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Gender and aquaculture: Sharing the benefits equitably

KEY MESSAGES

- Aquaculture is the fastest growing agricultural sector in the world; it can meet both the food security and cash needs of poor households in Africa and the Asia-Pacific region.
- Aquaculture can provide food and nutrition security to the entire household, as well as much needed micronutrients for women and children. It can particularly benefit diseased, weak or vulnerable groups within the community (for example HIV AIDS-affected households) which need both nutritious food and income, and where other livelihood strategies often bring lesser returns.
- Women's involvement in aquaculture is more significant than often assumed. In many developing countries formal statistics often overlook the nature and extent of their vital contribution.
- It is increasingly being recognized that women are engaged in aquaculture in myriad ways contributing significantly to the overall well-being of households, but the women themselves often get very little in return due to deep-rooted gender disparities in social, cultural and economic spheres.
- Women are often bypassed in the transfer of aquaculture technology and also remain excluded from large-scale production except as processors, with their effort and control confined to small-scale production. Moreover, their role in decision-making related to aquaculture is low at all levels from household to community, regional to national.
- Inclusion of women in adoption of aquaculture technology has been accomplished successfully in some places and has failed in others. The successes are largely attributed to judiciously planned interventions with a gendered perspective.
- Social inclusion and ecological sustainability are crucial to ensure that aquaculture interventions have lasting impacts on livelihoods.
- There is a need for policies in the aquaculture sector to ensure that outcomes are gender equitable, pro-poor and environmentally sustainable.

WHY GENDER MATTERS IN AQUACULTURE

The aquaculture sector is often considered a male domain because of the high levels of investment and the adoption of new technology associated with its development. However, women's roles and the extent of their participation in aquaculture value chains, for fish, shrimp, seaweed and crab, are extensive — much higher than in capture fisheries. This is especially true in Southeast Asian countries such as Cambodia, Indonesia and Vietnam, where women carry out 42-80 percent of all aquaculture activities (AIT, 2000; Kaing and Ouch, 2002; Williams et al., 2005; FAO, 2007). Around the Tonle Sap Lake in Cambodia, women's participation ranges from around 50 percent in fish culture to 85 percent in marketing (ADB, 2007). The promotion of aquaculture as a development strategy for women has been partially based on the perception that it is an extension of women's domestic tasks (Kelkar, 2001), allowing integration with home gardening, household chores and child care. However, the increase in women's workload due to the establishment of backyard ponds needs to be assessed relative to the social and economic benefits. In many countries in South Asia and Africa, there is ample scope for increasing women's participation in and income from aquaculture through improved extension services, innovations, policies and institutional practices that are directed towards women (Rahman, 2005).

Gender and Fisheries
The present policy brief complements that developed for fisheries.
See: http://www.worldfishcenter.org/resource_centre/IssuesBrief2108.pdf

Gender disparities in aquaculture can result in lower labor productivity within the sector and inefficient allocation of labor at household and national levels. In many developing countries, customary beliefs, norms and laws, and/or unfavorable regulatory structures of the state reduce women's access to land and water resources, assets, technology and decision-making (FAO, 2006; Porter, 2006; Okali and Holvoet, 2007), confining them to the lower end of supply chains within the so-called "informal" sector (Guhathakurta, 2008). This implies that women (as in agriculture, forestry and industry) are likely to constitute a larger proportion of the poor within this sector and are often excluded from participating in fish farmer groups and other aspects of aquaculture governance. Even though they use aquatic resources, they are rarely consulted in attempts to manage these resources. The differential impacts of and contribution to ecological degradation and depletion of aquatic resources by women and by men are often overlooked. These disparities are likely to be exacerbated by climate change (Brody et al., 2008).

While women bear the brunt of the costs of gender inequities, these costs are distributed widely and are a cause of persistent poverty for all members of the society. Addressing gender inequities by improving women's incomes and educational levels, along with their access to information, technology and decision making processes, not only enhances human capabilities of the household but also augments it at the societal level. Organizing women into groups, along with access to resources, technologies and services, was successful in improving livelihoods of even ultra poor households in the Baor (Oxbow lake) areas of Bangladesh (Nathan and Apu, 1998). Nevertheless, important for sustainable change are measures to improve governance, especially enhanced voice and accountability, and public sector capacity to be responsive to gender-specific needs. There is increasing evidence that those countries that have performed well towards achieving gender equity have also reached higher levels of economic growth and/or social well-being in general (World Economic Forum, 2006; 2007).

