Gender in Aquaculture and Fisheries: The Long Journey to Equality
Asian Fisheries Science Special Issue **29S** (2016): 193-203

ISSN 0116-6514

Asian Fisheries Science
The Journal of the Asian Fisheries Society

Short Communication

Gender Roles in Fisheries along the Vembanad Estuarine System

SRUTHI P*, LIYA JAYALAL and NIKITA GOPAL

ICAR-Central Institute of Fisheries Technology, CIFT Junction, Willingdon Island, Matsyapuri P.O., Cochin-682 029, Kerala, India

Abstract

The Vembanad estuarine system situated in the state of Kerala, India, is one of the largest on the West Coast of India. Spread across the districts of Alappuzha, Ernakulam and Kottayam, it is rich in aquatic bio-diversity. The estuarine system serves as a source of livelihood for the inland fishing community. About half the total fisherman population of more than 200 thousand in the inland sector in Kerala is concentrated in these three districts. This paper tries to document the fishing methods and tries to understand the challenges faced by women in fisheries whose fishing activities are confined to the inland water bodies. Women carry out fishing activities in the kol lands which are fed by the estuarine system of the Vembanad Lake. Traditional techniques are used and the activity tends to provide a better living than the subsistence level. This involvement is declining with the younger generation showing no interest in carrying the activity forward. Drudgery and legal issues with respect to rights to fishing in these waters are recurring concerns.

Introduction

An estuary is a semi enclosed coastal body of water which has a free connection with the open sea and within which the salinity is measurably different from the salinity in the adjacent open sea. Estuaries are among the most biologically productive (ICMAM 2002), dynamic ecosystems, varying in physico-chemical properties and supporting highly diverse flora and fauna (Pritchard 1967). The estuarine system which spreads over 1.422 million ha is an integral part of fisheries in India which makes a significant contribution to

* Corresponding author. E-mail address: sruthieco@gmail.com

production (http://ecoursesonline.iasri.res.in/mod/page/view.php?id =146934. Accessed 20 January 2016). This system forms part of the rich and diverse inland water resource available in India. Kerala, on the south west coast of India, is endowed with rich freshwater and brackish water resources. The state has a total estimated freshwater area of about 0.332 million ha consisting of reservoirs, rivers, ponds, tanks, irrigation tanks and paddy fields; and 0.126 million ha of brackish water resources consisting of 0.065 million ha of brackish waters, 0.046 million ha of backwaters and canals, 0.013 million ha. of prawn filtration fields. The estuaries of Kerala are rich, with more than 200 resident, migratory and shell fish species (Asha et al. 2014; Binoy 2008). The inland fish production and culture, which is mainly traditional in nature, provides a major source of livelihood in the rural areas. The sector is a potential employment source for the rural women. The total population of fisher folk, who depend for their livelihood on the inland waters of the State, is around, 0.23 million and which accounts for 0.69% of the State's total population. The active fishermen of the inland sector were estimated to be 0.052 million. The Inland sector of the State contributes around 0.149 million metric tonnes of fish, which accounted for a net value of 14,988 million INR during the year 2012-13 (Government of Kerala 2013).

The Vembanad Estuarine system, declared as a Ramsar site, is the largest in the state of Kerala and serves as a source of livelihood for more than half of the total inland fishing population of the state. With a length of 96 km and surface area of 1512 Km^2, it spreads across three districts of Kerala, viz., Kottayam, Ernakulam and Alappuzha (Mogalekar et.al. 2015).The local fishing communities were traditionally involved in the conservation and management of the estuarine resources on which they depended for their livelihood. With change in time such positions of authority and ensuing responsibilities were taken over by the State government. As a result of centralisation in control, and little involvement of people in management of the resources, there was widespread resort to destructive fishing methods which led to the deterioration in the availability of estuarine resources (Kumar and Priyadarsanan 2012).

According to Mishra (2011), 72% of the workforces in the inland fisheries sector were women. Fisherwomen had diverse roles in the inland sector which involves grading and segregation, selling, drying, and prawn and fish seed collection. Besides they are also engaged in net mending and carrying

food to the river banks for the fishermen engaged in fishing activity (Chandra and Sharma 2014). Usually it is seen that the domination of men ends at the riverbank in terms of fishing activity. Along the Vembanad estuary various indigenous fishing methods are followed. The fishing technique followed by the women in this region is especially unique needing a lot of skill and dexterity. The present study was carried out to identify the gender roles and activities among the fishing communities along the Vembanad estuarine system and to understand the issues and challenges faced by the fisherwomen in these areas.

