

Enhancing the gender-equitable potential of aquaculture technologies



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



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ENHANCING THE GENDER-EQUITABLE POTENTIAL OF AQUACULTURE TECHNOLOGIES

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Citation

This publication should be cited as: Morgan M, Choudhury A, Braun M, Beare D, Benedict J and Kantor P. 2015. Enhancing the gender-equitable potential of aquaculture technologies. Penang, Malaysia: CGIAR Research Program on Aquatic Agricultural Systems. Program Brief: AAS-2015-07.

Acknowledgement

In May 2015, Dr. Paula Kantor was killed in a tragic terrorist attack in Afghanistan. Her death has left a painful void for those of us who mourn her loss as a mentor, a friend, a teacher, and an ardent supporter of gender equality. This paper is one of her final works. We co-authors would like to dedicate this piece in loving memory and honor of Paula whose selfless dedication will continue to exist through all the lives she touched with her warmth and passion. We hope to keep her memory alive by striving to achieve what she believed in.

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INTRODUCTION

Gender inequality constrains the real and potential capacity of women farmers to successfully adapt their farming practices in the face of climate risks or to develop stronger, more diversified livelihood portfolios that would enhance their and their families' future resilience to social or environmental shocks. Recognizing these challenges to women farmers in particular, WorldFish has been testing and disseminating two "climate-smart aquaculture" innovations in southwest Bangladesh, specifically targeting women to receive training and/or assets to facilitate their participation in aquaculture.

It was unclear, however, whether these targeting efforts actually enable women to use or benefit from aquaculture innovations and how these efforts contribute to gender equality or other development outcomes. A research study was therefore conducted in 2013 to investigate how gender relations shape whether and how women and men adopt and use these innovations. The study considered the implications of these findings for who benefits from these innovations, their future use and how to scale out the innovations to achieve the desired large-scale and sustained development outcomes.

What is "climate-smart aquaculture"?

Climate-smart aquaculture practices and systems sustainably increase productivity and resilience (adaptation); reduce or remove greenhouse gases (mitigation); and enhance achievement of national food security and development goals.

APPROACH

Qualitative fieldwork was conducted in four villages in southwest Bangladesh, of which three had received inputs for cage aquaculture and two for pond polyculture. In-depth interviews were conducted with individual women and men in households that had received inputs (“innovation adopters”), as well as with other key informants. Focus group discussions were used at village level to obtain an understanding of local livelihoods and environmental change processes. The results presented focus primarily on analysis of a sample of interview transcripts with innovation adopters (n=67; 42 women and 25 men).

In what way were the innovations climate smart?

- Cages float in line with changing water availability
- Small cages can be moved during severe weather events
- Potential method for introducing saline-tolerant species
- Enhances livelihood diversity



Example 1. Cage aquaculture.

- Fast-growing small fish species enables multiple harvesting, so there is less risk during severe weather events
- Can raise cages or net dikes to avoid stock escape during flooding
- Potential method for introducing saline-tolerant species
- Enhances livelihood diversity
- Small fish are shared more easily, encouraging social support



Example 2. Pond polyculture, including small, nutritious fish.

Factors affecting innovation dissemination and uptake

A combination of physical (e.g. secure canal access or investment for inputs), natural, human (e.g. previous knowledge or experience with aquaculture) and/or social capital is required for initial uptake and helps to improve the likelihood of success. Resource-poor households were less likely to have sufficient capital; and for the households who did have capital, women were less likely to have sufficient control of the capital. This makes it challenging for the target group of resource-poor women to take up and sustain the use of new aquaculture innovations.

How inputs are disseminated (via training and/or assets) and to whom has implications for uptake and use:

- In one village, men and women within households were trained in separate tasks required for cage culture (men in marketing and women in feeding and cleaning), which led to or reinforced gender-differentiated roles affecting workload and the distribution of benefits.
- Women who attended training on pond polyculture innovation indicated that their workload had increased since the training, in part because their husbands were not included in the training.
- In another village, the demonstration model for dissemination (where a demonstration farmer receives assets to model the innovation to a larger group who receive training but not assets) did not work; it created confusion, jealousy and tension and affected the potential for intra-community or intra-group knowledge-sharing.

Factors affecting current and future innovation use

The aquaculture innovations were targeted at women, but women adopters rarely reported that they felt capable of independently doing the work required or making decisions (financial and/or technical) related to the innovation.

According to many of the women adopters interviewed, the men in their household (or groups of men) made the key decisions and did most of the work, while the women gave them support. Despite efforts to transfer innovations to women and even set up bank accounts in their name, women's link to the innovations was often only on paper. This was particularly true for cage aquaculture. The type of innovation, combined with context-specific extra-village, inter-household and intra-household relations, shaped the levels of self-efficacy that women had with regard to the innovation.