Research on gender and aquaculture at the WorldFish Center identifies the following five key themes for consideration:

Theme 1: Markets, trade and migration

Globalization of fish supply chains and markets combined with the depletion of wild fish resources has an important influence on the livelihoods of fish farming communities. Analysis is beginning on the extent of this change and how men and women are differentially placed and/or made vulnerable within labor markets in these supply chains (Madanda, 2003; Kusakabe et al., 2006; Tindall and Holvoet, 2008). Development programs and policies have often overlooked the post-harvest and trading activities of women. The connection between aquaculture production and trading is critical but many interventions focus entirely on production activities (fish seed, feed and disease) rather than on improving processing and access to markets.

There is an assumption that globalized markets might be moving small-scale producers and women engaged in aquaculture-related employment into poverty. However, evidence for this is not clear. These processes also provide opportunities for new employment or higher profit margins. Women from coastal villages in Kerala, India where capture fisheries resources are dwindling migrate to work in shrimp and fish processing plants which have opened up due to increased aquaculture production in the neighboring state of Gujarat (Saradamoni, 1995). The majority of employees in seafood processing plants all over the world are women; however, much of this female workforce in developing countries is casual and has inadequate social protection (Nishchith, 2001; Silva and Yamao, 2006; Okali and Holvoet, 2007). In many countries, female workers in processing plants get paid less than male workers for the same job (Nishchith, 2001). Yet, there is also evidence of innovation and success by women entrepreneurs engaged in processing enterprises (Chao et al., 2006). Promotion of aquaculture in community water bodies involving landless indigenous (Adivasi) women in the north west of Bangladesh not only improved their food security situation but also created a new income generating opportunity for those who managed to sell the surplus over consumption to their neighbors, or at local markets (WorldFish, 2010).

In several Asian countries such as the Philippines and Sri Lanka, the majority of international labor migrants are women (Kabeer, 2007), while large numbers from countries such as Indonesia and Vietnam are women, as well. A gendered analysis of this overall migration process and a discourse on the "feminization" of migration are only just beginning to emerge (Kabeer, 2007; Piper, 2007). It is unclear whether the adoption of aquaculture is increasing or decreasing migration in and out of fish farming villages. Around 26 percent of registered Cambodian labor migrants in Thailand are reported to be working in the fishery and fish processing industries (Maltoni, 2006). The proportions could go higher if illegal migrants and fish trading, in which both women and men from Cambodia are engaged, are taken into account. Gendered patterns of migration to and from fish farming communities need to be understood as migration has significant impacts on household livelihoods and well-being, as well as on aquatic resource use and governance.

Without an adequate knowledge of the gendered dimensions of fish value chains, it is difficult to engage in improving these to provide equitable benefits to the women and men depending upon them. How does market engagement affect poverty and what are the different constraints of women and men to more effective participation in markets? Gendered value chain analysis (Mayoux and Mackie, 2008) provides tools to assess the invisible dimensions of these supply chains where women's livelihoods are located. It highlights the critical nature of gender inequalities because these often encompass the "weakest links" within value chains and the most vital areas for upgrading quality and growth, and reducing poverty. Mayoux and Mackie argue that many of the complex issues highlighted by gendered value chain analysis are often not confined to gender itself, but reflect other inherent inadequacies in the types of economic study which commonly dominate value chain analysis and development. Thus, gender analysis provides a starting point for the integration of key dimensions of extra-market factors, power relations and motivations into our currently incomplete understanding of economic growth. Understanding and incorporating these dimensions is essential not only to attain gender equity, but to design effective and sustainable pro-poor growth through value chains that can respond to drivers such as globalization, food price fluctuations and climate change.

Theme 2: Capabilities and well-being

Employment and income remain an insufficient measure of the gendered nature of poverty in the aquaculture sector. The "capabilities approach" (Sen, 1993) emphasizes access to food security, nutrition, health and education as capabilities that lead to "functionings" indicating human well-being. These dimensions of well-being also determine both access to employment and labor productivity. We lack adequate data on the disparities in access and outcomes among men and women, and boys and girls,

in the areas of nutrition, health, education, training and social safety nets within the aquaculture sector and how these translate into opportunities for and constraints to employment.

