

Women's Participation in Aquaculture in Southwest Bangladesh

AYESHA SIDDIQA^{1*}, SHAHROZ MAHEAN HAQUE² and BENOY KUMAR BARMAN³

¹Department of Fisheries, Bangladesh.

²Bangladesh Agricultural University, Mymensingh, Bangladesh

³WorldFish, Bangladesh and South Asia, Dhaka, Bangladesh.

Abstract

Aquaculture plays an important role in income generation, poverty alleviation and household nutrition in Bangladesh. In aquaculture, women in rural households have important roles that are often ignored. The current study, carried out in the districts of Khulna, Sathkhira and Bagerhat under a USAID supported AIN (Aquaculture for Income and Nutrition) Project of WorldFish, assessed women's participation in different aquaculture systems. A total of 450 households, 50 % of which were assisted under the project, were selected. Women in 74 % of the households participated in aquaculture. In homestead-based aquaculture women's participation was higher (89 %) than the corresponding rates for commercial fish culture (69 %) and commercial shrimp culture (36 %). Increased awareness and better capacity building initiatives have played a part in increasing women's participation in aquaculture activities.

Introduction

In Bangladesh aquaculture has grown rapidly due to recent technological advancements in production of fish seed, feed and improved knowledge about the technologies, resulting in higher levels of income, household nutrition and employment. Like other agricultural activities, women are involved in aquaculture activities (Samina et al. 2010) although lack of education, engagement in domestic tasks and household care, restricted mobility and socio-cultural barriers have hampered their active participation (FAO 2013; De and Pandey 2014). The present study attempted to understand women's

* Corresponding author. Email address: asiddiq16@yahoo.com

contributions in aquaculture activities promoted under the AIN (Aquaculture for Income and Nutrition) project in three districts Khulna, Bagerhat and Satkhira in southern Bangladesh.

Materials and Methods

The AIN project was implemented from 2010 to 2015 in three districts, Khulna, Bagerhat and Satkhira, in southern Bangladesh. It aimed at promoting homestead aquaculture which included: polyculture of carps and ‘mola’ (*Amblypharyngodon mola* (Hamilton 1822)) with dike crops; commercial fish culture; and shrimp culture. Polyculture of carps and “golda” (*Macrobrachium rosenbergii* (de Man 1879)) in freshwater ponds; and monoculture and polyculture of “bagda” (*Penaeus monodon* (Fabricius 1798)) with some brackishwater species of fish in ‘gher’ in rice fields were already practiced in this region. Under the project, a total of 64,638 households were trained in homestead-based fish culture, 50,510 in commercial shrimp farming and 14,531 in commercial fish culture (USAID-AIN 2014). The training was held at the community level targeting households in which both men and women members of the households participated.

For the present study a total of 450 randomly selected households involved in aquaculture production were selected, of which 225 households were covered under the project. As a comparison, 225 households were selected as controls. The controls were engaged in homestead-based fish culture, commercial fish culture and commercial shrimp culture. A combination of participatory, qualitative and quantitative methods was used for collection of data (Williams 2007).

Results

The level of women’s participation in aquaculture activities was defined under three categories: ‘active participation’ (four or more of the 8 major tasks); ‘less active participation’ (3 or fewer tasks); and ‘no participation’.

Table 1. Number of women who participated in different types of aquaculture (the figures in the parenthesis are percentages)

Types of aquaculture	Number of household	Active participation	Less active participation	No participation
1. Commercial fish culture	150	75 (50)	28 (19)	47 (31)
Project-intervention	75	46 (61)	14 (19)	15(20)
Non-intervention	75	29 (39)	14 (19)	32 (43)
2. Commercial shrimp culture	150	48 (32)	6 (4)	96 (64)
Project-intervention	75	34 (45)	6 (8)	35 (47)
Non-intervention	75	14 (19)	-	61 (81)
3. Homestead aquaculture	150	93 (62)	41 (27)	16 (11)
Project-intervention	75	68 (90)	7 (10)	-
Non-intervention	75	25 (33)	34 (45)	16 (21)
Total	450	256 (57)	76 (17)	159 (36)
Project Intervention	225	148 (66)	27 (12)	50 (22)
Non-Intervention	225	68 (30)	48 (21)	109 (48)

It was observed that in households where there was project intervention, the participation of women in aquaculture activities was higher, with women in 78 % of the households participating. The percentage of participation in households without intervention was 51 %. Participation was highest for homestead-based aquaculture with 89 % (100 % in project intervention households and 78 % in the control group). For commercial fish culture, in 69 % of households women participated; the participation for commercial shrimp culture 36 % (Table 1). Where women were actively involved in stocking and post-stocking management, they undertook the activities along with the male family members (Table 2).

Time spent for aquaculture activities varied from 1-3.5 h woman⁻¹day⁻¹. For 83 % of women, the range was 1-3 h day⁻¹, for 8 % of women the time spent was shorter than 1 h day⁻¹ but for 10 % of women the time spent was more than 3 h day⁻¹.