Extra-village relations (relations between women adopters and external support; e.g. project officers):

- As the cage assets were disseminated as part of an adaptive research trial, the project officers played strong roles in technical support and financial decision-making, with the intention of giving full control to adopters after 4 years. There was a risk that the level of support and involvement of the project officers would lead to extra-village dependency, with implications for perceived ownership and sustained independent use.
- Pond polyculture adopters, meanwhile, reported that they were encouraged to be self-sufficient.

Inter-household relations (relations between women adopters and group of adopters):

- In all cage-adopting sites, the innovations were used collaboratively to some extent. Pooling labor, knowledge, skills and financial resources as a group enables adopters who cannot manage to provide any of these sufficiently on their own. As input costs are high and the cages are physically large and difficult to move, a group mechanism helped to facilitate the uptake and use of the innovation, especially for women.
- Unequal power relations within the group affected the ability of individual adopters to make decisions that suited their preferences (e.g. around investments) or allowed them to reap benefits in line with their labor contributions. This was particularly

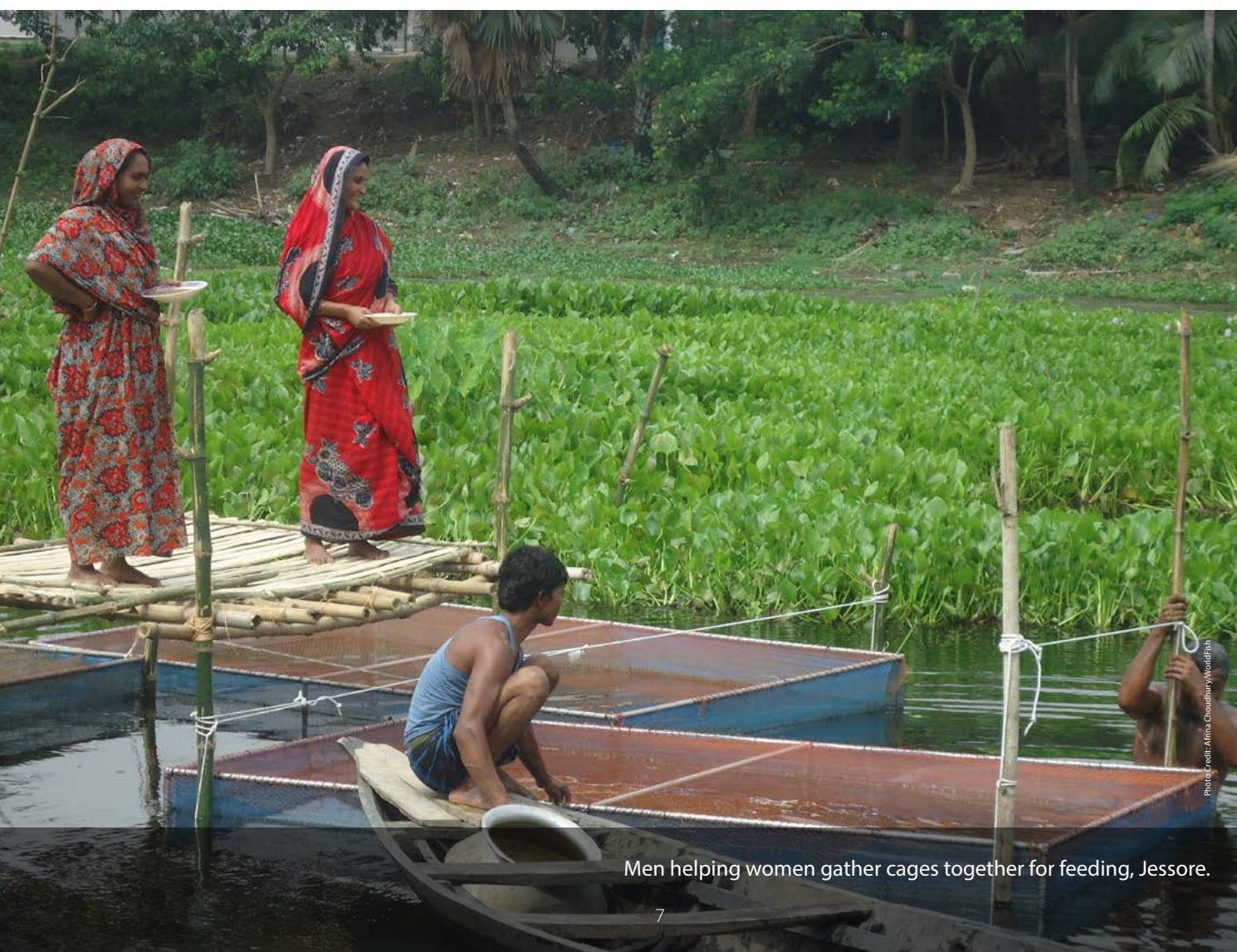
difficult for individual women, as the group level can provide an extra layer of power relations that reinforce inequitable gender roles. For example, in one village the group of adopters controlling the innovation consisted of five male members of a family, rather than the women that the innovation was meant to be targeting.

