

IMPACT OF TRAINING ON TRANSFERRING LIVESTOCK TECHNOLOGY FOR IMPROVEMENT OF LIVELIHOODS OF THE RURAL FARMERS^S

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Abstract

The study was carried out to examine the impact of training conducted by Micro-Finance and Technical Support (MFTS) project under *Palli Karma Shohayak* Foundation (PKSF) for transferring livestock technologies and improving livelihoods of the rural poor in Bangladesh. A total of 632 households were surveyed during April to September 2006 following a multistage stratified random sampling. Evidence showed that both project and non-project beneficiaries were under the primary level of education and their family size was slightly higher (5.3) than the national average. The family members mostly belonged in the working age group (>15 years) indicated a positive feature of engaging in different income generating activities (IGAs). It is evident that the rate and amount of loan was higher with the respondent received training than without training. The rate of adoption of technologies was higher than the level of idea on the concept of housing, feeding, treatment, breeding and marketing. The training beneficiaries improved knowledge on feeding, management and health care of livestock and poultry. Training and demonstration are suggested two strong tools for adoption and dissemination of livestock technology. The herd and flock size increased to the project beneficiaries than non-project beneficiaries. Beneficiaries having training on various IGAs have increased their land area and asset possession to a greater extent in compare to non-project beneficiaries. The housing and sanitation condition of the training beneficiaries was found higher than non-project beneficiaries. The annual income of the training and non-training households increased to 31.22% and 18.20% respectively where the income from different IGAs of livestock was 56.04% and 68.20%. Livestock IGAs were not necessarily price sensitive but more sensitive on non-price factors such as institutional support, input quality and availability of input. The training thus contributed transferring livestock technologies which ultimately influenced in improving livelihood of the project beneficiaries than the non-project beneficiaries.

Key words : Training, Livestock technology, Socio-economic, Livelihoods

Introduction

The challenges of the twenty-first century, among others are to alleviate poverty in Bangladesh. The agriculture sector consisting of crops, livestock, fisheries and forestry have

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an indispensable role to play in meeting the challenges (Islam, 1998). Livestock being an integral component of the agricultural farming system of Bangladesh and livestock producers may gain through increased income and employment through access to cheaper livestock products (Jabber, 2003). Evidence from field studies in developing countries indicates that rural poor and landless households typically derive a larger share of their cash income from livestock than do well-off farmers (Delgado *et al.*, 1999).

The distributions of livestock population are more or less equal than the distribution of land (Alam *et al.*, 1992). It indicated that any investment in livestock sub-sector would be greatly benefited by the smallholders, which would help for equitable distribution of income and reduces poverty in this country. Participation of rural people in livestock farming activity plays an important role in the economic development of Bangladesh. Realizing the great contribution of the rural people in the production process of farm facilities, government planners, policy makers and administrators are trying to take necessary steps to include rural people in livestock development process during the recent years. It is observed that smallholder can play an important role and would get far better opportunities to organize themselves as functional group for livestock development. In the production of livestock, both men and women integrate together in the rearing and management. However, in addition to Directorate of Livestock Services (DLS), several private organizations and non-governmental organizations (NGO's) are also trying to organize rural people specially landless and marginal landholding as the active income generating group, and at the same time to increase the overall productivity of different species of livestock in the country. Akteruzzaman (1993) found that Bangladesh Rural Advancement Committee (BRAC) has failed to maintain the cattle distribution program due to lack of training and knowledge of the beneficiaries on rearing dairy cattle. Nevertheless, the farmers who have already kept the animals in their farm activities are gaining economic benefits.

Realizing the potential of poultry to meet the need of the country both government and NGOs have taken poultry as a device for solving some problems of the rural disadvantaged and destitute women. Consequently, Participatory Livestock Development Project (PLDP) has been launched since July 1998 to implement the poultry model to improve the status of those women, reduce poverty and increased rural employment. Raha (2003) observed that most of the components of poultry production chain under PLDP were profitable. There are many opportunities to increase poultry production by the rural women. A need based comprehensive training should be imparted to the concerned project beneficiaries. Recently government of Bangladesh has launched a goat project as a means of poverty eradication through the technical assistance from DLS. This would be a viable project for poverty reduction in rural areas.

Palli Karma-Sahayak Foundation (PKSF) thus launched a MFTS project financed by IFAD on improving livelihood of the smallholders through transfer of livestock technologies. The goal of the project is to improve livelihoods and food security of moderate and hard-core poor households and the empowerment of women through training on adoption of livestock

technologies for sustainable income generating activities with its some partner organization since 2003/04 in 13 southwest and northeastern part of the country covering 97 Upazilas. Therefore, this study is a modest effort with the following objectives: i. To examine the extents of transfer of livestock technologies through training and ii. To explore the socioeconomic impact of training on livestock technologies for livelihood improvement of rural farmers.

