

Impact of smallholder livestock development project in some selected areas of rural Bangladesh

Jahangir Alam

Bangladesh Livestock Research Institute, Savar, Dhaka, Bangladesh

Abstract

This study conducted in 4 districts of Bangladesh has evaluated the impact of interventions made by the Smallholder Livestock Development Project (SLDP) on socio-economic conditions of the poor people in rural Bangladesh. One thousand sample households from different types of beneficiary groups were interviewed. It was observed that the membership of the project has consisted of poor and disadvantaged women as defined in the eligibility criterion. The programme has pioneered a number of innovations related to poultry production and provided credit to group members for their adoption and income generation. This has ensured employment of poor women and generated income for them.

The total net income per household was Taka 398 (1 US \$ = Taka 43.8) and the average net income per household from SLDP activities was Taka 140 per week. The SLDP income was 35.1 per cent of total income of beneficiary households in the study areas. With the increase in income, originating mainly from SLDP activities, the beneficiary households made substantial progress in savings. The total cumulative savings per beneficiary after membership was Taka 1181, which was made by Taka 413 from group savings and Taka 768 from own savings. At the same time, the consumption of all food items especially milk, meat, eggs and grains increased after membership of SLDP.

The project has ensured empowerment of women in the study areas and increased their participation in decision making. Almost all beneficiaries reported that their socio-economic status has improved after their membership in SLDP and 100 per cent of the beneficiaries wanted to continue as members of SLDP in future.

Key words: Impact, poultry, poverty alleviation, landless women, credit, income, nutrition

Introduction

The Smallholder Livestock Development Project (SLDP) was started in July 1993 by the Department of Livestock Services (DLS) in collaboration with three national Non-Governmental Organizations (NGOs) namely, the Bangladesh Rural Advancement Committee (BRAC), Proshika and Swanirvar Bangladesh. The project was originally designed to cover a range of economic activities in the context of small scale livestock development. So far, the project has concentrated mainly on activities related to poultry development.

The target group of farmers are those who operate less than 0.5 acres of land and depend on sale of manual labour as the main source of income. The development objective of the project is to increase income and animal protein consumption of those poor people in rural Bangladesh. Other

objectives of the project include an increase in poultry population, adoption of high yielding varieties (HYVs) of breeds, increase savings of the beneficiary households, and improve the status of women in the society. The project has covered a total of 80 thanas in 16 districts of the country. The project is supported by an IFAD loan of SDR 7,650,000 and a Danida grant of DKK 25.5 million and is assisted by a technical assistance (TA) team.

The project is based on a structured concept developed by the DLS and the BRAC. The approach followed by the project is given below:

- A technical package comprising of interrelated activities involving different types of beneficiaries such as Poultry Workers, Chick Rearers, Key Rearers, Model Rearers, Feed Sellers and Mini Hatcherers. A technical support including inputs and training is provided to those beneficiaries by the DLS in co-operation with BRAC, Proshika and Swanirvar Bangladesh.
- A socio-economic support is given by NGOs that includes selection of target beneficiaries, establishment of village organisations (VOs), conducting awareness education and issue based meetings, creation of saving schemes and operation of credit programmes.

The project considered different activities of the beneficiaries as a package programme and provided assistance to perform those activities in the same area. It was envisaged that the programme will ensure an in-built mechanism for the demand and supply of inputs and the marketing of products within the rural community.

A mid-term review of the SLDP was carried out in November-December 1994 (Danida 1995). The review team recommended generation of field data through a structured/semi-structured questionnaire. Consequently, a socio-economic survey was planned by the technical assistance team of the project in co-operation with the DLS and with academic support from the Socio-economic Research Division of the Bangladesh Livestock Research Institute (BLRI).

The survey was carried out in October 1995 with the broad objective of analysing the impact of SLDP on the socio-economic condition of the beneficiaries. The results presented in this paper may provide inputs for evaluation of performance of the project and give guidance to those who wish to undertake similar studies in future.

