

# ORGANIC FARMING AND POVERTY ELIMINATION: A SUGGESTED MODEL FOR BANGLADESH

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## Abstract

The objectives of this study were to understand the global and domestic market situation of organic food production and to suggest a suitable model of organic farming that can remove the barriers to the rapid expansion organic farming and eliminate the poverty of poor farmers in Bangladesh. There, rice farming has become unprofitable as costs of production have risen, and farmers are seeking alternative, more profitable crops. Organic farming, with its ecological and social benefits, and premium prices, may offer an ideal alternative. Global sales of organic foods reached US\$25 billion in 2003 and are predicted to exceed US\$30 billion by 2009. Already 90 developing countries, including 15 that are classified as 'Least Developing Countries' (LDCs), are benefiting significantly from the global organic market.

*Key Words: Organic Farming, Poverty Elimination, Bangladesh, Co-operative Model*

## Introduction

Bangladesh is a small country of around 150,000 sq. km. By mid-2006 its population was nearly 150 million people with 85 percent living in rural areas. Around half of the rural population is classified as poor. Based on the direct calorie uptake method, national poverty was estimated to be 40 percent in 2005, whereas it was 46 percent in 1999 (HIES 2000). Despite significant efforts over the past three decades to reduce poverty and improve the lives of its people, 36 percent of its population still lives on less than US \$1 a day (DFID 2006). Although the alleviation of poverty has been a major development objective since independence in 1971, poverty remains throughout both rural and urban areas.

The agricultural sector is the main livelihood strategy for the vast majority of rural people in Bangladesh. It contributes around 21 percent of the country's GDP and provides for 52 percent of its employment (Bangladesh Economic Survey Report 2007). Thus, to eliminate rural poverty, special attention is needed to make agriculture industries more profitable. In the past, Bangladesh suffered from a deficit in food production. In recent years however, due to the efforts of agriculturists and farmers, it has attained the status of a food grains surplus country. Demonstrating this, in the fiscal year of 2004-05, Bangladesh had a surplus of 5.83 million tons food grains (28.384 million tons produced compared with a demand of 22.55 million tons) and 4.98 million tons of surplus rice (26.13 million tons produced compared with a demand of 21.15 million tones) (Department of Agriculture Marketing 2005, New Age 2006). However, due to an increase in the cost of production compared to the stagnation of rice yield (Fig. 1), rice farming is currently a non-profitable enterprise for farmers. In contrast to this, in the last decade the acreage of maize has increased about 34 times and production about 174 times (Fig. 1). This is because of the higher profitability of maize cultivation in comparison to rice.

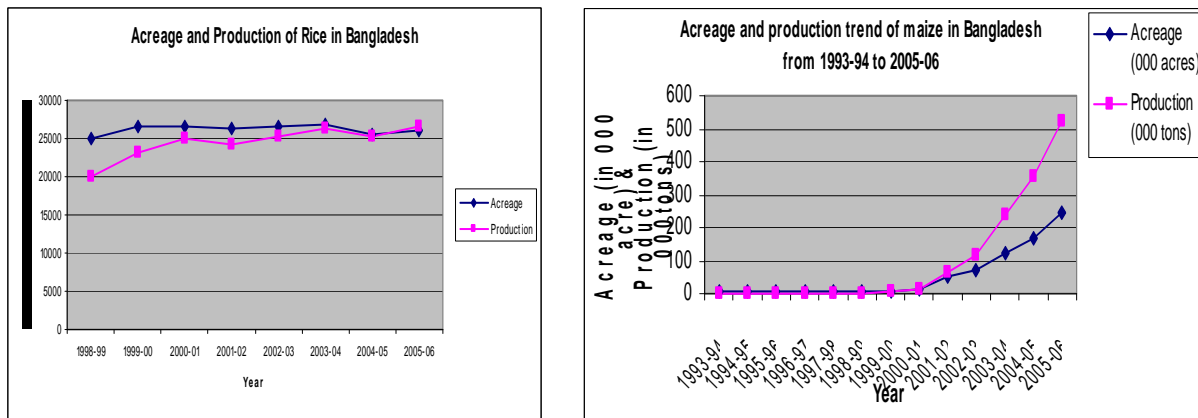
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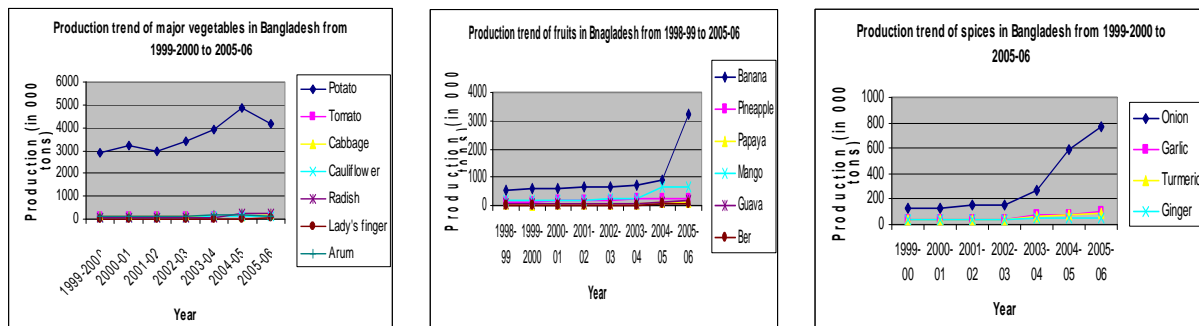
**Fig 1. Acreage and production trend of rice and maize in Bangladesh**