Methodology

A field reconnaissance was conducted before sample selection and a population list of beneficiaries with training and credit holders were prepared and discussed the process of MFTS activities. Then a multi-stages stratified random sampling was applied for conducting socioeconomic survey. A total of 632 farm households (Table 1) were selected taking 210 from each of the 3 districts namely, Habiganj, Brahmanbaria and Kishoreganj. There are 9 partner NGOs are working under MFTS projects covering 7 Thanas from Habiganj, 7 Thanas from Brahmanbari and 10 Thanas from Kishoreganj. Out of 9 technologies, 6 technologies such as Poultry layer rearing, Poultry broiler rearing, Duck rearing, Goat rearing, Dairy cow raising and Beef fattening were considered (PKSF, 2003). A total of 632 with and without training households were surveyed during the month of April to September 2006.

In order to fulfil the study objectives, an interview schedule was prepared to collect the required data. The team members developed the draft survey schedules after a one week field reconnaissance of the MFTS in different regions. The draft survey schedule was tested and finalized after necessary correction, modifications and adjustments. For collecting the necessary data, the survey team explained to the respondents the objectives of the study. The respondents were assured that the information given by them would not be used against their interest and that it would be useful for themselves in many respects. To ensure the quality of information the interview schedule was checked to ensure that information to each of the items had been correctly recorded. If there were any items overlooked and misunderstood or found contradictory, these were corrected through re-interviewing on the spot. All the collected data were processed and analyzed in accordance with the objectives of the study.

Methods of measurement of livelihood change

The changes in the socio-economic and livelihood parameters due to involvement in MFTS project are determined. Though livestock is traditionally practiced by the respondents, the intervention through the MFTS, by which they received training on semi-intensive livestock and credit assistance through the NGOs for two years, is expected to have brought about livelihood improvement. In this chapter, a detailed discussion on the impact of the adoption of livestock technology under MFTS on family and housing assets has been investigated.

Table 1. Distribution of sample beneficiaries under MFTS project in the study

IGAs	Training status	Respondents			
		B. Baria	Habiganj	Kishoreganj	Total
Layer farming	With training	29	30	32	91
	Without training	11	15	12	38
Broiler farming	With training	8	0	8	16
	Without training	9	2	13	24
Duck rearing	With training	6	0	30	36
	Without training	14	15	16	45
Goat rearing	With training	29	30	29	88
	Without training	14	14	18	46
Cow rearing	With training	30	16	30	76
	Without training	10	7	15	32
Cattle fattening	With training	30	30	30	90
	Without training	20	15	15	50
Total	With training	132	106	159	397
	Without training	78	68	89	235
Grand Total		210	174	248	632

Data processing included field and office editing, coding and tabulation. The data entry template was designed in Microsoft Access. Consistency checks and keystroke errors were also detected and corrected accordingly before data analysis. The analysis was done using descriptive statistics like percentage, frequency distribution, mean, and rank where appropriate.

Results and Discussion

Socio-economic profile of the respondent

From the Table 2, it can be seen that there are six IGAs such as Layer farming, Broiler farming, Duck rearing, Goat rearing, Cattle rearing and cattle fattening. Age of the respondents is an important factor in involvement in any income generating activities (IGAs). Average age of the respondent ranged from 25-40 years in case of all IGAs. It was highest (38.57) in case of cattle rearing respondent with training and lowest (25.89) in case of layer rearing respondent without training. Average age of the respondent is 33.18 and 31.77 respectively for with and without training in all IGAs. Average level of education of the project and non-project respondent is 4.50 and 4.17 respectively (Table 2).

Table 2. Socio-economic profile of the respondent

IGAs	Training status	Socio-economic profile			
		Age (yrs.)	Education (Yr.)	No. of poultry and livestock	Family size (No.)
Layer farming	With training	30.14	5	16	5.3
	Without training	25.89	6	10	5.9
Broiler farming	With training	31.53	4	196	4.3
	Without training	30.87	7	122	5.6
Duck rearing	With training	31.55	6	383	3.8
	Without training	33.4	3	107	5.6
Goat rearing	With training	34.07	5	4	5.4
	Without training	30.25	2	4	5.4
Cow rearing	With training	38.57	3	3	5.5
	Without training	36.7	3	3	5.2
Cattle fattening	With training	33.23	4	2	5.8
	Without training	33.5	4	2	5.7
All Average	With training	33.18	4.50	na	5.0
	Without training	31.77	4.17	na	5.6

Source : Field Survey, 2007

Extent of training, credit and adoption of livestock technology

It is reported that more than 50% respondents received training on livestock IGA from PKSF. About 164 respondents received training on technical IGA and 57 on social issues. The respondents also received training on IGA from other organization than partner organizations (POs) of PKSF. The extent and rate of adoption of different parameters of livestock technologies is shown in Table 3. The score ranges from 1- 10 for different technologies. The score for rate of adoption is higher than the score for idea about the concept for parameters of housing, feeding, and treatment, breeding and marketing of livestock products.