Methodology

This survey was conducted in four districts of Bangladesh. The districts covered by the survey are Natore, Kushtia, Chuadanga and Rajshahi. One thana from each district was selected for collection of data from the beneficiaries. The selected thanas are Natore sadar, Mirpur, Alamdanga and Charghat. A total of 1000 beneficiaries, taking 250 from each thana, were interviewed. The selection of responding beneficiaries was made from a number of villages in each thana on a random basis.

The number of samples in each beneficiary group was more or less proportional to the total number of beneficiaries in each group. Different groups of beneficiaries considered by this study were defined as follows:

Poultry Worker: Poultry Workers are vaccinators, one in each village, who are given some vaccines free of charge by the DLS and buy some medicines. They vaccinate poultry and are paid in cash or kind by the villagers for the vaccination and supply of medicines.

Key Rearer: Buys 13 HYV chickens (White Leghorn, Rhode Island Red, Egyptian native Fayoumi etc. and crosses) from the Chick Rearers and raises them for egg and meat production together with chickens of the local breeds (Deshi).

Chick Rearer: Buys some 250 day old chicks (DOCs) from government hatcheries or from Mini Hatcherers and raises the chicks in confinement. These chicks are sold at the age of 8 (eight) weeks to Key Rearers.

Model Rearer: Produces fertile eggs of improved breeds for sale to Mini Hatcherers. They keep about 25 hens in confinement.

Mini Hatcherer: Buys fertile eggs from the Model Rearers and produces DOCs for sale to Chick Rearers.

Feed Seller: Collects and purchases ingredients of poultry feed, mixes and sells to different types of rearers.

A structured questionnaire was used for recording of information from the respondents. The questionnaire was prepared in conformity with the objectives of the study. The important issues examined by the questionnaire were poultry population, adoption of high yielding breeds, cost and return of beneficiary farms, income of beneficiary households, consumption and saving patterns of those households and gender relations. The sample beneficiaries were interviewed on the questionnaire by 12 skilled investigators in October 1995. The investigators were trained properly on the purpose of the survey, interview technique and on the questionnaire before they were posted to the field for interviewing the beneficiaries.

In the course of data collection, the investigators were closely supervised in the field by the author and his colleagues at the Bangladesh Livestock Research Institute, Savar and members of the TA team. After collection of the data, each of the questionnaires was thoroughly checked, and errors and omissions were corrected by reinterviewing the farmers, where necessary.

In order to determine the impact of SLDP on the respondent, a "before" and "after" method was used. For previous information, records of the baseline surveys (BRAC1993) available with the local area offices of BRAC were relied upon. Whenever any confusion arose, the Area Manager and the beneficiary were approached separately for verification.

Data so generated were analysed by using the SAS package (SAS 1992) at the Research Centre Foulum, Danish Institute of Animal Science, Denmark.

Results and discussion

Characteristics of beneficiary farms

There were 60 Chick Rearers, 40 Feed Sellers, 752 Key Rearers, 8 Mini Hatchers, 40 Model Rearers and 100 Poultry Workers under investigation in 1995. The total number of households surveyed was 1000. The proportion of male-headed households was 76.5% and the rest was female-headed. All female-headed households were represented by married women, but they were either separated from, divorced or abandoned by their husbands. In some cases, their husbands died leaving behind the burden of children and other family members on them.

The average family size of the beneficiary households was 4.5. Children below 15 years of age contributed 45.9% of family members and the rest belonged to labour active age group of above 15 years old. The proportion of female members was about 50% within the labour active age group.

The membership of SLDP, as administered by BRAC, is restricted to a person whose family owns less than 0.50 acres of cultivated land and sells out labour at least for 100 days in a year for survival. All beneficiaries covered by this survey reported to have fulfilled this eligibility criterion. The average size of farm of the beneficiary households was 0.11 acres indicating that they belong to the hard core poor families of the rural community.

Poultry and breed

The average number of poultry reared per farm in 1995 was 17.1 for Key Rearers, 11.1 for Chick Rearers, 31.8 for Model Rearers, 10.1 for Poultry Workers, 9.8 for Feed Sellers and 10.8 for Mini Hatcherers. The average number of poultry reared per farm was 16.3 which was much higher than the national average of 6.8 per household (Alam 1995). This indicates that the SLDP has made a positive impact in increasing the poultry population of the country.

