

Technical Paper

Gender Relations and Improved Technologies in Small Household Ponds in Bangladesh: Rolling out Novel Learning Approaches

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Abstract

Gender-transformative engagement in the management of household ponds in Bangladesh for improved fish production relies on working with the complexities of gender relations in combination with a readiness by formally-trained scientists to allow women and men farmers to “follow the technology”. Innovative methodologies for technology development and dissemination need to focus on promoting farmer adaptive capacity and enabling farmers to take charge of their own learning. This is not a gender-neutral process. Working with development partners, value chain actors, communities, families and individuals to remove gender-based constraints to women's full participation in managing household ponds is essential. So too is continually demonstrating the benefits of more equitable gender relations in terms of improved production and productivity, better intra-household food and income security and stronger, more flexible livelihood planning. The present study examines two projects drawn from the work of WorldFish and its partners in Khulna Division, South West Bangladesh that are compared and discussed. The cases used an analytical framework based on different gender and learning approaches to compare the outcome of the two field projects, each located in different quadrants of the framework. It found that effective gender-transformative engagement in the aquaculture sector is predicated on more complex understandings of gender in combination with a readiness by formally trained scientists to allow women and men farmers to “follow the technology”. Innovative methodologies for technology development and

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dissemination should focus on promoting farmer adaptive capacity and enabling them to take charge of their own learning. For further work rigorous research designs are required for better understanding of what works in applying gender transformational approaches. Women are, however, empowered even without “transformational” training on gender when access to knowledge and resources is possible along with purposive targeting.

Introduction

Cornwall et al. (2004) remark that “Gender” is now well established in development discourse, but the extent of change in women's lives does not match this discursive landslide. Diluted, denatured, de-politicised, included everywhere as an afterthought, “gender” has become something everyone knows that they are supposed to do something about.” WorldFish, a member of the Consultative Group on International Agriculture Research (CGIAR), is tackling this issue by experimenting with “gender-transformative” methodological interventions in the aquaculture sector (Farnworth et al. 2015; CGIAR 2012). Such methodologies put the political back into gender. They involve working with target communities to reflect on and challenge existing gender relations and develop new behavioural models.

This paper discusses emerging findings from the application of gender-transformative methodologies in work in progress in household pond systems in Bangladesh. WorldFish technology interventions in the country are disseminated in association with National Agricultural Research System partners (NARS), and others. They focus on improving the production and productivity of the target agricultural system. The purpose is to strengthen household food and nutrition security as well as increase incomes. At the same time, WorldFish is experimenting with different methodologies to address gender. These methodologies can be broadly divided into two families. One involves “social learning” and is implemented in the “Shaded Ponds” project discussed in this paper. The second inserts “transformative” learning on gender norms and relations within an otherwise formal technology transfer dissemination model. This paper also discusses the “Gender-Transformative Approaches in Conventional Training” (GTA-CT) project. Both projects are relatively new, with implementation commencing in 2013. A comparative study is helpful, even at this early stage, because empirical information on the value of an explicit gender transformative approach in development implementation is limited. It is important to start incorporating learning into on-going and planned

work about what works, where, how and why. The empirical data in this study were obtained during a rapid assessment conducted by WorldFish staff and external consultants in 2014 in two research sites in South West Bangladesh.

The aquaculture sector in Bangladesh is widely considered a male occupation and business. Indeed, men tend to manage commercial ponds away from the homestead, but in some rural contexts women provide labour, family or hired, to commercial aquaculture, with the extent of their presence influenced by a combination of religious/cultural norms and asset poverty (Belton et al. 2014). However, household ponds, operated by approximately 20 per cent (4.27 million households) of the rural population (Belton et al. 2011) often belong to the whole family, and in some cases several related, or extended, families. Such ponds are typically very small in size (2,023-6,070 m²) and are used for many purposes including washing clothes and utensils, watering animals, and bathing. Fish are harvested from most household ponds and contribute importantly to household food security and nutrition, with people in rural areas mostly consuming carp of various types, and small indigenous fish such as *Amblypharyngodon mola* (Belton et al. 2011).

