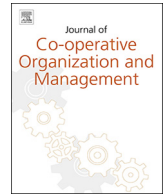




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Cooperative rice farming within rural Bangladesh

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ABSTRACT

It is often questioned whether cooperative agriculture by smallholder farmers can replace individual agriculture. This paper draws on a case study of rice farming in Kurigram district, Bangladesh, and provides insight into cooperative rice farming and potential of mechanization. Various cooperative practices (e.g. group rice harvesting and threshing) have been collectively adopted and used by small-scale rice farmers in Kurigram Sadar ever since the Liberation War of 1971. Rice farming in Kurigram Sadar is characterized by informal community-supported agriculture, which is both labor intensive and inefficient. Agricultural mechanization and institutionalized cooperative farming can reverse the situation and indirectly contribute to food security. Applied scenarios demonstrate potential benefits of cooperative farming, ranging from an estimated 12.6% rise in rice production due to reduced post-production losses and 41.5% increase due to intensified cropping to 92% cost savings through labor substitution. Kurigram Sadar rice farming is of great relevance to other parts of rice-growing Bangladesh as well, as most of the country is dominated by smallholder farmers employing similar agricultural practices.

1. Introduction

Agricultural cooperatives allow farmers to pool their resources in certain areas of activity for mutual economic benefit (Bishop, 2012). From modest beginnings in the 19th Europe (Hoyt, 1989), cooperative movement has grown into a 250 million member phenomenon worldwide (ICA, 2015a), with many successes reported in Kenya, Uganda, Jordan, Nicaragua, Romania, Israel and Germany (Agarwal, 2010; Food and Agriculture Organization of the United Nations (FAO), International Fund for Agricultural Development (IFAD), World Food Programme (WFP), 2012; Kokaisl, 2013; Tayeh, 1969). In Bangladesh, the largest milk cooperative has helped landless households, typically excluded by cooperatives, obtain dairy cows and market their milk, increasing their earnings as much as ten-fold (Birchall, 2003).

Agricultural cooperatives may be broadly classified into agricultural service cooperatives and agricultural production cooperatives (Cobia, 1989). Whereas the first category provides services such as trucking, storage, and credit, agricultural production cooperatives allow for pooling and mutual use of resources such as land and machinery.

Broader definition of agricultural cooperatives by the International Cooperative Alliance (ICA) suggests a more holistic approach (ICA, 2015b). Their seven internationally recognized cooperative principles go beyond economic dimension of cooperation and focus on provision of education, training and information, and concern for community.

United States Department of Agriculture, however, argues that agricultural cooperatives cannot afford to internalize the ICA values and therefore must focus on fewer, more self-centered principles (Birchall, 2005).

Cooperatives form and expand when marketplace fails to provide needed goods and services at affordable prices and acceptable quality (Barrow, Burke, Molian, & Brown, 2005). In such cases, cooperatives empower their members to improve the quality of their lives and economic opportunities through self-help. They tend to strengthen the bargaining power of their members, obtain needed products and services on a competitive basis, improve income opportunities and generate greater profits (Barton, 2000). By cooperating, members share the benefits, costs and risks of production in equal proportion to their contribution (McLeod, 2006).

Farming and agriculture is where cooperative model is most widely utilized. An estimated 32% of the global market share in agricultural sector belongs to cooperatives (Bibby, 2014). Even though Bangladesh is a predominately agricultural country, with 31.5% of its population below the international poverty line (WB, 2014), cooperative movement did not achieve its desired goal of poverty alleviation (FAO, 2014b; WB, 2014). The paradox has its roots in poorly regulated and difficult to prove land ownership (Adnan, 2013; Feldman and Geisler, 2011), Islamic inheritance law that encourages further land fragmentation (Bosworth, Van Donzel, Heinrichs, & Pellat, 1993), and

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population pressures, among others.

Some 13 million rice-farming families, however, may still benefit from cooperative farming in a variety of ways including use of available agricultural land and machinery, group purchasing, and marketing of produced goods (BRRI, 2015; Wanyama, 2014). Cooperative model may be advantageous to government as well, since smaller number of farms makes it easier to collect taxes and distribute subsidies.

The paper focuses on rice farming as it accounts for 75% of all agricultural land use in Bangladesh, resulting in more than 35 million metric tons of rice per year (GAIN, 2013). The popularity of rice comes from it being, except for wheat, the cheapest source of calories and carbohydrates and one of the cheapest sources of protein and fat (Hossain, Jaim, Paris, & Hardy, 2012). Rice provides as much as two-thirds of the total calorie supply and about one-half of the total protein intake of an average person in Bangladesh, with an annual per capita consumption of 160 kg (BRRI, 2015).

Majority of rice growing families, however, use traditional farming methods, achieving lower yields compared to farms employing modern methods. Moreover, as much as 50% of those families are landless and forced to live on and cultivate flood-prone land (WB, 2015).

