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Food security and livelihood of tribal people in Bangladesh: The role of microfinance

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ABSTRACT

Microfinance is being considered as one of the most effective tools of improving the food security and the livelihood. The present study was conducted to analyze the loan profiles, the impact of credit on the livelihood and food security level of the tribal households. The primary data were collected from randomly selected sixty women beneficiaries through the interview schedule in Khagrachari district of Bangladesh. Tabular analysis along with a DFID livelihood framework was used for data analysis. To assess the calorie intake level, seven days consumption data were converted to per person per day calorie intake level. The study showed that the beneficiaries received required amount of loan for different purposes such as petty business, dairy, agribusiness, trading of handicraft, fishery, etc., and they invested their loan money in the productive activities mostly. The loan recovery rate was highly satisfactory. The study also discovered that the assets possession of the households improved after utilizing the loan. The calorie intake level of the sample household members indicated around two-third members were food unsecured. As microfinance showed a positive impact on livelihood; different financial institutions, NGOs, private companies and local and foreign donor agencies should come forward to offer financial help to the tribal community to improve their livelihoods and food security.

Keywords: Food security, livelihood, tribal people, microfinance, Bangladesh

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1 Introduction

Bangladesh has about fifty-eight ethnic groups in different parts of Bangladesh, and they are about twelve hundred thousand in number which is about one percent of the total population of Bangladesh (Mullah et al., 2007). These people of Bangladesh who have unique socio-culture, be in possession of own languages and traditions that are generally referred to within the communities as 'Adibasis'. The presence of these people has enriched the socio-cultural diversity of Bangladesh. The tribal community show the way a uncomplicated life and are usually self-contained, make their own foodstuff and dress in distinctive clothes (Ahmed, 2006). The tribal people in Khagrachari district of Bangladesh mostly carried out Jhum cultivation as their primary income source as few other farming systems available in this area. Beside the primary sources, crop, dairy, poultry, handicraft, fishery and goat rearing, wood collection from forest are their subsidiary sources of income. In general, livelihoods of tribal people have become more diversified, partly out of need, partly out of preference. Scarcity of land is one of the main external driving forces behind present livelihood changes. Bangladesh has about fifty-eight ethnic groups in different parts

of Bangladesh, and they are about twelve hundred thousand in number which is about one percent of the total population of this country. Those socially marginalized faced many constraints in food access, because of lack of knowledge, shortage of income generating activities.

Bangladesh has achieved notable advancement in regard to dropping acute poverty. In 2016 the poverty rate was 24.3% and extreme poverty rate was 12.9% (HIES, 2016). But the poverty rate for the Garo tribal people was much higher as it was 80% in calorie intake method (Rahman et al., 2016). Other researchers observed that inadequate income earning opportunities, definite geographic area, denial and dispossession from natural resources are the main causes of poverty among the tribal people in Bangladesh (Barkat et al., 2009a; Adnan, 2004; Kamal et al., 2006). Using the Direct Calorie Intake (DCI) process, (Barkat et al., 2009b) observed in the Chittagong Hill Tracts (CHT) about sixty-two percent of the respondents in the area, without consideration of tribal people, live below the absolute poverty line, whilst about thirty-six percent are hardcore poor. The poverty conditions of women in the region are very alarming fear ninety-four percent of them live below the poverty line (2,122 Kcal) and about eighty-five percent lower the hardcore poverty line (<1,805 Kcal). The report of United Nation Development Program (UNDP) in 2013 found different scenario in different district in the Chittagong Hill Tracts (CHT) such as in Khagrachari about fifty-one percent, in Bandarban about forty-one percent and in Rangamati about thirty-three percent of population under the poverty line compared to the countrywide average of about thirty-one and half percent (UNDP, 2013).

Microfinance has been considered as anti-poverty, comprehensive financial line up as it targets and reaches the deprived people, particularly women along with marginal and landless farmers who often have too little chance to get financial services from formal financial institutions (Khandker et al., 2016). Aiming on poverty reduction, creating opportunity of credit for the women, microfinance institutions made vital progress to reduce gender inequality and women were capable to start non-farm self-employed activities and making socio-economic and cultural decisions that would promote the welfare of the household (Al-Samarrai, 2007). Since microfinance favors women, its role in securing food security is important, because in most tribal societies women gather, harvest, store and process food. Diagne and Zeller (2001) found that the households can reduce the dependency of borrowing from informal sources by applying and receiving of loan from formal financial institutions that had a bit positive impacts on annual family income. Nevertheless, these effects were too little and did not put any meaning variation among individual income, food security and dietary standing of trial and control groups. Mahjabeen (2007) found that microfinance support contributed to increased income and consumption level, reduced income inequality and improved welfare of the households.