Several studies show that when families invest in managing household ponds, women conduct a significant percentage of the management tasks. These include feeding and fertilising, limited harvesting using push nets and hooks, and fish sorting, processing and drying (Shirajee et al. 2010). Women sometimes conduct farm gate sales. Other studies indicate lesser participation with women only feeding fish and fertilising ponds (Danida, 2008). Men are typically involved in stocking, harvesting using cast nets and marketing fish in formal markets (Rahman et al. 2011; Shirajee et al. 2010). However, there are also many household ponds where very few management tasks are regularly performed, either by women or men, apart from basic stocking and occasional feeding with food left-overs (USAID-AIN, 2014). Yields are generally low due to ineffective management, largely as a consequence of a lack of technical know-how on how to increase productive capacity. The household pond is often under-utilised in the assumption that investments will not yield benefits sufficient to justify the time and money involved.

Materials and Methods

First, we present the analytical framework of the study, briefly describe the two projects in relation to the framework, and the research questions and project evaluation approaches. Then, we describe the methodologies for each of the two projects.

Analytical framework of study and overviews of component projects

We set out the dimensions characterising the gender and learning approaches informing the two technology dissemination models developed by WorldFish, Bangladesh in relation to their work on household ponds in Figure 1.

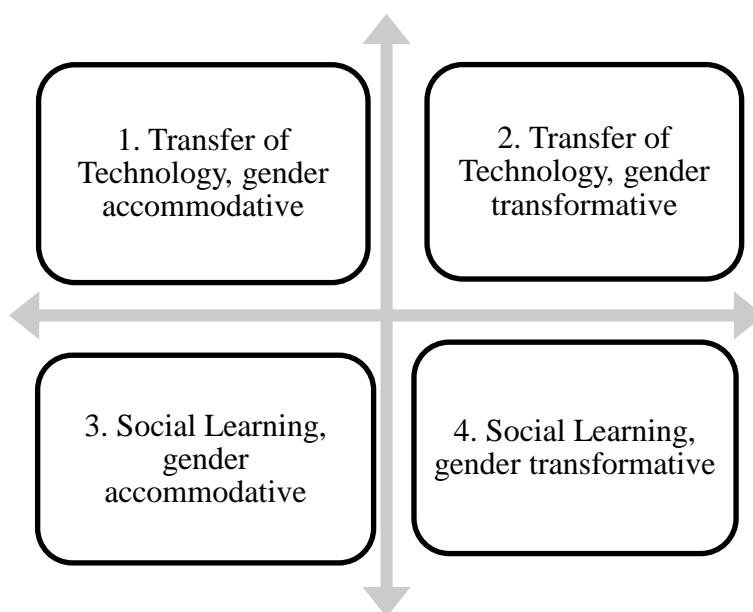


Fig. 1: Analytical framework for gender and learning dimensions of technology dissemination methodologies. The four quadrant framework is based on two alternative learning approaches, namely transfer of technology and social learning, and two alternative gender approaches, namely gender accommodative and gender transformative.

The WorldFish Gender-Transformative Approach in Conventional Training (GTA-CT) pilot (within the Cereal Systems Initiative for South Asia in Bangladesh, CSISA-BD) falls in Quadrant 2. It focuses on raising awareness of, and stimulating reflection on, gender relations in association with a “conventional” i.e. transfer of technology approach to delivery of technical

knowledge on household pond aquaculture. Conventional training in the CSISA-BD project comprises eight training sessions providing technical know-how on fish and associated vegetable production using intensified methods. The training sessions are followed by coaching and demonstrations, for instance in a demonstration pond. The innovation has been to add modules to every session on gender. These aim to be gender-transformative because they encourage deep reflection on gender and social norms, and encourage the rehearsing of new behaviours. Each farmer group consists of approximately 25 members.

