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Change of Livelihood Status of Common Interest Group Members: Interventions of National Agricultural Technology Program

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Abstract

The main purpose of the study was to determine overall livelihood change status of Common Interest Group (CIG) members in the selected areas of Mymensingh district. A total of 110 CIG members were selected from CIG groups reside in Bailor and Rampur unions of Trishal upazila following simple random sampling technique. Data were collected during 23 September to 20 October, 2018 using a structured interview schedule through face-to-face interview method by the principal author himself. Data were analyzed with a combination of descriptive statistics and inferential statistical technique. The overall change of livelihood status of the CIG members due to NATP (phase-I) interventions was considered as the focus variable of the study which was measured by using livelihood capital. Eleven selected characteristics of the CIG members namely; age, education, household size, farm size, annual income, farming experience, organizational participation, training received, credit received, agricultural subsidy received and extension media contact were considered to show relationship with their change of livelihood status. About 72 percent of the respondents had high status of livelihood and 28 percent had medium status of livelihood. This indicates that changes were occurred regarding livelihood status among the CIG members due to NATP interventions. But it is still possible to change the livelihood status of the CIG members because about 72 percent of the CIG members had highly changed livelihood status. Correlation analyses indicated that the farm size, annual income and extension media contact had significant positive relationships with the change of livelihood status of the CIG members due to NATP (phase-I) interventions. Age, education, household size, farming experience, organizational participation, training received, credit received and agricultural subsidy received had no significant relationship with respondents change of livelihood status due to NATP (phase-I) interventions. So, the CIG members got ample opportunity to change their livelihood status as most of the respondents (about 72 percent) had high status of livelihood.

Keywords: *Livelihood status, NATP, CIG, change*.

Introduction

Bangladesh is a small country which is considered as one of the densely populated countries in the world. According to World Population Review, Bangladesh has a population of 166.37 million with a density of 1115.62 people per sq. km. (World Population Review, 2018). According to the report of WHO, the life expectancy in Bangladesh is 72.76 years (UNESCO report, 2018). Bangladesh placed 136th position in Human Development Index in 2018 (UNDP, 2018). However it is a small country in terms of GDP and per capita income. Agriculture is the backbone of the country which contributes 17 percent of the GDP (BBS, 2016).

Agriculture in Bangladesh is characterized by small farms and rice dominated farming

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system. In Bangladesh, Roughly half of the population depends directly or indirectly on agriculture for their livelihoods. Most of the people living in rural areas depend on land for their livelihoods which is fertile but vulnerable. The rural people use traditional farming system because they do not have adequate knowledge about various new technologies and scientific method of crop production. As a result, productivity of rice and other crops is low compare to many developing countries and the same is true for other agricultural commodities such as fisheries and livestock.

The rural farming households are the main contributor to our economy and also the major part of our population. To develop the country it is very important to develop the household situation of the farm families. Private investment in research and extension is low. The NGOs, local governments and community organizations are coming up very slowly. Therefore, the public sector must continue to play a leading role in agricultural research and extension. In this regard, the government has taken steps to strengthen the existing research and extension to disseminate new agricultural technologies.

The NATP project was undertaken to disseminate new technologies among the rural community and to improve the situation of the poor families and reduce the poverty level of the country. This project was financed by World Bank and International Fund for Agricultural Development (IFAD). The first phase of this project was approved on 7 February and started functioning from the same year. That has already been completed in 2013. Now the second phase is running. The four major components of the project were: Agricultural research support, agricultural extension support, development of supply chain and project management and co-ordination.

The project was launched to develop and disseminate agricultural technology, increase agricultural productivity, strengthen social and economic capital, develop the supply chain, improve agricultural marketing system etc. The CIG (Common Interest Group) members are the main executor and beneficiaries of this project. A Common Interest Group is an association of people from the same socio-economic background who share a common interest or passion. They also exchange thoughts, ideas and belief about the given passion. Farmers can be members of only one CIG through which it can receive training and participate in demonstration plots in more than one technology for the sub-sector-specific extension. The CIG members can increase their agricultural production by adopting various newly improved technologies to the changing climate which will ensure their food security and also economic stability. The sustainable livelihood approach of the Department for International Development (DFID) is inherently responsive to people's own interpretations and priorities for their livelihoods. However, it starts with people; it does not compromise on the environment and main principles in terms of poverty eradication (Carney, 1998). DFID sustainable livelihood approach include five assets namely; natural, financial, human, social and physical.