As per the project document (Danida 1993), the Key Rearers and the Model Rearers are supposed to keep adult hens, and Chick Rearers are supposed to rear chicks. Other categories of beneficiaries are not entitled to get loans for rearing chicken. Our observations suggest that all categories of beneficiaries reared chicken although they received credit for their respective enterprise only. Many Poultry Workers were reported to have been rearing chicken as Key Rearers but this survey has considered those only as Poultry Workers.

A Chick Rearer produced 4.3 batches of chicks in 1995. The average number of chicks per batch was 272.2. In addition, she reared 11.1 adult chicken for meat and egg purposes. Also the Feed Sellers and Mini Hatcherers reared a good number of adult chicken for meat and egg purposes.

All birds reared by different categories of beneficiary households were classified by type of breed. It was observed that 47.4% of all birds were improved type while 52.6% were local. The percentage of improved breed was higher for Model Rearers (79.2%), followed by Mini Hatcherers (57.0%), Chick Rearers (49.3%), Key Rearers (44.8%), Feed Sellers (42.7) and Poultry Workers (39.7%). In the case of Chick Rearers, all chicks were identified as improved type. Considering the national average figure of improved breed chicken at around 5%, one can safely conclude that the SLDP has contributed substantially to breed improvement in rural areas.

Credit

SLDP has made provision for granting loans to group members for individual enterprises which are repaid by the beneficiaries through weekly instalments.

Table 1: Average amount of loan taken and the amount repaid per member household by beneficiary type.

Beneficiary type	Range of loan per unit (Taka)	Amount of loan per household (Taka)	Amount repaid per household (Taka)	Amount overdue (Taka)	Problems to repay loan	
					Yes (%)	No (%)
All beneficiaries	1000-7000	1003.60	997.59	0	0	100
Chick Rearer	5000-7000	6500.00	4399.27	0	0	100

Feed Seller	2000-6000	3900.00	3248.00	0	0	100
Key Rearer	1000-1200	1002.66	712.58	0	0	100
Mini Hatcherer	4000-6000	5750.00	1340.00	0	0	100
Model Rearer	3000-4000	3725.00	1428.50	0	0	100
Poultry Worker	Not applicable	0	0	0	0	0

Table 1 shows the average amount of loans taken and the amount repaid by the beneficiaries after they became members of SLDP. It can be seen that the average amount received by each beneficiary was Taka 1004 and the amount repaid was Taka 998. Nobody reported to have missed payment of any weekly instalment and there were no overdue loans in their accounts. When asked whether they faced any problem to repay the loan, all respondents replied that they did not face any problem.

The amount of loan received by different beneficiaries varied due to the type of enterprise. For example, the Key Rearers received the lowest amount of loan (Taka 1003), while the Mini Hatcherers received the highest amount (Taka. 5750). The repayment of the loan depended on the maturity of repayment schedule which varied from 75 to 100 weeks after they received the loan. The amount repaid each week included the principal and the interest and varied with the variation in loan amount. There was no variation in amount of loan given to each type of beneficiary by region.

All the loanees were found to be serious in maintaining the regularity of weekly instalments and keeping their loan pass books updated. No default was found during the study period. Unless the loans were highly productive in generating additional income, such a repayment behaviour would not have been expected from those operating under serious limitation in their asset base.

Income generation

The repayment behaviour of group members suggests that the loans were properly used and that investment in SLDP activities was profitable. An attempt was made to determine the income of SLDP activities in 1995. The results are summarised in Table 2.

The average net income (gross income - cost) per household from SLDP activities was Taka 140 per week. The income was highest (Taka 261) for Mini Hatcherers and lowest (Taka 122) for Key Rearers. There was considerable variation in SLDP income among regions, which is in agreement with the regional differences found in egg laying by Rahman et al (1997).

Table 2: Average weekly net income from SLDP activities per beneficiary by type and region.