The GTA-CT approach is a pilot within the CSISA-BD project. This is a five year USAID funded project working through a partnership between three CGIAR centres: International Rice Research Institute (IRRI), WorldFish and International Maize and Wheat Improvement Center) CIMMYT. It aims to test and disseminate new cereal system-based technologies in six hubs that are expected to increase family income by at least USD 350 per annum for 60,000 farming families. The project works with value chain actors to improve access to information on where to source quality inputs and strengthen market linkages. Training sessions, demonstrations and linkage events, for instance, bringing beneficiaries into contact with value-chain actors are the principal means by which aquaculture technologies are promoted.

The impulse for integrating gender transformative approaches into the conventional training offered in this project arose from a study conducted in 2013 (Morgan et al. 2015) which showed that even when women are targeted directly for technology dissemination, take up is constrained due to the complex set of gender relations within which technology adoption decisions are made. The study also found that the demonstration farmer model hampers women's active participation, as the additional inputs these lead farmers receive as an incentive for demonstrating learning to others led to conflicts within the family of those women not receiving them (Morgan et al. 2015). The GTA-CT pilot is summarised in Table 1.

The “Women-Led Participatory Action Research on Homestead Shaded Pond Aquaculture” (Shaded Ponds) project falls in Quadrant 3. It embraces an accommodative approach to gender integration within a social learning model. Its purpose is to strengthen the research and analytical capacity of women household pond managers. Its approach is broadly aligned with social learning

methodologies. Specific attention is paid to fostering the women's abilities to devise their own research agendas, set research parameters, and share and evaluate findings with other women participants in a rolling process. Analyses are fed into the following season's research. Women are target beneficiaries but there is no specific effort to engage with the underlying causes of gender inequality. Each farmer group consists of approximately 12 members.

Table 1. Summary of the GTA-CT Pilot

Project	Partners	Target Group	Technology x Methodology Combination	Material Support
Gender Transformative Approach in Conventional Training (2014 pilot; revised approach to be tested at scale 2015-2016).	WorldFish/ CSISA	Women; some sessions with spouses/ mothers in law; community members.	Technical sessions on fish and vegetable culture, input use, pond management, nutrition education and market links across production cycle; Gender integrated in all technical sessions.	Free mini packet of vegetable seeds/ seed voucher ¹ , 100 g of mola seed, Training manual, record book, training allowance per participant.

The Shaded Ponds project is a stand-alone project and is a joint initiative of multiple CGIAR Research Programs (Climate Change, Agriculture and Food Security (CAAFS) and Aquatic Agricultural Systems (AAS)), the CSISA-BD project, WorldFish and Aquaculture for Income and Nutrition (AIN) project. It grew out of earlier WorldFish projects in southern Bangladesh which reported shading of household ponds through fruit and other trees as a significant production constraint to fish farming. Women prefer to maintain the shaded character of ponds close to their homes because they are reluctant to fell valuable trees, and because the pond is used for personal hygiene such as washing and bathing. The trees help to ensure privacy. As a consequence of these issues, and because the water is relatively saline in many areas where WorldFish operates, fish production is typically low or zero. In recognition of the potential productive value of these ponds and the need to adapt production to women's preferences, WorldFish initiated research into how to adapt

¹ In some cases, CSISA-BD has provided vouchers so that the women can collect the free vegetable seeds from the dealers themselves and thereby build connections with them.

technologies to strengthen production in these adverse aquatic conditions using participatory action research methods. The Shaded Ponds project is summarised in Table 2.

Table 2. Summary of the Shaded Pond Project

Project Name	Partners	Target Group	Technology x Methodology Combination	Material Support
Shaded Ponds research project (2013 - open ended).	WorldFish: CSISA/AIN/CCAFA/S/AAS.	Women	Monthly participatory action research (PAR) sessions across production cycle. Gender not discussed.	Quality fish fry of species suited to shaded pond provided free for research purposes. Magnifying glass, record book, weighing scales per group.