Household food nutrition, income generation and income security can be enhanced by following three intervention strategies:

- Livelihood promotion (improving livelihood status)

- Livelihood protection (preventing erosion of productive assets or assisting in their recovery)
- Livelihood provisioning (meeting food and other essential needs to maintain nutritional levels).

NATP is one of the most important projects of agriculture sector. But no research is undertaken to evaluate the impact of this project on its beneficiaries especially the CIG members. So, the present study was formulated with following specific objectives:

- To determine the change of livelihood status of Common Interest Group (CIG) members due to National Agricultural Technology Program (NATP) (phase-I) activities
- To explore relationships between the selected characteristics of CIG members and their change of livelihood status due to NATP (phase-I) activities

Methodology

The study was conducted in two unions namely Bailor and Rampur union of Trishal *upazila* under Mymensingh district. The selected unions had communication facilities and were under the supervision of DAE. The population of the study was the CIG members who received extension services under NATP. There were total twelve unions in Trishal upazila. Each union had 10 CIG groups. So, there were twenty CIG groups in the study area. Each group consists of twenty members. So, the number of total population was 400. Among the CIG members 110 members were sampled randomly as the sample of the study which was about 28 percent of the population. From Bailar union the CIG members were sampled randomly from the villages named Sommukh Bailar and Dulalbari and from Rampur union the CIG members were sampled randomly from the village called Birrampur. The villages were sampled randomly by the researcher for the convenience of the study. Data were collected from the respondents by the researcher using structured interview schedule from the period of 23 September to 20 October 2018.

The eleven selected characteristics of CIG members were age, education, household size, farm size, annual income, farming experience, organizational participation, training received, credit received, agricultural subsidy received and extension media contact. Appropriate methods were used to operationalize the CIG member's characteristics by developing suitable scales. A three point rating scale was developed to measure the livelihood status of CIG members. Specific score was assigned to measure the livelihood change such as +1, 0 and -1 for increased, unchanged and decreased respectively. Then overall livelihood status score of the respondents was measured by summing the total score of five livelihood capitals (human, social, natural, physical and financial capital). Correlation analyses were done to measure the relationship between the selected characteristics of CIG members and their change of livelihood status due to NATP (phase-I) interventions.

Findings and Discussion

Individual characteristics of CIG members: Data presented in Table 1 reveal that highest proportion (68.2%) of the respondents were in middle aged followed

by young (30%) and old aged (1.8%) with an average of 40.45 years. Most of the respondents (38.2%) had secondary level of education followed by primary level (30%) and no schooling (28.2%) while 3.6% respondents had higher secondary level of education. Highest proportion (44.5%) of the respondents had small family followed by medium family (43.6%) and 11.8% respondents had large family. The average family size was 4.85. The farm size of the respondents ranged from 0.008 to 2.1 ha with an average of 0.44 ha. The highest proportion (75.5%) of the respondents had small size farm followed by 20% of the respondents had marginal size farm while 4.5% of the respondents had medium size farm and none of the respondents had large farm size. Highest proportion of the respondents (50%) had low income followed by medium income (41.8%) while only 8.2% of the respondents had high income with an average income of 144.09 thousand. The farming experience score of the respondents ranged from 3 to 30 years with a mean of 16.4 years. Highest proportion (50.9%) of the respondents had medium farming experience followed by 42.7% had high experience while 6.4% of the respondents had low farming experience. The organizational participation score of the respondents ranged from 1 to 4 with a mean of 1.67. The highest proportion (91.8%) of the respondents had low organizational participation while only 8.2% of the respondents had medium organizational participation and none of the respondents had high organizational participation. The training received score of the respondents ranged from 1 to 5 days with an average of 2.84 days. Most of the respondents (50%) had medium duration training followed by 40.9% had short duration training and only 9.1% of the respondents had long duration training. The credit received of the CIG members ranged from Tk. 0 to Tk. 110 thousand with a mean of Tk. 11.7 thousand. Most of the respondents (72.7%) received no credit followed by 15.5% received medium credit and 10% of the respondents received low credit while 1.8% of the respondents received high credit. The agricultural subsidy received score of the respondents ranged from Tk. 0 to Tk. 1500 with a mean value of Tk. 584.55. Highest proportion (45.5%) of the respondents received no subsidy compared to 31.8% received medium subsidy, 18.2% of the respondents received low subsidy while only 4.5% of the respondents received high agricultural subsidy. The computed extension media contact score of the respondents ranged from 7 to 21 against the possible range of 0 to 30 and the mean value was 13.54. Highest proportion (82.7%) of the respondents had medium extension media contact followed by 15.5% had low extension media contact and only 1.8% of the respondents had high extension media contact.

