Expanding the horizon of aquaculture through women's empowerment

Gora Shiva Prasad[1*], Sangram Keshari Rout[1], Rajesh Debnath[1], Suchismita Prusty[2], Sutanu Karmakar[2], Dharma Raj Patro[3], and P. Sruthi[3]

1. Faculty of Fishery Sciences, West Bengal University of Animal and Fishery Sciences, Kolkata-700094, India; 2. Central Institute of Fisheries Education, Mumbai; 3. College of Fishery Science, SVVU, Muthukur, Andhra Pradesh, India.
Email: ghorashivaprasad@gmail.com

Recently the fifth National Family and Health Survey (NFHS) carried out by the Government of India between 2019 to 2021 has found that India has 1,020 women for every 1,000 men. That means for the first time, India has more women than men and is no longer experiencing a population boom, indicating a significant societal shift in the country (NFHS-5, 2021). As the population of women has increased, their working areas have also been diversified. A World Bank report (1986) also states that, “Women are central to the success of poverty alleviation efforts in the short, medium and in the long run”. Women in the fisheries sector participate extensively and actively in all phases of work performed on fish farms. They are involved in small-scale production, post-harvest industrial and artisanal processing, value addition, marketing and sales. In aquaculture, women participate in construction of ponds, feeding, cleaning the pond environment, sorting of fingerlings and harvesting. Despite having other family chores, women in these groups together with male counterparts work for an average of 18 hours a week. However, such a contribution is not reflected in available documents as there are few sex-disaggregated statistics that track women in aquaculture that make women’s presence and interest visible.

The concept of “empowerment” was introduced at the International Women’s conference in 1985 at Nairobi, which defined empowerment as a “redistribution of social power and control of resources in favour of women”. In recent years the development of women has emphasised providing equal opportunities to women by removing gender bias, empowering women and creating self-reliance among them. Empowerment of women and gender equality is recognised globally as a key element to achieve progress in all areas. Globally, the role of women and the need to consider gender issues in aquaculture development was first recognised by the FAO-NORAD sponsored workshop on “Women in Aquaculture” in 1987 (Nash et al., 1987).

Training programme on culture of Indian major carp.

All aquaculture labour practices should embrace the targets of Sustainable Development Goals (SDG) no. 5 (gender equality and empowerment of all women and girls), and no. 8 (decent work and economic growth). To reach the SDG targets, all aquaculture participants have responsibilities. Hence, gender equality must be mainstreamed into aquaculture planning, development, monitoring and evaluation, requiring political action by sector leaders, advocates and gender champions, supported by new technical instruments for implementation.

Women in aquaculture

Over the last four decades more women have graduated in aquaculture from higher educational institutes than men. The national Government is promoting many campaigns on girl’s education, their changing perception about professional career prospects, accessing resources directly and indirectly related to aquaculture in order to achive gender equality in the aquaculture sector. However, in most societies educated girls rarely choose aquaculture as potential career option.

Sex-disagrregated figures are available in some institutes, such as the number of women in highly skilled employment e.g., research postions and lab technicians, in supporting services e.g., accounting. It is seen that education can give women access to a greater range aquaculture activities. However, women are hired and promoted in far lower numbers than advanced degree completion rates in fisheries

Packing of fingerlings.

Collection of marine fish at landing centre.

and aquaculture indicate. The participation of women in fisheries in aquaculture has been increasing but they are far from equal in pay, status and career progress.

Integration of women into conservation will better address the gender issues in fisheries which can provide improved ecological results. When the roles of women are understood then the effectiveness of the programmatic approach will improve. For example, implementation and enforcement of regulations in the coastal area especially nearshore ecosystems will improve by engaging women as stewards. Additionally, women in fish processing industries reduce product loss or by-product and also increase product value. Despite having a great chance of advancing gender equality, the sector still faces gender inequality challenges due to harmful social norms and structural inequality put women in a vulnerable situation and rise gender-based violence.

In this concept, several researchers have identified that there are various factors which are affecting women's empowerment. According to Johnson (2005), seven factors responsible for women empowerment are perceptions of power and competence are: Self-nurturance and resource access, interpersonal assertiveness, awareness of cultural discrimination, expression of anger and confrontation, autonomy, personal strength and social activism. Later Mahmud et al. (2012) gave some additional factors such as demographic status (age), social status (education), media exposure (TV and/or radio), economic status (household wealth) etc.

Nowadays, women are engaged in fisheries and aquaculture including fishing, gear making and so on and contribute an important part to the total revenue. Women who are engaged with fishing gear making or net making can reduce the cost of production in aquaculture. Women often participate in feeding in aquaculture and the processing of fish and shellfishes. But in technical and physical activities in fisheries and aquaculture such as fish feed preparation, pond maintenance, harvesting, etc., women tend to be less demanding human resources. Educationally, financially and mentally well-prepared women can manage all tasks in aquaculture including as record keeping and finance, decision making, social participation, laboratory work (water quality estimation, disease diagnosis, feed quality estimation, research etc.), preservation of the ecosystem, and policy making. So, there is a need to open opportunities in the aquaculture industry irrespective of gender that can improve the overall fisheries sector including enterprises and entrepreneurship.

