Resource management

Mussel muscle

Around the Ashtamudi estuary in south India are a few examples of community initiatives in managing inland fisheries resources

Beyond the palm trees and shining waters of the enchantingly beautiful backwaters of Kerala, India, some community initiatives towards estuarine resource management are taking place that deserve attention. A specific example is located in the Ashtamudi estuary in Kollam district, the second largest estuarine system in the State.

Historically, the town of Kollam had flourished as a centre of trade with China, and later with the Dutch and the Portuguese. The renowned traveller Marco Polo had set foot on Kollam during his journeys, when black pepper was one of the most sought-after merchandise there.

The landscape surrounding Ashtamudi has changed little since the time of Marco Polo. Everywhere one looks, deep green palm trees stand still. On the edge of the estuary, palm trees hang over, as if watching their reflections on the calm water.

The region's prosperity derives from trade-related activities, and the most prominent economic activities in and around Ashtamudi estuary today are fishing and coir manufacturing. Although fishing has been the traditional occupation of the inhabitants of the region from time immemorial, Ashtamudi's vibrant fishing practice entered the estuary in the 1950s and early 1960s, when fishing turned into a localized industry of artisanal fishermen using traditional craft and gear. By the late 1960s, the international demand for prawns opened up a possibility for commercial fishing in the region. The construction of the Neendakara fishing harbour led to the flourishing of commercial fishing activities in the region. Norwegian aid not only contributed to the development of the harbour, but also to the mechanization of fishing craft, which created an apparent economic class difference among the communities.

The inland fisheries in Ashtamudi estuary include both capture and culture fisheries. For capture fishing practices, stake net (locally called *kutivala*), Chinese net (*cheena vala*), gill-net (*vysali vala*), cast-net (*veesu vala*), drift-net (*ozhukku vala*) and trawl net (*koru vala*) are used. Although the fishing industry supports the livelihood of the majority of people in this region, the inland fisheries remain at the subsistence level. The decrease in per capita catch is also evident partly due to the increasing number of fisherfolk in the region. Consequently, the fishing industry in Ashtamudi estuary is no longer on the rise. Rather, it is on the decline due to inadequate management of the estuary. Moreover, despite the fact that the estuary supports a lucrative fishery, no effort has been made so far to assess the exploited fishery resources.

In this market-driven resource milieu, Ashtamudi estuary has a few examples of community initiatives in managing inland fisheries resource. Though often overlooked, the initiatives are certainly worth studying for their distinctive practices.

People's plan

Nurturing fish by marking off a protected area within the estuary is a community initiative, a first of its kind in inland fisheries in Kerala. Fisherfolk have recognized the importance of allowing fish to grow and, thus, have set aside a 'fishing prohibited' zone in the estuary. Motivated by the Kerala State's Peoples' Planning Campaign, one hectare of estuary was fenced off and declared as a

no-fishing area, with the financial support of Rs100,000 from the Chavara block *panchayat* (local governing body) and the technical support of the Brackish Water Fish Farmers Development Agency. (As part of the decentralizing Peoples Planning Campaign, a three-tier administrative structure exists in the State, comprising district *panchayat*s, block *panchayat*s and *grama panchayat*s.)

They created artificial reefs with tree branches and concrete slabs. The fisherfolk of four *grama panchayat*s, namely Chavara, Thekkumbhagam, Thevelakara and Neendakara, are benefiting from this bioreserve. The catch has tremendously increased, especially of pearl spot (*Etroplus surratensis*), locally known as *karimeen*, a delicacy in Kerala cuisine.

Collection of mussels for their meat has a recent origin, compared to other inland fishing activities in Ashtamudi estuary, and is only a generation old, though shell collection for lime is an ancient practice. The shell collectors used to consume the mussel flesh sometimes, if the mussels were caught live, but only marginally. However, with the increased demand in the export market for mussel meat, a small group started collecting the live shells, which are abundant in some selected pockets in the estuary. The participation of family and community in the mussel collection makes the practice unique and noteworthy.

There are about 1,000 families at Dalawapuram village in Thekkumbhagam involved in harvesting the rich mussel bed of the region. The nature of the resource necessitates a proper regulation of who catches where. This has been well observed by the community, even though there is pressure from the market for more mussels.

Each household has demarcated its fishing ground in the estuary by placing tree branches in the water about 20 to 50 m away from the land border of their houses. The males in the family collect shells manually, standing chest-deep in the water, and using a small hand-net. Shells are collected in the morning, when there is an ebb tide and the water column is low. By noon, the collected shells are taken home, adjacent to the fishing ground. The female members and the children of the family sort the shells, returning the young mussels to the estuary to grow. In other parts of the estuary, some people exploit the mussels for cattle and duck feed, irrespective of their maturity.

The fishermen receive an average of Rs150-200 each day; however, the catch is available only for a third of the year. During the breeding period, the community has to frequently cope with the death of mussels due to the high nitrate content in the water. The community claims that this is caused by the runoff of fertilizers and pesticides heavily used in the upland regions.

There is no organized society in the mussel collecting community that facilitates the collection of the meat for the export market, and so, a few agents who act as middlemen reap the profits. They collect the mussel meat from each household and transport them to the export businesses, based mostly near the Neendakara fishing harbour, 6 km from the village.

Scientific studies have indicated that the breeding period of the mussels is during November to February, and the State government has imposed a ban on shell collection during that period. In reality, the actual breeding period is never fixed, but depends on tide character and other weather variables, and may sometimes prolong for another month or so. The community is very aware of this, and observes a consensus not to collect shells during that time, in addition to observing the government restriction.

Nonetheless, such community initiatives are not free of the profit motive. In the case of the inland fishery, influential fishermen in the area have piled up tree branches close to the fenced-off area. Fish aggregating devices prevent fish from moving to other parts of the estuary. As a result, they make a large catch, while denying other fishermen their catch. To an extent, it can be said that these fishermen have privatized the fishing ground, while other marginalized fishermen suffer from low catches. Moreover, those fishermen

who use fish aggregating devices outside the fenced-off area also catch juvenile fish, which affects future catches.

A collective community-level effort of this kind is important in managing resources for sustainable fisheries. Given the scenario of dwindling mangrove vegetation, which traditionally functioned as natural bioreserves, more initiatives are needed to develop bioreserves in the estuaries and backwaters of Kerala.

Community initiatives of this kind lend hope for the sustainable management of inland fishery resources.

This article has been written by geographers M. Muralikrishna and Yumi Onishi of Gaia Info Systems (gaia@vsnl.com), Trivandrum, India, a research consultancy for coastal studies, natural resource management and Geographic Information Systems