pirogue (canoe) trips to neighbouring islands and hikes to terrestrial sites.

Classes covered such issues as group safety, story telling, cultural awareness, local history, and regional ecology including the medicinal value of local plants. Students were also taught key French vocabulary (the most common language used by tourists to Madagascar), with particular emphasis on French terms for plants and animals and useful phrases to help guides communicate effectively with tourists.

Along with weekly classes, additional tutoring sessions were offered twice each week to help the trainees practice vocabulary and other skills including typical dialogues that could be expected between tourists and guides. Attendance was strictly enforced during the classes – only one absence was allowed – in an effort to emphasise professionalism, discipline and punctuality when working with tourists.

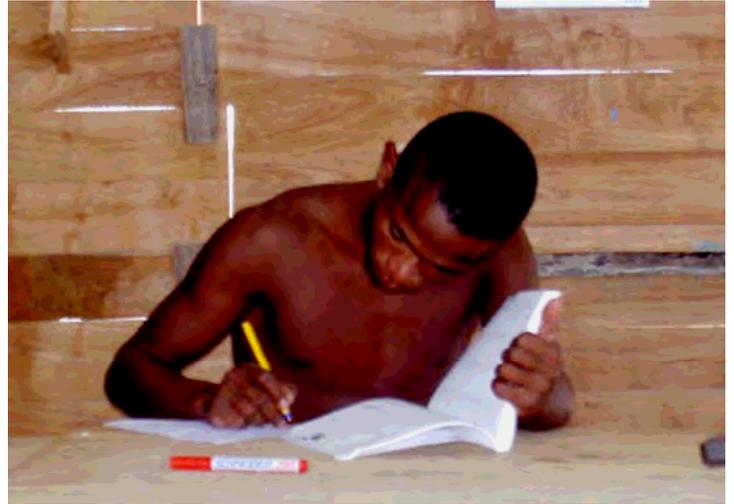
At the end of the training course, students took a final exam that involved leading a “tour group” of Blue Ventures staff on a pirogue trip to a nearby island or a hike to a nearby forest. Trainees who passed the final exam were awarded certificates stating that they had successfully completed the course and were now properly trained as eco-tour guides for Andavadoaka.

Blue Ventures is also working to build an eco-lodge in Andavadoaka that will be fully owned and managed by the village. The lodge, which will be run on clean wind and solar power, will include a dive centre and classroom for tourists to learn about local habitats and species. All profits from the lodge will go directly to the village, providing them with sustainable income and a financial incentive to keep local natural resources healthy and beautiful in order to attract tourism.

### **BV Environmental Scholarship Programme**

Blue Ventures runs a scholarship programme aimed at increasing Madagascar’s capacity to effectively manage coastal areas at a national level. The programme funds up to 12 Malagasy university students or graduates each year, bringing them to Blue Ventures’ research station in the village of Andavadoaka.

Students accepted into the programme receive round-trip travel from the city of Toliara to Andavadoaka, six weeks of food and lodging, SCUBA training and certification to PADI advanced open water diver and intensive training in marine and fisheries research, species identification and conservation planning.



*Blue Ventures provides environmental scholarships to up to 12 Malagasy university students each year. The students learn SCUBA diving, marine research, and conservation science.*

Scholars also live and study alongside Malagasy and international researchers and conservation practitioners working on the Velondriake initiative. As such, scholars gain first-hand experience of the issues and driving forces affecting coastal management in Velondriake and the broader southwestern region.

Scholarship winners are recruited through advertising and networking with other environmental NGOs, government agencies and academic institutions such as the University of Toliara’s Institut Halieutique et des Sciences Marines (IHSM). The scholarship is the first programme of its kind in Madagascar, and is designed to give students and young conservationists from across the country hands-on experience working on community-centred marine conservation projects.

Most conservation studies in Madagascar concentrate on terrestrial species, therefore the Blue Ventures scholarship programme is an important and much needed educational tool that contributes to

Madagascar's ability to train conservationists to protect its marine resources. Past participants in the programme have gone on to work for national and international conservation groups operating in the country.

