



Gender Dynamics in Changing Rice-Based Agricultural Systems in Bangladesh

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Rice and fish are the staple food of more than 150 million people in Bangladesh. Rice provides half of agricultural GDP. Despite its significant contribution to rural livelihood, rice-based farming systems have been diversifying and changing in Bangladesh. Monoculture commercial aquaculture farming (CAF)—particularly fish, shrimp, and prawn farming—has been expanding in rice fields over the past decades. Moreover, traditional subsistence-type backyard fish ponds are also converting into CAF. Aquaculture farming has been constantly increasing. For example, its area increased from 198,176 ha in 2006 to 265,275 ha in 2010. Shrimp and prawn production takes place mainly in south and southwestern Bangladesh in converted rice fields. These transformations may have affected livelihood options, gender roles and responsibilities, and access to resources (e.g., credit).

The objective of this study is to provide messages for agricultural technology interventions in Bangladesh to make rice-based farming more profitable and sustainable while improving household food security and overall livelihood through the involvement of women. The messages are based on field research carried out on gender roles and relations as well as on sources of livelihood in 10 villages representing CAF and rice farming located across three districts (Mymensingh, Khulna, and Sathkhira) in Bangladesh.

II. MESSAGES

Message I: Mechanization for transplanting and harvesting rice

The high labor cost of rice production and labor shortage are the main factors driving the shift from rice farming to monoculture CAF. For instance, the major supply of labor (62%) in rice production comes more from hired workers than from family members which occupied mainly for transplanting and harvesting period. In contrast, the total labor spent for CAF is 153 days/ha/year, and the use of family labor (64%) is significantly higher than that of hired labor. Although women's contribution to rice production is lower than that of men, their roles and responsibilities have been increasing. This is mainly because (1) women farmers now manage and cultivate their own farmlands because their male counterparts migrate to other parts of the country or go abroad, and (2) finding laborers is difficult during the peak season, for instance, for transplanting and harvesting.



In view of the labor shortage, higher labor requirements, and male out-migration, mechanization for transplanting and harvesting in particular, is needed to minimize the cost of rice cultivation. Therefore, it would be good to make farmers, service providers, and other stakeholders aware of the advantages of the machinery through field demonstration. After this, effective extension programs (public and private) are needed to promote mechanization. Given the small landholdings, custom hiring service is an effective strategy to promote mechanization in Bangladesh. These machines could be effectively and efficiently used by women's groups acting as service providers to generate income. A group setting mainly also helps facilitate the adoption of new practices or technologies.

Message 2: Diversification of rice-based farming systems

In situations where markets are not reliable and household annual income flow is highly variable, alternative rice and fish farming or integrated rice farming ensures household food security, improves household income, and increases women's access to and control of resources. In terms of rice production strategies, diversifying rice cropping systems in rotation with other cereals and high-value crops could increase land productivity and farmers' income. Improved cropping patterns and intercropping systems are promising approaches that could lead to effective risk-management strategies for sustainable agriculture-based enterprises, which, in turn, could benefit women and poor farmers. For example, aman rice-mustard-boro rice and aman rice-mungbean/lentils/sunflower-jute/sesame cropping systems are particularly popular in the southern and northern parts of Bangladesh. Such intensified and diversified agricultural practices could boost yields and provide extra household income. Therefore, rice-based crop diversification promises to increase the cost and return besides fulfilling basic needs for cereals, pulses, oilseeds, and vegetables and making rice-based farming more profitable.

Message 3: Equitable access to credit

Credit is one of the main determinants of adopting CAF. The sources of credit are commercial banks, nongovernment organizations (NGOs), money lenders, and relatives and friends of household members in the rural areas. NGOs are the dominant sources of credit, mainly for women from all socioeconomic groups. However, the amount of loans borrowed by women is small and is limited to small enterprises rather than spent on agribusiness ventures such as CAF, which requires huge capital investment and land as collateral. The amount of credit taken varies significantly across socioeconomic groups. The average amount borrowed is significantly lower for poor households (\$207) than for rich ones (\$595). Only the rich and upper-middle-class households have access to loans from banks. The amount of credit taken from the bank is much higher and the interest rate much lower (11.5%) than other sources. Due to limited access to credit or unavailability of small credit, the poor and the lower-middle-class households, including women, have not benefited from CAF, unlike households that are better-off. Therefore, equitable and easy access to low-interest agricultural credit, provision of credit without collateral, and training are likely to benefit women and poor farmers and reduce income inequality.

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