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Economic Valuation of Indirect Benefits of Ashtamudi Estuary in South India

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Abstract

Ecosystems, especially the wetland ecosystems, are boon to humanity given the manifold services provided by them. The direct use benefits refer to the tangible benefits accruing to the local community. In case of wetland ecosystems like estuaries, the direct benefits comprise of fishery, tourism, inland navigation etc. In addition to such direct use benefits, these wetland ecosystems provide quiet a number of indirect benefits in the form of various ecological services which may not be tangible as in case of direct benefits. People seldom understand such kind of benefits due to lack of knowledge and inadequate awareness about it.

The Ashtamudi estuary located in Kollam district of Kerala state in South India is a RAMSAR site. It provides many indirect use benefits to the local community in terms of flood protection, protection of the marine shrimp larvae during the juvenile stage, carbon sequestration, etc. However, the role of Ashtamudi estuary as a nursery for the marine shrimp larvae is of utmost economic value because of its effect on marine shrimp catch and the livelihood of fishermen associated with shrimp fishery. The adult shrimps enter the estuary from sea for laying eggs and the juveniles hatching out of these eggs spend their juvenile phase in the estuary and later swim back to the marine environment. This benefit was evaluated using replacement cost approach by considering the artificial hatcheries as an alternative for this service. This function of Ashtamudi estuary was valued at Rs. 1.02 million per annum.

Carbon sequestration, by the mangrove vegetation in the estuary, is yet another major indirect use value which was assessed by considering the carbon content of the different species of mangroves and assigning universally accepted value per tonne of carbon sequestered by plants. This service accounted for Rs.0.023 million.

Monetary values of indirect benefits assessed as part of the study throws light on the need to create mass awareness about such benefits and to conserve the estuary in a sustainable manner by undertaking participatory action plans.

Keywords: Carbon sequestration, indirect use, replacement cost