Field research for this study was conducted in 2014 in two sites with very similar participating farmers in terms of assets and location. They lie within a climatically and agro-ecologically homogenous part of South West Bangladesh - Khulna Division: Faridpur District and Khulna District. Khulna Division is highly vulnerable to climatic shocks. Khulna District has, however, more problems with saline water intrusion than Faridpur District. A large number of households manage under-utilised very small ponds. The GTA-CT groups, based in Faridpur District, are mixed in terms of religion with Hindu and Muslim participants. The Shaded Pond groups in Khulna District comprise Hindu members. Despite religious differences all the women have similar mobility constraints and household responsibilities which make it difficult for them to work outside the household. Prior to the projects none of the women had participated in training on aquaculture. Both research sites lie a similar distance from large urban centres. Controlling for as many variables as possible, including agro-ecological and cultural variables, allowed for a strong analytic focus upon the methodologies themselves.

The core research question informing this study was: which combinations of technology and methodology have the most potential for adoption, adaptation and sustained use of the technology, and for transforming gender relations for women's and men's economic, social and personal empowerment?

Extensive semi-structured questionnaires were drawn up. These aimed to facilitate discussion of the actual technologies participating farmers had learned across the production cycle, discussion on the gender training, and wider discussion on changes in personal status within the home and the wider community. Some questions on changes in household nutrition were posed, but the responses are not discussed in this paper. The semi-structured questionnaires also encouraged discussion of the methodologies themselves, by asking participants to reflect on the efficacy of particular approaches in terms of building their capacity to understand and manage the technologies.

Small group discussions (SGDs) were held with women and men farmers separately. In Faridpur District, SGDs were held with farmers involved in the GTA-CT pilots. In Khulna District, participants were drawn from members of the Shaded Pond projects. In each location, four SGDs were held, two with women and two with men. The participants were selected by the project officers based on their willingness and availability. Roughly equal numbers of women and men participated in the SGDs, with approximately eight in each SGD. This represents approximately one third of GTA-CT members in a given group, and two thirds of a given Shaded Pond group. In each case, women were interviewed in their capacity as direct project beneficiaries. Men were interviewed in their role as household members and thus indirect beneficiaries. In total eight SGDs were held. Extensive key informant interviews were carried out with headquarter and with project field staff to obtain a detailed understanding of the project training methodology and how gender is conceptualised by project staff and in the documentation.

Project methodologies

Gender Transformative Approach (GTA) in Conventional Training

The process of identifying target women farmers with homestead ponds involves WorldFish together with local partner NGOs, and meeting Union Parishad (village-level decision-making bodies) members to explain their programme. Following this, community meetings are held during which WorldFish explains why they wish to work with women. Women frequently do not participate in such meetings, so subsequent small mixed gender group meetings are held in different parts of the village. Men are encouraged to

motivate their wives and other female household members to join the project. Each woman's group has 20 to 25 members.

Technology x Methodology Intervention

In the GTA-CT methodology, WorldFish has re-designed the conventional technology training package developed by CSISA. The methodology was modularised to interact with the different stages of the production cycle and designed to address the social and gender issues that may emerge as a result of applying the technology-related learning. The gender modules build on consciousness-raising exercises adapted from the Helen Keller International (HKI) gender and nutrition training manual, "Nurturing Connections." Whilst the standard CSISA training curriculum dedicates just half an hour in total to a gender awareness exercise, gender is part of every technical training session in the GTA-CT.

The starting point of the gender transformative training offered in this project is the understanding that intra-household gender relations form a potential constraint to women's ability to effectively work with, apply and share in the benefits of improved household pond technologies. Training focuses on interrogating gender norms. Collaborative intra-household decision-making is encouraged, and work is conducted to create an enabling environment at community level through deliberative targeting of community members. The current curriculum is shown in Table 3.

In the field, each session is organised as follows. Two hours are spent on technology training and the third hour is spent discussing gender issues. The 20-25 members of the training group are assisted to form smaller "learning cells" of five members who are neighbours. Changes in production and in knowledge, attitudes and practices (both technical and social) are monitored among participating women and their spouses through survey research methods and process documentation.

Material support is offered to all participating farmers (Table 1). Farmers also are provided with the contact details of fish seed suppliers. The GTA-CT continues the regular linkage event provided by CSISA-BD towards the end of the production cycle. This brings together value chain actors and

community members. However, the key difference is that whilst this event showcases successful producers, it also carries out a gender norms exercise from “Nurturing Connections” with community members, and a local theatre group performs skits with gender messages.

