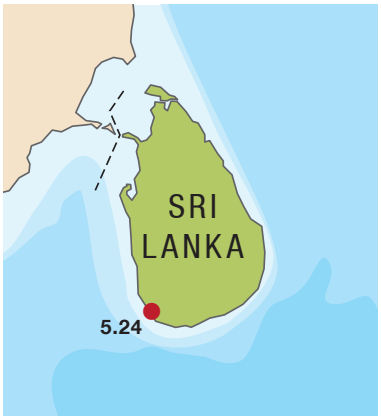
Establishing a community biogas plant

Mangroves for the Future
INVESTING IN COASTAL ECOSYSTEMS

Biogas cook, Balapatiya, Sri Lanka © K. Ekaratne



LOCATION
Maduganga, Sri Lanka

PRIORITY POWS
- Strategies for Management
- Civil Society Engagement

DURATION
One year

MFF GRANT AMOUNT
US$4,382

Objectives

This project had four main objectives:

1. to increase awareness of the value of mangrove ecosystems;
2. to demonstrate successful methods for restoring mangroves;
3. to prevent further destruction of mangroves; and
4. to provide alternative livelihoods.

Background

The Maduganga estuary is one of Sri Lanka's most important wetland sites and home to a diverse range of plant and animal species. This richness, however, is threatened by over-exploitation and pollution, creating an urgent need to educate local people about the threats to the wetland and instil an appreciation of its multiple values.

The communities living in the estuary generally depend on seasonal small-scale fishing and other minor sources of income. Many were severely affected by the 2004 Indian Ocean tsunami.. Other than wood the local people have no sources of energy, so rely heavily on the estuary's mangroves for firewood. Alternative sources of energy and income that are both cost-effective and environmentally friendly are badly needed.

In the village of Mohottiwatta, the more affluent households use liquid petroleum gas for cooking, but others mostly use fuelwood. Mohottiwatta lacks an organized waste collection service, so villagers dump their kitchen waste into the estuary.

To reduce fuelwood extraction from mangroves and pollution of the estuary, the NGO Human & Environment Links Progressive Organization (HELP-O) constructed a small biogas plant on private property in the village to supply cooking gas to three nearby households. HELP-O also helped the community to develop alternative sources of income, with the goal of strengthening the environmental sustainability of coastal development and raising public awareness of local environmental concerns.

Target beneficiaries

Families living near the Maduganga estuary.

Outputs

- Installation of a 12m³ biogas unit to produce cooking fuel using organic household wastes supplied daily.
- The supply of generated biogas to households.
- Enhanced awareness of local environmental concerns.
- Improved livelihoods through alternative forms of employment.
- Establishment of home garden programmes.
- Replanting of 0.2 hectares of mangroves.

- Collection and disposal of waste from the coastal area.

Accomplishments and challenges

Four families are now using biogas units to generate energy instead of cutting mangroves for firewood. The biogas plant received a much larger amount of kitchen waste than anticipated. Besides the waste from the direct beneficiaries (i.e. the householders provided with gas), other community members also brought their kitchen waste to the plant. A nearby Home for the Aged and a Boys' Home also supplied their kitchen wastes. The increased supply of waste enabled four households to be supplied with gas, one more than originally planned.

Through the project, villagers engaged in other activities to generate income for their families, including home gardening, coconut fibre production and tourism. Villagers took to home gardening, spurred by positive results from using liquid fertiliser produced by the biogas plant.

The project's awareness programmes helped to increase local people's knowledge about mangroves and their values. Families became more aware of the importance of the environment, and involved themselves in communal activities to improve it. More than 150 villagers cleared the waste from a one-kilometre stretch of shoreline, and an initiative was launched to protect the Madu River.

Challenges

The project managed to cut dumping of waste into the estuary, as both direct and indirect beneficiaries in Mohottiwatta now take their kitchen wastes to the biogas plant. Nevertheless it proved difficult to stop people using the shore as a waste dump.

Another obstacle was a negative view of biogas units, caused by a belief that they would warm people's homes and emit a putrid smell. Some people also had a negative opinion of organic fertiliser, but awareness programmes helped to overcome this.

Replanting mangroves was also a challenge as newly planted trees needed cover and shade to grow, but these were not easily found in the area.

Contributions to cross-cutting themes

Gender equality

The project was a collective effort involving both men and women as active participants. In communities such as Mohottiwatta, men are generally seen as the breadwinners and women as the housewives, but this project help to empower women economically. Women also played a part in income distribution, strengthening community involvement in this effort.

Lessons learned

As the experience in Mohottiwatta has shown, changing the attitudes of local people may be needed to achieve success in some communities. The reluctance of community members to venture into new activities, such as using biogas units, can be overcome by exposing them to their benefits through visits to communities which have successfully adopted such innovations.

The project was effective on three fronts. More and more families are using biogas units. Women have been empowered and are creating their own home gardens. Lastly the community has recognised the importance of mangroves and the estuary ecosystem, and has strengthened its efforts to protect the coast and its resources.

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Produced by MFF with the financial support of Norad and Sida