CHUMBE ISLAND, TANZANIA, CORAL PARK

Case Study (Environment)

PROJECT SUMMARY

Chumbe Island is a successful self-sustaining marine park and forest reserve off the coast of East Africa. The 55-acre island is covered by a coral rag forest, where vegetation grows without groundwater in a bed of recent coral deposits, and is bordered by a fringing coral reef (a type of reef that is directly attached to a shore). The coral reef is home to over 420 fish species and 200 stone coral species. Following successful rat eradication, the island has become a sanctuary for many endangered and rare species, such as Ader’s Duikers, Coconut Crabs, and Roseate Terns.

Throughout the world, animal and plant populations are being negatively impacted by human actions. Overfishing, overharvesting and the degrading of ecosystems are some of the factors contributing to the decline of marine area ecosystems. The coral reef at the uninhabited Chumbe Island was threatened with a similar fate until a nature conservationist decided to try to change it.

Disillusioned with the limited success seen by some donor aid projects and the lack of commitment to conservation by the government, this individual formed a private company, Chumbe Island Coral Park Ltd (CICP), to manage and operate a marine and forest sanctuary on Chumbe Island. By creating a partnership with the government, the project was able not only to create a marine sanctuary, but to educate the public about conservation to generate broad support for the sanctuary.

Chumbe Island is located about eight miles southwest of Zanzibar Town, Zanzibar, Tanzania. This island was selected for the sanctuary from among several candidates because a nearby shipping lane limited fishing around the island, and CICP wanted to avoid alienating the local fishermen, whose support would be necessary for the success of the project. Self-sustainable, both financially and environmentally, the coral park is an example of conservation and ecotourism. Revenues generated from eco-tourism cover all operational expenses for CICP and pay for the public education program. Several environmental technologies are used on the island to minimize the human impact on the ecosystem.
**Project Objectives**

The first objective of CICP was to create a reef sanctuary and forest preserve. In this way, Chumbe Island would become one of the last undisturbed “coral rag’ forests in the world. CICP wanted to maintain and foster greater biodiversity around the coral reel and in the forest preserve.

A second objective was to apply business management skills to create and follow a model of sustainable conservation management, which would be supported by ecotourism. Operational expenses would be covered by revenues from ecotourism. Sustainable management also included building and maintaining environmentally friendly buildings. All the buildings on the island—a visitor center and bungalows for overnight stays—would be designed and built with the up-to-date eco-technology, using local materials, and would be self-sustaining. Revenue from ecotourism would be used to manage the coral park and support environmental education for local students.

A third major objective that helped make the first two objectives possible was to educate the public about the need for conservation. Local residents believed corals were just rocks and so fishermen overfished and practiced destructive fishing techniques, which were decimating the coral reefs. The local language Kiswahili has no word for corals and despite a number of coral reefs in Tanzania; school curricula did not cover coral reef ecology. Educating not just fishermen, but school children and communities about the need for conservation, helps ensure these areas remain protected. A goal was to increase the general public’s awareness of the importance of the coral reefs.
Project Description:

1. Partners

The public sector partner of the PPP is the Revolutionary Government of Zanzibar, the political body which oversees Zanzibar, the semi-autonomous region of Tanzania. The Revolutionary Government maintains ownership of Chumbe Island, with the Zanzibar Ministry of Agriculture, Livestock, and Natural Resources and the Zanzibar Ministry of Lands and Environment as the agencies with direct oversight of the project.

The private sector partner is Chumbe Island Coral Park Ltd (CICP). The company was created by a former donor-aid worker to manage and operate Chumbe Island. The initial capital for the project was provided in part by the company and in part by eco-friendly donors.

2. Implementation Environment - Legislative and Administrative

CICP went through a number of steps in order to begin operations on Chumbe Island. The private company approached the government and presented an unsolicited bid for the establishment of a marine sanctuary and forest preserve, which the government accepted. Typically in Tanzania, land tenure for foreign citizens and organizations is only available through leaseholds and are based on proposals from the citizens or local organizations. After extensive discussions, in 1993 CICP was granted a lease for its eco-facilities and visitors’ center, which were built on 5.9 acres.

In 1994, the Chumbe Island Reef Sanctuary and the Chumbe Forest Reserve were “gazetted” by the Revolutionary Government of Zanzibar. The term “gazette” is used when the government officially declares and makes a law by publication in the Government Gazette. Under the declaration and law, CICP was granted exclusive management rights of the reserve and sanctuary for the length of time specified in the contracts.

3. Financial Agreement

The initial capital investment of US$1.2 million came from several sources. About two-thirds of the amount was financed privately by the project initiator, who is a conservationist and former manager of donor-funded aid programs. Other academic, environmental, and conservation groups helped provide the remainder of the capital investment. The project took seven years
from inception to completion due to the challenges of dealing with the government bureaucracy. These delays caused initial costs to increase.

Operation and maintenance costs are between US$150,000 and US$200,000 per year. Since 2000, Chumbe Island’s operations have been fully sustained through ecotourism. The revenue generated through small-scale ecotourism covers the costs of managing the Marine Protected Area, research projects, conservation, and free education programs for local schools. Day trips to Chumbe Island are US$80 per person per day and overnight stays are US$165-US$250 per person per night (2008 prices).

The financial goal of Chumbe Island is not to generate a profit, but to be both financially and environmentally self-sustaining. Currently, the amount of visitors to the island is only 40 percent of capacity, but sufficient to cover all operational expenses. If full capacity is reached, there is the potential for recovery of the investment capital or limited expansion in some areas (full capacity would mean 14 overnight guests and 12 day-only guests). However, CICP feels that the level of use of the facilities must be weighted against the primary objective of environmental preservation.