Aquaculture projects often focus on increasing the availability of food, one of the "pillars of food security", but the other two "pillars" —access to food and intra-household utilization — receive much less attention. Productivity and income increases from fish ponds at the household level in Bangladesh are not necessarily translated into nutrition gains for women and girls (Kumar and Quisumbing, 2010). However, where poor women were provided with the enabling conditions to claim long-term rights over public water bodies, as in the case of the Oxbow Lakes Project in Bangladesh through the formation of fish farming groups, the engagement of and benefits to women have been sustained (Nathan and Apu, 1998). Thus, well-being of women depends on their access to and control of significant decision-making related to the allocation of resources both within the farm and the household.

The impact of large-scale interventions on the aquaculture sector in terms of access to assets and capabilities, such as micro-finance and micro-enterprise training, has only been marginally explored in developing countries (for example, Medard, 2005).

Women in Aquaculture in Nepal: Factors for success

"Women in Aquaculture (WIA) in Nepal", an adaptive research project involving women members of fishing communities among the ***Tharu, Darai*** and ***Bote*** ethnic minority groups was carried out in Chitwan and Nawalparasi districts to diversify their livelihood options. The project encompassing social, economic, agro-ecological and institutional aspects successfully developed a model for homestead pond aquaculture development (Shrestha et al., 2009). The project focused on development of farmers' clusters and the introduction of backyard pond aquaculture to their existing crop-livestock based farming systems during the first phase (2000-2002); its integration with livestock and horticultural enterprises in the second phase (2003-2005); and its further improvement by development of freshwater prawn–fish integrated systems in the third phase (2005-2007). Women's empowerment through developing and strengthening their organization was the key focus of the project throughout. In the initial years, concurrent to aquaculture intervention, savings groups involving women members of the households were formed, which developed into a fully-fledged cooperative by the sixth year.

All project participants continued expanding and intensifying fish culture systems, depending on their resource base. In 2008, estimated fish production per household ranged from 10 to 550 kg with an average of 114 kg, which was at least double the amount of the initial years. In general, a half to two-thirds of the production was used for household consumption while the surplus was sold, generating an average income of USD 103 per household (Pant et al., 2009). The per capita fish consumption in a WIA project household was estimated at 11.0 kg, seven times higher than the national average in Nepal of 1.5 kg.

The 'WIA in Nepal' project has been widely commended as a success story by governmental and non-governmental organizations, both at national and international levels. Its success is attributed to the empowerment of women members who, after getting organized in a cooperative owned and managed by themselves, achieved access to and control over resources as well as increased decision-making roles in their households and community.

Market expansion and increased production in some areas have been accompanied by the introduction of new technologies. In general, interventions such as new high yielding species and methods of fish rearing have tended to favor men over women (AIT, 2000; Barman, 2001; Brugere et al., 2001; Kusakabe and Kelkar, 2001; Kibria and Mowla, 2006; Sullivan, 2006; Okali and Holvoet, 2007). Nevertheless, there are notable exceptions from gender sensitive projects (Kibria and Mowla, 2006; Bhujel et al., 2008; Kripa and Surendranathan, 2008) that have increased both benefits to women and their capacity to make decisions. In Bangladesh, nearly a quarter of women farmers practicing rice-fish culture were noted to have been able to make decisions on the utilization of income from fish sales independently, to the benefit of their household (Barman et al., 2011).

Well-being is closely linked to vulnerability. Shocks which can affect well-being and increase vulnerability include price shocks in fish and input markets (seed, feed and fertilizer), climate change, natural disasters, war and conflict, sudden illness and births, marriage and deaths (which may demand considerable resources). We lack information on how these kinds of events can affect the well-being of men and women in aquaculture communities.

National-level well-being studies indicate that people's motivation for choosing particular employment options is not based on economic (income) factors alone. In Zambia, farmers establish fish ponds for a host of reasons: to provide food to hired labor; to meet needs of funerals and weddings; to buy school uniforms from fish income; to diversify income and food sources; to secure land tenure claims; to appear "modern"; and even to evade witchcraft (Crewe and Harrison, 1998). However, project managers often do not assess these as signs of success since they do not meet the goals of income improvement in strict economic terms (Crewe and Harrison, 1998). In the case of HIV AIDS-affected female-headed households in Malawi, integrated agriculture-aquaculture intervention was found to be highly effective not only in improving their food and nutrition security situation and augmenting income from the sale of surplus fish over consumption, but also in creating an employment opportunity that suited their fragile health conditions (CGIAR, 2007).