Table 3. Gender-Transformative Approach in Conventional Training: Pilot curriculum

Conventional Technical Training on Homestead Ponds	Accompanying Gender Sessions developed from HKI Nurturing Connections Manual: sample activities
Introduction, rules, commitments	Demonstrating and building trust (whole family)
Pond Preparation	Power hierarchies; obstacles to listening
Stocking Management	Interactions between identity and decision-making
Post-stocking management	Who decides about the pond (whole family)
Horticulture and family nutrition	Intra-HH allocations of food and power; self-esteem building
Harvesting, restocking, marketing, income, expenditure	Assertiveness training
Gender Awareness/ Nutrition Education	Exploring gendered behaviours (with husbands)
Linkage event with value chain actors, community members, <i>etc.</i>	Community Theatre skits on gender and livelihoods, Community meeting on gender norms
Project review, future planning	Change in gender norms over time

Women-led participatory action research on Homestead Shaded Pond Aquaculture (Shaded Ponds)

In 2013, Shaded Ponds began work with eight communities, forming women's groups of up to 12 members. Selection criteria included presence of a shaded pond on or near the homestead, management largely conducted by women, and an indication of interest by women farmers in project participation. WorldFish staff work directly with the women as co-researchers.

The technology and methodology combination aims to balance a women farmer-led research process with formal research hypotheses and parameters. The research process is facilitated by WorldFish staff, and WorldFish has its own technical as well as sociological research interests. Women farmers conduct research on technologies in their own ponds as opposed to demonstration ponds, with support from WorldFish in developing experimental designs. They are shown how to record the results and report back to their group on a weekly basis with their findings and any challenges they have encountered.

WorldFish staff guide the research process through conducting monthly visits, providing advice and information at different stages in the production cycle and obtain updates on farmer learning. The word “training” is deliberately avoided by staff, with meetings being construed as events in which discussions and idea-sharing take place. However, expert trainers are involved in sharing technical information about pond preparation, stocking etc. generally through hands on learning approaches. At the end of the first production cycle in 2013, the women's groups came together for an end of year sharing workshop.

The project is working in two zones: fresh water and saline. Different fish species thrive in different zones and so the farmers are experimenting with various fish species in order to contribute towards species recommendations for particular habitats. In the first cycle of the project, farmers decided to experiment with *Cyprinus carpio* (Linnaeus 1758) carp), *Oreochromis niloticus* (Linnaeus 1758) (GIFT Tilapia) and various indigenous species, especially *Amblypharyngodon mola* (Hamilton 1822). These species were released into a cluster of ponds. A different cluster released other species. In the second cycle, farmers worked with species selected from the first cycle's learning and experimented with different stocking densities.

Results

Selected results are presented project-wise. We start with the GTA-CT pilot and conclude with the Shaded Ponds project.

Gender Transformative Approach (GTA) in Conventional Training: Beneficiary appraisals of the learning approach

In the SGDs, women and men respondents considered that the overall training had led to a more scientific understanding of how to support healthy pond functioning and how to intervene appropriately. They associated improved knowledge resulting from the training with higher social standing and participation in community level knowledge sharing networks. Improved knowledge was considered to strengthen women's voice in intra-household decision-making processes, between spouses and with other family members. It was clear that the main attraction for trainees was the technical training and potential for improved fish production. Respondents viewed the gender-focused

modules of the training as separate from the technical training. However, the women valued the engagement of their spouses and other family members in the gender training sessions since this made them more open to women's participation and helped them to implement their technical training.

We were taught in practical, hands on way and so we found the training easy. We now have the belief and self-confidence that we can continue with fish culture. Because our husbands, fathers- in-law, and mothers-in-law were included in some sessions, it was easier for them to understand what we told them. They don't create any barriers to our participation (combined testimony from several women SGD participants).