## Dive Training

While members of Andavadoaka and surrounding villages spend an enormous amount of time on the ocean sailing and fishing, snorkeling and SCUBA diving are extremely rare skills across all of Madagascar. Trained research divers are essential to Velondriake – and other conservation projects – in order to monitor the status of the region's coral reefs.

Over the years, Blue Ventures has trained more than a dozen villagers in the region to be certified advanced open water divers – including the former President of Andavadoaka who now serves as President of the Velondriake management committee. Blue Ventures now is working to provide training to other members of the Velondriake committees to ensure they have the skills they need to protect their natural resources.

Blue Ventures also trained two villagers as certified PADI Divemasters, an internationally recognised professional qualification. They are believed to be the first and so far only Malagasy Divemasters in the country. The local divers work with Blue Ventures marine ecologists, helping supervise groups of volunteer divers and carrying out surveys of coral reefs. The local divers not only play a key role in Blue Ventures' science and conservation work, but also help communicate Blue Ventures' activities to the broader community and encourage others to become involved in marine conservation.

## Information sharing

Blue Ventures works closely with a variety of government and educational institutions in Madagascar, sharing data, resources and lessons learned in an effort to build national capacity for marine conservation. Blue Ventures regularly hosts and supports graduate students from the University of Toliara's Institut Halieutique et

des Sciences Marines (IHSM), providing a field research site from which students conduct research to complete their dissertations. Frequently, Blue Ventures has gone on to hire these students as conservation scientists within research programmes in the Velondriake region.

The Madagascar national parks service (ANGAP), and the IHSM also use the Velondriake conservation area as a training site for coastal management students.

To expand grassroots support, the conservation organisations WWF and Reefdoctor are now working with Blue Ventures to organise a "village exchange" during which dozens of fishers from south of the Velondriake region will visit the Velondriake initiative to share experiences with the project's management committees. This exchange programme aims to raise awareness regionally of community-based strategies to protect marine resources and improve local fisheries.

In addition, Blue Ventures' research staff regularly present project results and reports at ecological workshops in Madagascar and elsewhere around the world.

Along with increasing knowledge of traditional conservation science, Blue Ventures is working to broaden Madagascar's capacity to use socio-economic research to support conservation activities across the country. CORDIO, a Kenyan-based marine organisation dedicated to supporting coastal research and conservation efforts around the Indian Ocean, has run two training workshops for socio-economic monitoring within the Velondriake region. Blue Ventures' socio-economic research coordinator Gildas Andriamalala has since received further training from CORDIO in the Seychelles, which he plans to use to support future marine conservation initiatives elsewhere in Madagascar.

Blue Ventures' activities have also served as models for national conservation projects. Following the launch of the first community-run no take zone in Andavadoaka in 2005, Blue Ventures participated in a national workshop in Toliara aimed at sharing information about octopus fisheries. The government-led workshop, Madagascar's first such gathering on cephalopod

fisheries (octopus and squids), drew on the results of the Andavadoaka project to create new seasonal fishing restrictions across the country in an effort to safeguard octopus populations and fisheries.

## Blue Ventures' Open Days and Notice Board

In order to keep local villagers updated on conservation activities, as well as to ensure open communications between staff and community members, Blue Ventures holds “open days” at its research centre in Andavadoaka three to four times a year.



*Blue Ventures erected a notice board in the centre of Andavadoaka to post information about educational events, environmental issues and news updates.*

During these events, all Andavadoaka villagers are invited to Blue Ventures' research site – located about 500 metres away from the village – to meet with conservation scientists and volunteers, hear presentations about Blue Ventures' conservation and scientific work, tour Blue Ventures' facilities and learn about the daily activities taking place at the site.

Posters, demonstrations and workshops facilitate easy understanding of conservation principles, and villagers can visit exhibit stands to learn about specific topics such as the life cycles of shellfish or coral species. Boat races, beach-side games and demonstrations on the use

of diving equipment also encourage participation by the village and help foster congenial relations between community members and Blue Venture scientists.

Blue Ventures has also worked with community leaders to erect a notice board in the centre of Andavadoaka that lists various events and updates on environmental issues of concern to the village. News announcements are regularly posted on the board, alerting villagers to the latest activities being conducted by Blue Ventures.

