

Economic Valuation of the Environmental Resources in the Rekawa Lagoon of Southern Sri Lanka

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Abstract

Rekawa Lagoon is a valuable coastal resource in Southern Sri Lanka. Stakeholders of Rekawa rely heavily on this natural resource base for their livelihood. This paper focuses on economic valuation of Rekawa lagoon with the aim of highlighting the importance of conserving this valuable natural resource in Sri Lanka. Two valuation techniques were used; the Contingent Valuation Method (CVM) to assess the Non-extractive use values and the Market-Based Method to estimate the extractive use values of the lagoon. Data were obtained mainly from questionnaire surveys; Household Survey with a random sample of people from Rekawa West Grama Niladari division and an Individual Survey with a random sample of tourists visiting the Rekawa area were carried out. Results revealed that the majority (40%) of the households in the Rakawa west area were engaged in lagoon fishing and seasonal marine fishing. Most of them (25 %) earned incomes below Rs.5,000 per month. The lagoon has the potential of generating a number of non-extractive values; from activities such as, bird watching, mangrove watching boat tours, fishing and Ayurvedic treatment. As Rekawa is a place of tourist attraction, these recreational activities could easily create new livelihood opportunities for stakeholders in Rekawa. Although the Rekawa lagoon is a valuable coastal resource, the effectiveness of the existing management regime in exploiting the potential of the resources to empower human wellbeing is low. Thus, action should be taken to introduce proper management measures to ensure sustainable use of the lagoon resources.

Keywords: Economic Valuation, Non-extractive use values, Extractive use values, CVM, Market Based Method.

Introduction

Sri Lanka is an island with a beautiful coastline of over 1500 km. (Lowry and Wickremeratne, 1987). Along the coastline, there are diverse of ecosystems, which include sandy beaches, lagoons, estuaries, mangroves, salt marshes, coral reefs and sand dunes etc. Most of these resources support the fisheries industry, tourism industry and offer coastal protection. Lagoons form one of the important coastal environmental resources which generate different 'use' and 'non-use' values contributing to improved human wellbeing.

The Rekawa lagoon is located in the southern coastal range of Sri Lanka, 200 km far away from Colombo. The lagoon, which covers about 250 ha, is enclosed by mangroves and scrub forest (Lowry *et al.*, 1999). The

lagoon is fed by the Kiramana Oya, Urubokka Oya, and Rekawa Oya. Thirty seven species of fin fish, nine species of crustacean, seventeen species of mangroves, fifteen species of migratory birds and sixty seven species of resident birds exist in the lagoon (Ganewatta *et al.*, 1995).

The Rekawa lagoon is subjected to heavy resource degradation. Use of destructive fishing gear, garbage dumping by hotels and agricultural runoff containing chemicals have caused pollution of lagoon waters, destruction of flora and fauna and a decline in the fish and shrimp harvests. The government concern for Rekawa is mainly focused on shrimp production and resolving multi-stakeholder conflicts. The lagoon has the potential of generating a number of non-extractive

use values. Yet, people of Rekawa are generally poor and there is a need to improve their wellbeing. Evidently, special attention and proper management are required to ensure the sustainability of resources of the Rekawa lagoon.

It appears that the concern for management of lagoons exists only where 'use values' present. No evidence of concern for managing resources for other types of values, such as recreational values, bequest values, etc. was found. Concern for these values has been secondary and, the existence of 'use values' has been a pre-requisite for management concerns (Silva *et al.*, 2013). Therefore the objective of this study was to identify the non-extractive use values and to examine their significance in improving the wellbeing of the diverse stake holders in Rekawa.

Methodology

The target population of Rekawa was categorized as; people directly depending on lagoon resources for their livelihood (to find out extractive values, potential non-extractive values) and tourists visiting Rekawa Lagoon area (to find out the potential non-extractive values). Stratified Random Sampling technique was used to select each sample. Fifty three individuals from Rekawa West and ten tourists were interviewed. The Contingent Valuation Method (CVM) was used for valuing the potential non-extractive use values while the Market Based Method was used for valuing the extractive use values generated by the lagoon.

Primary data were collected by administering a pre-tested semi-structured questionnaire to each individual of the selected samples. Secondary data were collected from annual reports, journals, internet and previous research studies. A major source of secondary data consisted of a report written by Silva *et al.*, (2013) on a bench mark study on lagoons in Sri Lanka. Collected data

were tabulated and summarized as percentages and averages.