In 1994, CICP entered into management and operation contracts with the Revolutionary Government of Zanzibar. One contract was to manage and operate the marine sanctuary for 10 years and the second was to manage and operate the forest reserve for 33 years. The marine contract was renewed in 2004 for another 10 years, upon expiration of the original contract.

The land lease granted in 1993 for the visitor center and eco-bungalows is for 33 years. The government retains ownership of the marine sanctuary and Chumbe Island, including the forest reserve and the visitor center and bungalows. Ownership of wildlife is always in government hands and the government retained ownership of the island, despite the common practice of referring to Chumbe Island as a “private island”. This misconception exists in certain quarters because Chumbe Island is managed by a private company.

5. Implementation Metrics

CICP has created a marine park and forest reserve on Chumbe Island that conserves the ecosystem. In 1993, baseline surveys and flora and fauna species lists were conducted as a guide to the state of the island prior to granting protective status. On-going studies, conducted by the
Institute of Marine Sciences at the University of Dar es Salaam, show that fish families are of a greater size and abundance inside the protected areas compared to other area reefs. Local fishermen respect the no fish zones, allowing these areas to be breeding grounds. Today the coral reefs in and upstream from the marine park have been restocked. In addition, through work with zoos and universities, several endangered and rare species now make their home on Chumbe Island. The endangered Aders' duikers were successfully relocated to Chumbe Island from their original habitat of the East African coastline and Zanzibar Island.

CICP has created a self-sustaining conservation project—both financially and environmentally. Visitor fees for ecotourism on Chumbe Island cover operational costs and fund the educational program for local school children. CICP has employed various techniques that conserve resources and limit the human presence on Chumbe Island, which minimizes the disturbance to the ecosystem.

All the buildings on Chumbe Island were developed with environmental technology, using local materials, and are self-sufficient. Techniques include rainwater catchment, solar water heating, photovoltaic power, composting toilets, and vegetative grey water filtration. All important building functions are covered by eco-techniques. Rainwater is heated by solar power and used as shower water. Water use is reduced and sewage problems are avoided by using composting toilets. Biodegradable soaps are used to minimize water pollution and organic waste is composted. The vegetative grey water filtration system absorbs phosphates and nitrates before the water is released into the ecosystem. All of these techniques are used to reduce waste and preserve the island’s environment.

Commentary:

1. Methods for Overcoming Impediments

The greatest obstacle for this project was gaining stakeholder support. Conservation was not a high priority for Zanzibar and many government officials had difficulty grasping the value and importance of the project. Marine protection was not an area of study for the government and creation of a marine park was met with skepticism. CICP had to work with seven different government departments before the project was approved. However, by involving several government departments in the initial phases of the project, CICP helped people become more receptive to the project. Today, more government officials understand the importance of project conservation, and even passed environmental legislation in 1996 that allows private management of protected areas.
CICP also worked hard to gain the support of area fishermen and other local residents. Village meetings were held before and during project development to include local communities in the planning process. Local fishermen were also recruited to become park rangers, and help enforce the fishing prohibition at the reef. A Park Advisory Committee was created and is composed of government, university, and village representatives so that all groups are able to influence and contribute to the project.

Educating local residents about the importance of conservation is not the same thing as incorporating conservation into daily routines. Many local residents rely on fishing for their livelihoods and do not fully understand the destructive nature of some of their techniques (for example, the use of dynamite for fishing). CICP trained former fishermen, from nearby communities, in basic reef ecology and marine biology, visitor guidance, and communication. The former fishermen enforce park regulations and monitor the reef and reserve, as well as play a critical role in communicating with area residents. The park rangers are more credible in the eyes of area fishermen because they understand the importance of this livelihood and promote the conservation policies in terms they can understand. Local fishermen see the benefits of the no-take protected area as a breeding sanctuary because it helps to restock the adjacent fishing grounds. By choosing local residents who are sympathetic and knowledgeable about area businesses and needs, CICP gained credibility and was able to implement their agenda, which they might not have been otherwise able to do. Local fishermen were able to translate the importance of conservation into tangible benefits and are very respectful of the no-fishing zones.

2. Key Points for Success or Failure

Since its inception, over 2,500 students and 500 teachers have visited Chumbe Island to participate in the education program. Several schools have incorporated environmental studies into their curriculum, building on the knowledge and interest generated from a visit to Chumbe Island. Through education programs and former fishermen turned park rangers, CICP has gained tremendous support from local residents and fishermen. Conservation and wildlife preservation are now concepts that make sense to them and impact some personal decisions.

Chumbe Island Coral Park is self-sustaining both environmentally and economically. CICP employs many eco-techniques to make each of their buildings decentralized, self-sufficient units that have little impact on the surrounding environment. By “practicing what they preach,” CICP employees gain further support from local communities and students for their environmental initiatives because students can see the concepts they learned in action. Through effective
management, CICP was able to start with donor funds for the initial capital investment and use ecotourism revenues to fund all subsequent operational costs.

While at present the project does not have a financial scheme in place for CICP to recoup its capital investment, there is a distinct potential to do this. Education programs are free for the local students – if CICP required a fee for the program, this could enhance their bottom line. Additional revenue could be generated from full occupancy by actively marketing Chumbe Island. However, understandably CICP does not wish to expand the eco-tourism program to a point where there would be negative impact on the environment of Chumbe Island Coral Park.