



Role of Women Fish Workers for Food Security in Assam

Deepjyoti Baruah

Livestock Research Station
Assam Agricultural University, Hekra 781 127, Kamrup (Assam)

ABSTRACT

Women fish workers in Assam play a critical role within the aquaculture and fishing communities, roles that are often not recognized or supported. Women are particularly active in fish culture, fish capturing by traditional and indigenous methods and in postharvest fisheries by engaging themselves as fish vendors. These women have to face several socio-cultural taboos who strive to earn for their family's subsistence in rural areas. To ensure the utilization of their full potential in profitable activities like aqua farming, it is necessary to provide capacity building support to rural women, which will eventually lead to their empowerment and food security to their household. This paper discusses on the occupational status of women fish workers in the state and the promising aspects in aquaculture and fisheries which can provide immense scope for improving the livelihood of rural women.

Key Words: Women, Empowerment, Food security, Fisheries, Assam.

INTRODUCTION

In Assam, fishing communities comprise about 20-25 per cent of women engaged in aquaculture and fisheries. Inland fisheries in a landlocked state like Assam are especially important for food security as all fish production through capture and culture fishery goes for human consumption. Fish is especially important for the economically weaker sections of the population, providing a cheap and accessible source of protein and essential micronutrients (Baruah, 2014). Fish farming and fish harvesting provides employment and livelihood to a large mass of people, primarily women (Baruah *et al*, 2013). A large section of the population also depends on natural aquatic resources such as wetlands (*beels*), derelict water bodies etc. and diversified indigenous fish species such as *Anabas* spp., *Monopterus* spp., *Puntius* spp., etc for their livelihood, employment and income. Fisher women are generally self-employed forming part of an unorganized sector and they face several kinds of problems in the exercise of their profession (Shaleesha and Stanley, 2000). Attempts are been carried out to implement developmental schemes and programmes by the

concerned Government and Non-governmental organizations for the upliftment of the rural women and make the farming profession in a more organized manner in the recent times.

MATERIALS AND METHODS

Surveys were conducted in the Kamrup and Goalpara district of Assam during 2012-14. Investigation was made based on a questionnaire prepared by Assam Agricultural University among the women fishers, beel lessees, rural fish vendors and rural housewives. Fish markets, fish landing centres, fishing villages, daily and weekly markets of the several towns and villages in the 2 districts were visited and data were recorded.

RESULTS AND DISCUSSION

The investigation reveals that the rural women are mostly poor and illiterate and are therefore compelled to involve themselves in agriculture and allied fields as a source of income. These women create some time in a day to look after the aquaculture and fish catching practices apart from their daily domestic work. These women were mostly between 15-60 yr of age which shows that age is not a bar for these women for earning a

livelihood. Some of the fisheries activities where women fish workers of Assam are involved for ensuring their food security were as follows;

Aquaculture

In culture fisheries, women take participation in carp polyculture comprising the major species *Catla catla*, *Labeo rohita*, *Cirrhinus mrigala*, *Hypophthalmichthys molitrix*, *Ctenopharyngodon idella*, *Cyprinus carpio* and minor carps such *Labeo bata*, *Labeo gonius*. Catfishes such as *Clarias batrachus*, *Heteropneustes fossilis* and air-breathing fishes such as *Anabas testudineus* are also reared in the aquaculture ponds. It was observed that the women counter-part has a part-time involvement in post-stocking management practices such as daily feeding to fishes, liming and cleaning of dykes etc apart from their routine household activities. The pre-stocking and stocking management activities such pond renovation, muck removal, digging, netting and fish stocking are mostly done by the male section of the village. This is because of the fact that women are not accessed easily to different fishing communities to arrange the pre-stocking and stocking management practices without the company of other women.

In areas inhabited by scheduled caste and scheduled tribe people, the rural women folk are engaged with pig raising, poultry and duck farming and cultivation of horticultural crops along the pond dykes. Generally, 4-5 pigs/bigha, 65 ducks/bigha and 40 poultry birds/bigha are raised along with fish @ 1,000-1,200 fish fingerlings/bigha (7.5 bigha = 1 hectare water area). Horticultural crops such as banana, betel nut, coconut, Assam lemon, turmeric, zinger, cabbage, cauliflower, brinjal, tomato, beans, bottle gourds, pumpkin etc are raised on the dykes. Fodder crops such as hybrid napier, newguinea, barseem etc are cultivated for fodder purpose as well as feeding to the grass carps (*Ctenopharyngodon idella*). The womenfolk receive a profitable return from these farm products by selling fish @ Rs. 100-150/kg, eggs @ Rs. 5/piece, meat @ Rs. 180-200/kg, vegetables @ Rs. 5-20/kg, and fruits @ Rs. 30-100/kg from a unit area. Also the wastes produced from the animals are suitably disposed off to ponds which are utilized as feed for fishes and manure.