Materials and Methods

The study was carried out in the Pallithode area of Kuthiathod Panchayath of Kerala, India. A village Panchayath forms the basis of the local self-government at the village level in India. Pallithode village lies in the Alappuzha district of Kerala and shares its borders with Ernakulam district. The sea lies towards the west of the village and the estuary passes through the village almost parallel to the sea. *Kol* (also referred to as *kole*) lands in the village are fed by the estuary and are used for rice cultivation. A sizeable population in the village depends on fishing for its livelihood, both marine and inland. The study focuses on the fishermen and women who depend on the *Kol* lands and the channels linked to the estuarine system for their livelihood.

Fishermen and women were interviewed personally using a semi-structured questionnaire with open ended questions. Case studies are used for explaining the distribution of time for work among men and women.

Results

Marine fishermen in Pallithode area are largely Christians and the inland fishermen are Hindus. Fishermen and women had a minimum level of schooling with a majority having finished primary school. The educational status of their children was better though most of them have only secondary or senior secondary level education. All the families interviewed fall in the BPL[1] (Below

[1]BPL: Below Poverty Line is an economic benchmark set by Government of India to identify the people who are in real need of Government aid. The criteria for identifying people below the poverty line varies from state to state within the country but is broadly based on income.

Poverty Line) category. They depend on the government subsidised Public Distribution System[2] (PDS) for their daily basic consumption requirements. They have very small land holdings and these are basically comprised of just about enough space on which to build a house. Generally the houses are built close to shore and there is a constant fear of rising water levels. In this area houses being washed away during rains or bad weather is a common phenomenon (http://www.thehindu.com/news/cities/Kochi/monsoon-sea-merciless-on-chellanam/article7454606.ece_Accessed on 12 January 2016).

The inland fishery is dominated by fishers who depend almost exclusively on the inland water systems for their livelihood. There are exceptions, where the men also go fishing in the sea. The marine fishermen, however, also fish in inland waters during the peak season of fish availability in the inland sector or during off-seasons in marine fishing. Women from both inland and marine fisher households are engaged in fishing activity, which is confined to inland water bodies (Fig. 1). The fishers use various types of cast nets (locally called *veeshuvala*) or scoopnet or hand net (locally known as *vattavala*) (Fig. 2). Pots are used to store the fish catch. Earlier earthen pots and wicker baskets were used for this. But today aluminum pots are used as they are more durable and do not break easily, unlike earthen pots (Fig. 3). While cast nets are operated by men the other gears are exclusively operated by women. The women are especially adept at using their hands and feet for trapping fish. The *vattavala* or scoop nets used by them have a mesh size of 12 mm to 26 mm. The diameter varies between 22 cm to 65 cm. The cast nets operated by them vary with a mesh size of 18 mm to 28 mm with a length of 2.5 m to 4 m. The *vattavala* is used for scooping fish from water. When men and women fish together the men operate the cast net and the women hold the *vattavala* or scoop net into which the catch from the cast net is transferred. The fish is then removed and stored in the pots fastened to the waists of the fisherwomen. The mouth of the pot is also covered with a mesh and the pot lies immersed in the waters during the entire period of fishing. The depth of waters in *kol* lands, where the women fish, is generally 2 to 5 feet deep. Normally, the fishers have to give one-third of their catch to the owner of the field as a fee for providing them access to the land. Once the rice is harvested and water enters into the

[2]PDS: Public distribution system is the scheme operated by Government of India to ensure food security in the country through efficient procurement, storage and distribution of essential food grains at subsidised prices to poorer sections of the society.

field they can fish in the fields without giving any share to the owner, in the intervening period before the land is readied for the alternate fish culture.

Fig. 1. Women engaged in fishing

Fig. 2. Fisherwomen holding *vattavala* or scoop net

Fig. 3. Pot used for storing fish

The fisherwomen aged between 45 and 70 years have been carrying out this activity for close to two decades and were well experienced. The majority of women fishers started carrying out this activity after relocating to their marital residences, as most of their husband's kin were involved in such activities. The fishing methods have remained traditional without any influx of

technology. The younger generation, however, was not interested in getting involved in this work.

The post-harvest activities included sorting and marketing of fish and are mainly carried out by women. After taking a share for household consumption, the catch is taken to the nearby market for auctioning. A commission of 10% is paid to the auctioneers. Decision making power regarding consumption and selling of fish caught is vested with women.The fishing activities done by women support their families in the form of consistent income throughout the year, as compared to their male counterparts whose incomes are irregular. A time analysis of fishermen and women involved in inland fishing in Pallithode area is given in Table 1.