Change of livelihood status of the CIG members: The CIG members' change of livelihood status was measured with five assets of livelihoods namely; human, natural, financial, physical and social capital. At first, the individual asset-wise livelihood change status was measured by using a three point rating scale. The possible range of livelihood status score for each of the livelihood capital could vary from -5 to +5 where positive score indicates increase of livelihood status and negative score indicates decrease of livelihood status. Then, overall livelihood change status of the CIG members was measured by summing the individual score of each of the livelihood capitals.

Table 1 Distribution of the respondents according to their selected characteristics (n=110)

Characteristics (scoring system)	Possible score range (observed score)	Categories	Respondents		Mean	SD
Age (Actual years)	Not defined (22 to 65 years)	Young (18-35)	33	30	40.45	8.2
		Middle Aged (36-55)	75	68.2		
		Old (>55)	2	1.8		
Education (Year of schooling)	Not defined (0 to 16 years of schooling)	No schooling (0)	31	28.2	5.32	4.11
		Primary (1-5)	33	30		
		Secondary (6-10)	42	38.2		
		Higher secondary (>10)	4	3.6		
Household Size (No. of members)	Not defined (2 to 10 members)	Small (up to 4)	49	44.5	4.85	1.55
		Medium (5-7)	48	43.6		
		Large (above 7)	13	11.8		
Farm size (Hectares)	Not defined (0.008 to 2.1 ha)	Marginal (0.02-0.20)	22	20	0.44	0.33
		Small (0.21-1)	83	75.5		
		Medium (1.1-3.0)	5	4.5		
		Large (>3.0)	0	0		
Annual Income (‘000’Tk)	Not defined (8 to 871)	Low (up to 120)	55	50	144.09	106.82
		Medium (121-240)	46	41.8		
		High (> 240)	9	8.2		
Farming Experience (Years)	Not defined (3 to 30 years)	Low (up to 7)	7	6.4	16.4	7.02
		Medium (8-15)	56	50.9		
		High (>15)	47	42.7		
Organizational participation (Scores)	Not defined (1 to 4)	No participation (0)	0	0	1.67	0.65
		Low participation (1-2)	101	91.8		
		Moderate (3-4)	9	8.2		
		High participation (>4)	0	0		
Training received (Days)	Not defined (1 to 5 days)	Not received (0)	0	0	2.84	1.02
		Received for short duration (1-2)	45	40.9		
		Received for medium duration (3-4)	55	50		
		Received for long duration (>4 days)	10	9.1		
Credit received (‘000’ Tk)	Not defined (0 to 110)	Not received (0)	80	72.7	11.7	22.46
		Received with minimum amount(1-35)	11	10		
		Received with moderate(36-70)	17	15.5		
		Received with high amount (>70)	2	1.8		
Agricultural subsidy received (Taka)	Not defined (0 to 1500)	Not received (0)	50	45.5	0.47	0.48
		Received with minimum amount (up to 500)	20	18.2		
		Received with moderate amount (501-1000)	35	31.8		
		Received with high amount (>1000)	5	4.5		
Extension media contact (Scale scores)	0 to 3 0 (7 to 21)	Low (up to 10)	17	15.5	13.54	3.12
		Medium (11-20)	91	82.7		
		High (>20)	2	1.8		

SD: Standard Deviation

Asset-wise change of livelihood status of CIG members: Five assets of livelihoods were investigated in the present study; these were human, financial, social, natural and physical capital. Distribution of the CIG members according to different assets of livelihood has been shown in Table 2.

