ARNAVON COMMUNITY
MARINE CONSERVATION
AREA MANAGEMENT
COMMITTEE
Solomon Islands

Equator Initiative Case Studies
Local sustainable development solutions for people, nature, and resilient communities
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.
PROJECT SUMMARY

The Arnavon Community Marine Conservation Area was established in 1995 as the first community-managed marine conservation area in the Solomon Islands. The 157-km² area is home to nesting grounds of the endangered Hawksbill sea turtle. This Marine Protected Area, created to stem the overexploitation of dwindling marine resources, attracts ecotourism that provides a valuable source of income for local communities. Local youth are employed as monitors and high school students are brought on tours to learn about the group’s conservation efforts. A management committee that represents the three founding villages – Kia, Wagina and Katupika – helps resolve resource conflicts.

In partnership with The Nature Conservancy, this initiative has led attempts to diversify sources of income and nutrition for the villages’ fishing communities, including making handicrafts for visiting tourists, seaweed harvesting, and small-scale agriculture.

TABLE OF CONTENTS

Background and Context  4
Key Activities and Innovations  6
Biodiversity Impacts  8
Socioeconomic Impacts  8
Policy Impacts  9
Sustainability  10
Replication  11
Partners  11

KEY FACTS

EQUATOR PRIZE WINNER: 2008
FOUNDED: 1993
LOCATION: Arnavon Islands
BENEFICIARIES: villages of Kia, Wagina, and Katupika
BIODIVERSITY: Hawksbill Turtle (*Eretmochelys imbricata*)
The nation of the Solomon Islands is made up of a double chain of 922 islands covering more than 835,000 square miles of the Pacific Ocean, string out southeast of Papua New Guinea. The islands are home to a staggering degree of biological diversity; much of this was first catalogued in 2004, when a scientific assessment led by The Nature Conservancy showed that the Solomon Islands has coral diversity greater than most places on Earth and the country is one of the world's top five for fish diversity.

**An island archipelago rich in biological diversity**

These results led scientists to extend the boundary of the Coral Triangle of marine biodiversity to include the Solomons archipelago. The survey found that the Solomon Islands is part of this area – the region of the world's richest marine life – which was previously thought to extend no further than Indonesia and Papua New Guinea. The team recorded 494 species of corals in the Solomon Islands, including several species that were previously unknown, and more than 100 corals thousands of kilometres beyond their known range. In addition to the country's remarkable abundance of corals, the survey confirmed that the Solomon Islands has one of the richest concentrations of reef fish in the world. With at least 1,019 fish species, the islands rank with Indonesia, the Philippines, Australia and Papua New Guinea as one of the 'big five' for reef fish species. On land, with the exception of Papua New Guinea, the Solomon Islands has the greatest diversity of terrestrial vertebrate species of all Pacific Island nations.

Like other emerging Pacific Island nations with fast growing populations, the Solomon Islands face the challenge of preventing the rapid depletion of these natural resources to provide basic necessities – including schools, roads, and clinics – for its mostly rural people. In particular, sedimentation from logging, overfishing, and destructive fishing practices are impacting the marine environment. As a result, large tracts of native lowland forest have been lost and some of the world's richest coral reefs are at risk. Until 1998, when world prices for tropical timber fell steeply, timber was the Solomon Islands' main export product, resulting in dangerous levels of overexploitation of forests.
The Arnavons

The Arnavon Islands lie between the islands of Santa Isabel and Choiseul in the north-west of the country. Surveys by the government since the 1970s established that these islands were a regionally significant hawksbill turtle rookery. In the early 1980s, the government had attempted to protect the rookery from the increasing trade in turtle shell (known by the Japanese word bekko, used to describe the particularly ornate hawksbill turtle shell) by declaring the area a wildlife sanctuary, but this effort failed in the face of resistance from local communities.

The Solomon Islands government officially owns the Arnavon Islands, but customary rights over its rich marine resources have been the subject of dispute between three neighbouring tribes for several decades. Local people have long regarded the three Arnavon islands as a storehouse for important subsistence resources and traditionally visited the islands only in times of need. After a large immigrant population of Gilbert Islanders from Kiribati was voluntarily resettled nearby in the 1960s, overharvesting and community conflicts precipitated a dramatic decline in the Arnavons’ once abundant resources, particularly the hawksbill turtle. The Sisiga and Volaikana tribes from the villages of Kia (on the island of Santa Isabel) and Katupika (Choiseul) both claimed customary rights over the area, leading to conflicts with the Gilbertese community on Waghena Island (Choiseul).