Table 1. Time analysis of fishermen and women involved in inland fishing

Time **Gender**	**3.00 am to 4.00 am**	**4.00 am to 8.00 am**	**8.00 am to 10.00 am**	**10.00 am to 2.00 pm**	**2.00 pm to 6.00 pm**	**6.00 pm to 9.00 pm**
Women	Getting ready for Fishing	Harvesting Sorting	Auctioning and Marketing Peeling	Household work Peeling	Leisure	Household work/ Leisure
Men*	Getting ready for Fishing	Harvesting	Leisure/ Work related to household (if any)			

* Men are full time marine fishermen

Case study 1

Lalitha (50 years) has been fishing in the inland waters of Vembanad estuary for the past 25 years. Her husband is an active marine fisherman. She started engaging in this activity after her marriage. This was also because other women members of her husband's family, also in the neighbourhood, used to fish in a similar way. She goes along with other women of the village in a group to the small tributaries or channels linked to Vembanad Lake.They start early in the morning and cover the distance by walking. The fishing season starts in March and she uses a scoop net (*vattavala)* and is also experienced in using her feet for trapping fish. The main catch includes *Macrobrachium rosenbergii* (De Man, 1879), *Etroplus suratensis* (Bloch, 1790), *Etroplus maculatus* (Bloch, 1795) and *Mugil cephalus* (Linnaeus, 1758). Her daily income ranges from

INR 30 (approximately USD 0.44) to INR 500 (approximately USD 7) depending on the season. The catch is divided into three parts out of which one part is given to the owner (the household which stays near the waters where the women have fished and who 'own' the water body). A second portion, generally comprising of good quality and bigger fish, is reserved for household consumption and the rest given for auction to a middleman. A commission of 10% has to be paid to the middleman for taking the catch to the auctioning centre. She goes fishing almost throughout the year, excepting the monsoons when the water level rises and they are not able to find a footing at the bottom of the channels. The income from fishing is used for household consumption and other personal expenses. Lalitha has full freedom in deciding how to spend the money and is independent as far as her personal expenses are concerned. Her contribution to the overall family income is well recognised. The main constraint she faces is obtaining permission from the 'owners' of the channels or partially enclosed water bodies to carry out fishing operations. Some of the 'owners' hire outside labour for harvesting fish from these water bodies. This puts the women at a disadvantage as they are no longer able to fish in these waters and have to walk from 5 to 10 kms every day to find other suitable fishing sites.

Case study 2

Revamma (46 years) had started doing this job at a young age even before she was married. After her marriage she started accompanying her husband Ponnappan for fishing in the inland waters of the Vembanad. They have one daughter and two sons, all school going. This activity is their only source of livelihood. While Revamma uses pots and scoop net (*vattavala*), her husband operates the cast nets (Fig. 4). They give one-third of the catch as payment for using the water bodies to the 'owners'. They seldom take the catch for household consumption preferring to sell the prime quality catch. The final decision, whether a portion of the catch can be taken for household consumption or not, is taken by the husband. Both husband and wife together take the catch for auction and a commission of 10% is paid to the auctioneers. They have no savings and all the income is used up for maintaining the family. Whenever they are not able to go fishing, they source fish from the auction centre on credit and sell it door to door or in wayside or distant markets. After coming back from work Revamma has to carry out household chores while her

husband compensates for the sleep he had to sacrifice in the early morning.The major constraint faced by them is the time spent for fishing, as they leave home early in the morning and are insecure for their children. They are forced to leave their children alone at home and by the time they return from fishing and marketing the children have already left for school.

Fig. 4. Fisher couple showing the cast net and scoop net

Discussion

Most of the women working in this sector started engaging in this activity after settling into their marital homes and starting to accompany the other women in the area. Most of them are middle aged or old but do not want to give up the activity as it fetches them the additional income required for their families or to meet their own personal expenses. Despite initiatives from the Government in the form of employment guarantee schemes (for eg., The Mahatma Gandhi National Rural Employment Guarantee Programme or the MNREGP, which assures 100 days of employment in a year in rural areas with minimum wages), they still prefer to carry out fishing, as it is remunerative, especially in peak seasons.

Since there is very little saving from the activities they engage in, most of the women are indebted to local money lenders. There is very little dependence on organised credit (Gopal et.al. 2012) even though all of them have savings accounts in nationalised banks as the wages from the government

sponsored employment guarantee schemes are routed through these banks (GoI 2013). The micro finance institutions run by caste based organisations like 'Micro Finance Programme' by Sree Narayana Dharma Paripalana Yogam (SNDP) (Bhaskar 2015) and other private financial institutions run by local people also cater to their financial needs. Though the private financial institutions have high lending rates, there are fewer official formalities to meet.

The fisherwomen consider their work profitable but they do not wish for the next generation to undertake this activity. They don't want their children to face the physical difficulties and want them to get educated and enter other professions. Women belonging to the younger generation are not involved in harvest activities and they have little interest in the same. They consider the activity as having a lower status in society. Younger women go for prawn peeling in sheds owned by private entrepreneurs and get wages from INR 200 to INR 250 (approximately USD 3 to 3.5) on a weekly basis.