Results and Discussion

Results revealed that, fishing was the most common livelihood activity in Rekawa West (40%). The Rekawa West area is situated quite close to the lagoon and the sea. Therefore, a large majority of the people in Rekawa West were directly dependent on lagoon fisheries. However, they also engage in deep sea fishing during the off season (a period of suspended or reduced activity) for lagoon fish and shrimp.

With regard to the income of the respondents, the majority (28 %) of the Rekawa West households' earned monthly incomes between Rs.5000 to Rs. 10000 and, twenty five percent of them earned a monthly income below Rs.5000. Only 13 % of the households earned monthly income more than Rs.30,000. The average monthly income of the households was Rs.13161.32.

Direct use values consist of extractive and non-extractive use values. The Rekawa lagoon generates a number of extractive use values, such as shrimp, fish, mangroves, Kirala etc. Shrimp and Fish are more important among them, because the majority of the people in Rekawa engage in fishing as their primary livelihood activity. Market based valuation technique was used to estimate the extractive use values of the lagoon. Total annual shrimp landings were 34,000 kg and the average catch per boat was 4.5 kg. The average price of one kilogram of shrimp was Rs.1,250. Therefore, the total annual value of shrimp landings was Rs.42,500,000.

The Total annual fish landings were 42,000 kg and the average catch per boat was 4 kg. (Amarasinghe *et al.*, 2010). The price of one kilogram of fish was varied

between Rs.200 to Rs 250. Therefore, the total value of the annual fish landings in the Rekawa lagoon was Rs.945,000. The total value of shrimp was higher than that of fish. Therefore, the total extractive value of the lagoon was Rs.43,445,000. Recreational activities and ayurvedic treatment are two of the important non-extractive direct use values of the lagoon, which are sources of supplementary income for local people.

Willingness To Pay (WTP) for recreational activities was asked only from the tourists, as the inhabitants in Rekawa West were the future suppliers of such services while the tourists formed the future consumers. The average WTP for recreational activities by an individual varied. WTP for a mangrove watching boat tour (of 2 hours) was Rs.1,522.25, while it was Rs.1,483.16 for a bird watching tour, Rs.1,931.66 for a turtle watching tour (of 2 hours). Rs.1,760.15 for a fishing tour (of 2 hours) and, Rs. 2,652.91 for one Ayurvedic treatment (such as a herbal bath).

The average period of stay by a tourist in the Rekawa was found to be 1.5 days. However, it was revealed that tourists were willing to spend about 2.5 days at Rekawa, if new services such as bird watching and fishing are offered. It was evident that tourists were willing to spend more days in Rekawa with additional services that would strengthen the local economy

Finally, it could be concluded that, resources of Rekawa lagoon generate diverse values that could definitely improve the wellbeing of the people in the area without leading to a deterioration of the resources. This necessitates the adoption of proper management regime that would effectively manage the resources ensuring both, ecosystem health and wellbeing improvement of people.

References

- Amarasinghe O Krishanthi J and Wickramathilake S 2010 Fisheries and fish processing in the Rekawa SAM area: an inception paper 10-11.
- Ganewatta P Samaranayake RADB Samarakoon JI White AT and Haywood (ed) 1995 The coastal Environment profile of Rekawa lagoon. Coastal resource management project Colombo Sri Lanka
- Lowry K and Wickremeratne HJM 1987 Coastal area management in Sri Lanka. Coastal Management 15:1-25.
- Lowry K Pallewatte N and Dainis AP 1999 Policy-relevant assessment of community-level. Ocean and Coastal Management Coastal Management Projects in Sri Lanka (CMPSL) 42(8): 717-745 from <http://www.ingentaconnect.com/content/els/09645691/1999/00000042/00000008/art0004210/12/2011>
- Silva EIL Amarasinghe O Katupotha J and Manthirithilake H 2013 Socioeconomics and governance-A bench mark study on lagoon Sri Lanka. International Water Management Institute 1-37. (In press)
- Hossain M and Jaim WMH 2011 Empowering Women to Become Farmer Entrepreneur. from <http://www.ifad.org/events/agriculture/doc/papers/hossain.pdf> Retrieved 03 / 11 / 2012]
- UN (2010) The World's Women. from <http://unstats.un.org/> Retrieved on November 05 / 11 / 2012]
- Vidyavathi K 2012 Rural Women in Group Enterprises. from <http://> Retrieved on October 06 / 10 / 2012]