Change of livelihood status for human capital: The possible range of livelihood status score of the respondents for human capital could vary from-5 to +5 while the observed range was 3 to 5. The mean and standard deviation was 4.55 and 0.54 respectively (Table 2). Based on data in Table 2, all of the respondents had increased status of livelihood change regarding human capital. This may because the CIG members received various training facilities which enabled them to improve their knowledge and skills. As a result, change of livelihood status of the CIG members for human capital increased.

Table 2 Asset-wise change of livelihood status of the CIG members

Livelihood assets (measuring unit)	Range		Participants			Mean	SD
	Possible	Observed	Category	Frequency	Percent		
Human capital (score)	-5 to +5	3-5	Decreased (≤-1)	0	0	4.55	0.54
			Unchanged (0)	0	0		
			Increased (≥ 1)	110	100		
Social capital (score)	-5 to +5	3-5	Decreased (≤-1)	0	0	4.85	0.40
			Unchanged (0)	0	0		
			Increased (≥ 1)	110	100		
Natural capital (score)	-5 to +5	1-5	Decreased (≤-1)	0	0	2.78	0.88
			Unchanged (0)	0	0		
			Increased (≥ 1)	110	100		
Physical capital (score)	-5 to +5	2-5	Decreased (≤-1)	0	0	3.52	0.79
			Unchanged (0)	0	0		
			Increased (≥ 1)	110	100		
Financial capital (score)	-5 to +5	2-5	Decreased (≤-1)	0	0	3.37	0.90
			Unchanged (0)	0	0		
			Increased (≥ 1)	110	100		

Change of livelihood status for social capital: The possible range of livelihood status score of the respondents for social capital could vary from-5 to +5 while the observed range was 3 to 5. The mean and standard deviation was 4.85 and 0.40 respectively (Table 2). All of the respondents had increased status of livelihood change regarding social capital. This may occur due to various facilities provided by NATP to involve various social groups, improvement of social network and better communication among the CIG members due to their involvement in NATP.

Change of livelihood status for natural capital: The possible range of livelihood status score of the respondents for natural capital could vary from-5 to +5 while the observed range was 1 to 5. The mean and

standard deviation was 2.78 and 0.88 respectively (Table 2). All of the respondents had increased status of livelihood change regarding natural capital. This may because of better management and conservation of natural resources by the CIG members due to various activities of NATP

Change of livelihood status for physical capital: The possible range of livelihood status score of the respondents for physical capital could vary from-5 to +5 while the observed range was 2 to 5. The mean and standard deviation was 3.52 and 0.79 respectively (Table 2). All of the respondents had increased status of livelihood change regarding physical capital. This may due to improvement of living conditions and other physical facilities of the CIG members because of better income generating activities provided by NATP.

Change of livelihood status for financial capital: The possible range of livelihood status score of the respondents for financial capital could vary from-5 to +5 while the observed range was 2 to 5. The mean and standard deviation was 3.37 and 0.90 respectively (Table 2). All of the respondents had increased status of livelihood change regarding financial capital. This may happen due to increase production of diversified crops and increase of income of the CIG members because of various improved agricultural technologies and technical knowledge provided by NATP for better farm management.

A comparative observation of the Table 2 gives a clear idea that the highest variation among the participant CIG members existed regarding financial capital having a standard deviation of 0.90. On the contrary, the lowest variation was observed in case of social capital having a standard deviation of 0.40. The highest status of livelihood change was observed in case of social capital (4.85) and that was the lowest in case of natural capital (2.78). Change regarding social assets was investigated in terms of self-managerial capability, social network, togetherness, neighborhood connection and involvement in social group to a great extent. Thus changed social assets were observed to the highest extent. On the contrary, the same was the lowest in case of natural capital.

Overall change of livelihood status of the CIG members: The observed score of change of livelihood status of the participant CIG members ranged from 12 to 25 while the possible range was -25 to 25 (Table 3). The mean score of change of livelihood status was 19.05 with a standard deviation 2.43. Based on the possible range of change of livelihood status of the CIG members, they were classified into three categories. Findings show that most of the participants (71.82 %) belonged to high status of change of livelihood and 28.18 % of the CIG members belonged to medium status of change of livelihood and none of the respondents belonged to low status of change of livelihood.