Source: BBS, 2006

This increasing trend of maize cultivation demonstrates that Bangladeshi farmers are exploring new and profitable crops that might ensure a higher income and improved livelihood. The North-West Crop Diversification Project (NCDP) of the Department of Agricultural Extension (DAE) is promoting high value crops (i.e. hybrid maize, aromatic rice, vegetables, fruits and spices) with the goal of increasing regional and farm incomes, and alleviating poverty in the north-west region of the country (Ministry of Agriculture 2007). Because of this, in recent years farmers seeking a higher income have given more attention to cultivate these higher value crops (Fig. 2).

**Fig 2. Production trend of high value crops (vegetables, fruits and spices) in Bangladesh (from 1999-00 to 2005-06)**



Source: BBS, 2006

The 'Hortex Foundation' of Bangladesh has also developed a scheme to promote high value crops, particularly high-value non-traditional crops; and their sale to high-price, non-conventional international markets. Their aim is to improve the income of farmers and thereby contribute towards eliminating rural poverty (Hortex Foundation 2006).

Similarly, commercial organic farming has emerged as an alternative highly profitable farming enterprise for farmers. "A three-year long economic analysis of FiBL (a research institute of organic agriculture) on organic and conventional farms has shown that, due to high premium prices, organic farming is as profitable as compared to conventional farming" (FiBL 2004). Youssefi and Willer (2003) have argued organic agriculture is not just a solution for rich countries, but can also be beneficial for poor countries, where it can contribute to purposeful and sustainable socio-economic and ecological development. Up until now, however, Bangladeshi farmers have not been able to benefit from the growing global organic market, and they have even failed to create a good domestic market of organic foods.

Taking this situation into account, we conducted this study to achieve the following objectives:

1. test the perception of local consumers regarding organic foods, and understand the global organic market;
2. explore the problems associated with the expansion of organic farming in Bangladesh; and
3. design a model for Bangladesh's organic farming that can link organic farmers with both domestic and global organic markets.

## Methodology

As the domestic organic food market of Bangladesh is primarily city based, we decided to collect data from the consumers of Dhaka City. Data were collected from 105 randomly selected occasional consumers of organic produce, between March 10 and April 02, 2006, from the following locations in Dhaka city: *Meena Bazar*, *Shossay Probortona*, New market and *Mohammadpur Kacha Bazar*. To explore problems faced by organic farmers, data were also collected by the researchers and three trained data collectors from 120 organic farmers (non-certified) from Pirojepur village (Madhupur sub-district in the Tangail district). Separate carefully constructed questionnaires were designed for the farmers and consumers. The collected data were coded with appropriate numeric values and/or symbols and analysed using SPSS v.12.0 software. Descriptive statistics (i.e. frequency count, mean, percentage, and rank order, etc) and cross tabulations were computed to identify trends. Regrettably, because of a lack of time and funding the researchers could only collect data from a relatively small portion of the population.