Beneficiary type	Region	Number of observations	Average net income from SLDP (Taka)	Contribution of SLDP income to household total income (%)	Standard deviation of income
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All beneficiaries	All regions	1000	139.48	35.05	83.94
do	Natore	250	177.02	36.49	91.75
do	Kustia	250	140.10	36.03	77.31
do	Chuadanga	250	121.66	31.79	74.25
do	Rajshahi	250	119.15	35.57	78.81
Chick Rearer	All regions	60	229.48	43.73	93.29
Feed Seller	do	40	249.26	59.16	154.44
Key Rearer	do	752	121.75	31.09	69.65
Mini Hatcherer	do	8	261.31	54.79	49.88
Model Rearer	do	40	150.75	42.74	72.56
Poultry Worker	do	100	160.68	43.23	59.94
Chick Rearer					
do	Natore	15	280.57	51.78	100.97
do	Kustia	15	200.63	42.90	60.13
do	Chuadanga	15	240.71	40.95	69.06
do	Rajshahi	15	196.01	47.99	114.35
Feed Seller					
do	Natore	10	320.66	62.51	140.31
do	Kustia	10	305.71	63.12	227.29
do	Chuadanga	10	190.91	50.73	101.51
do	Rajshahi	10	179.78	56.79	58.02
Key Rearer					
do	Natore	188	157.84	32.03	78.23
do	Kustia	188	123.22	32.36	51.43
do	Chuadanga	188	101.55	27.33	61.72
do	Rajshahi	188	104.39	32.39	69.89
Mini Hatcherer					
do	Natore	2	209.14	43.88	12.92
do	Kustia	2	229.96	51.39	19.86
do	Chuadanga	2	285.66	63.84	20.29

do	Rajshahi	2	320.49	59.85	28.98
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Model Rearer

do	Natore	10	215.09	52.19	109.42
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do	Kustia	10	133.75	39.65	32.35
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do	Chuadanga	10	140.80	41.41	43.66
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do	Rajshahi	10	113.36	35.25	36.14
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Poultry Worker

do	Natore	25	183.85	43.55	53.96
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do	Kustia	25	159.89	42.11	49.69
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do	Chuadanga	25	152.97	42.73	51.92
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do	Rajshahi	25	146.01	44.65	76.80
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Due to benefits derived from SLDP activities, weekly total income of beneficiary households has significantly increased. One can see from Table 3 that the average weekly income of beneficiaries has increased by 49 per cent after the intervention of the SLDP in the study areas and that the difference in mean income was statistically significant by type and region. The contribution of SLDP to total household income was 35.1 per cent for all beneficiaries which varied from 31.1 per cent for Key Rearers to 59.2 per cent for Feed Sellers; 31.8 per cent in Chuadanga region to 36.5 per cent in Natore region during the reference period.

The results of a Wilcoxon signed rank test (Ereund 1988) showed that the difference of total household income before and after the project was significant at 1 per cent level and that there was a positive correlation between the difference in beneficiaries income and the difference in total household income before and after the project.

A test of significance for the difference in SLDP income among beneficiaries was carried out by type and region. It was observed that the variance among types and regions were both significant at 1 per cent level. The observed difference in income among different types of beneficiaries might be related to the size of business and investment associated with each type of activities in the study areas. In contrast, the difference among regions could have been attributed mainly to the performance of SLDP workers engaged by BRAC in each region, skills of individual beneficiary in his business or the feed available for scavenging as suggested by Rahman et al (1997).

The cost of the SLDP activities was investigated. It was observed that the feed cost followed by the labour cost represent the major items of expenditure for Key Rearers, Model Rearers and Feed Sellers, while feed cost followed by cost of day old chicks were the major items of expenditure for Chick Rearers. In the case of Mini Hatcherers, the cost of eggs was the major item of expenditure followed by cost of labour. The Poultry Workers had to spend more on medicine followed by labour and transportation.

The major source of income for both Key and Model Rearers was the sale of eggs. The Mini

Hatcherers, on the other hand, generated the lion's share of income from the sale of DOCs to SLDP members. The Poultry Workers source of income originates from vaccination fees and from sale of medicines. The Chick Rearers generated most of their income from sale of chicken to Key Rearers and the Feed Sellers from sale of feed to SLDP members.

