

## DESTRUCTIVE EXPLOITATION OF NATURAL RESOURCES AND THE DECLINE OF THE NESTING MARINE TURTLE POPULATION IN REKAWA, SRI LANKA. 1993 - 1996.

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### Introduction

Five of the world's eight species of marine turtle come ashore to nest in Sri Lanka. They are the Green turtle (*Chelonia mydas*), Leatherback turtle (*Dermochelys coriacea*), Loggerhead turtle (*Caretta caretta*), Hawksbill turtle (*Eretmochelys imbricata*) and Olive Ridley turtle (*Lepidochelys olivacea*). All five species are listed in the IUCN Red List as either endangered or vulnerable in the IUCN Red List (IUCN, 1995). Despite legal protection since an amendment to the Fauna and Flora Protection Ordinance in 1972, marine turtles are still exploited in Sri Lanka by coastal communities for their eggs, meat and carapaces (Hewavisenthi, 1990). The Turtle Conservation Project (TCP) is an independent Sri Lankan NGO which aims to devise and facilitate the implementation of sustainable marine turtle conservation strategies via a programme of education, research and local participation in communities close to important marine turtle habitat. Rekawa, a small village on the south coast of Sri Lanka, was selected by the TCP as a project site to implement a model turtle conservation programme. Rekawa was identified as a suitable location due to the close proximity to be a significant marine turtle rookery on the local beach.

### Rekawa

Rekawa is a small village on the South coast of Sri Lanka, approximately 10 kilometres eastwards along the coast from Tangalle. Rekawa is located on the border of the intermediate and dry climatic zones of Sri Lanka and borders it on a large brackish lagoon surrounded by extensive mangrove forests. There are no electricity or telephones in the village and the majority of households do not have running water. Water is obtained mainly from roadside storage tanks. The village is divided in to two divisions, Rekawa East and Rekawa West. The numbers of families in these two divisions are 121 and 144 respectively (Foerderer, 1996, in press). Income generation activities for the families in the Rekawa area include agriculture (47%), lagoon fishing (10%), sea fishing (18%), coral mining (9%) and others (17%) such as masonry, carpentry, government services and labour (Ganewatte et al., 1995).

The community of Rekawa village have suffered several setbacks in the last decade. An irrigation system designed by the government to improve the quality of the agricultural land surrounding Tangalle near by drained the ground water of Rekawa.

The groundwater was eventually replenished by saline water from the sea and the Rekawa lagoon. This rendered the land unsuitable for agriculture unless there are heavy rains. These events have resulted in low income for most of the families in Rekawa with approximately 57% of the families dependent to some degree on government welfare (Foerderer, 1996, in press).

### Rekawa's natural resources

Because Rekawa is located on the border of two climatic zones there is a high biodiversity. The local vegetation consists of scrub jungles, as well as the mangrove forests. It harbours been medicinal plants, fruit trees and a wide variety of wildlife including resident and migratory birds, mammals, reptiles, arthropods and aquatic life.

Rekawa Kalapuwa is a large lagoon of 250 hectares, which is surrounded by mangrove forests. The neighbouring villages of Netolpitiya, Medilla, Marakolliya, Kapuhenwela and Wellawatugoda also border the lagoon and the lagoon fishermen from these villages depend on the lagoon fishery. The fishery consists of several species of fish and the more economically viable shrimp. Community members have been involved in the removal of lagoon shells for lime production and sand for use in the construction industry. However, lagoon shells and lagoon sand are difficult to collect today and this has led to local dependence on other resources (Ganewatte et al., 1995).

A causeway has been built across the narrow westerly section of the lagoon that leads to the lagoon's exit to the sea. The causeway has improved accessibility to the village of Kapuhenwela but has reduced the natural exchange of sea and lagoon water. This has led to a change in the quality of lagoon water causing a dramatic reduction in the lagoon fishery's productivity recently, in order to maintain catch size many local fishermen have invested in modern nylon nets, a practice which has contributed to the over-exploitation of the lagoon fishery. The degradation of the fishery has meant that lagoon fishermen have had to look to other resources for income generation. Although coral mining is illegal in Sri Lanka, the coral reefs offshore of Rekawa beach have also been mined by the community for the production of lime. The mangrove forests have been extensively cleared to provide firewood for the limekilns.

Coral reefs give natural protection against erosion and provide feeding habitat for many marine creatures including marine turtles. The 3km of Rekawa beach immediately westwards of the Rekawa headland provides nesting habitat for populations of 4 species of marine turtle. The undisturbed coastal vegetation and wide, clean sandy beach create the ideal conditions for female turtles when they come ashore to nest at night. For at least 20 years, local villagers have collected almost 100% of the turtle eggs laid on Rekawa beach and some adult females have also been harvested (Richardson, 1996, in litt.).

The most profitable activity in the Rekawa community was sea fishing, employing at least 131 people (Foerderer, 1996, in press). But the sea fishery in Rekawa is not without problems. There is no artificial harbour and the fishermen land their boats in a natural harbour formed by dead coral heads and rocks. During the rough season (July-October) the fishermen cannot use this harbour and therefore cannot go fishing. This problem is compounded by the fact that the fishermen are in competition with the fishermen from nearby Tangalle which has a harbour constructed by the government. In the calm weather season, the lack of electricity, street lighting, and the poor condition of the roads in Rekawa makes potential fish buyers reluctant to come to the sales point. The few businessmen who do come to Rekawa are able to buy the fishermen's catch at relatively low rates, effectively reducing the income of the fishermen. Because the fishermen cannot fish in the rough season, some are forced to exploit other resources to generate enough income to feed their families.