Intra-household relations (relations between and among women adopters and others in their household):

- In some cage-adopting households, the men were primarily responsible for using the fish cages while women supported them; women held the title to the innovation in little more than their name. In other households, women did the majority of the work and made key technical and financial decisions, with the support of their husbands. In other households, couples reported making decisions jointly and

sharing the labor and responsibility in a complementary way.

- Of the cage-adopting sites, the village of Hatalbunia stands out as the exception, with the most individuals saying they either jointly shared responsibility for the innovation or that women made more of the key decisions. Hatalbunia differs from the other villages in a number of ways: it is classified as “other urban” (the others are rural), it has a majority Hindu population and it has the highest literacy rates.
- Gender-specific expectations and roles condition what men and women are perceived to be able to do—and thus do or do not do—with regard to cage aquaculture. In general, women may spend some or even more of their time taking care of the cage than men, but men are considered indispensable in completing the work required. In contrast, there was a perception that women could not do many of the tasks that men were typically responsible for



Men helping women gather cages together for feeding, Jessore.

due to limitations in knowledge or physical strength (for lifting the cage) and because of social norms limiting entry into the water (to care for the cage) and women's mobility (limiting them from any tasks outside the home, especially the market). In this way, cage aquaculture highlights or serves to reinforce existing gender roles and norms.

- In contrast, in pond-adopting households, men and women were more likely to report that women were primarily responsible for adopting and using the innovation, with men playing supporting roles when they were available. Pond adopters mentioned fewer constraints to women's labor activities, and women were perceived to be able to use and benefit from the innovation largely independently. Even in the face of more entrenched constraints (such as gender norms on mobility), both men and women identified ways that women could subvert the constraints, such as hiring day labor

or using a middleman to access markets. Targeting women as recipients of pond polyculture innovation may be seen to provide spaces for bending or negotiating with dominant gender norms and roles.

Women's new capacities, realized by themselves and recognized by others, open up new livelihood options for them and may free up time for others in the household to pursue other work.

- When women are seen to be capable of doing more, they end up doing so much more. Some find this additional work troublesome, especially if their husbands leave all of the work to them, while others feel it's worth sacrificing their leisure time for a new livelihood opportunity. Therefore, positive changes instigated by innovations in the type of work that men and women actually do, and are perceived to be capable of doing, must be balanced against the additional workload required.



Woman cage farmer feeding monosex tilapia in her cage in Khulna.

CONCLUSIONS AND WAYS FORWARD

Even when climate-smart aquaculture innovations are targeted at women, power relations—and specifically gender power relations—at every level affect the extent to which women can actually use and benefit from these innovations. This has implications for whether and how these innovations will continue to be used in the future, among the target group and beyond, and thus their capacity to deliver more equitable and resilient livelihood options at scale.

This study raises key issues that can improve existing and future interventions:

- In an adaptive research trial, it would be beneficial to purposefully diversify trial adopters and trace the development outcomes of different socioeconomic groups to understand the capacities, limitations and preferences of different user groups when they adopt and use innovations.
- Testing how technical solutions merge with social realities would generate important insights for utility and adoption, and help inform scaling strategies. Bringing together a multidisciplinary team from the start to design and monitor such interventions is recommended to achieve this.
- As the control and decision-making over aquaculture innovations transfer more to adopters over a project timeline, it would be useful to capture and learn from how different user groups adapt these innovations to their own contexts (environmental and social).
- In order to benefit resource-poor women, additional support is required to shore up gender-specific limitations in capacity. This may include external financial support or negotiation skills training, among other things.



Cage culture, Bangladesh.

- Targeting women in households requires more engagement with men in those households in order to achieve more sustained outcomes. This may mean including men in training and/or working with men and women together (a “household approach”) when disseminating innovations to encourage men’s support for uptake and to improve opportunities for intra-household sharing and communication. Care needs to be taken to understand how to do this in ways that are win-win (for women, men and households).
 - a. It would be useful to revisit the mechanisms used to disseminate innovations to ensure they foster the intra-community learning and sharing required to scale out horizontally.
 - b. Incorporating changes in labor patterns and time to monitoring systems would add value to learning about overall impacts.
 - c. The study highlighted how the size and materials of the cages may present a particular challenge for women to take up and use. Investigating how to change cages to become more affordable and lighter may change uptake, sustained use and gender power relations.

These and other key issues and recommendations raised by the study are presented in Figure 1.



Homestead-based woman farmer observes her fish production with her husband and sons, Jessore.