With the intervention of SLDP in the study areas, there was a shift of some of the beneficiaries from wage employment (as maid servant) to self employment in SLDP activities. Moreover, other members of the beneficiary households have also spared some time for SLDP activities in addition to their routine work. This has resulted in a loss of income of beneficiary households from wage earning due to intervention made by the SLDP. However, the loss of wage income was more than compensated for by the income generated from self employment of the member beneficiaries from the core activities of SLDP. Furthermore, some of the members of the beneficiary households found new opportunities for generating income from activities related to SLDP and thus their income substantially increased which was specially observed in Natore region with particular reference to Chick Rearers. As a result there was a significant increase in the total income of beneficiary households after the intervention made by SLDP in the study areas. An important aspect of the distribution of income over the beneficiary households is its skewness. As all the beneficiaries experienced a significant increase in the absolute level of income, one would expect that the skewness of income distribution would have declined after the intervention of the project. Table 3 shows that the overall skewness of weekly total income of beneficiary households has fallen from 2.85 to 2.02 after the intervention of the project.

Table 3. Average weekly total net income of beneficiary households before and after membership by type and region.

Type of beneficiary and region	Mean income (Taka)		Standard deviation of income		Skewness of income	
	Before*	After	Difference	Before**	After	Before
All beneficiaries	267.50	397.89	130.39	105.29	145.13	1.581
Natore	281.57	485.09	203.52	97.57	152.50	0.686
Kustia	249.79	388.79	139.00	69.48	98.87	0.662
Chuadanga	286.41	382.71	96.30	116.59	146.96	1.446
Rajshahi	252.26	334.98	82.74	124.22	133.99	2.133
Chick Rearer	268.96	524.74	255.78	110.10	131.39	1.480
Feed Seller	262.10	421.31	159.21	132.56	183.32	2.376
Key Rearer	270.34	391.57	121.23	106.69	139.32	1.570
Mini Hatcherer	289.25	476.93	187.69	81.68	77.91	0.096

Model Rearer	274.98	352.74	77.76	105.92	101.85	1.347
Poultry Worker	242.75	371.71	128.96	82.84	115.85	0.641
Chick Rearer						
Natore	284.00	541.90	257.90	108.40	121.01	1.284
Kustia	219.43	467.63	248.20	59.38	105.02	1.504
Chuadanga	260.69	587.85	327.16	86.57	274.51	1.530
Rajshahi	311.72	501.58	189.86	124.09	211.40	1.164
Feed Seller						
Natore	311.00	508.16	197.16	67.53	177.76	-1.967
Kustia	210.10	484.21	274.11	33.37	190.82	-0.228
Chuadanga	230.12	376.30	146.18	103.92	143.02	0.311
Rajshahi	297.17	316.58	19.41	226.96	173.05	1.939
Key Rearer						
Natore	279.58	491.67	212.09	102.33	157.09	0.675
Kustia	259.05	380.76	121.71	70.44	87.86	0.693
Chuadanga	294.56	371.55	76.99	120.20	126.67	1.502
Rajshahi	248.15	322.31	74.16	120.56	118.70	2.246
Mini Hatcherer						
Natore	337.50	476.64	139.14	17.68	94.24	-
Kustia	280.00	447.46	167.46	42.43	139.24	-
Chuadanga	292.50	448.16	155.66	187.38	2.61	-
Rajshahi	247.00	535.49	288.49	32.53	62.95	-
Model Rearer						
Natore	285.55	412.09	126.54	97.80	145.02	2.102
Kustia	258.80	337.25	78.45	90.17	99.08	-1.500
Chuadanga	299.93	340.01	40.08	124.24	84.04	1.806
Rajshahi	255.65	321.61	65.96	118.18	39.99	2.170
Poultry Worker						
Natore	277.20	422.17	144.97	65.85	106.90	0.080
Kustia	208.24	379.69	171.45	44.87	83.83	0.293
Chuadanga	257.13	357.93	100.80	97.84	125.40	0.912
Rajshahi	228.42	327.03	98.61	97.37	127.24	0.468

* "Before " indicates before membership while "after" indicates after membership of SLDP.