At present, women of some states are facing different kinds of challenges to engage themselves in the aquaculture sector. To achieve the SDGs of poverty reduction and nutritional security, gender equity plays a key role in all sectors including fisheries and aquaculture. Gender equity may help to improve productivity and revenue generation as well as household income and nutritional outcomes. According to the State of Fisheries and Aquaculture published by FAO (2014), gender improvement has been noticed and more than 19% of women engaged directly in fisheries and aquaculture. In terms of numbers, women contribute 50% of the workforce when both primary and secondary fisheries sectors are combined (Jennifer, 2016).

Strategic interventions for addressing women in fisheries

Based on their interest, both men and women have an equal right to participate in the development process. Women's involvement in aquaculture greatly varies from place to place, religion, caste, family hierarchy. Several strategies can be implemented to promote women's empowerment in fisheries and address gender issues.

Combat gender blindness

The first step towards gender equality in aquaculture is overcoming gender blindness. This is everyone's responsibility, not the business of a few gender specialists. Women and men in farms, companies and institutions, regardless of their positions, have to be engaged on gender issues in a meaningful way throughout the spectrum of projects, research initiatives, education, government and donor and private interventions. To achieve this mindset change will need the work of gender champions, female and male role models and

Fisheries officer checking quality of fish.

Training programmes open new opportunities.

concrete suggestions showing how carefully targeted and sensitive actions at different levels can revolutionise women's engagement and enhance the contribution of both women and men in making the aquaculture sector more gender equal.

Supporting women's leadership and entrepreneurship

Due to the rapidly growing population in India, job opportunities have been decreasing. Entrepreneurship is the only possible way to feed ourselves besides creating ample job opportunities for livelihoods. Entrepreneurship is the propensity of the mind to take calculated risks with confidence to achieve a pre-determined business objective with correct decision-making. Women are seen to have a lower rate of entrepreneurship than men which indicates lower income returns of women from entrepreneurship. There is an abundant scope for women to improve their economic condition and contribute to the national income through entrepreneurship. Ornamental fish-based enterprise in India is generating high value and popularity in the present day. This is one of the simple and easiest ways of starting a business from backyard facilities available in the home with little investment. Here two modules are available – Firstly, aquarium construction, set up and marketing of ornamental fishes; and secondly, ornamental fish breeding and marketing. Ornamental fish breeding and culture is considered a profitable business and has high market demand.

There is some evidence found on women's leadership in aquaculture in Tamil Nadu. Renuka was the manager of a green crab or mud crab hatchery in Kancheepuram District. She had very strong leadership qualities and also expertise in induced maturation, larval rearing, post-larval rearing, live-feed culture, broodstock maintenance, and other related activities. Several other women of Tamil Nadu with good leadership and entrepreneurship quality in aquaculture include Mrs Annai, engaged in pond-based crab farming, Mrs Kayal, engaged in crab fattening in the cage, Mrs Akila (Nagapattinam District), engaged in shrimp farming, and Mrs Latha (Kancheepuram District, engaged in ornamental fish farming.

Strengthening women's voices

Women's organisations and NGOs have the potential to provide benefit to women in fisheries by supporting them in their work and to overcome the social and cultural barriers of the society by promoting education, finance, skills, resources, and technology. The organisations can raise their voices on behalf of the women's community with regard to gender biases and stereotypes and can help women to engage in sustainable fisheries production and management. These organisations can also support women's enterprise financially and psychologically.

Promoting the processing industry to add value to fisheries products

A group of professionally trained women can organise post-harvest processing technologies and add value to fisheries products and improve community health. The contribution of women workers in fish processing industries is very crucial. They are engaged with all kinds of activities such as sorting, weighing, peeling, washing, gutting, drying, processing, preserving, packaging, marketing, and so on. The contribution of females in the industrial sector is higher than that of male workers and the majority of the women may be from an economically weak background. Men are mainly involved in office work, supervision, as managers, and in some heavy manual work such as loading and unloading of containers.

Improving marketing and sales skills

The livelihoods of women can be improved by better marketing and trading of fisheries products. In different states of India, the role of women in marketing is also different. In

Selling dried fish.

Selling marine fish.

Gujarat, women are usually engaged in unloading the fish catch, sorting of fish species wise, and their auctioning. The boat owner used to give a monthly salary. Some women workers also borrow some amount of money in advance in the off-season for their livelihood and later the boat owner deducted the money from their salary in the fishing season. The main problem related to the hiring of women workers is that they get lower wages compared to men but the effort that they give is the same.

The market channel involves women at various levels of marketing activities such as wholesaling, retailing, collaboration with other companies (in case of fish feed), distribution, and advertising. The local fish markets of some coastal states of India such as Gujarat is completely dominated by women and the majority of them are used to engaging in wholesaling and retailing activities. To convert the fish into money, fishermen depend on women.