## Primary and Secondary School Scholarships

Formal schools were not introduced to Andavadoaka until the 1960s. Today, the Catholic Mission, established in 1960, runs a private primary and a secondary school that charge fees to attend. There also is one public primary school that children can attend free of charge.

The public school is very limited in its resources and most families chose to send their children to the Catholic Mission School. Also, because there is no public secondary school anywhere in the region, families in Andavadoaka and neighbouring communities who wish to send their children on to higher education must pay a fee to attend the private secondary school.

Blue Ventures provides funding to children each year to attend the Mission's first and secondary schools. The number of children sponsored has grown each year since Blue Ventures first launched the scholarship programme in 2006. Currently, a total of 104 children from Andavadoaka and 10 neighbouring villages in the region depend upon the scholarship programme to attend school. The Mission chooses which children are eligible to receive the scholarship, based on financial needs academic achievement.

The scholarship is fully funded by donations from Blue Ventures staff, volunteers and other supporters. Funds pay for school fees as well as pens, paper, books and other educational materials. School meals are also covered for families whose children are sent away from

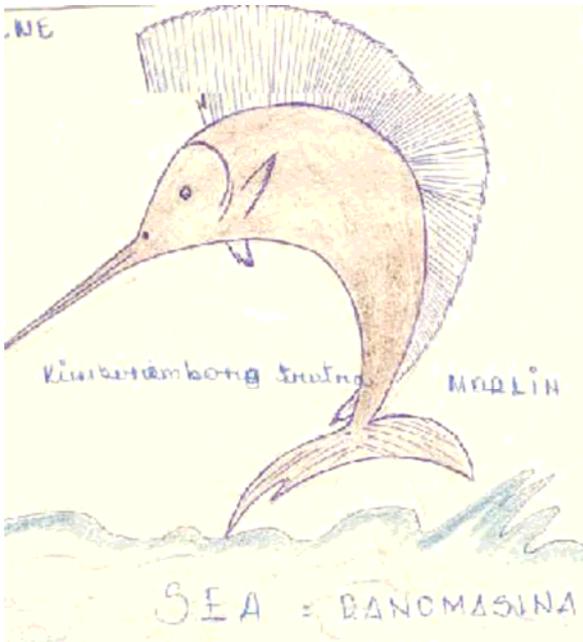
their home villages to attend school in Andavadoaka. A portion of the donations also goes towards Andavadoaka's children's environmental Club Alo Alo.

Blue Ventures believes education is key to improving the lives of local communities and to fostering awareness of environmental issues.

## English Tutoring

The schools in Andavadoaka are taught in French. To supplement the daily school lessons, Blue Ventures provides weekly English lessons to schoolchildren.

International volunteers attending Blue Ventures expeditions go to the village schoolhouse once each week and work with children aged 5 to 17. Songs and games are used to teach groups of younger children. Older children are given more personalised lessons focusing on practical language skills, vocabulary and grammar.



*A letter exchange programme between students in Andavadoaka and California allows children to practice language skills and to learn about other cultures.*

In 2006, a Blue Ventures volunteer who works as a schoolteacher in the United States established a letter

exchange programme between her students in California and the students in Andavadoaka.

Every few months, students in California write letters about their lives in the United States, describing their families, friends, homes and local environments. The California school is located near a coastal area, so students frequently write about the marine life and habitats in the region.

The letters are then delivered by Blue Ventures to Andavadoaka where they are used as educational tools to help children there learn new English words. Volunteers with Blue Ventures help the children in Andavadoaka read the letters and write responses in English to the California students. The letters are then delivered by Blue Ventures to the American school.

The letter exchange programme is not only a fun and exciting way for the children of Andavadoaka to learn English, but it also teaches them about different cultures, countries and marine habitats.

## Family Planning Education

In August 2007, Blue Ventures opened Andavadoaka's first family planning clinic, offering sexual health education and contraception services to the community.