An innovative solution to ending resource conflict

Discussions between government officials, The Nature Conservancy, and these three communities in the early 1990s found the Kia and Posarae people willing to support a conservation project in the area, provided that their rights to use its resources were recognised and that they were actively involved in managing the project. Village workshops in all three communities subsequently led to the establishment of the Arnavon Management Committee in Honiara in December 1993. This meeting was attended by representatives from each of the three villages, key government ministries, and the provincial government. The committee that emerged included one representative each from the Ministry of Forests, Environment and Conservation, The Nature Conservancy (TNC), and provincial fisheries officers from Isabel and Choiseul, as well as two representatives from each of the Kia, Waghena, and Katupika communities.

This committee established the Arnavon Community Marine Conservation Area in 1995. This Marine Protected Area (MPA) encompasses 40,000 acres (157 km²), three small uninhabited islands, flourishing reefs, fish-filled lagoons, and beaches that are home to thousands of hawksbill sea turtles. The communities of Kia, Waghena, and Katupika are home to approximately 2,200 people; most local livelihoods in the Arnavons depend on the marine environment. These include fishing, sea cucumber harvesting, trochus shell collection (used to make buttons), and seaweed farming. Levels of human development in the Solomon Islands are low; the 2006 UNDP Human Development Index ranked the Solomon Islands 128 out of 177 countries globally based on a composite index of health, education and living standards. Socioeconomic conditions are especially poor in the marginalised Arnavon communities: the average village member lived on the equivalent of USD 0.53 a day in early 2007.

Since the establishment of this protected area, numbers of these critically endangered species have increased by nearly 400%, as well as increases in populations of coral reef fish and commercial species of marine invertebrates. The conservation area, created to stem the overexploitation of dwindling marine resources, attracts low levels of ecotourism. Local youth are employed as monitors and high school students are brought on tours to learn about the group’s conservation efforts. The Management Committee that represents the three founding villages continues to help resolve resource conflicts.

Key Activities and Innovations

Since 1995, the Arnavon Community Marine Conservation Area Management Committee has been central to all conservation and development activities in the Arnavon Islands and the communities that formerly depended on them. As well as two representatives from each of Waghena, Kia and Katupika, the committee brings together the Ministry of Forestry, Environment and Conservation (MFEC), Department of Fisheries and Marine Resources (DFMR), the governments of Isabel and Choiseul provinces, and The Nature Conservancy. Each community representative is elected according to their village’s own customs. In addition to its role in taking decisions for marine conservation and livelihoods diversification, the committee has helped to develop its members’ management skills and organisational capacities. All of the partners represented in the Management Committee are bound by the ACMCA management plan. The different constituents bring different areas of expertise to the partnership: government involvement has helped with legal and policy related issues; community engagement ensures local community support for the on-the-ground management and compliance; and the support of The Nature Conservancy has provided funding and technical expertise.

Diversifying income sources to combat over-harvesting

The ACMCA employs young men from all three partner communities as Conservation Officers to enforce restrictions on harvesting marine resources within the MPA. Beyond management of the conservation area itself, the Arnavon management committee’s chief priorities have been facilitating the development of alternative income-generating livelihood activities for the Waghena, Kia, and Katupika community members. In 1995, all three communities exhibited high levels of dependence on cash income derived mainly from selling marine resources such as sea cucumbers (beche-de-mer), trochus shells, and hawksbill turtle shell. These sales provided the primary source of income for an estimated 79% of households; all three of these activities were prohibited by the establishment of the Arnavon Community Marine Conservation Area. This need for
cash was in turn driven by a dependence on imported staple foods; 52% of households in Waghena, 44% in Kia, and 11% in Katupika respectively. The average household had one primary source of cash income and three secondary sources. The situation pitted cash needs against sustainable resource management; the demand for alternative sources of income was therefore high.