Fishing with low energy traditional gears and hand picking

Looking at capture fisheries, active fishing is generally undertaken by men, although a small percentage of women do take part in low energy shallow fishing (Figure 1). Fishing and hunting are some of the oldest profession among the rural tribe people of Assam. Some of the fishing gears operated by the womenfolk were as follows;

- (i) **Hand picking from the paddy field, mud and pits:** After the rainy season during September-October, the paddy fields are dried up and the fishes accumulate themselves in the deepest area of the field. Fishes such as *Noemacheilus botia*, *Mastacembelus armatus*, *Clarias batrachus*, *Heteropneustes fossilis*, *Anabas testudineus* and *Mystus* spp are easily caught by hand. These fishes are mostly used for self consumption and are generally not sold.
- (ii) **Pulling of water hyacinth (meteka tana):** The water hyacinth locally known as 'meteka' profusely grow in beels, swamps and other derelict water bodies of Assam. During winter season from October to March, air breathing fishes like *Channa* spp., *Anabas testudineus*, *Clarias batrachus*, *Heteropneustes fossilis*, *Monopterusuchia*, and other small sized fishes such as *Nandus nandus*, *Colisa* spp., *Mastacembelus* spp., etc take shelter inside the roots of water hyacinth. Water hyacinths are then very carefully and slowly lifted or pulled by hand to the bank and fishes are separated from the roots. Catfishes fetch Rs. 150-250/kg whereas *Monopterusuchia* fetches a price of Rs. 400-500/kg in the local market.
- (iii) **Dewatering (khal sicha):** Farmers excavate small pools or 'khals' at the deepest points of paddy fields or unused water bodies and dykes are constructed around consisting with a small inlet in between. Dewatering is done manually during mid noon with a device known as 'shiyoni' or 'lahoti' which is made either with split kerosene oil can and bamboo splits. Water scooped by 'shiyoni' is allowed to pass through a large bamboo basket known as 'duli' or 'jakoi'. Small sized fishes lifted along with water are accumulated in 'duli' or 'jakoi' which are mostly used for self consumption.

(iv) **Traps:** These are conical, cylindrical to rectangular or box shaped devices mostly made of bamboo and are either temporarily or permanently fixed to the bottom, the principle of capture based on leading the fish to enter, enticing or attracting to it but difficult to exit through openings preferably defended with non return valve or labyrinths. Some of the traps commonly used by the women fishers (Figure 2) are *khoka* (funnel shape), *seppa* (tubular shape) and *darki* (box shaped). The fish catch is miscellaneous and are sold at a price of Rs. 50-200/kg depending on the size of fish and local market conditions.

(v) **Scoop gear (jakoi):** This is a scooping device with triangular outline, made up of bamboo matting. The women operates the gear with her both hands and disturbs the bottom mud with her feet, so that in trying to escape, the fish enter the trap. The gear is scooped periodically to remove the harvest. This gear is versatile among the women fishers of Assam. Small sized bottom dwelling fishes such as *Mystus* spp., *Botia* spp. are the major catch which fetches a price of Rs. 80-100/kg.

(vi) **Push nets (ghoka and pah jal):** These are triangularly-framed, collapsible nets operated by one women and the capture affected by a forward, horizontal pushing motion along the bottom of shallow waters by hand wading. Small sized prawns are the major catch alongwith bottom dwelling fishes which are sold @ Rs. 100/kg.

(vii) **Double stick nets (tana jal):** This is a rectangular-shaped net with 1mm mesh size and stitched to two bamboo poles fixed to its shorter sides. The gear is operated in shallow water bodies, paddy fields impounded with water, beels and other derelict water bodies by two women fishers (Figure 3). Catch usually comprised of small fishes such as *Puntius* spp, *Colisa fasciatus* etc.

(viii) **Hand lift net (porongi jal):** This is a square shaped net hung on two split bamboos crossing each other and fixed in the form of an arch. The gear is provided with a bamboo handle which is used to facilitate lifting of the

net. The net is operated by hand or installed to shore. The net is dipped in water and after a few minutes is suddenly raised by the bamboo handle. A single woman can operate the net. These nets are mostly seen in operation during flood and post flood situation in the state. Small sized fish such as *Puntius* spp, *Chela laubuca* are its usual catch which fetches a price of Rs. 100-150/kg.

(ix) **Cover gear (polo):** These are bell-shaped bamboo made entrapping device with an opening both at the base and the apex. The gear is operated in beels, shallow water bodies, ponds, paddy fields, etc by women. The catch is comprised of small fishes such as *Puntius* spp., to big sized fishes such as *Chitala chitala* and *Wallagu attu*. Small sized fishes fetch a price of Rs. 100-150/kg and the bigger ones fetch a price of Rs. 400-600/kg.