## Results and Discussion

### Socio-economic profile of consumers

To assess the domestic organic food market, it is crucial to know about the characteristics, perceptions and needs of the consumers of organic foods in Bangladesh. Our findings are summarised in the Table 1. Whereas 27% of the consumers were 'young' (18-35), 68% were 'middle aged' (36-50), and only 6% were 'old' (over 50).

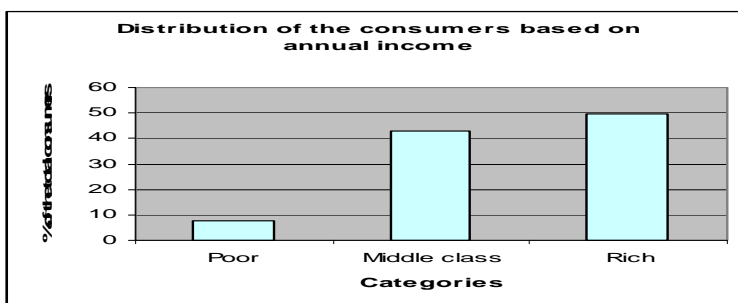
**Table 1. Summary statistics of consumer personal and socio-economic characteristics in Dhaka City in 2006**

Consumers' characteristics	Expected Range	Observed Range	Distribution of the consumers based on their characteristics	Consumers (N = 105)		Mean	SD
				No.	%		
Age (Years)	-	30 - 57	Young (18- 35)	28	26.7	40.86	6.4
			Middle aged (36- 50)	71	67.6		
			Old (above 50)	6	5.7		
Gender	-	-	Male	70	66.7	-	-
			Female	35	33.3		
Social status (based on annual income in thousand taka)	-	25-480	Poor (up to 60)	8	7.6	191.2	93.84
			Middle class (61- 180)	45	42.9		
			Rich (more than 180)	52	49.5		
Health consciousness (Rating scale)	0-8	3-8	Low consciousness	10	9.5	6.42	1.4
			Medium consciousness	41	39.5		
			High consciousness	54	51.4		
Environmental awareness (Rating scale)	0-16	5-15	Low awareness	8	7.6	9.52	2.7
			Medium awareness	66	62.9		
			High awareness	31	29.5		
Interested to buy certified organic food, and even pay more for it	-	-	Not interested	11	10.5	-	-
			Interested	94	89.5		

Whereas over half of the consumers (51%) were highly conscious regarding their personal health, around 40% were moderately conscious, and 10% had low consciousness. Two-third of consumers (63%) had medium awareness regarding the environmental hazards caused by agro-chemicals, around 30% were highly aware, and less than 8% had low awareness.

Based on annual income in thousands of taka (taka is the Bangladeshi currency; 1000 BDT= US\$14.61), most of the consumers who usually buy organic foods (93%) belong to either middle or rich class, whereas less than 8% were poor (Fig. 3).

**Fig 3. Social status of the respondent consumers' of organic food in Dhaka City in 2006**



While acknowledging the low sample size, it seems that poor people are much less likely to buy organic foods than are middle and higher class people. In addition to cost factors, this may also be related to their lower concern for health and environment (Tables 3 and 4).

**Table 2. Cross-tabulation of the social status of the consumers and personal health consciousness**

		Social status of the consumers			Total
		Poor	Middle class	Rich	
Personal health consciousness	Low	3	3	4	10
	Medium	2	16	23	41
	High	3	26	25	54
Total		8	45	52	105

**Table 3. Cross-tabulation of the social status of the consumers and awareness regarding environmental hazards associated with agro-chemicals**

		Social status of the consumers			Total
		Poor	Middle class	Rich	
Environmental awareness	Low	2	3	3	8
	Medium	5	25	36	66
	High	1	17	13	31
Total		8	45	52	105

Perhaps surprisingly, most of the consumers (90%) were willing to pay more than the present market price for certified organic foods (Table 4).