Different research has been done on role of microcredit on food security, livelihood, and household income in different areas in Bangladesh. But no research has been conducted on role of microfinance food security and livelihood of tribal people in Bangladesh especially in Khagrachari district of Bangladesh. Considering the above mentioned facts, the main research questions were; what are the loan adequacy, purposes and use patterns of tribal beneficiaries? Are there any changes of their assets after using loan? What are the food consumption levels of the households? On the basis of the research questions, the specific objectives of this research were to look at the loan profile of the respondents and impact of credit on livelihood and food security level of the households' members.

2 Materials and Methods

A sample of 60 women respondents was selected from Matiranga upazila of Khagrachari district in Bangladesh. From 60 women respondents, 20 were Chakma, 20 were Marma and 20 were Tripura who were the beneficiaries of different credit institutions namely BRAC, ASA, Caritas and Grameen Bank. Respondents were selected by using random sampling technique. The primary data were collected through face to face interview using semi-structure interview schedule during the month of January to April, 2017. Descriptive statistics were used to analyze the data. To assess the impact of credit on livelihood of the tribal households, assets pentagon from DFID (2000) livelihood approach was used. To determine the per person per day calorie intake level, total amount of all consumed food items of last seven days by the sample households was collected and converted through standard value of per hundred gram of each food item. For the calculation, 'Modified' OECD scale was used, that is; a scale that equals one for the first adult, 0.5 for each additional person older than 14 and 0.3 for each person of 14 years or younger (Hagenaars et al., 1994).

2.1 Sustainable livelihoods framework

The sustainable livelihoods framework provides thoughtful idea about the livelihoods of the poor. The framework presented below in Fig. 1. This framework considers all the factors that hamper or increase livelihood opportunities, and convey how they communicate. The livelihoods framework considers people at the core of the improvement. Bear in mind this fact; they are also vital at top levels when thinking about the attainment of objectives such as poverty alleviation, sustainable improvement as it is at the

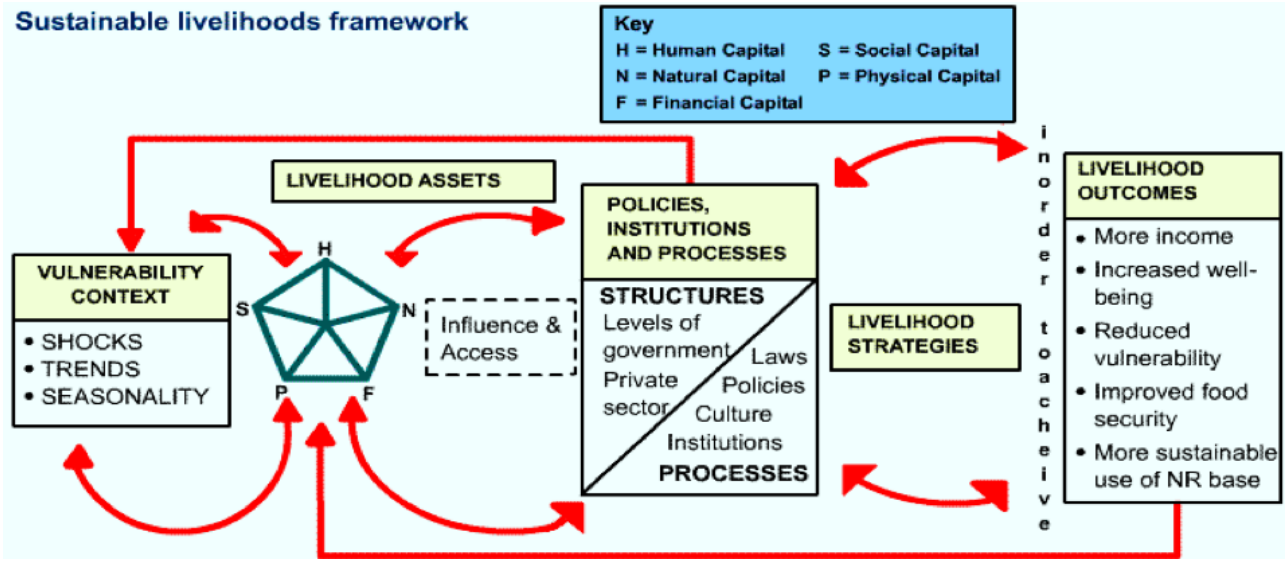

Figure 1. The Sustainable livelihood framework. Source:DFID (2000)

root level. The five types of assets such as human, social, natural, physical and financial lie at the heart of the livelihoods approach. This assets pentagon was formulated to facilitate information about people's assets to be presented visually, thereby bringing to life significant inter-relationships between ranges of assets. To put side by side the food security position of tribal people and the national average, the testing process was as follows:

2.2 Proportion test

Each hypothesis test needs the analyst to affirm a null hypothesis and an alternative hypothesis. The hypotheses are confirmed in such a way that they are reciprocally exclusive. That is, if one is true, the other is obliged to be false; and vice versa. If the sample results are not likely, given the null hypothesis, the investigator discards the null hypothesis. Usually, this involves comparing the P-value to the significance level, and rejecting the null hypothesis when the P-value is less than the significance level.

The null and alternative hypotheses were:

H_0: $p \leq p_0$ vs H_1: $p > p_0$. In the null hypothesis the test statistics is

$$Z_{cal} = \frac{(p - p_0)}{\sqrt{\frac{p_0 q_0}{n}}}$$

where, $q_0 = 1 - p_0$, p = proportion of sample, p_0 = proportion of hypothesize population, n = sample size. If $Z_{cal} \geq Z_\alpha$, null hypothesis can be rejected at α% level of significance, or else accepted.

3 Results and Discussion

3.1 Income, expenditure and savings

Latif (2001) analyzed the effect of microcredit on household savings. He observed that small credit has a positive impact on household savings. Difference between annual income and annual expenditure is the average savings which were calculated considering different occupation of the respondents. Annual average savings of the respondents are shown in the Table 1. The average annual savings for tribal people was highest for the fishery (Tk 8,950) and lowest for the trading of handicraft (Tk 400) for the individual respondent household.

3.2 Loan received by the respondents

Capital is the pre-requisite of any kind of investment. The capital can become from equity money and/or borrowing. To fulfill the capital requirement, credit is supportive as it creates capacity for more investment. The demand for loan of a borrower depends on their socio-economic situation and the nature of business in which they are occupied. The difficult task for the respondents is to determine the actual amount of loan needed and the availability of loan because of their diverse level of activities. On the basis of the loan amount taken by the respondents, they were classified into the following three categories: (1) Small (up to Tk 15,000); (2) Medium (Tk 15,001-35,000) and (3) Large (Tk 35,001-50,000). Table 2 shows that 51.67% of the households received small amount, 40% of the respondents received medium amount and 8.33% of the households received large amount of loan. Large numbers of respondents were taking the small loan for their income generating activities.

Table 1. Average annual income, expenditure and savings of the respondents †

Purposes	Income (Tk)	Expenditure (Tk)	Savings (Tk)
Agri-business	96,571	94,992	1,578
Petty business	87,708	84,597	3,110
Poultry	55,000	53,300	1,700
Fishery	1,32,333	1,23,383	8,950
Dairy	73,363	71,850	1,513
Goat purchasing	50,000	48,800	1,200
Education for children	51,333	50,233	1,100
Rickshaw pulling	49,400	48,280	1,120
Trading of handicraft	55,600	55,200	400

† Source: Field survey by the authors in 2017

Table 2. Distribution of loan received by the respondents †

Purposes	Categories of loan received (in Tk)								
	Small ($\leq$ Tk 15,000)			Medium (Tk 15,001–35,000)			Large (Tk 35,001–50,000)		
	No.	%	Avg. amount	No.	%	Avg. amount	No.	%	Avg. amount
Agri business	3	42.86	5,667	3	42.86	17,000	1	14.29	37,000
Petty business	5	20.83	12,000	17	70.83	25,000	2	8.33	42,500
Dairy	8	72.73	11,875	3	27.27	20,667	–	–	–
Fishery	–	–	–	1	33.33	20,000	2	66.67	45,000
Poultry purchasing	1	100	6,000	–	–	–	–	–	–
Goat purchasing	1	100	12,000	–	–	–	–	–	–
Education loan	3	100	4,667	–	–	–	–	–	–
Rickshaw buying	5	100	9,000	–	–	–	–	–	–
Trading of handicraft	5	100	6,800	–	–	–	–	–	–
Total	31	51.67		24	40		5	8.33	