Collection of aquatic plants and fruits

Makhana known as *Euryale ferox* Salisbury (Nymphaeaceae) grows naturally in wetlands (beels), derelict and marshy water bodies in lower Assam along with many other aquatic plants. The general people of Assam are ignorant about the nutritious use of *makhana* seeds as a food item or medicine. These seeds are mostly harvested by certain communities from Bihar and export from the state for further processing. However, the raw edible parts of the seeds are harvested by rural women to be eaten as a casual food especially by children (Figure 4). Other aquatic plants harvested by women fishers for food are *Trapa natans*, *T. bispinosa*, *Nelumbo nucifera* etc.

Collection of molluscan species

The tribal population of the state mostly relishes upon the gastropods and bivalves as a delicacy in their food. Several molluscan species belonging to genus *Bellamya*, *Brotia*, *Paludomus*, *Thiara*, *Indoplanorbis*, *Lamellidens* etc were observed to be sold in the market by the local women vendors in the market (Figure 5). These women earn a substantial amount from the catch (Rs. 50-150/kg) and effort put behind the work for sustaining the daily protein requirement in the family.

Processing of fish

Fish processing is usually done by women using traditional methods such as sun drying, smoking, salting and fermentation of fish. *Ngari* and *Hentak* in Manipur, *Gnuchi*, *Sidra* and *Sukuti* in Darjeeling and Sikkim, *Tungtap* in Meghalaya, *Bordia*, *Sepaa* /*Shidal/Hidol*, *Namsing* in Assam and *Lona ilish* are some of the popular traditional fermented fish products in the region. Fish pickles are also prepared with small sized fishes such as *Amblypharyngodon mola*, *Rasbora daniconius*, *Puntius* spp. etc. As the water bodies of Assam harbours lots of small fishes which can be used for preparation of pickle, its propagation can be taken up to generate employment among the rural women. These products are mostly home-made and are used for self consumption.

Fish vending

Fish vending is an age old occupation that has been a means of livelihood for thousands in Assam. Unlike the maritime states of India like Maharashtra, Tamil Nadu, women fish vendors in Assam represents a minority in a daily run market and engages in their trade in the following ways:

- (i) Women seldom procure their fish directly from landing centres where they are likely to participate in daily auctions of the catch. Instead, the women vendors buy from traders and merchants or buy from the wholesalers for resale at retail or local markets (Figure 6).
- (ii) Women vendors also carry out value addition by species-wise sorting, size-grading, cleaning and ice-storage of the harvested fish. Fish are mostly sold as fresh fish which are stored in ice boxes and sold in daily market in the locality. Women are not engaged with door-to-door marketing of fish and rely on the male vendors for the sale.

Women engaged in fish vending earn a substantial amount of Rs. 400-2000/day based on the fish supply and special festive occasions. Women are thus the important contributors in aquaculture, fish catching, fish processing, marketing and selling the catch in Assam (Baruah, 2014). They culture, catch and sell the fish and other aquatic eatables for money and food, contributing to household incomes and food

security and to the local economy. Their effort and contribution is however, often not recognized. Women fish workers operate as an important link between fish producers and the consumers in urban and remote rural areas and enhancing food security in tangible ways (Salagrama, 2006). In recent years competition for fish demand and supply from exporters and traders with greater access to credit and capital has however affected the overall access of women fishers to fish. This is coupled with the numerous problems they face at culture and capture sites, landing centres and markets and the lack of access to basic facilities at these locations has severely affected their ability to retain their important role in aquaculture and fish vending. Most of the markets lack proper infrastructure and basic market facilities for cold storage, processing, selling booths, clean toilets, access to hygienic running water and adequate waste disposal measures. Such facilities are essential for enabling women to engage in their occupation in a dignified manner.

Of the women who were investigated, 48 per cent were educated to primary level, 15 per cent to high school, and 10 per cent to secondary school, while 27 per cent were illiterate. The low level of literacy was a hindrance to the adaptability of a technology as they are not accessed to media such as television, radio, newspapers and reading materials distributed by the developmental agencies in the form of leaflets, pamphlets, booklets etc. Much awareness is required among the rural women fish workers to cast away their traditional practices. They are able to learn advanced techniques when transmitted visually and when given the opportunity and support to adopt them.

CONCLUSION

Women fish workers play critical roles in a country like India, catering to the food security needs of a diverse range of consumers. Steps need to be taken in a holistic manner drawing on available policy and legislative frameworks, and on the steps already being taken by State and Central governments and their institutions, to support this important segment of the population. Existing gaps in policy and implementation must be systematically addressed.



Some of the aquaculture and fisheries sectors where women can be supported to earn a significant supplementary income and increase the family food security considerably are carp breeding and culture, carp fry production and nursery management, catfish breeding and culture, aquarium fabrication, ornamental fish breeding in backyard hatcheries and culture, integrated fish farming, net making and mending, fish feed preparation in small scale feed mills. Promotion of diversified value added fish products would also accelerate the earning and employment if government and non-governmental agencies organize self help groups and involve the rural women in the preparation of value added fish products. By linking the women fish workers with credit, technology, infrastructure, training and trade, such enterprises can become a powerful tool in improving the livelihoods and economic security of the rural poor.

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