** Differences are all significant at 1 per cent level.

An increase in the level of income of the lower income group would mean a reduction in the inequality of income distribution in rural areas. As this study was limited to only the project beneficiaries, a measurement of the overall inequality in distribution of income in the study areas was not possible. However, it appears from Alam (1993, 1988) that the inequality of income, as measured by gini concentration ratios, has fallen significantly in several villages of Bangladesh due to a similar type of intervention made by Grameen Bank, BRAC and other target group oriented organizations in those villages. The evidence tends to suggest that the inequality of income distribution originating from the concentration of productive assets (particularly land) has been reduced in the study areas after the intervention made by the SLDP.

Consumption

As the absolute income of the beneficiary households improved, one would expect that the intake of food items by household members would have increased after the intervention of SLDP. The proposition was thoroughly investigated and analysed.

It was observed that the consumption of all food items increased after membership of SLDP. The increase in consumption was substantial in the case of eggs, chicken, milk, meat and grains.

With regard to consumption of eggs within the households, children, and especially boys, were given priority. However, the consumption of vegetables did not substantially increase. It seems that the income elasticity of demand for vegetables was low for the low income groups in the study areas.

A Spearman's rank correlation analysis (Delwiche and Slaughter 1996) was carried out between total household income and consumption of food items. It was observed that there is a positive correlation between total household income and food grain, milk, chicken and egg consumption. When the analysis was repeated with beneficiaries income (SLDP income only) instead of total household income, a negative correlation was found with grain consumption but a positive correlation was observed with milk, chicken and egg consumption. Further analysis showed that there is a strong positive relationship between the consumption of chicken and egg but a weak relationship between grain and chicken/egg consumption. The correlation coefficients were all significant at 1 per cent level. It reveals that the members of the beneficiary households have consumed more nutrients from other sources than grains with the increase in income after the project.

Other than spending more on consumption of essential food items, the beneficiaries have spent a part of their increased income on procurement of household assets after membership. This was particularly noticed when the number of beneficiary households having a radio/bicycle was compared before and after intervention of the project.

The comparison reveals that 115 out of 1000 households possessed a radio before membership while the number increased to 167 after membership. Similarly, the number of households having a bicycle increased from 96 to 135 after membership of SLDP. A radio or a bicycle is a luxurious item for the poor beneficiaries but some of them could afford to buy those assets after meeting their essential consumption needs due to an increase in income through SLDP.

Table 4 : Intake of food by beneficiary households before and after membership.

Beneficiary type	Eggs (No./w eek)	Chicken (No./year)	Fish (Times/ month)	Meat (Times/ month)	Milk (Litre/ month)	Vegetab les (Time/w k) eek)	Grain (kg/wee k)
All households							
Before	1.78	2.13	9.98	0.87	0.802	12.06	12.08
After	4.61	5.05	12.0	1.88	2.59	12.2	14.3
Chick Rearer							
Before	2.10	1.35	6.56	1.18	0.33	11.73	13.32
After	5.06	7.0	13.7	3.02	3.34	10.5	16.9
Feed Seller							
Before	2.23	2.70	7.40	1.15	0.50	10.80	11.34
After	5.03	5.03	8.63	2.50	1.96	11.6	13.6
Key Rearer							
Before	1.66	2.08	10.49	0.87	0.78	12.2	12.08
After	4.38	4.89	12.0	1.66	2.67	12.3	14.3
Mini Hatcherer							
Before	2.25	2.75	4.75	0.75	1.13	12.25	11.32
After	6.00	8.37	9.00	3.38	4.25	13.5	13.5
Model Rearer							
Before	2.40	2.60	7.05	1.28	1.33	12.58	12.01
After	6.73	5.88	10.3	2.80	3.05	13.4	13.8
Poultry Worker							
Before	1.98	2.54	10.84	1.43	0.48	11.27	11.65
After	4.99	4.41	12.8	2.04	1.58	12.1	13.9

Savings

The SLDP has made it mandatory for its group members to save every week. With the increase in income, the beneficiary households made substantial progress in savings. Each beneficiary

paid at least Taka 5.0 per week towards the group savings funds. The total saving per beneficiary was Taka 1181.6 that was made by Taka 413.2 from group savings and Taka 768.4 from own savings. Those who had the opportunity to earn more have accumulated more savings. A correlation analysis was carried out between beneficiary income and savings. It was observed that there was a positive correlation between income and savings of beneficiaries and the P value was significant at 1 per cent level.