The extent of credit received by the respondent in three locations of the study is given in Table 4. It is seen that 31.1% respondents without training did not receive any loan from POs. Credit is one of the major problems of the farmers for rearing livestock due to their poor economic conditions (Hossain *et al.*, 2000). Table 4 demonstrates that the credit received by the training respondents was higher than the non-training respondent. The loan size increased with the increase of frequency of loan received due to reliability of the beneficiaries' activities (Table 5). The amount of loan ranges from Taka 3000-22000 and the rate and amount of loan was higher for training than the non-training households.

Table 3. Extent and rate of adoption of different parameters of livestock technologies

Parameters	Extent and Rate of adoption	Livestock Technologies (Avg. score out of 10)					
		Poultry layer	Poultry broiler	Duck rearing	Goat rearing	Cow rearing	Cattle fattening
Housing of animals	Idea about the concept	1.4	2.8	1.4	1.4	1.9	2.4
	Reception during training	8.7	8.8	9.1	8.4	9.2	9.1
	Adoption	7.5	10.0	6.7	7.6	8.3	7.8
Feeding of animals	Idea about the concept	1.7	3.7	2.0	2.2	2.6	3.7
	Reception during training	9.1	8.8	9.3	8.9	9.6	9.5
	Adoption	8.1	8.8	8.3	8.2	8.9	8.9
Treatment of animals	Idea about the concept	1.3	2.1	1.8	1.1	1.3	2.2
	Reception during training	7.1	6.6	8.6	7.5	7.8	8.0
	Adoption	6.3	6.4	7.2	6.9	7.2	7.2
Breeding of animals	Idea about the concept	0.4	0.6	0.3	1.8	2.0	2.0
	Reception during training	3.3	0.8	0.9	8.1	9.1	5.2
	Adoption	3.0	0.8	0.9	7.5	8.3	5.0
Marketing of livestock products	Idea about the concept	1.0	2.7	1.1	1.0	1.1	1.9
	Reception during training	6.6	6.6	6.7	6.5	7.0	6.9
	Adoption	5.9	6.3	5.3	6.0	6.1	6.3

Table 4. Extent of credit (%) received by the respondent in three locations of the study

Frequency of loan	With training		Without training		Total	
	Number of household	% of total	Number of household	% of total	Number of household	% of total
No loan	4	1.0	73	31.1	77	12.2
Loan once	165	41.6	125	53.2	290	45.9
Loan twice	164	41.3	29	12.3	193	30.5
Loan thrice	64	16.1	8	3.4	72	11.4
Total	397	100.0	235	100.0	632	100.0

Table 5. Average amount of loan in Taka received by the respondents

Frequency of loan	With training		Without training	
	Amount in BDT per household	% of total	Amount in BDT per household	% of total
Loan Once	5,726	21.7	5,598	23.2
Loan Twice	9,781	37.1	7,138	29.6
Loan Three	10,891	41.3	11,375	47.2
Total	-	100.0	-	100.0

Dissemination to popularize livestock technologies

The dissemination methods are shown in Table 6 those should be helpful to popularize and accelerating transfer of livestock technologies. Most of the respondent emphasizes that refresh training is the number one method of popularizing the livestock technologies to the IGA beneficiaries and the number two is demonstration. Many of them also emphasizes on the group discussion which ranked three.

Table 6. Methods of dissemination to popularize livestock technologies

(Rank in order of importance)

Dissemination methods	Layer farming		Broiler farming		Duck rearing		Goat rearing		Cattle rearing		Cattle fattening	
	With	With-out	With	With-out	With	With-out	With	With-out	With	With-out	With	With-out
Refresh training	1	1	1	2	1	1	1	1	2	1	1	1
Group discussion	3	3	2	3	4	3	3	3	3	3	3	3
Poster	5	4	4	5	3	5	8	4	4	5	5	4
Radio	6	8	7	7	6	7	6	6	5	8	7	8
Leaflet	8	7	9	6	3	8	9	5	9	9	8	5
TV	7	5	8	9	5	6	5	7	6	4	6	6
Demonstration	2	2	3	1	2	2	2	2	1	2	2	2
Peer group	4	6	6	8	8	4	4	9	7	6	4	7
Campaign	9	9	5	4	9	9	7	8	8	7	9	9

Livelihood changes

Table 7 indicates that the changes of land area, family and housing assets between with and without training households irrespective of IGAs. The land area increased 19.88% with training households though it increased only 7.96% into the non-training households. The table also indicates that number of family and housing assets increased higher than the non-training households. This means the farmers having training exposure earned more money

than the farmers of having no training. The findings suggested that training is an important factor for increasing family income of the farmers.