#### **Turtle egg gathering in Rekawa.**

The marine turtle rookery at Rekawa provides nesting habitat for the 4 species of marine turtle listed below. The numbers of nests recorded over a 119 consecutive day period (24.6.1995-11.10.1995) in 1995 are:

**Green Turtle (*Chelonia mydas*):** The most common species, which nests in Rekawa. In the period stated above 223 green turtle nests were recorded.

**Leatherback Turtle (*Dermochelys coriacea*):** Rare but regularly nests on beach. May and July is the peak season in Rekawa. In the period stated above 5 nests were recorded.

**Olive Ridicly Turtle (*Lepidochelys olivacea*):** Occasionally nests on Rekawa beach. In the period stated above 2 nests were recorded.

**Loggerhead Turtle (*Caretta caretta*):** This turtle is also rare. Loggerhead nests were not observed during the study period, however between May and July 1994, 3 nests were recorded.

The fifth species of marine turtle found in Sri Lanka, the **Hawksbill Turtle (*Eretmochelys imbricata*)** is reported to nest occasionally at Rekawa but there are no records of the hawksbill turtle nesting at Rekawa between 1993-1996.

TCP surveys seem to indicate that for the last 20 years almost 100% of the eggs laid by the turtles on Rekawa beach have been harvested for local consumption or for sale to private dealers. Egg collectors from Rekawa who were interviewed during TCP surveys have said that in the 1970's it was

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not uncommon to take eggs from as many as 40 nests per night. But today the number of the nest per night rarely exceeds 10. As there has been no recruitment into the Rekawa turtle populations in the last 20 years due to egg collection, then there will only be a further 10 year period when first-time nesting turtles will arrive at Rekawa, i.e. only up to the year 2006. After this time there will be no first time nesters and the nesting population will begin to dwindle due to mortality from natural and man-made factors (e.g. fishing by-catch, pollution etc.). If egg collection continues there will be no further recruitment in to the nesting population. The TCP therefore believes that if no action is taken to prevent egg collection within the next 10 years the nesting population of marine turtles at Rekawa will have been over-exploited to such an extent that it will be unable to recover.

Previous instances have shown that if action is taken to stop the over-exploitation of natural resources in Rekawa without the provision of any alternative income generation activities, then the Rekawa community will either resist the action or begin to exploit other resources. Therefore the TCP decided to take a holistic approach to conservation in Rekawa and implement a number of participatory programmes. These programmes were designed to improve environmental awareness in Rekawa and initiate the investigation into alternative sustainable and non-destructive income generation activities in the area.

#### **The TCP's activities in Rekawa as solutions to environmental degradation**

The TCP has established an education and research centre in Rekawa. The activities of this centre are coordinated by two TCP officers who operate from Rekawa and the centre is the base for all TCP activities in the area. The TCP staff are not specifically qualified or experienced in the field of rural community mobilisation and development. The TCP is therefore engaged in an effort to involve NGO's who focus on development with the Rekawa community. The role of the TCP will be that of facilitator. The TCP staff is currently using their skill and experience in the environmental field in order to create a foundation on which the community can develop alternative and environmentally sustainable income generation schemes in the future. In this way the TCP aims to demonstrate that economic development and environment conservation can be complementary aspects of progress in this community.

#### **Environmental Education Workshop Programme**

In October 1995 the TCP launched an environmental education training programme in the Rekawa community. In March 1996, 14 Rekawa community members graduated from an initial 6 months training programme during which they were trained in educational methods and taught about various environmental subjects relevant to their locality. These community trainers are now involved in various environmental projects in the Rekawa area and have begun to conduct workshops for school children and community groups. The workshops focus OR participatory resource mapping, identification of conservation issues and seeking sustainable solutions to problems of destructive exploitation. The first workshop about marine turtle conservation was held on the 26.7.1996 and was attended by over 100 fishermen and other community members from Rekawa and surrounding villages. The trainer holding the workshop invited the fishermen to participate in a turtle by-catch survey which the TCP hopes will eventually lead to the design of methods which will avoid turtle by-catch.

#### **"In situ" nest protection and research programme**

In August 1996 the TCP will begin a tagging and monitoring programme of nesting turtles at the Rekawa rookery in cooperation with the University of Peradeniya (Sri Lanka) and the Department of Wildlife Conservation (DWLC). The TCP will train research officers in marine turtle data collection and conservation methods at the Rekawa rookery. The TCP and DWLC will ask those individuals who are currently collecting turtle eggs to stop such activity. As an alternative they will be provided with the opportunity to take up employment as assistants to the research officers in the research programme and the "in situ" protection of marine turtle nests. The transformation of the local "egg collectors" to nest protectors is essential as they have an understanding of turtle behaviour in Rekawa which will prove invaluable to the research team.

It is hoped that this programme will become sustainable through the establishment of an unintrusive "eco-tourism" venture based around the marine turtle research and nest protection. A scheme will be established whereby tourists staying at the resorts on the Southwest coast will be invited to make contributions to the project to come and watch the adult female turtles nesting and observe emerging hatchlings. The money earned from this venture will be used to reimburse nest protectors and members of the research team, maintain equipment and purchase new equipment when necessary. The success of this programme would demonstrate the possibilities for sustainable forms of income generation in Rekawa.

#### References

Ganewatte et al., (1995). The coastal environmental profile of Rekawa lagoon, Sri Lanka. CRC Technical Report No. 2084. Coastal Resources Management Project, Colombo, Sri Lanka.

Hewavisenthi, S. (1990). Exploitation of marine turtles in Sri Lanka: Historic background and the present status. Marine Turtle Newsletter, No. 48, January 1990.

IUCN/ SSC Marine Turtle Specialist Group, (1995). A global strategy for the conservation of marine turtles. IUCN Species Survival Commission report.

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