**Table 4. Cross-tabulation of the social status of the consumers and their willingness to pay more for certified organic foods.**

		Social status of the consumers			Total
		Poor	Middle class	Rich	
Willingness to pay more for certified organic foods	Not willing	2	3	6	11
	Willing	6	42	46	94
Total		8	45	51	105

### Perception of consumers regarding organic foods

With regard to the perception of the consumers concerning the available organic foods in Dhaka city, a three point rating scale ('agree', 'partially agree' and 'not agree') was used to rank responses by consumers to seven statements presented to them (Table 5). Nearly two thirds of the consumers (63%) 'partially agreed' that "available organic food items are really organic" and that "quality is satisfactory". However, only a third of respondents (31%) firmly believed that the available organic food items were really organic; and less than a third (29%) were completely satisfied with the quality of available organic food products.

**Table 5. Summary of the consumers' perception regarding available organic foods in Dhaka City in 2006 (N = 105)**

Statements	Types of response					
	Agreed		Partially agreed		Not agreed	
	f	%	f	%	f	%
1. Available organic foods in Bangladesh are really organic	33	31.4	66	62.9	6	5.7
2. Quality of the available organic foods is satisfactory	30	28.6	66	62.9	9	8.6
3. Price of organic foods is very high	26	24.8	70	66.7	9	8.6
4. Supply of organic food items in the market is sufficient.	2	1.9	14	13.3	89	84.8
5. Number of organic shops is sufficient in the city	13	12.4	14	13.3	78	74.3
6. Organic foods should be certified by the certifying authorities	95	90.5	8	7.6	2	1.9
7. All types of food crops should be cultivated organically	72	68.6	31	29.5	2	1.9

Most respondents (85%) believed that the supply of organic food items in the local market was insufficient; and most (68-93%) mentioned that organic rice, fruits, fish, shrimp, egg and chicken satisfied less than half of their family demand. For organic vegetables, half of the respondents (50%) mentioned that it fulfilled half of their family demand; and 40% mentioned that this represented less than half of their vegetable demand. However, less than 11% of respondents mentioned that their total vegetable consumption was organic. Organic tea provided less than half of the family demand for over half of the respondents (52%), half of the family demand for 23%, and total family demand for 25% of respondents. Most respondents (74%) noted that organic shops are limited in Dhaka city, as is confirmed by existing information. Excluding the special

marketing outlet of eco-friendly products of the NGO PROSHIKA, there are only two or three shops in which organic food items are sold, with other traditional food items, in an organic corner.

Our findings clearly demonstrate that most respondents (91%) want organic foods that are certified, since more than half (63%) were not confident that the available organic foods were really organic. We believe that if organic foods can be certified, then the consumers will be much more likely to buy them. Most respondents (69%) expressed a desire to have access to a diverse range of organic food items (i.e. rice, vegetables, fruits, meat, fish, egg, shrimp, milk, tea, etc).

Most researchers who have investigated this area consider that because of their high price, organic foods are relatively unpopular with consumers in developing countries. This is supported by a report from FAO (1998) on the FAO/IFOAM meeting on organic agriculture. This report notes that market opportunities in high income countries offer good incentives for practicing organic agriculture, but inadequate incentives in low income countries. The result of our study contradict this: only a quarter of our respondents (25%) 'agreed' that organic foods are highly priced, with two thirds (67%) 'partially agreeing' and only 9% 'disagreeing'.

### **Status of organic farming in Bangladesh**

With few exceptions, organic farming in Bangladesh still occurs largely on an experimental basis. Total land area under organic cultivation in Bangladesh has been estimated at 0.177 million hectares (IFOAM, 2006), representing only 2% of the country's total cultivable land. By 2005, only 100 of its traditional farms had converted to organic agriculture. Since the introduction of organic farming into Bangladesh, by NGOs, the movement is still being largely being directed by these organisations. According to IFOAM (1996), of the 138 NGOs that are members of the Forum for Regenerative Agriculture Movement (FORAM) in Bangladesh, 47 are engaged in practicing organic agriculture, 87 are intending to practice sustainable agriculture, and 3 are involved in advocacy, lobbying and campaign for sustainable development. Among these NGOs, PROSHIKA, with its "Ecological Agriculture Program" (EAP), is the peak organic body in the country. "Since 1978 PROSHIKA began to spread ecological practices among its group members by growing varieties of seasonal vegetables. PROSHIKA's EAP has involved around 0.8 million farmers in organic cultivation across 0.22 million acres of land. Out of these, 0.22 million farmers started to practice ecological agriculture on 0.08 million acres of land in the last five years. PROSHIKA has also introduced an organic vegetable marketing project to promote the consumption of organic vegetables. Currently, one marketing channel of PROSHIKA is selling eco-friendly produce to the public in Mirpur area of Dhaka city. Furthermore, mobile vans are being used to sell organic vegetables in some areas, including apartment complexes, mega shops and departmental stores" (PROSHIKA 2004). Between July 1999 and March 2003, PROSHIKA received some funding support from the World Bank (*The New Nation* 2006).