In 1996-7, the first efforts to meet these needs and adequately compensate the three communities for the loss of income from harvesting of marine species focused on expanding deep-water fisheries. Under the guidance of the Arnavon Management Committee, an existing fish processing centre in Katupika was expanded and a new centre established in Waghena with financial assistance from international donors. A fish processing facility had previously been built in Kai with funding from the European Union. The fisheries centre project aimed to encourage deep-sea bottom fishing as a more sustainable alternative to reef fishing. Training was given to all community members in harvesting deep-sea snapper species. The three centres then bought catches from local fishers and sold them to export buyers in the Solomon Islands capital, Honiara. In partnership with the Fisheries Department, prices were allocated for different species, with deep-sea varieties receiving a higher price compared to reef snappers, which are permitted to be caught for subsistence purposes. Although initial results were promising, transport problems, lack of consistent access to electricity to power the refrigerator, and the low price of fish made the centres unprofitable. The fisheries centre project closed in 2000 when ethnic conflicts resulted in the collapse of the Solomon Islands export market. Currently these fisheries centres remain closed, although discussions are continuing between the various partners to Arnavon over a memorandum of understanding to be signed for their re-opening.

Since the closure of the fisheries centre, alternative livelihood activities have comprised making handicrafts for visiting tourists, seaweed harvesting, and diversification into agriculture, although this has been predominantly for food security needs rather than as a livelihood activity. Ecotourism provides an occasional source of subsidiary income; visitors to the marine conservation area are able to assist rangers in nightly monitoring of turtle egg-laying.

Early attempts to diversify income sources for community members focused on deep-sea fishing. Photo: Djuna Ivereigh.

The Hawksbill turtle is listed as critically endangered. Photo: Wade Fairley/The Nature Conservancy.
Impacts

Biodiversity Impacts

An extensive marine assessment of the Solomon Islands in 2004 provides the most comprehensive snapshot of the ecosystem health within the conservation area. A total of 494 species of corals were identified around the islands, including several new species. This extraordinarily high diversity of coral species is second in the world only to Raja Ampat in Indonesia. While these reefs were generally in good health, many sites had above normal numbers of crown-of-thorns starfish resulting in significant coral mortality at a few sites.

The survey also confirmed that the Solomon Islands has one of the richest concentrations of reef fishes in the world and is an integral part of the Coral Triangle. Over one thousand fish species were catalogued, of which 786 (77%) were observed during the survey.

Conservation of key marine species

One of the key findings of the survey confirmed that the Arnovon Community Marine Conservation Area had achieved a significant impact in allowing commercial marine species to regenerate. On many Solomon Islands reefs, numbers of sea cucumbers, Trochus shell, crayfish, tridacnid clams and large commercial fish species were very low. The most valuable species such as maori wrasse, bumphead parrotfish, Trochus, larger species of tridacnid clams and some sea cucumbers (Holothuria nobilis, Holothuria fuscogilva, Thelanota ananas) were often absent. In contrast, the report found that “in the Arnovon area where commercial fishing and collecting is banned and only subsistence collecting of some reef fish species is allowed, there were many sea cucumbers, Trochus, tridacnid clams, crayfish, as well as large commercial fish species particularly the bumphead parrot fish. Also, after more than 10 years of protection, pearl oyster, especially black lip Pinctada margaritifera, were abundant. This shows that the conservation area has achieved its goal of protecting important fisheries species” (TNC, 2006.)

Protecting the Hawksbill turtle

The chief biodiversity impact of the Arnovon project has been the conservation of the islands’ turtle populations. The Arnovon Islands have been recognized as the most important nesting ground for the endangered Hawksbill turtles in the Western Pacific and are of global importance to their survival. Prior to the establishment of the marine conservation area in 1995, local communities’ reliance on the islands’ marine resources led to over-exploitation of Hawksbill, Green, and Leatherback sea turtles for their shells and meat. Since then, however, the recovery of these species has been dramatic. Monitoring of Hawksbill turtle nesting has shown significant increases in nesting numbers, and returning females are now common.

The success of the marine conservation area has also been instrumental in increasing community awareness of the need for marine conservation. Awareness-raising activities have focussed on the islands’ youth population. Environmental issues have been included in the curriculum for local schools, while school children are taken on excursions to the marine conservation area. There is widespread acceptance that children should be educated about the conservation of resources, while there is also a high level of acceptance of the importance of this among local adult residents. A socioeconomic survey conducted in 2007 found a high degree of conservation awareness and commitment to sustainable marine resource management among respondents, and especially among community leaders.