† Source: Field survey by the authors in 2017

Table 3. Purposes of loan received by the respondents †

Purposes	Number of respondents	% of total respondents	Amount applied for (Tk)	Amount received (Tk)
Agri-business	7	11.67	15,000	15,000
Petty business	24	40	23,750	23,750
Poultry	1	1.67	6,000	6,000
Fishery	3	5	36,667	36,667
Dairy	11	18.33	14,273	14,273
Goat purchasing	1	1.67	12,000	12,000
Loan for education	3	5	4,667	4,667
Rickshaw buying	5	8.33	9,000	9,000
Trading of handicraft	5	8.33	6,800	6,800
Total	60	100		

† Source: Field survey by the authors in 2017

3.3 Purpose-wise loan granted

The beneficiaries of the study area where applied and received loans from different NGOs mainly for nine different purposes namely, agribusiness, petty business, poultry, fishery, dairy, goat purchasing, children's education, rickshaw buying and trading of the handicraft during the year of investigation. As the beneficiaries were women, they were not pulling the rickshaw but they received loans for purchasing the rickshaw for their husband. Table 3 shows that all of the respondents received applied amount of loan during the study period. About 40% of the respondents got loan money for the purpose of petty business. It was the maximum share of the respondents. The highest amount of loan had been received for the purpose of the fishery which was on an average Tk 36,666 and lowest amount of loan was received for the education.

3.4 Utilization of the loan

Loan utilization pattern is very important in any business. The use of loan in right time and right way could improve socio-economic condition of the borrowers. But in opposite, if it is used for unreported purposes it will result in fail to repay the loans which will lead the borrowers to loan defaulter and lending institutions will face the financial problem. Proper use of loan is a precondition to achieve the goals and targets set by the lenders and borrowers but more important for the borrowers. Table 4 describes the amount and percentage of loan money spent on productive and unproductive purposes. It was found that 98.68% of the total loan amount was used for productive purposes whereas it was 1.32% for unproductive purposes. This was very good scenery for the borrowers as well as for the lenders and it was possible due to the close motoring effort done by the lending institutions.

3.5 Repayment status of the respondents

Repayment is made by the borrowers through different modes in microfinance operation. It is the task of paying back the principal amount along with interest formerly borrowed from a lender. Typically, the return of funds happens through installment payments. Ability to repay the loan money along with interest is one of the central indicators to analyze the borrower loan profile and appropriate use of loan is one of the ways to improve repayment capacity of borrowers. A successful credit program has always attributes by its satisfactory loan use and level of repayment. Table 5 explains the average repayment position of the borrowers. The average amount applied by the borrowers was found to be Tk 17,550 and principal amount received by the borrowers were Tk 17,550. The borrowers received actual amount what they applied. Total average repayment amount was to be found Tk 20,182 by all the borrowers including average interest rate of Tk 2,632 at the 15% rate for one year. The amount was paid in installments. The unpaid amount was null. So, the repayment rate was cent percent. The positive attitude to loan repayment by the borrowers was influenced by different factors such as hope to get a large amount of loan in future, group pressure, social pressure, etc.

3.6 Impact of credit on livelihood

The sustainable livelihoods framework explains how assets are linked to livelihood outcome in vulnerability context. General perception is that poverty means low income, but sustainable livelihoods approach, emphasis on different type of assets is more important to live in the society with dignity. Following the sustainable livelihoods framework, if we like to see the effect of any intervention on livelihood, actually we see the change of different assets possession of the household after intervention. Here, we looked at the change of the household assets after using microcredit. When we consider human capital that implies knowledge, attributes and inventiveness personified in the capacity to perform effort so as to generate economic value. Social capital means the stock of faith, universal thoughtful, general ethics, and reciprocally held information that foster the social synchronization of economic activity (Neva, 2003). Natural resources are resources that exist without actions of humankind. It includes land, water, etc. Physical capital is the touchable asset that is produced by humans and in some way used in production. It has been considered a stock of capital goods. It is a factor of production consisting of equipment, buildings, furniture, and the like. Financial capital is a financial resource considered in term of money used by the households to acquire what they need to carry on their daily activities. This capital is like a tonic of our economy. The assets pentagon which we discussed above shown in the Table 6. About 90%, 76.66%, 71.66% of the sample households mentioned that skills and knowledge, health and education positively changed, respectively.

This was mainly because of their more interaction with other beneficiaries and institutional personnel. It was also observed in the Table 6 that 91.66% and 95% of the sample household's opinions that women's involvement in the decision making process and leadership was better than before, respectively. When any women beneficiary is able to give financial support to her family, the other family members not only appreciate her contribution but also invite in the family meeting. In case of the natural assets, 30% of the households improved their land area on the other hand, 63.33% of them replied that the land area was unchanged after using the loan. But 6.66% reported that their land has decreased after using the loan.