The clinic, which is run to UK standards, compliments work by the government of Madagascar to curb population growth – considered a vital step in fighting poverty. The average number of children in a Malagasy family was 5.4 in 2005. At the current rate the country's population is expected to double within 20 years, resulting in huge social, economic and environmental consequences. Expectant mothers in Madagascar also face extremely high levels of death and injury: one out of every 200 women dies during childbirth.

Previous social research in Andavadoaka revealed an urgent need for family planning services and sexual health education. Young girls commonly become pregnant soon after puberty, and few women are aware of the different methods of contraception available.

Along with distributing contraception, the clinic also teaches people how to protect themselves and their partners against sexually transmitted diseases.

There are high levels of gonorrhoea and syphilis in the area with most of these infections going untreated. HIV and AIDS are also growing rapidly across Madagascar, including in the city of Toleara located just south of Andavadoaka.

A huge turnout of 50 women attended the educational session held on the opening day of the clinic, demonstrating the large amount of interest in the clinic's services from local villagers. Blue Ventures hopes to expand the types of services it offers and is planning to launch a number of satellite outreach clinics in other villages in Velondriake.

Blue Ventures is working with academic institutions in the UK to recruit medical students to work in Andavadoaka as part of a student elective programme. They will help with the development and delivery of family planning care and set up satellite clinics north and south of Andavadoaka to allow more communities to benefit from the health services.

Through these services, Blue Ventures is helping villagers take greater control of their health and family size, allowing coastal communities to develop more sustainably. This in turn will reduce pressure on coastal resources and help protect the fragile marine systems these communities depend upon for survival.

### Fuel-efficient Stove Distribution

Blue Ventures' Carbon Offsetting programme (BVCO) – funded in part by fees paid by Blue Ventures volunteers to offset their flights to Madagascar – distributes solar and fuel-efficient stoves to villages in the Velondriake network.

The stoves not only help reduce emissions, but also provide immediate environmental, health and economic benefits to villagers.

Traditionally, local villages have relied on burning wood and charcoal in open fires for cooking. Cooking in this way is extremely inefficient, and the large amount of wood needed to fuel cooking fires has led to widespread deforestation across the region.

In addition, smoke produced from the fires contributes to respiratory diseases, and the open nature of the fires is often the cause of debilitating burn-related accidents.

The solar and fuel-efficient stoves being distributed by BVCO address all of these problems, requiring either very little or no fuel to operate, and saving villagers money from household fuel budgets. Blue Ventures employs villagers within Velondriake to be trained in the building and maintenance of the stoves.

To help communities understand and acclimatise to using the stoves, BVCO staff travel to recipient villages in the area to demonstrate how food is cooked on the stoves and discuss the financial, health and environmental benefits of the stoves.



*Villagers in Andavadoaka watch a demonstration of how food is cooked on a solar stove. Solar and fuel-efficient stoves distributed by Blue Ventures provide villages with environmental, health and economic benefits.*

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## Conclusion

Diverse environmental education and capacity building programmes have formed key components of Blue Ventures' work in Velondriake, and will be fundamental to enable communities to achieve their goals of promoting effective sustainable resource management.

In threatened ecosystems such as Velondriake, where human populations rely on natural resources for survival, conservationists must gain the support and participation of local stakeholders before any management intervention can be realistically proposed. Without such close cooperation and understanding, local communities cannot be adequately engaged to support conservation strategies, and insufficient communication between stakeholders will weaken the legitimacy of any proposed conservation efforts.

Particularly in developing countries, where poor communities often have little choice but to exploit their natural resources for survival, local people must be able to see tangible benefits for themselves from conservation activities.

Environmental education and capacity building programmes allow local communities to become actively involved in conservation strategies, learning and discussing the benefits and opportunities of conservation, and helping foster support for project implementation. Within Velondriake such programmes have also helped conservationists by providing insight into the traditional use of, and historical changes in, local natural resources.

Through environmental education, skills training and capacity building programmes, Blue Ventures has also moved closer towards the ultimate goal of stepping away from the Velondriake project and allowing local communities to manage their own natural resources independently of facilitating NGOs.

This report provides insight into some of the educational programmes that Blue Ventures has piloted over recent years, which may be replicable by other conservation groups working towards similar goals elsewhere.