The objective of the paper therefore is to re-evaluate applicability of cooperative model within Bangladesh's rural areas and assess a range of cooperative scenarios using collected data. The paper first discusses historical context, as presented by Johnson (1982), Sharma (1997) and Wanyama (2014), along with the present state of cooperative farming within rural Bangladesh, drawing primarily from FAO's reports on cooperative legislation and farmers' organizations. The largely unfavorable depiction of agricultural cooperatives, coupled with the overall consensus on their capacity for addressing all dimensions of poverty reduction, forms the basis for the paper as it rediscovers cooperative movement and presents the arguments for its renewal. Next, the paper reports on features of rice farming in Kurigram Sadar and identifies mechanization potential resulting from cooperative farming. The paper at last quantifies potential benefits of cooperative farming using reported differences between cooperative and individual farming from the literature and articulates the importance of proposed Kurigram Sadar cooperative rice farming model towards sustainable agriculture and food security in Bangladesh.

The results showed that rice farming in Kurigram Sadar is characterized by community-supported agriculture reliant upon labor intensive and inefficient farming practices. Over 80% of Kurigram Sadar farmers declared they would participate in cooperative farming, even without government support, with percentage being higher should government provide regulatory framework, financing and new equipment. Rice production models revealed that cooperatively owned mechanization could indeed lead to substantial increases in production and further cost savings, although government support and regulation, along with reliable source of capital, are crucial in this case.

2. Cooperative movement in Bangladesh

The history of Bangladesh cooperatives begins with cooperative movement in India in 1900 and the passage of the Indian Cooperative Law in 1904. The concept was promptly emulated throughout the country and first cooperatives of future Pakistan (1904) and Bangladesh (1905) were formed. By the 1920s, the number of cooperatives increased from 222 in 1906–07 to 19,742 (FAO, 2014a). While still part of India, Bangladesh cooperatives were regulated by the Bengal Cooperative Societies Act of 1940, which replaced the Cooperative Societies Act of 1912 (FAO, 1998). After the partition in 1947, Bangladesh remained part of Pakistan until 1972, when it became an independent country and adopted the Cooperative Society Ordinance in 1984 (Sharma, 1997).

The Comilla model was one of the first attempts at cooperative farming in Bangladesh and a source of considerable cooperative innovation. Initiated in 1959 by the Academy for Rural Development, the

project tested the diffusion of technological innovations to determine their effectiveness. A decade later, under the Integrated Rural Development Program, the model was extended to other districts of the country. By 1978, there were already 25,777 primary cooperatives (Johnson, 1982).

In its beginning phase, the model focused on small and mid-sized farmers, assuming that power relations among various strata were not a concern. The cooperative model aimed at developing new social roles and groups supportive of agricultural modernization, was in fact built on a traditional social structure. Consequently, agricultural productivity was increased but improvements in the lives of the rural poor were lacking. The latter goal was met with less success as it was mainly the large rather than the small farmers that benefited from the model (Johnson, 1982).

Landless laborers and near landless peasants (those with less than 0.4 ha) were particularly affected and underrepresented in the cooperative membership (less than 14%) (Majumdar, 1976). Typical required cash and in-kind savings deposits, along with exclusion of farmers with less than 0.4 ha from taking cooperative loans, kept the small landholders and low-income families from benefiting through cooperative membership.

Today there are 198,114 farmer organizations (FOs) in Bangladesh, most of them formed with support from government agencies (81%). These range from farmers' groups promoted by external actors for the main purpose of project delivery to FOs formed autonomously by community members, with associations, societies, cooperatives, unions, and even firms in between these two extremes. According to the Department of Cooperatives, 83,853 of them are registered farmer cooperatives of different categories. Most of them, however, are inactive (around 90%) and were created only as a channel for the delivery of project activities rather than as sustainable rural institutions (FAO, 2014a).

National Cooperative Policy (2012) and Cooperative Societies Act (2001) are specifically designed to strengthen and regulate cooperative movement in the country. They are implemented by all departments that work with cooperatives, with Department of Cooperatives acting as the registering authority and a monitoring agency. Domestic policies are actively supported by FAO's Country Programming Framework (2014–2018), together with thousands of international and domestic NGOs, largest being ASA, BRAC, Grameen Bank and Thengamara Mahila Sabuj Sangha.

According to International Labour Organization (ILO), Asian Cooperative Field Mission (1955), Credit Enquiry Commission (1959), and Food and Agriculture Commission (1960), cooperative movement in Bangladesh has failed to achieve its desired goals of poverty alleviation, with management issues and corruption reported as major causes (FAO, 2014b; TIB, 2014). Nevertheless, United Nations, the ILO, and the ICA today all agree that cooperatives are the type of organization most suited to addressing all dimensions of poverty reduction and exclusion (Wanyama, 2014).

3. Materials and methods

3.1. Study area and data collection

The research was carried out in Kurigram Sadar upazila, one of the nine upazilas of the Kurigram district (zila). It is composed of eight unions and 269 villages (BBS, 2012) spread across 276.45 km² (Islam, Jamal, & Chowdhury, 2003). With 72,592 households, 76% of which are considered rural, it is the third largest upazila in the Kurigram district.

Kurigram district, on the other hand, is one of the nine districts of Rangpur division, itself one of the seven divisions representing the country. Kurigram district was chosen due to its extreme poverty (63.7% of the population is poor), low educational attainment of household heads (BBS, 2014), substantial rice yield gaps (Sattar, 2000),

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