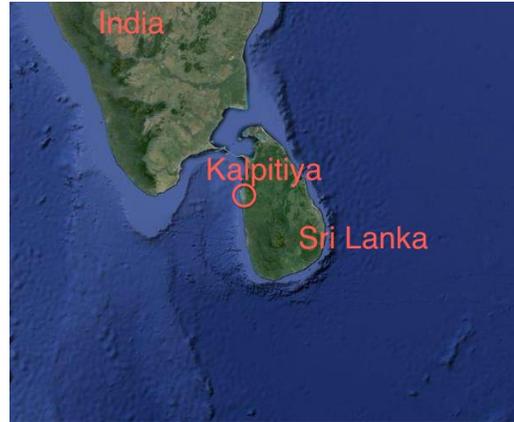


**Sustainable Livelihoods Enhancement and Diversification to  
Reduce Pressure on the Bar Reef Ecosystem  
Villages in the vicinity of Bar Reef, Kalpitiya, Sri Lanka**

**The Challenge**

Kalpitiya Peninsula is located along the northwest coast of Sri Lanka, and includes a range of rich and dynamic marine habitats that have provided food and income for generations of local fishermen and community members. The marine environment includes the second largest lagoon in the country, mangroves, sand dunes, seagrass beds, salt marshes, and Bar Reef - the most extensive coral reef complex in Sri Lanka. The natural marine resources of Bar Reef and the surrounding area play a significant role in the lives of the local coastal communities. Fishing is the most important commercial activity, even though the average income of coastal fishermen is well below the poverty line.



Location of Bar Reef, Kalpitiya, Sri Lanka

Prior to a massive bleaching event in 1998, Bar Reef possessed a high level of biodiversity. Stock assessment studies conducted by the National Aquatic Research and Resources Agency (NARA) in 2010 on selected species (sea cucumber, lobster, shrimp, and ornamental fish) revealed that these resources have been drastically reduced due to overexploitation and environmental repercussions. NARA research on coral reefs in the Bar Reef area also demonstrate that biodiversity has been reduced. With climate change already posing a serious threat to the reef, human activities have exacerbated the amount of pressure on the reef ecosystem. Despite the fact that Bar Reef was declared a marine sanctuary in 1992 under the Department of Wildlife Conservation, it is extremely vulnerable to degradation and resource exploitation due to overfishing, destructive fishing practices, and lack of enforcement. Furthermore, a 30-year fishing ban in the area was lifted in January 2013, which has resulted in a dramatic increase in fishing and subsequent reduction in per capita catch. As reef resources continue to be depleted, poverty levels have been increasing within the adjacent communities given there are no supplementary or alternative livelihoods.

**Actions Taken**

Considering the multifaceted social and economic situation in Bar Reef communities, the Marine & Coastal Resources Conservation Foundation of Sri Lanka (MCRCF) embarked upon a project to implement the IUCN's Sustainable Livelihoods Enhancement and Diversification (SLED) approach among the villages dependent on Bar Reef in 2010. The project was designed with three objectives in mind:

- 1.) Expand and strengthen sustainable livelihoods programs (home gardening, ornamental fish farming, and commercial seaweed cultivation) to take pressure off Bar Reef resources and diversify the socioeconomic status of local people
- 2.) Ensure sustainable livelihoods and use of marine resources in the Bar Reef area through education and awareness training
- 3.) Empower local fisher women in the Bar Reef area

As part of the sustainable livelihood programs introduced to Bar Reef community members, families were given seeds and taught how to grow their own food. Some were taught how to cultivate commercial seaweed instead of harvesting it from the ocean. An ornamental fish culture program designed to take pressure off reef fish taught villagers how to cut costs and maximize their profits with different husbandry techniques.

### **How Successful Has it Been?**

By introducing alternative livelihoods to local families along Bar Reef, this project was able to achieve numerous successes. One of the home gardening projects under the SLED program introduced fisher women to the cultivation of vegetables. MCRCF appointed a coordinator and an agricultural specialist to conduct field inspections and provide guidance to eleven families such as how to prepare the land for cultivation, how to select suitable fruits and vegetables to be planted, how to prepare plant nurseries and propagate seeds for future use, how to water, and the value of using organic manures. Seeds, compost, fertilizer and other necessities were provided. Families were taught how to farm long-term perennial crops, such as coconut and mango, midterm crops, such as banana and papaya, and short-term seasonal crops, such as chilies, tomatoes and pumpkins. Families successfully grew their crops and were able to harvest continuously.

With the assistance of other donors, the home gardening project eventually led to an aloe vera cultivation program, which changed the attitudes and behavior of the fisher women as it enhanced their social status and self-confidence by training them in business skills. With the help of private sector partners who purchase the aloe vera, which is used in soaps, skin care products, and for medicinal purposes, this project has successfully continued for the past three years. About fifty families that are dependent on Bar Reef are earning substantial alternative income from this initiative. There have been social and environmental benefits as well from the aloe vera project including:



Home gardening program ©MCRCF

- Families have gotten involved in cultivation and enjoy working together
- More income is now being used for child education
- Less fishing pressure on Bar Reef as a result of more time spent tending the gardens

Mangroves for the Future, a partnership-based initiative promoting investment in coastal ecosystems for sustainable development, produced a documentary on the aloe vera project called, *The Beauty of Aloe Vera* at <http://www.youtube.com/watch?v=bFxGZ-VSGXU>.