Table 3 Categorization of the CIG members according to their overall change of livelihood status

Participants			Mean	SD
Category	Frequency	Percent		
Low (up to 7)	0	0	19.05	2.43
Medium (8 to 17)	31	28.18		
High (>17)	79	71.82		

The overall change of livelihood status of the CIG members was satisfactory. This indicates that changes occurred regarding livelihood status among the CIG members. This change might be occurred due to various interventions of NATP such as development and dissemination of agricultural technology, development of supply chain, improved agricultural marketing system etc. These activities were resulted in higher agricultural productivity and strengthening of social and economic capital of the CIG members. So, the change occurred in various dimensions regarding livelihood status among the CIG members. But it is still possible to improve the livelihood status of the CIG members because 71.82 % of the CIG members had highly changed livelihood status and 28.18 % of them had moderately changed livelihood status.

Relationship between CIG members' selected characteristics and the change of livelihood status of the CIG members: To find out the relationship between respondents selected characteristics and their change of livelihood status correlation co-efficient analysis was used. Various relationships regarding the above aspects were depicted in Table 4.

Farm size of the respondents had a significant positive relationship (r =0.324**) with the change of livelihood status of the CIG members. It showed that respondents with relatively large farm size had improved livelihood status than the respondents with relatively small farm size. The respondents with large farm size can implement the newly adopted technologies through NATP (phase-I) interventions to increase farm productivity and change their livelihood status than the other respondents with relatively small farm size. Islam (2005), Kabir (2005), Rahman (2002) also found similar relationships in their respective studies.

Table 4 Relationship between respondents selected characteristics and their change of livelihood status

Focus variable	CIG members' characteristics	Co-efficient of co-relation coefficient (r) with df=108
Change of livelihood status of CIG members due to NATP (phase-I) interventions	Age	0.064
	Education	0.153
	Household size	0.016
	Farm size	0.324**
	Annual income	0.532**
	Farming experience	0.006
	Organizational participation	0.119
	Training received	0.010
	Credit received	0.061
	Agricultural subsidy received	0.143
	Extension media contact	0.300**

**Significant at 0.05 level of probability;*
***Significant at 0.01 level of probability*

Annual income of the respondents showed significant positive relationship (r =0.532**) with the change of livelihood status of CIG members. It indicated that the CIG members with high annual income had improved livelihood status than the others with low annual income. The reason behind this may be due to CIG members with relatively higher annual income had better socioeconomic condition and other necessary resources to improve their livelihood status. Similar relationship was found by Islam (2005), Kabir (2005), Mortuza *et al*. (2004), Waheduzzaman (2004) in their respective studies. Extension media contact of the respondents showed significant positive relationship (0.300**) with the change of livelihood status of CIG members. The reason behind this might be CIG members with high extension media

contact take decisions and other activities about farming practices and improve their livelihood status. On the other hand the CIG members who had low extension media contact were unable to take decision and other activities about farming practices provided by NATP (phase-I) activities. Similar result was found by Islam (2005), Kabir (2005), Mortuza et al. (2004), Waheduzzaman (2004) in their respective studies.

On the other hand, age, education, household size, farming experience, organizational participation, training received, credit received and agricultural subsidy received had no significant relationship with the change of livelihood status of CIG members due to NATP (phase-I) interventions.

Conclusion

The study concludes that the NATP (phase-I) interventions had direct impact on changing the livelihood status of CIG members. It was clearly demonstrated that the overall change of livelihood status of CIG members was satisfactory. This indicated that improvement occurred regarding livelihood status among the CIG members. This improvement might be occurred due to various interventions of NATP (phase-I) such as development and dissemination of new agricultural technologies, training facilities, development of supply chain, credit and input support system, improved agricultural marketing system etc. These interventions resulted in higher agricultural productivity, strengthening of social and economic capital and change of livelihood status of CIG members. As a result of NATP (phase-I) interventions the CIG members got ample opportunity to change their livelihood status.

Considering the findings of the study, some essential policy recommendations have been arisen which are: various extension services related to farm management need to be strengthened to give support to the CIG members for better farm management and change of livelihood status of CIG members. Though the overall livelihood change status of CIG member was high but it is still possible to improve the livelihood status of CIG members. The credit, input, training facilities and other support systems should be more simplified, clear and rational to ensure better opportunity for the CIG members to change their livelihood status.

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