Socioeconomic Impacts

As well as its impressive achievements in conserving the Arnovon Islands’ rich biodiversity, the ACMCA Management Committee has helped to bring substantial social and economic benefits to the communities of Waghenia, Kia, and Katupika. The formation of the conservation area was a catalyst for achieving greater social cohesion.
and interaction between the previously divided three communities. The project has also gradually improved trading opportunities between the villages, and has helped them to work together to address common social and economic issues. Specifically, the ACMCA has resulted in the employment of many young men from each village as Conservation Officers, bringing consistent sources of income to their households.

Compensating loss of fishing income

The primary cost of conservation to local people has come through the loss of revenue from the sale of fish caught from the reefs surrounding their islands. Reef fishing is still permitted within the conservation area for subsistence purposes; the Fisheries Department has set low prices (SI$2/kg, or approximately USD 0.54/kg at current prices) for these species to discourage their overexploitation for commercial purposes, however. Moreover, since the closure of the fisheries centre project, local fishers are no longer able to receive higher prices for deep-sea bottom snapper species caught in a more sustainable manner through deep-sea fishing. The cost involved in equipment for this and storing and transporting the fish caught are prohibitively expensive without the assistance of the fisheries centres. The loss of revenue from selling fish has negatively impacted households in the three Arnavon communities who had previously relied heavily on marine resources as a source of cash income. This negative impact has been offset to an extent by two processes. First, diversified sources of income have been explored with the support of the ACMCA Management Committee. Second, agriculture has been more widely adopted by these households, complemented by a more diversified range of crops. This has helped to decrease reliance on imported food staples, which in turn decreases the need for cash income.

The pristine quality of the marine conservation area has become a draw for luxury cruise boats visiting the Solomon Islands, which provide an occasional source of income in the form of visitor fees paid for the ACMCA. These visitor fees have been used for employing the MPA’s Conservation Officers. Kia village residents have also benefitted from visits by tourists, as women have been able to sell artisanal handicrafts. This is reflected by an increase in weaving of mats, baskets and traditional costumes for dancing, all of which can also be sold to visitors.

Another main alternative source of income that has been promoted is seaweed farming. This began in 2003, and was initially a successful source of household income. More recently a decrease of SI$0.50/kg in its selling price (from SI$2.00 to SI$1.50 – approximately USD 0.40/kg) has made this a less profitable enterprise. It remains a widespread activity, however, with many households still deriving supplementary income from it.

Village families are currently far more dependent on household agriculture than prior to the formation of the marine conservation area. While this generates little income, it has improved food security. Other livelihood activities that have been explored include bee-keeping, pig-rearing, and sustainable timber felling, but as yet there are no market outlets for these products, or for surplus agricultural products. Improved access to markets would help to make these activities more economically viable for Arnavon community members.

Beyond income generation, one of the principal achievements of the MPA is its perceived impact on local governance and social cohesion since the establishment of the Arnavon Community Marine Conservation Area Management Committee in 1995. Despite the short distances between the three villages, they remain culturally diverse and isolated from one another. Bringing together these three partner communities in the Management Committee to discuss marine conservation issues has helped to improve linkages between them and overcome their traditional differences. In addition, the Committee has helped to develop the organisational and management skills of its members. The committee is perceived to be functioning well and to have provided the opportunity for community representatives to express their views and to be an integral part in the decision-making processes relating to the MPA.

POLICY IMPACTS

The Arnavon MCA Management Committee has also enabled the development of relationships between resource-using communities, provincial authorities, and the national government. This cross-scale interaction between interested parties has had a number of benefits. The involvement of national and provincial governments has helped to engender supportive policies and legislative institutions. The National Fisheries Act of 1972, for instance, supported the conservation of specific species such as turtles, blacklip and goldlip pearl oysters, and certain species of bêche-de-mer. While local implementation of these restrictions was typically constrained by limited resources, such legal institutions were there to be harnessed in developing resource management strategies for the area.

Provincial governments have also had a key role in supporting fisheries development in the area. In Kia, the provincial authorities funded the development of a deep-sea fisheries centre as an income-generating venture. Isabel province also played an important role in supporting management arrangements for the Arnavons area by formalising its management plan under provincial law.