As the income increased, the beneficiary households were able to save and form capital for investment. At the same time, they faced no problem to repay the loan. The evidence is confirmed by the fact that no loan was fallen overdue in their accounts (Table 1) during the reference year.

Economic condition

The responding beneficiaries were approached to give their opinion on their economic condition after the SLDP intervention. The perception of respondents about their own economic situation was enumerated. It was observed that 99.9 per cent of group members have reported an improvement in economic condition after the intervention of the SLDP. Only one out of 1000 respondents reported to have experienced a deterioration in the household's economical condition due to sudden death of her husband.

Women empowerment

All the beneficiaries of the project are women. SLDP has ensured employment and income for them and thereby enhanced their status in the family and their participation in decision making has increased.

The magnitude of female participation in deciding the use of income was analysed. It was observed that their participation increased from 21.1 per cent to 37.7 per cent after they became members of SLDP. Similarly, their participation in deciding whether children should go to school has also increased from 18.3 per cent to 27.6 per cent. It appears that the social status of women within the household has increased after the intervention made by SLDP in the study areas.

The results of the study presented so far confirm that the SLDP has made a positive contribution to improve the socio-economic condition of its group members in rural Bangladesh.

Membership

For further confirmation of our findings, the beneficiaries were asked whether they were interested to continue membership of SLDP. All beneficiaries were in favour of continued membership. Most of the beneficiaries interested in continued affiliation expressed that poultry rearing was profitable and that they would be socially and economically benefited by membership of SLDP in the future.

Concluding remarks

This study conducted in some selected areas of Bangladesh revealed that the Smallholder Livestock Development Project (SLDP) has made substantial positive impact on poultry production, employment and income generation in rural areas. The beneficiaries of the project are poor women. The generation of income and employment from SLDP activities has enhanced the status of those women in the family and in the society.

The project has been implemented only in 16 out of 64 districts of Bangladesh. Further extension

of the project in other districts of the country is desirable. It is also desirable to replicate the project in other countries like Bangladesh where poverty is endemic and women do not have much access to productive resources and employment.

The results of this study show that there are significant variations in income among regions by type of beneficiaries. There might be several reasons for such variations. It was not possible to identify those reasons from the analysis of this study. Further studies are necessary to see why such variations occur and how that can be minimised in the project areas.

As the income of beneficiary households increased, they consumed more chicken and eggs produced by themselves. Most of their produce was sold in the local market or by other beneficiaries within the SLDP system. The marketing of chicken and eggs did not seem to be a problem yet in the project areas. However, with the expansion and intensification of the programme, marketing of the produce might become a serious problem. It is, therefore, necessary to forecast the future local demand for the produce and devise a mechanism for processing and channelling the rest of the produce to external markets.

It appears that most of the beneficiaries of the project are Key Rearers. They receive a very small loan for investment. With such a low level of investment it would not be possible for many of them to earn an income above the poverty line. It seems reasonable to increase the amount of loan for them. The Poultry Workers do not get any loan from the project even though most of them work as Key Rearers. They should be given sufficient loan to invest in their business related to the project.

The project intends to include all species of livestock in its development programme but has so far been concentrating only on poultry development. The integration of other species of livestock with a poultry enterprise seems to be a better proposition for increasing the level of household income under a mixed farming system. Therefore, the possibilities of intensifying the programme by integrating cattle and goat enterprises with poultry may be carefully examined. This may raise the income of beneficiaries at a much higher level and thus alleviate their poverty.

The beneficiaries are getting loans for project activities from the Bangladesh Rural Advancement Committee (BRAC) at 18% rate of interest. This money is given to BRAC by the International Fund for Agricultural Development (IFAD) through the Bangladesh Bank at a much lower rate of interest (2%). The normal rate of interest on agricultural credit in Bangladesh currently ranges from 10% to 13%. Moreover, there are subsidies on the interest of agricultural credit taken for irrigation equipment. When the recovery rate of loan from the beneficiaries is very high (almost 100%) and the cost of credit is very low (about 8%), there is a strong case for reducing the rate of interest on SLDP credit. Indeed the loanees are very poor farmers and the advances are made by the international organizations for alleviation of their poverty.

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