One of the major constraints faced by women involved in fishing in these areas is the nature and time of work. Their reproductive roles are disturbed especially with relation to caring for their children, creating a sense of insecurity both among women and children. Another issue they confront is the distance from their home to the work place, with minimal transportation facility as they leave as early as 3.00 am. They usually fish in *kol* lands which are under the ownership of private individuals who use the lands for prawn culture or rice cultivation. Sometimes women have little or no access to these potential fishing areas near their residences because of restrictions by the actual 'owners' of *kol* lands. Conflicts with the owners are common and several legal issues need to be sorted out before this access can be guaranteed (NSSO 1999; Chopra and Dasgupta 2002).

Conclusions

It is evident from the above discussions that the traditional fishing methods followed by women for their subsistence are slowly declining with the younger generation showing no interest in carrying the activity forward. The income from this is important to sustain the family. Reducing drudgery and sorting out issues of use of the common property in a more equitable way is an

important aspect in ensuring that this can continue to be a profitable avocation for the women of the community.

Acknowledgements

The authors are grateful to the fishers of Pallithode for sharing the details of their work and life and allowing us to publish the same.

References

Asha, C.V., P. S. Suson, C.I. Retina and N.S. Bijoy. 2014. Decline in diversity and production of exploited fishery resources in Vembanad wetland system: Strategies for better management and conservation. Open Journal of Marine Science 4: 344-357. http://dx.doi.org/10.4236/ ojms.2014.44031. Accessed 10 January 2016.

Bhaskar, A. 2015. Microfinance in South India: A case study". Wharton Research Scholars Journal. Paper 122. http://repository.upenn.edu/wharton_research_scholars/122. Accessed 12 February 2016.

Bijoy, N.S. 2008. Current status and biodiversity modification in the coastal wetland ecosystems of india with objectives for its sustainable management. Proceedings of Conserve-Vision Conference, The University of Waikato, 2-4 July 2007. http://www.waikato.ac.nz/fass/Conserv-Vision/proceedings/Nandan.pdf. Accessed 10 January 2016.

Chandra, G. and A P. Sharma. 2014. Gender role in inland fisheries of India: A cross country study. 5th Global Symposium on Gender in Fisheries and Aquaculture, organised by Asian Fisheries Society at ICAR-NBFGR, Lucknow, India. https://genderaquafish.files.wordpress.com/2014/10/26-ganesh-chandra-gender-role.pdf. Accessed 10 March 2015.

Chopra, K. and P. Dasgupta. 2002. Common pool resources in India: Evidence, significance and new management initiatives. Policy implications of common pool resource knowledge, in India, Tanzania, Zimbabwe. http:// wwwcpr.cam.ac.uk. http://r4d.dfid.gov.uk/pdf/ outputs/ natressys/ r7973annb.pdf. Accessed 4 January 2016.

Estuarine Fisheries of India. http://ecoursesonline.iasri.res.in/mod/page/view.php?id=146934. Accessed 20 January, 2016.

Gopal, N., P. Jeyanthi, V. Chandrasekar and B. Meenakuamri. 2012. A study on the availability and utilization of microcredit in the traditional fisheries sector of Kerala, India. Asian fisheries Science 25S: 243-250.

Government of India. 2013. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA). http://www.nrega. nic.in/netnrega/forum/2-MGNREGA.pdf. Accessed 5 February, 2016.

Government of Kerala. 2013. Kerala Inland Fisheries Statistics. Directorate of Fisheries, Vikas Bhavan, Thiruvananthapuram. 69 pp.

ICMAM (Integrated Coastal and Marine Area management). 2002. "Critical habitat information for Cochin Backwaters-Kerala", ICMAM, DOD. 31 pp.

Krishnakumar, K., D.R. Priyadarsanan. 2012. Fish and fisheries in Vembanad lake: Consolidated report of Vembanad fish count 2008- 2011. Pub. CERC, Ashoka Trust for Research in Ecology and the Environment (ATREE), Mullakkal, Amman Kovil Street, Alleppey, Kerala. 50 pp.

Mishra, N. 2011. Inland fishery sector in rainfed agriculture area: Issue and opportunities http://www.rainfedindia.org/issues/images/fisheries2.ppt.Accessed 15 December 2015.

Mogalekar, H.S., G. Adnankhan, C.P. Ansar, N.N. Raman and A. Devkate. 2015. Temporal variation in the hydrobiology of Vembanad lake at Panangad Kumbalam mangrove patches of Kochi, Kerala. Research Journal of Animal, Veterinary and Fishery Sciences 3: 1-7.

NSSO (National Sample Survey Organisation). 1999. Common property resources in India. Report No. 452 (54/31/4). Department of Statistics and Programme Implementation. Government of India. 290 pp.

Pritchard, D.W., 1967. What is an estuary: Physical view point. In: Estuaries (ed. G.H Lauff), pp. 3-5. American Association for the Advancement of Science, Washington DC.