Women and men reported the following examples of applications of women's knowledge and skills:

Earlier we released fish without preparing and cleaning the pond. Now we clean the pond before releasing fish and feed them regularly. Male members like it. They trust us to manage the pond and it enables them to earn another source of income. (Woman SGD participant).

Earlier we used to hire labour for liming in the pond. We used to guess how much lime to use. Now I know the actual amount of lime that is required per decimal. (Woman SGD participant).

After the training, the social status of the whole family, and my wife's, increased. Sometimes villagers ask us about fish culture. This never happened before and that makes us proud. (Man SGD participant).

We do fish farming in a jointly owned pond. My elder brother mainly looks after the pond. After the training my wife told us how to follow the proper method for fish farming and my elder brother took it positively. So bit by bit changes come to my family, I think this training has increased my wife's importance to our family. (Man SGD participant).

We have a jointly owned pond, so my wife does not speak about fish culture very openly in front of all male members. My wife waits for the right time and suggests to me what she thinks about any decision. I accept

her suggestion if it is useful and share with others. (Man SGD participant).

Women-Led Participatory Action Research on Homestead Shaded Pond Aquaculture (Shaded Ponds): Participant assessments of the methodology

Women considered the initial support they received from WorldFish as important for their learning process. However, they also valued their relative independence from WorldFish because they felt this encouraged them to develop new ideas and use technologies in different ways. Many respondents associated their increased knowledge with enhanced recognition and value in the family, and some to increased recognition in the community. Men concurred with these assessments, linking them explicitly to women's enhanced technical skills and decision making capacities. Regarding the training methodology, women said:

We women wouldn't go down into these ponds. But when Shumonaapa [the trainer] said that she wants to "do battle" [judhdha in Bengali] in these ponds with us women, we got eager. We said, "let's see if we women can do it". If we don't understand something from the training, we ask each other. If someone came and told us to put Rui and Katla (species of fish) in my shaded pond, that wouldn't feel good for my confidence. We have learnt to make the selection ourselves and see which one isn't working well and which is working well. We told them to give us a book because we can't remember everything. If they would give us a book, it would be good. If not everyone, maybe a book for every four of us. If the book is with one of us, then we can read it from time to time. But WorldFish staff forgets a lot of things. (Several women SGD participants).

Shumonaapa (apa means sister) brought a man from Khulna to show us how to kill predatory fish and use lime. He explained and then showed us practically. He took us to the pond, made us melt the lime and made us apply it. Then he made us spread the retinol powder to kill the predatory fish. He didn't teach everything at one go. He comes often. (Combined testimony from several women SGD participants).

Women reported the following examples of applications of their knowledge and analytical skills:

After a few months I harvested fish for home consumption. While I was cutting the fish, I noticed that the fish stomach contained a lot of fat. A few days later, when I checked another fish it seemed to me have less fat and to be generally weaker. I realised that the fish were not getting an equal share of the food. I decided to give more feed to improve their growth rate.

I observed that catfish (magur) do not come to eat in the day time. They hide in another layer. So I started to give feed at night. The catfish now come out and eat the food.

This year I modified the culture system from last year. WorldFish suggested we continue fish polyculture in the shaded pond, but my shaded pond is already full with fry. This time I released all of my fish seed to my sunny pond. I want to see what happens to the production.

Discussion

The investigation by the study team sought to understand which combinations of technology and methodology hold the most potential for fostering adoption, adaptation and sustained use of the target technology together with transformation of gender relations for women's and men's economic, social and personal empowerment.

From the results, it can be concluded that regardless of the combination, many women and men participants believe women now participate more effectively in intra-household decision-making processes. With specific regard to household ponds, both men and women report that women now play a stronger role in contributing to discussions around how to manage ponds across the production cycle. Women exhibit higher levels of confidence when discussing fish farming ideas with their husbands and relatives, in community level meetings, and with other actors. Over and beyond this, women's increased capacity to plan and manage the pond, and their increased technological knowledge, is seen by the immediate family, and in part by the wider

community, as conferring transferable skills relevant to wider decision-making processes. With respect to empowerment, men remain the key decision-makers in all areas. However, women have become more influential. This is because women are seen as making a stronger economic and food security contribution to the household and, critically, because they are considered to have become better, more capable thinkers. Based on the findings, it seems that these changes can be attributed.