Gear manufacturing

Fishing gear industries are a vital components of fisheries on which the catch or the quantity of fish harvest is dependent. Net making, repairing and rope making are profitable enterprises that can be a source of employment skilful women. ICAR-CIFT and CIFNET are key institutes developing technologies for this industry and also provide training to willing people. The activities are mainly carried out in off-season which provides a supplementary income. These activities can be done in the home and by everyone irrespective of gender.

Status of women's empowerment in India and the world

Women in emerging regions have integrated into this liberalised labour market. Typically, industrial growth in the global economy is centred in special economic zones. In most cases, enterprises in these zones hire young unmarried women, and women's labour is frequently undervalued, insecure, overworked, and paid at lower rates. Large boats that fish offshore and deepsea in most locations have male crews. Women control smaller boats and canoes in coastal or inland waters - harvesting bivalves, molluscs and pearls, collecting seaweed, and setting nets or traps. Women contribute equally to that of men in nations such as South America, Sri Lanka, and West Africa. In the fishing industry, men and women work in complimentary roles. In Japan, female employees make up 13% of those engaged in fishing activities, 38.4% of land-based workers, and 64% of those working in the marine products-processing sectors. The census mentions that small-scale fishing is done primarily by men in Central America (92.5 per cent of regional activity) and the contribution of women is just 7.5 per cent.

Cambodian women have limited education and lack basic skills. They receive minimal assistance in terms of training and extension services compared to their contribution to the country's overall fish production, processing and marketing potential. Moreover, it is a well-recognised fact that information on women in fisheries in the country is limited and unreliable. In Malaysia and Indonesia, gender equality is protected by the state. In these two countries, women participate actively in many aspects of fisheries activities, especially in post-harvest and trading activities.

In India, approximately 25% of women workers are active in preharvest operations, 60% in export marketing, and 40% in internal marketing. Out of a total workforce of 1.6 million, approximately 0.5 million women work in pre and post-harvest operations in the marine fishing sector. However, their scale of operation is limited by their low investment and risk-bearing abilities because of the lack of access to resources such as institutional credit, and technological innovations like ice boxes and proper storage mechanisms. In Kerala, a high percentage of illiteracy among fish vendors and retailers indicated that being traditional fisher folk, they had limited opportunities in terms of money, facilities and family to support education. They were forced into this profession at a younger age group and continued their career even in their late sixties.

In Tamil Nadu District of Ramanathapuram, It was observed that over 5,000 women relied on the seaweed businesses for a living and that if the available resources were gathered to their full potential, it might employ another 20,000 coastal fisherfolk in the harvesting sector and an equivalent number in post-harvest activities. Fisherwomen are involved in the gathering and post-harvesting of seaweeds.

Fisherwomen on the Maharashtra coast are generally engaged in fishing, working as crew on the boats with males, and in post-harvest duties. Sorting, washing, and drying fish should be improved to reduce the amount of energy required by women to do these tasks.

Fresh fish trading and traditional fish processing are among the most chosen activities of fisherwomen in the southern maritime states of Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu for their livelihoods. Furthermore, fisherwomen are involved in fishery-related activities such as clam collection and processing in Kerala, fish processing and aquaculture in Kerala, prawn seed collection, fish and shrimp farms and hatcheries, salt loading in Andhra Pradesh, and working at landing centres, byproduct units, and surimi plants in Karnataka.

Several steps have been taken by the both governmental and nongovernmental agencies are trying to reduce poverty among coastal villages by improving livelihood activities in women's groups. This has included providing opportunities for

further adult education and access to ICTs through the ICT Livelihood Project being implemented in Kenya and India, which seeks to alleviate poverty in coastal villages through an integrated approach. In Tuticorin District of the Gulf of Mannar in Southeastern India, the local fisherwomen SHGs in five coastal villages were being trained through the provision of ICTs, adult education, environmental education and alternative livelihood schemes to enhance literacy. The goal was to improve their socio-economic status, aiming to reduce pressure on marine resources and the economic vulnerability of coastal communities.

Conclusion

Fisheries play a major role in livelihoods and in the eradication of poverty and malnutrition.Women are involved in aquaculture since time immemorial. However, their contributions were not recorded. Women have the potential to engage in aquaculture enterprises such as fish hatchery and rearing, grow out culture, integrated aquaculture, sampling, record-keeping and feed making. Government should encourage women to participate in aquaculture by providing financial support to the rural population. Extension workers should demonstrate technical skills to overcome the problems faced in aquaculture. Seaweeds are upcoming high demand commodity for pharmaceuticals and food. Training in modern seaweed cultivation, transplantation, breeding and harvesting methods can improve living standards. In these aspects aquaculture will play an evolutionary role by showing promise for improving nutrition, raising household incomes and empowering women. Nutrition options include growing small nutrient rich species, growing species for home use along with other species destined for market sale, and providing nutrition information and extension on eating behavior and patterns.

Packing of fish seed with guidance from fisheries officer.

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Fertilisation of aquaculture pond.