Table 7. Changes of land area, household assets and income of the respondent households

Assets	Period of time	With	Without
Land area (decimal)	Before	108	138
	After	130	149
	% change	19.88	7.96
Rickshaw (no. of hh)	Before	40	21
	After	54	20
	% change	35.00	- 4.76
Bicycle (no. of hh)	Before	66	50
	After	83	54
	% change	25.76	8.00
Radio/TV (no. of hh)	Before	143	87
	After	186	75
	% change	30.06	- 13.79
Sewing machine (no. of hh)	Before	19	10
	After	23	8
	% change	21.05	20.00
Tin house (no. of hh)	Before	332	172
	After	350	159
	% change	5.42	- 7.56
Semi-pacca latrine (no.)	Before	162	76
	After	234	75
	% change	44.44	- 1.33

Factors affecting sustainability of livestock technology

The section describes the information about the factors affecting sustainability and extent of sustainability of livestock technology. There are several factors which are broadly categorized such as technical, economical and social. The factors affecting sustainability of the MFTS project beneficiaries in the study areas is presented in Table 8. The institutional support (93% HH) and input quality (96% HH) are very important technical factors for the respondent with training for the sustainability of MFTS project beneficiaries. Disease (81% HH) is also considered as an important factor. Among the economic factors input availability (95% HH), market demand (94% HH) and price of product (95% HH) are considered

important for the sustainability of MFTS project beneficiaries. The consideration of social factors is very important for the adoption and sustainability of livestock IGAs. Natural disaster (95% HH) like flood, drought and heavy rain are considered as main factors affecting the sustainability of MFTS project beneficiaries. Social conflict (82% HH) like sharing of grazing areas, social status and power are the factors affecting sustainability. The extent of factors affecting the sustainability of the MFTS project beneficiaries is presented in Table 8. The input quality ranked the highest (8.9) score of the respondent for all the IGAs with training compare to without training.

Table 8. Factors affecting sustainability of the MFTS project beneficiaries in the study

IGA group	Training status	Total sample	Technical			Economic			Social		
			Institutional support % HH	Input quality % HH	Disease % HH	Input price % HH	Input availability % HH	Market demand % HH	Price of product % HH	Social conflict % HH	Natural disaster % HH
Poultry Layer	With	91	97	96	79	86	93	91	93	79	95
	Without	38	82	82	79	74	84	82	84	87	74
Poultry Broiler	With	16	94	88	63	81	94	88	94	88	63
	Without	24	63	58	50	42	63	54	63	58	58
Duck Rearing	With	36	86	97	94	58	97	97	97	89	97
	Without	45	69	73	60	36	58	56	56	53	60
Goat Rearing	With	88	90	89	78	76	93	91	92	74	92
	Without	46	76	74	37	46	54	59	59	43	70
Cow Rearing	With	76	99	92	76	92	94	85	97	80	82
	Without	32	97	87	81	78	90	83	97	78	91
Cattle Fattening	With	90	74	84	71	80	80	80	81	76	79
	Without	50	46	54	46	48	46	48	44	42	52
All average	With	397	93	96	81	84	95	94	95	82	90
	Without	235	74	76	60	56	67	68	68	64	69
Grand total		632	86	88	73	74	85	84	85	75	82

Implications

- Most of the respondent identified the major constraints are lack of proper training, lack of capital, lack of credit in time, high pressure for weekly payment, small loan size and high interest rate.
- The rate of adoption of livestock technology such as, housing, feeding, breeding and treatment were satisfactory for the beneficiaries having training exposure, which may accelerate livestock production. Hence, training should be imparted to all the beneficiaries of MFTS project for higher adoption of livestock technology.
- The non price factor such as, institutional support, input quality and availability of input affect on sustainability of the dissemination and adoption of livestock technology.

- Among the dissemination methods of livestock technology, training and demonstration were found to be popular among the beneficiaries. Thus, an integrated training approach followed by demonstration will be more useful for rapid dissemination of livestock technology.

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