To what extent are women's and men's understanding of well-being in fish farming communities based on comparison of their situation with their own past or with that of neighboring fishing, farming, herding or urban communities? We still do not know much about how men's and women's assessment of well-being affects their livelihood strategies and income generation. We also need more analysis of the gendered nature of access to resources in aquaculture and the overall effect this has on well-being and livelihoods.

Theme 3: Identities and Networks

Social networks can be critical to the survival of both individuals and households. Networks can also exact costs as they may require individuals to meet various obligations. Membership to formal organizations — for instance, aquaculture associations or cooperatives — is more prevalent among men than women, but poor men may also be excluded.

There are several case studies of women's struggles for resource access rights and fishworkers' rights (Nayak, 2008; Munoz, 2008). There is an assumption that if women act collectively or join together to access credit or share ponds, the benefits are greater. The propensity for and benefits of collective action could be analyzed more carefully with a better understanding of the gendered nature of networks and identities. For example, there is evidence from Ghana that attempts to encourage

cooperative women's groups have rather led to increased friction and tension among women fish traders (Walker, 2001). There is also an underlying gendered assumption that women welcome participation in groups and cooperate well together. In analyzing the context of fish processing, the nuanced understanding of gendered impacts already explored in other settings, for example garment and electronics factories could lend valuable insights.

Networks are usually characterized by asymmetrical power relations. Of concern here is the power to access livelihood resources and opportunities, as well as the capability to negotiate within institutions and make decisions over livelihood choices that can enable women and men to move out of poverty. The way gendered networks might be used in aquaculture communities to exit poverty is currently unknown.

Networks and identities have gendered consequences in fishing communities and can affect the ability of individuals to cope with or rise out of poverty. Do formal organizations improve livelihoods and bargaining power or do they exclude certain members of communities from the benefits they were receiving from previous informal arrangements? We need more comprehensive work on how membership to networks can affect the livelihoods of men and women in fish farming communities.

Theme 4: Governance and rights

Governance regimes affect access to, control over and management of resources in aquaculture communities around the world. Co-management and community-based management have emerged as important efforts to shift from a top-down, command and control approach to one in which decisions about use of resources and receiving benefits are devolved to the people who depend on them for their livelihoods. However, co-management can exclude some groups of people and privilege others.

New governance systems can come up against traditional local governance structures, local patronage systems and national institutions. In some cases, these other institutions have undermined community-based initiatives and caused them to fail. In other instances, development projects which have aimed at improving management have actually undermined or reduced the roles and decision-making powers that women previously had. Research on governance and rights needs a better grasp of how men and women participate in governance structures from local to national level. While community-based aquaculture management has attempted to devolve more authority to small-scale producers, it might still be difficult for women to participate in these new structures because of cultural and practical constraints.

We need more analysis of the gendered nature of access to land and the potential conflicts arising from the construction of fish ponds. More attention to how pond tenure and land tenure complement or conflict with each other would inform us about how aquaculture is integrated with existing natural resource management and livelihood strategies.

Where programs have been designed to increase women's participation in fisheries management, evaluations of their success

are often lacking. Women's producer groups and collective structures have succeeded in some aquaculture interventions in terms of accessing greater benefits by women and addressing gender inequities (WorldFish, 2007). In other cases, the polarization between women and men due to a women-centered approach and the perceived threat by men has led to failure (Naved, 2000).

Gendered analyses of differential access to land and conflicts over tenure in aquaculture need to be made. While individual household pond construction might be a negotiated and collaborative effort by women and their husbands (Bhujel et al., 2008), use of existing water bodies without clear tenure and usufruct rights by different stakeholders can lead to complex conflicts, where gender can also play a role.

Fish trading is subject to official and unofficial rules that can affect men and women differently. Research on the vulnerability of small-scale female traders to regulatory environments is scanty. The unpredictable costs in the cross-border trade of fish between Cambodia and Thailand due to arbitrary fees imposed on women traders by customs officers, for example, are regulatory constraint on trade (Kusakabe et al., 2006).