Observing the benefits of cultivating organic crops by the NGO farmers, a small number of non-NGO conventional farmers have started to cultivate organic crops. Among the few private companies that have started to invest in organic farming, Kazi and Kazi Ltd. is a leader. They have established an organic tea garden at Tetulia, in the Panchagarh district. This tea is certified by the SGS organic production standard in accordance with the EU Regulation 2092/91, and it is marketed as "Meena Tea" (Tea International 2005). This company also produce fresh organic vegetables and herbs for sale in their supermarket, "Meena Bazar," in Dhaka city.

### **Global organic market scenario and the position of Bangladesh**

Increasing consumer awareness of health and environmental issues has been an important driving force for the recent growth in sales of organic food: 17 to 22% annually, compared with 2 to 3% for conventional foods. "The worldwide organic market was worth an estimated US\$ 25 billion in 2003" (IFOAM 2006); and it is anticipated to generate sales of US\$ 32.3 billion by 2009 (International Trade Centre 2000, 2007). In 2005, sales of organic foods and beverages increased by 10.1% over the previous year. A global market review of the whole, natural, organic

and ethical food markets stated that “the overall organic market is now growing at a stable rate of around 10 percent per year, and forecasts that by the year 2012, the global organic market is expected to reach US\$133.7 billion” (Bharat Book Bureau 2006).

Throughout the world, over 100 countries are producing certified organic products on a commercial basis, including 30 countries in Africa, 30 in Asia, 20 in Central America and the Caribbean, 10 in South America, 5 in Australasia and the Pacific, most countries in Europe, as well as the United States and Canada (IFOAM 2006). These figures include at least 90 developing countries, of which about 15 are regarded as Least Developing Countries (LDCs) (IFOAM 2006). For example, Kenya is a developing country that currently produces organic vegetables, pulses, tea and cotton; and its exports include certified organic macadamia nuts. Uganda produces a similar range of organic products, and exports certified cocoa, sesame, sweet banana, pineapple, ginger and coffee; and Zambia produces a considerable organic fresh produce, most of which is exported to the United Kingdom and sold through some of the major food outlets.

India, our neighbour, produces and exports a wide range of fresh and processed organic fruits, vegetables, nuts, oil crops, grains, coffee, sugar cane, herbs and spices, although it is best known as an exporter of organic tea. Other Asian countries, including China, the Republic of Korea and Sri Lanka, are also active producers and exporters of organic foods. Like other developing countries, Bangladesh has the capacity to realize a significant share of the global organic market. This offers an opportunity to increase farmers' incomes, thereby making a significant contribution towards reducing poverty for among poor farmers.

#### Problems associated with the expansion of organic farming in Bangladesh

Although the organic agricultural movement has been active in Bangladesh since the 1980s, its expansion has remained limited. In an earlier study, Sarker (2007) identified the main challenges for organic farmers in Bangladesh (Table 6).

**Table 6. Challenges faced by organic farmers in Bangladesh (N=120)**

Problems	No. of farmers	%	Rank order
<b>A. Basic Problems</b>			
1. Limited land holdings	34	28.33	6
2. Unavailability of agricultural labour	14	11.67	9
3. Lack of capital	79	65.83	2
<b>B. Input problems</b>			
4. Unavailability of organic inputs	67	55.83	3
5. Decreasing cattle population	33	27.50	7
<b>C. Knowledge &amp; information problems</b>			
6. Lack of training	84	70.0	1
7. Lack of technical knowledge	47	39.17	5
8. Lack of technical support	32	26.67	8
<b>D. Marketing problems</b>			
9. Price problems	58	48.33	4
<b>E. Social problems</b>			
10. Social obstacles	11	9.17	10

Source: Masters thesis of Sarker, M.A., 2007

In this study, the problems faced by organic consumers in Bangladesh were also identified (Table 7).