TECHNOLOGY ADOPTION BY WOMEN: THE BIG PICTURE

Issues and recommendations for more sustained and equitable use of aquaculture technologies

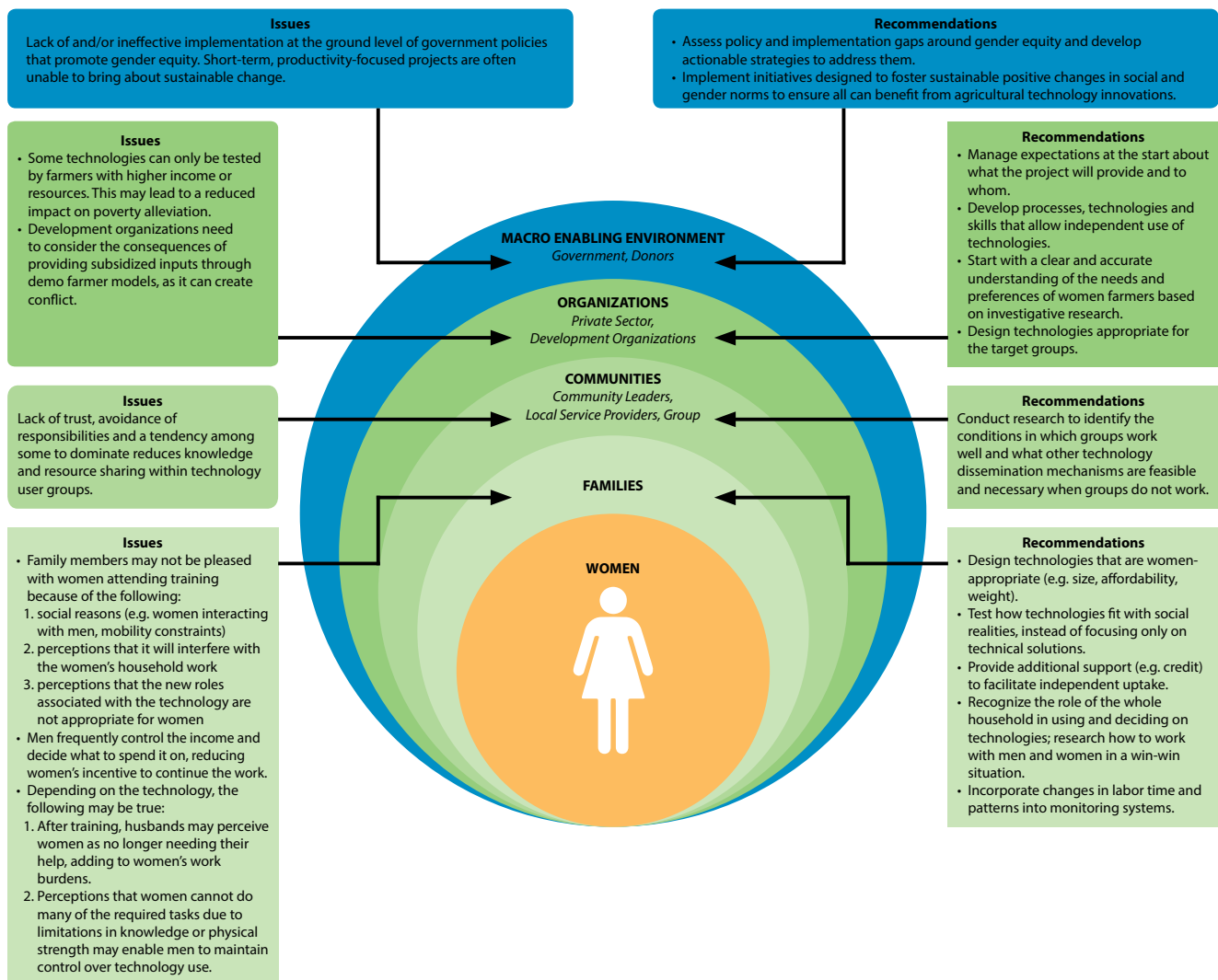


Figure 1. Key issues and recommendations.



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About the CGIAR Research Program on Aquatic Agricultural Systems

Approximately 500 million people in Africa, Asia and the Pacific depend on aquatic agricultural systems for their livelihoods; 138 million of these people live in poverty. Occurring along the world's floodplains, deltas and coasts, these systems provide multiple opportunities for growing food and generating income. However, factors like population growth, environmental degradation and climate change are affecting these systems, threatening the livelihoods and well-being of millions of people.

The CGIAR Research Program on Aquatic Agricultural Systems (AAS) seeks to reduce poverty and improve food security for many small-scale fishers and farmers depending on aquatic agricultural systems by partnering with local, national and international partners to achieve large-scale development impact.

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