With the assistance of an aquaculture consultant, five local fishermen were provided with tanks, shading nets, fish brood stock and feeding packets to start an experimental ornamental fish culture program. With no previous experience, the fishermen learned different techniques to cut costs and time in order to farm fish for the demanding market.

The commercial seaweed cultivation project provided start up equipment and seaweed to five local fishermen; however it was not as successful as the other programs. Some samples were eaten by rabbit fish, so efforts were made to cover the cages with small mesh as to prevent the fish from feeding on the seaweed. However, due to a variety of unfortunate weather conditions and associated salinity levels, initial samples were decayed or not grown despite efforts to save them. Although the initial sample period failed, the project was reactivated once the climate was more favorable.



Seaweed culture program ©MCRCF

Before this project, there was little knowledge within the local communities about the reef ecosystem and the benefits of protecting their natural resources. Three awareness-raising workshops were held as a result, where participants were educated on things like the negative impacts of overfishing and destructive fishing practices. In addition, three signs written in both English and the local language, depending on the location, were installed to inform people about the SLED initiative and the different livelihood programs available. The workshops and boards led to an increased awareness and discussion of alternative livelihoods among local villagers.



Awareness workshop at Kandakuliya School ©MCRCF

As a result of the commitment and assiduous work done by the MCRCF in the field of sustainable livelihoods and environmental conservation, they won the International SEED Award in 2011.

### **Lessons Learned and Recommendations**

Lessons learned from the SLED program in Bar Reef are:

- Effective Stakeholder engagement is critical.
  - Conduct an in-depth analysis of the local community's resource uses and needs, and engage in direct communication with stakeholders about the goals and objectives of the project from the beginning.
- Partner with organizations and leverage local leaders to support the project.
  - Relevant community leaders should be fully informed and onboard with the project from the beginning.
- Every project should start with a common level of understanding within the community, and any project beneficiaries should be selected through a process supported by the community.
  - Example: Because almost all of the beneficiaries were selected through the SLED process with knowledge and agreement from existing fishing societies, there was a lot of support throughout the project. Furthermore, the local fishing community automatically took responsibility and ownership to run the project successfully.
- Consult specific topic experts in the planning and implementation stages to ensure appropriate project design and materials.

- Example: During the home gardening project, the original seeds used were not able to propagate new seeds, thus after the initial harvest, new seeds had to be purchased and distributed.
- When working with natural resources and a community, a risk analysis should be prepared with precautions and alternative steps should a delay or problem occur.
  - If a problem does arise, the situation needs to be addressed as soon as possible and decisions and actions need to be communicated to all key stakeholders.
- Ensure project activities and timelines are aligned with optimal seasons and weather conditions.
- Consider the long-term costs of alternatives provided in the risk analysis to ensure the project is sustainable.
  - Example: When water was short due to a drought or unusual change in the weather, water supply became short and expensive.
- Build sustainable funding into your project.
  - The greatest challenge moving forward in the Bar Reef community has been the lack of funding to keep the project going. New concepts such as community driven surveillance to minimize destructive fishing practices on the reef are being developed, but unfortunately, MCRCF has not had the funds required to implement new or ongoing community initiatives. Although some community members ceased home gardening after the funding ended, they converted their gardens into plots for aloe vera cultivation.

### **Funding Summary**

The Sustainable Livelihood Enhancement and Development (SLED) approach was first developed in 2008 under the International Coral Reef Action Network's (ICRAN) EU South Asia Project, in collaboration with the International Union for the Conservation of Nature (IUCN) and the Integrated Marine Management Ltd (IMM). Several pilot projects were initiated in select communities through small grant projects.

Due to the MCRCF's success in this community-level approach, ICRAN provided financial and technical support to them through the Center for Rural Empowerment and Environment (CREE) to initiate the SLED approach within the Bar Reef community. The program was implemented through the collaboration and partnerships between MCRCF, CREE, and ICRAN.

MCRCF has completed three small grant projects with support from the IUCN under Mangroves for the Future (MFF) (SEED awarded projects), and one through the UNDP under the Global Environment Facility (GEF) Small Grant Program. MCRCF is currently in the process of completing two small grant projects under the MFF program and are proposing additional projects for funding as well.

### **Lead Organizations**

Marine & Coastal Resources Conservation Foundation  
[www.mcrcflk.org/](http://www.mcrcflk.org/)

### **Partners**

Center for Rural Empowerment and the Environment (CREE)  
International Coral Reef Action Network (ICRAN)  
International Union for the Conservation of Nature (IUCN)  
Mangroves for the Future (MMF)  
United Nations Development Program (UNDP)

### Resources

Continuation and Strengthening Sustainable Livelihoods Enhancement and Development Process being Implemented in the Villages in the Vicinity of Bar Reef, Kalpitiya Sri Lanka

Coral Reefs and alternative income generation: diversifying livelihoods options for climate change resiliency

<http://www.conservationforpeople.org/coral-reefs-sri-lanka/>

ICRAN Small Grant Continuation and Strengthening of the Sustainable Livelihood Enhancement and Development Process within the Communities of Bar Reef

<http://www.icran.org/action-sustain.html>

Mangroves for the Future

<http://www.mangrovesforthefuture.org/>

Mangroves for the Future: The Beauty of Aloe Vera

<http://www.youtube.com/watch?v=bFxGZ-VSGXU>

Marine & Coastal Resource Conservation Foundation, Sri Lanka

<http://www.mcrcflk.org/>

Sustainable Livelihood Enhancement and Diversification (SLED): A Manual for Practitioners