**Table 7. Problems faced by the consumers of organic produce in Bangladesh in 2006 (N=105)**

Problems	No. of consumers	%	Rank order
1. Insufficient supply of organic produce	89	84.70	3
2. Organic foods are available in a limited number of shops	94	89.52	2
3. Lack of trust of producers and sales personnel	42	40	4
4. Organic produce not being certified	95	90.48	1
5. High price of organic produce	25	23.28	5

To identify the core problems for organic farming in Bangladesh, a problem analysis was conducted. We considered all the problems mentioned by the organic farmers and consumers, as well as researchers' personal observations, and summarised these in Figure 4.

Organic farming in Bangladesh has four core problems (Fig. 4): poor farmers, poor farmer knowledge of organic farming and its benefits, insufficiency of organic inputs, and poor marketing of organic foods. It is very difficult for poor smallholder organic farmers to resolve these problems alone, and to develop their organic farms. To help address this situation we are proposing a co-operative model to support the development of Bangladesh's organic farming (Fig. 5).

#### **Rationale for the model**

Co-operatives are acknowledged to provide an efficient and effective way to support rural development in many developing countries. They can help to strengthen personal economic power; and provide a useful way to increase collective income, create new opportunities for work, and help improve social life (Dilmen 1993). The Bangladesh Milk Producers' Cooperative Union Ltd., the country's largest liquid milk production and marketing cooperative, locally known as "Milk Vita", provides a valuable existing model of success. Their membership includes 40,000 landless, small and marginal milk producers from 390 primary milk co-operative societies, who are the direct beneficiaries (Milk Vita 2005). In 2005-06 they shared a net profit of 61.6 million BDT (New Age 2006). Based on this approach, we believe that an organic farming co-operative would be able to provide support to poor Bangladesh farmers in gaining group certification, and in maintaining production and post harvest hygiene. Such a central cooperative association could establish effective strategies for domestic and export marketing, and connect poor organic farmers to the high-way of domestic and global organic markets Fig. 5).

#### **Main objectives of the proposed model**

To raise the family income of small and marginal farmers in rural areas by providing a remunerative year-round cash market for organic crops through co-operative processes.



Fig 4. Analysis of key problems associated with the expansion of organic farming in Bangladesh