In processing, access to new high-value global markets is dependent on small-scale producers and processors being able to conform to the quality and hygiene standards of developed countries. There is little research available on the gendered impacts of this process, although issues such as eco-labeling are much debated among fish producer associations and NGOs. Governance of value chains where quality and hygiene standards are the guarantee to export may affect small scale fish farmers negatively. Displacement of women from micro and small-scale processing within their communities and seasonal labor migration to large processing factories has been observed in some contexts. This could be an increasing trend as a result of compliance with new hygiene and quality standards (Sharma, 2003). Gendered costs and benefits need to be taken into account in on-going governance initiatives, for example, community-based standards for certification of aquaculture products.

Governance issues in aquaculture are closely linked with the aspiration and realization of economic, social and political rights of vulnerable and marginalized groups. While literature exists on women's rights to land/fishing assets, as well as on rights of women fishworkers (Munoz, 2008; Nayak, 2008; Bidesi, 2008;), a gendered analysis of causes of discrimination that lead to marginalization, and how rights might be defined and understood differently by women and men, is lacking.

Theme 5: Climate change, disasters, and resilience

Climate change has emerged as one of the biggest challenges to the resilience of human societies. Coastal and flood plain communities, by virtue of their location, are vulnerable to exposure and face high risks in climate change-related disasters such as flooding, rising water levels and changes in salinity. Costs to women and children are often disproportionate because customary norms and beliefs in most societies prevent them from acquiring skills and capacities — the ability to swim, and access to information on impending disaster. Households are used to dealing with idiosyncratic shocks (loss of cages, fencing and gear, illness, death) but climate-induced disasters put stress on informal means of coping like social networks. Such disasters also put strain on assets being used for consumption or for investing in livelihood activities and micro/small enterprises. Women and children are often seen primarily as victims of disaster and climate change, with higher levels of vulnerability to risk. However, these groups can also possess under-valued local

knowledge and hidden strengths in adaptive capacity and resilience. Thus, it is important to understand the differential capabilities and capacities of women and men to respond to disasters.

Market (micro-insurance) and social safety net (transfers) mechanisms are generally considered effective strategies for managing disaster risks. The access to and effectiveness of such options differ. Risk perception, vulnerability, coping strategies and adaptation needs also differ among different categories of women and men. Are markets or safety nets more likely to provide gender-equitable outcomes? Vulnerable aquaculture communities now excluded from social protection need appropriate climate change adaptation options.

Assessing the gendered impacts of climate variability, change, disasters, and responses among differentiated categories of women and men is therefore necessary. A better understanding of the gendered nature of coping and risk perception would help us design gender equitable mitigation and adaptation strategies to address the potentially unequal impacts of climate change on vulnerable groups.

Rising water levels that increase the area covered by water can also create new opportunities for aquaculture production. A range of new options, for example, farming of short production cycle species such as the GIFT strain of Nile tilapia, climate proofing of fish cages and pens, and integrated aquaculture-agriculture, may become possible. Soft mitigation options to protect livelihood resources from flooding and salt water intrusion could be available. Gender equitable access to new resources and technologies required for climate change adaptation is an important area for planning and intervention.

We also need to ensure that policies and institutional arrangements — such as disaster preparedness plans and post-disaster rehabilitation processes, which help mainstream climate change adaptation into broader aquaculture and rural development policies —incorporate gender concerns. Women need to be included in decision-making related to mitigation and adaptation in order to build resilience in fish farming communities.

CONCLUSION

At the WorldFish Center, mainstreaming gender into research, policy advice and pilot interventions is an evolving agenda. It is based on gaps in the research and the needs of stakeholders in the fisheries and aquaculture sector. Thus, we continuously seek your feedback to ensure that this agenda remains current and relevant. Some emerging CGIAR collaborative research programs, particularly CRP 1.3 on “Harnessing the development potential of aquatic agricultural systems for the poor and vulnerable”, provide a new opportunity for improving our understanding of the impacts of aquaculture on women.

By using the gender lens to analyze issues of aquaculture sustainability, we would like to establish the differential contribution of women and men to production and value addition within this sector, as well as to bring into the spotlight the varying degrees of economic and social returns they obtain. As aquaculture grows, are women getting their equitable share of this growth process? The well-being of aquaculture communities, based on the sustainability of fish farming as a livelihood strategy, may depend on the answers we manage to find.

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