These are positive results given the broader context, discussed earlier in the paper, of women's relative lack of agency in Bangladesh. Regardless of whether training has been offered on gender, women appear to have been empowered and gender relations partly transformed. We must conclude that with or without “transformational” training on gender, women are empowered by the mere fact of access to knowledge and resources coupled with purposive targeting. However, previous experience (Terry, 2014) suggests that such empowerment may constitute a temporary blip with gains easily lost in a relatively short period of time.

Our findings show, though, that *how* knowledge is transmitted may affect the depth of women's confidence in relation to discussing and applying technical knowledge. The learning by doing approach in the Shaded Ponds project has enhanced the analytical skills of many of the women co-researchers. This is demonstrated through the number of comments women respondents made regarding their ability to independently apply learning to solve problems they had identified in their ponds. By way of contrast, women in the GTA-CT pilot reported that they were able to directly apply the technologies they had learned. They attributed this largely to the participation of men in the training and to the communication skills they had developed. Over the longer term it is possible that since women and men in the GTA-CT pilot were not trained in setting up their own research, they may be restricted in their ability to adapt their technologies to changing scenarios.

The Shaded Pond project is constructed around a formal-trained scientist-farmer scientist interface whereby the farmers draw down and manage the intensity of technologies and information packages, such as saline-tolerant fish, created in the formal knowledge system. The premise underpinning the Shaded Ponds approach is that farmer participants are free to express their

agency and develop their knowledge in guided conditions. Our discussion above on gender relations shows that this is not necessarily the case. Women are located within gendered power relations that limit their agency relative to men at a range of levels. The GTA-CT confronted this issue directly by devising interactive sessions which enable women and men to explore gendered power relations, rehearse new models of behaviour, and develop improved models of intra-household communication. The ultimate goal is improved family well-being. This gender transformative model, however, was developed in specific relation to household pond management. It is not clear whether participants will experience spill-over effects into other domains of intra-household decision-making. Again, over the longer term this may well restrict their ability to adapt decision-making to changing scenarios.

It would be useful to enhance the participatory element of future adaptive research so that women and other stakeholders take the lead in setting up research which they can then manage themselves. As discussed earlier, it would be particularly valuable scientifically if they could work closely with formally trained scientists to set up mutually acceptable research parameters. The Shaded Pond research project provides a basis upon which to build. Adding in the gender-transformative training piloted in GTA-CT project would facilitate this process. As noted, the aim of the gender transformative training is to assist farmers to take charge and shape social dynamics in an initially guided learning process. Taking charge is self-evidently a critical component of developing agency. Combining the two methodologies would enable practice to shift to Quadrant 4 of Fig. 1: Social Learning, Gender-Transformative. In this way adaptive analytical skills in relation to both aquaculture systems and the social environment within which managers of household ponds enact their lives will be fostered.

Conclusions

The overall objective of this paper is to contribute learning from an early stage of developing gender-transformative interventions in aquaculture. Insights will inform on-going debates and empirical experimentation around operationalising gender transformative methodologies.

Our findings suggest that effective gender-transformative engagement in the aquaculture sector is predicated on two primary ingredients: more complex understandings of gender in combination with a readiness by formally trained scientists to allow women and men farmers to “follow the technology”. Innovative methodologies for technology development and dissemination should focus on promoting farmer adaptive capacity and enabling them to take charge of their own learning. This is not a gender-neutral process. Designing and testing, under different agro-ecological and social conditions, the efficacy of a combined gender transformative farmer scientist-formal scientist interface approach to aquaculture technology transfer is an important first step toward defining aquaculture research for development practice that is both socially and technically robust. In order to move work forward, rigorous research design is required to better understand what works in applying gender transformational approaches. Based on this, and evaluations of other innovative gender transformative approaches in technological interventions, a suite of project-relevant research questions to build on the emerging understandings provided here should be developed.

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