Table 2. Participation of women in aquaculture activities (n=216)

Name of activity	Percentage participation of women and men in aquaculture activities		
	Men and Women	Only women	Men only
1. Drying of pond	19	3	78
2. Removal of mud	27	2	70
3. Poisoning	12	7	81
4. Liming	25	3	72
5. Fertilization	25	4	71
6. Fish species selection	60	5	35
7. Fingerling stocking	73	8	19
8. Application of feed	78	21	1
9. Pond monitoring	82	11	7
10. Partial harvesting	67	15	18
11. Final harvesting	57	-	43

The women who actively participated were 20-50 years old, with a family size of 4-5 members. For the majority of the households, women practiced aquaculture in ponds (58 %) that had a pond area of 0.1-0.5 ha. Of women actively engaged in aquaculture, 64 % had ponds located within the proximity of the homestead (<0.25 km). About 37 %, 27 % and 12 % of women, respectively, had primary, secondary and higher secondary level education. About 49 % of the women felt that their domestic household tasks were their primary occupations.

Discussion and Conclusions

Commercial shrimp and fish culture and homestead aquaculture were the major activities practiced by farmers in the southern region of Bangladesh. Ponds in homestead areas were important resources for fish culture both in freshwater and coastal areas in the southern region of Bangladesh and had a high potential for successful participation by women (Kabir et al. 2015).

More households are involved in homestead aquaculture than commercial shrimp or fish culture. Comparatively easier technologies, low levels of investment, the location of the ponds close to homesteads and lower

levels of production risk were factors in favour of women adopting homestead aquaculture. Small-scale aquaculture in the homestead areas integrated well with prevailing cultural norms for women and therefore achieved higher levels of participation (Jahan et al. 2010; Apu 2014). Although lowest in proportion, in one-third of the households doing commercial shrimp culture, women participated and in commercial fish culture, in two-third of the households, largely with their male household members and, in a few cases, alone. Increased participation of women in recent years in aquaculture related activities may be because of the support provided by projects and programs, capacity building initiatives, and access to extension services. (Ahmed et al. 2012).

In many households women were involved in selection of fish species, stocking and harvesting of fish along with men, though earlier studies observed limited participation (Samina et al. 2010; Barman 2001 and Asian Development Bank 2004). Women are also more aware than men of the benefits of regular harvest of small fish from homestead ponds for household consumption.

Women can be burdened with additional work from being involved in aquaculture (Samina et al. 2010). It is important to look at how such use of time burdens them or undermines their other household activities, while developing strategies for greater inclusion in income generation.

Aquaculture is considered as an important income generating activity for rural people in Bangladesh and therefore, an important option for women to participate with men or alone. As demonstrated in the project, projects supporting women influence the uptake, but research also needs to focus on how aquaculture benefits them and what type of aquaculture is appropriate from the point of view of income, nutrition, social and gender relations.

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References

- Ahmed, M.K., S. Halim and S. Sultana. 2012. Participation of women in aquaculture in three coastal Districts of Bangladesh: Approaches toward sustainable livelihood. *World Journal of Agricultural Sciences* 8: 253-268.
- Apu, A.N. 2014. Bangladesh small and medium-scale aquaculture value chain development: Past trends, current status and likely future directions. International Livestock Research Institute, Nairobi, Kenya. 117 pp.
- Asian Development Bank. 2004. An evaluation of small-scale freshwater rural aquaculture development for poverty reduction. ADB, Manila. 163 pp.
- Barman, B.K. 2001. Women in small-scale aquaculture in North-West Bangladesh. *Gender, technology and development* 5: 267-287.
- De, H.K. and D.K. Pandey. 2014. Constraints to women's involvement in small scale aquaculture: An exploratory study. *International Journal of Agricultural Extension* 02: 81-88.
- FAO. 2013. Mainstreaming gender in fisheries and aquaculture: A stock taking and planning exercise. Final report. Rome. 55 pp.
- Jahan, K.M., M. Ahmed and B. Belton. 2010. The impacts of aquaculture development on food security: Lessons from Bangladesh. *Aquaculture Research* 41:481-495.
- Kabir, K. A., G. Faruque, R. Sarwar, B. Barman, A. Choudhury, M. Hossain, E. Hossain, N. A. Aleem, M. Karim, K. Kamp and M. Philips. 2015. Producing fish in small shaded homestead ponds: Finding solutions with rural women. In *Conference on Revitalizing the Ganges Coastal Zone: Turning Science into Policy and Practices*. (eds. Humphreys, E, T.P. Toung, M. C. Buisson, I. Pukinskis and M. Phillips), pp. 265-277. CGIAR Challenge Program on Water and Food (CPWF), Colombo, Sri Lanka.
- Samina Shirajee, S., M.M. Salehin and N. Ahmed. 2010. The changing face of women for small-scale aquaculture development in rural Bangladesh. *Aquaculture Asia Magazine* 15: 9-16.

USAID-AIN. 2014. Annual report of Aquaculture for Income and Nutrition (AIN) and Cereal Systems Initiative for South Asia in Bangladesh (CSISA-BD) Project. http://pubs.iclarm.net/resource_centre/WF-2015-Annual-Report.pdf. Accessed 18 April 2016.

Williams, C. 2007. Research methods. *Journal of Business and Economic Research* 5: 65-72.