The involvement of international bodies such as The Nature Conservancy (TNC), as well as the national government, has enabled the Arnavons initiative to access international funding for various project activities. For instance, financial assistance has been obtained from the Biodiversity Conservation Network, the South Pacific Regional Environment Program, and the Japanese government. Technical assistance from government and international partners on various aspects of resource management and development has also supported the work of the management committee in various ways.
SUSTAINABILITY

The operational sustainability of the initiative is grounded in the support it receives from the three founding communities. In the Solomon Islands, ownership and resource rights to land, reefs, and fisheries are enshrined in constitutionally recognized customary ownership. Any successful conservation initiative needs the support of local clans and communities to be sustainable. The continued conservation benefits brought by the marine conservation area more than fifteen years after its establishment are testament to the level of acceptance the project has attained within its founding communities. Coupled with this acceptance is also a high level of pride in the success of the Arnavons project, which is recognized nationally and internationally as a model of community-based marine conservation, and is the flagship case for conservation in the Solomon Islands.

Level of support within communities

Support for the MPA is predominantly based on its expected long-term benefits, however, rather than its impacts on household wellbeing to date. As the results of socioeconomic surveys conducted in 2007 show, residents strongly agreed with the statements that the MPA is a positive force for their families’ futures, that it is their duty to protect the marine conservation area, that its destruction would cause future difficulties for the communities, and that they can influence decisions about the MPA.

The respondents are also very positive about the contribution of the MPA in terms of the maintenance and revival of local culture and traditions. In many other aspects, however, the surveyed community members were less positive about its impacts, especially concerning local infrastructure, fish catches, access to markets, and household income. They also did not feel that the MPA management communicated effectively or had promoted the role of women within the communities.

These results demonstrate that support for the MPA exists in spite of the relatively limited social and economic benefits it has brought the communities of Waghena, Kia, and Katupika, in part due to the failure of the fisheries centre to adequately compensate local fishers for the decrease in the price of reef fish. The project has been able to successfully communicate the idea that the MPA will deliver long-term benefits to its constituent communities; the delivery of these benefits is therefore integral to the future sustainability of the project. The re-opening of the fisheries centre and the development of the Arnavons as an ecotourism destination would both help to...
ensure future economic gains for the communities’ households. Two processes are critical to ensuring this long-term impact. Firstly the support of local government authorities and The Nature Conservancy has helped to ensure the project’s operational success. These contributions have included training Conservation Officers, biological monitoring, and financial management, among other roles. After more than fifteen years of involvement, The Nature Conservancy is withdrawing its support. The ability of the ACMCA Management Committee to continue its role in ensuring compliance with the MPA’s restrictions, maintaining relationships with local authorities and other stakeholders, and monitoring and managing the MPA’s resources will decide the initiative’s long-term future. To assist in this, in 2007 The Nature Conservancy established a USD 400,000 endowment to support the Arnavon Community Marine Conservation Area’s core operational costs in perpetuity. This was the first instance of an MPA in the Pacific securing funds for an endowment. Between 2007 and 2010, this fund was managed as part of the Conservancy’s larger endowment fund; beyond this, it is hoped that the interest earned from the fund will be sufficient to support the annual recurring costs of managing the marine conservation area.

REPLICATION

Visits to the Arnavon Community Marine Conservation Area by elders and leaders from other nearby communities have led to increased local acceptance of Locally-Managed Marine Areas (LMMAs) as a model for conservation. LMMAs have subsequently been established in several areas of the neighbouring provinces of Choiseul and Isabel, specifically aimed at the protection of fish spawning areas vital to the maintenance of sustainable local fisheries.

PARTNERS

- The Nature Conservancy
- The Solomon Islands Government (including the Ministry of Natural Resources – Department of Fisheries and Marine Resources and the Department of Forests Environment and Conservation – and the Ministry of Reform and Planning.)
- Provincial government agencies of the Solomon Islands (including The Lauru Land Conference of Tribal Chiefs (LLCTC), The Isabel Council of Chiefs (ICC), the Ministry for Natural Resources in Isabel Province, and the Department of Fisheries in Choiseul Province.)
- WWF Biodiversity Conservation Network
- Conservation International (CI)
- Wildlife Conservation Society
- Australian scientific institutions (including the Australian Institute of Marine Science (AIMS), CRC Reef Research Centre, Queensland Department of Primary Industries & Fisheries, and APEX Environmental Pty Ltd.)
- South Pacific Regional Environment Program
- Government of Japan
- Volunteer Service Abroad (New Zealand)
FURTHER REFERENCE

- Plotsky, J. [Home for Hawksbill](http://www.equatorinitiative.org) (Film, 2010)

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