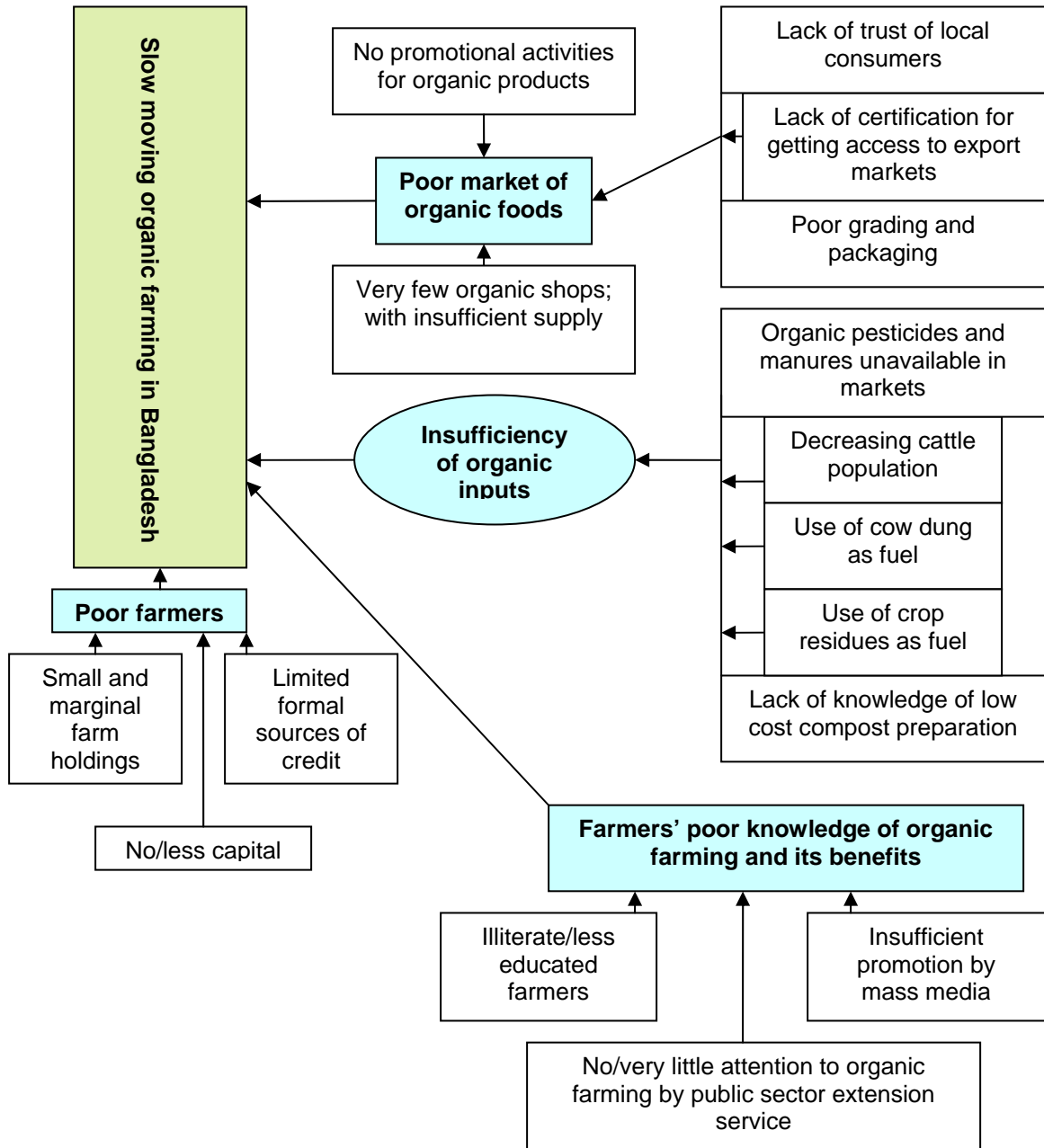
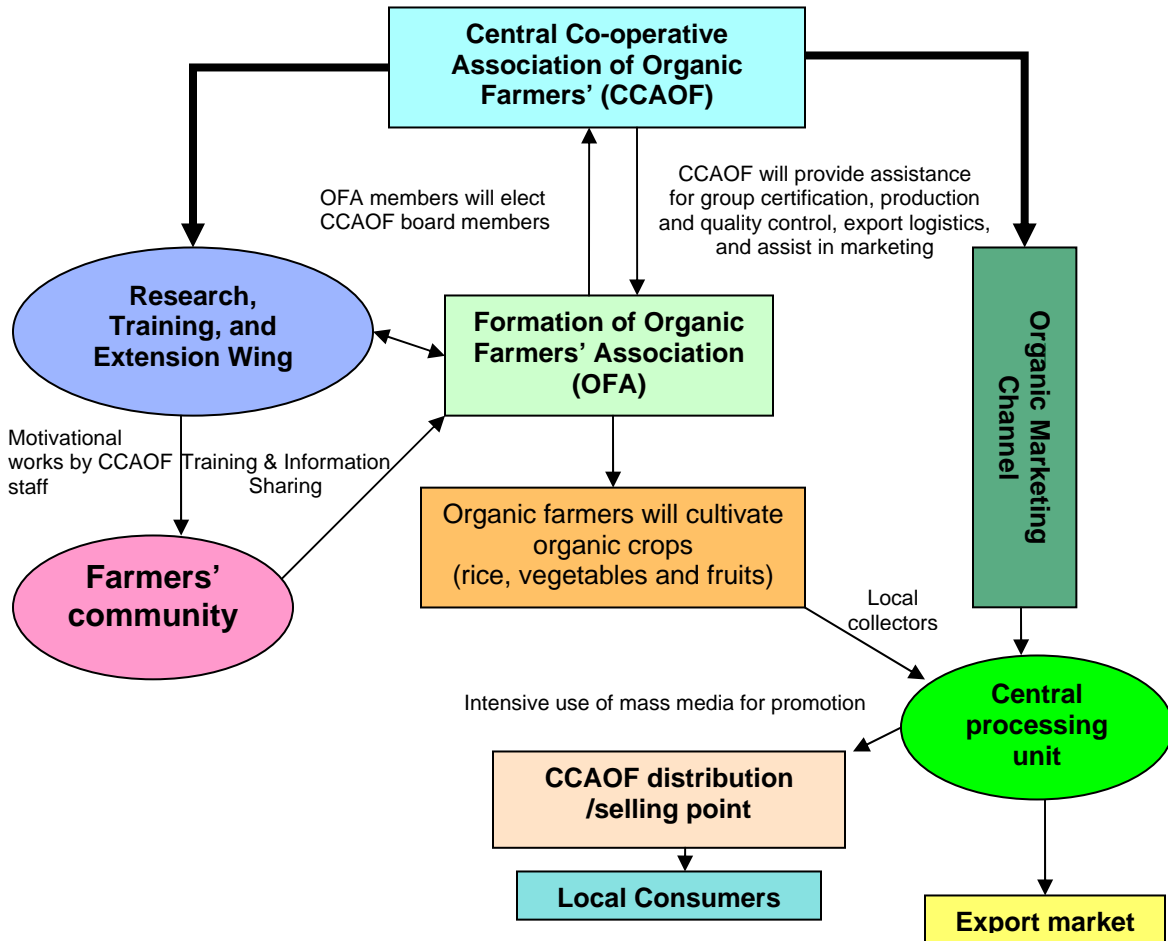


Fig 5. Proposed Co-operative Model of Organic Farming for Bangladesh (Sarker & Itohara 2007)



### Benefits of the proposed model

- A co-operative model for the development of organic farming can enable poor individual farmers to become established; whereas this would be quite impossible on their own. In a case study in Natal, Fischer (2005) found that the cost of establishing a framework for organic agriculture, and implementing capacity-building activities for smallholders, were way beyond the capacity of individual smallholders.

Our proposed co-operative can address these challenges in the following ways:

- providing training for the farmers to increase their knowledge of organic farming practices.
- conducting on-farm participatory research regarding the various aspects of organic farming; and disseminating the findings through its extension agents.
- promotion and marketing of organic produce, using both electronic and print media; this would be far more efficient and effective than if it had to be done by individual farmers.
- establishing a process for group certification, as has been done in South Africa. Certification, which is mandatory for gaining access to export markets, presents a major hurdle for organic farmers in Bangladesh. Key to group certification of small-scale farmers is a functioning ICS

(IFOAM 2003). ICS has been applied in many projects in Uganda to include many small-scale farmers in certified organic agriculture (Tulip & Ton 2002, Forss & Sterky 2000) and Mozambique (Crucefix 1998).

- collectively setting common prices for organic produce; this will help obtain a premium price and so contribute to poverty reduction.

### Limitations of the proposed model

- Establishing a co-operative for the organic farmers may be difficult as most of them don't have a clear understanding of the benefits of co-operatives. Thus, Rehber et al. (1999) found that in Turkey, lack of education and infrastructure in the rural areas was a major barrier for the progress of the co-operative movement. This is why state support is very important, especially during the establishment and launching period.
- The co-operative model is yet to be tested in the field of organic farming in Bangladesh.

### Conclusions

Organic farming is potentially a profitable enterprise, with a growing global market, already being supplied by 90 developing countries, but not including Bangladesh. Local consumers in Bangladesh have a fairly well-developed perception about organic produce, are interested in buying certified organic foods, and even willing to pay more for them. To gain access to this market, however, certification is a prerequisite. As well as achieving this, the following issues are also important for developing countries: increasing technical know-how amongst the farmers about organic farming and organic inputs; good post-harvest handling (e.g. cold storage, quality grading, and packaging support); effective and efficient infrastructure and export logistics (to enable the fresh produces to arrive in good condition in the country of destination); and good and trustworthy relations with importers, traders and wholesalers in the target markets. To overcome the challenge for individual farmers in achieving this, we are proposing a co-operative model. This will enable this sector to meet the necessary requirements of producing and marketing organic foods, both the domestic and export markets; and can secure an extra premium for the poor farmers of Bangladesh. We recommend that the concerned agencies, through research and small-scale trials, take the necessary steps to enable the rapid expansion of organic farming in Bangladesh, and so significantly reduce poverty among the poor farmers.

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