Table 4. Patterns of loan utilization †

Loan type	Productive purposes		Unproductive purposes	
	Avg. amount (Tk)	Percentage (%)	Avg. amount (Tk)	Percentage (%)
Agri-business	14,857	99.05	143	0.95
Petty business	23,250	97.89	500	2.11
Poultry	6,000	100	–	–
Fishery	36,667	100	–	–
Dairy	13,818	96.82	455	3.18
Goat Purchasing	12,000	100	–	–
Loan for education	4,667	100	–	–
Rickshaw buying	8,800	97.78	200	2.22
Trading of handicraft	6,400	94.12	400	5.88
Total	1,26,458	98.68	1,697.41	1.32

† Source: Field survey by the authors in 2017

Table 5. Loan repayment status of the respondents †

Item	Average amount
Amount applied by the respondents	17,550
Principal amount received by the respondents (Tk)	17,550
Interest after one year at 15% (Tk)	2,633
Total amount (Tk)	20,183
Repayment by the respondents (Tk)	20,183
Unpaid (Tk)	–
Repayment performance (Percentage)	100%

† Source: Field survey by the authors in 2017

As they were having a small amount of loan mostly. About 56.66% of the respondents claimed that solar energy use improved and 91.66% replied sanitation condition was improved after getting the loan. The respondents were very keen to use solar power and use the sanitary latrine. A very small percentage of the sample households (13.33%) had a positive change of liquid money. Poultry birds, dairy cows, goats, and pigs were improved by 46.67%, 36.67%, 15%, 41.67%, respectively. Rearing poultry birds, cows, goats and pigs were common livelihood strategy for the tribal people.

3.7 Food consumption scenario

Generally food consumption data are acquired for three to seven days. Seven-day data were traditionally used as the 'gold standard' for authenticating other methods (Willett, 2013). On the basis of the amount of food consumed by the household members during the last 7 d, per capita calorie intake level was measures using standard values of per 100 g food items. Table 7 shows per capita d^{-1} calorie intake level of sample households. About 23.33% of the sample households was consumed an average 1485 Kcal person^{-1} d^{-1}, that indicated they were ultra poor (<1,600 Kcal). About 26.67% of the sample households was consumed an average 1,705 Kcal person^{-1} d^{-1}, they were in the hard-core poor group and 18.33% of the households consumed an average 1,893 Kcal person^{-1} d^{-1}, they were in the absolute poor group (1,805- 2,122 Kcal). Beside the three poor groups, about 31.67% of the sample households consumed an average 2297 Kcal person^{-1} d^{-1}, and they were lucky non-poor. This situation for the tribal people was due to lack income generating activities, low level of land possession, less employment opportunity in the study area, etc. Rahman et al. (2013) found different results in their study for the fishermen which were more than two-third of the households were in the group of hard core poor. Sikder et al. (2017) found that in Naogaon District of Bangladesh only 21% of sample households were in food secured and rest 79% of the households were somehow food incesued.

Proportion test H_0: $p \leq 0.243$ vs H_1: $p > 0.243$. The test statistic is

$$Z = \frac{(p - p_0)}{\sqrt{\frac{p_0 q_0}{n}}} = \frac{(0.683 - 0.243)}{\sqrt{\frac{0.243 \times 0.757}{60}}} = 7.94652447$$

Since the p-value (0.00) of Z statistics is <0.05 we can reject the null hypothesis.

Table 6. Change of different type of assets †

Type	Assets	Degree of change					
		Increased		Decreased		Unchanged	
		Number	%	Number	%	Number	%
Human	Education	43	71.7	17	28.3	0	0.0
	Health	46	76.7	12	20.0	2	3.3
	Skill and knowledge	54	90.0	6	10.0	0	0.0
Social	Common rules and sanction	40	66.7	20	33.4	0	0.0
	Women empowerment	55	91.7	5	8.4	0	0.0
	Leadership	57	95.0	3	5.0	0	0.0
	Network and connection	38	63.3	18	30.0	4	6.8
Natural	Land	18	30.0	38	63.3	4	6.7
Physical	Bed	8	13.3	52	86.7	0	0.0
	Chair	10	16.7	50	83.3	0	0.0
	Table	17	28.3	43	71.7	0	0.0
	Sanitation	55	91.7	5	8.4	0	0.0
	Solar energy	34	56.7	26	53.4	0	0.0
	Weeder	7	11.7	53	88.4	0	0.0
	Harvester	5	8.4	559	91.7	0	0.0
Financial	Cash in hand	8	13.3	52	86.7	0	0.0
	Poultry birds	28	46.7	30	50.0	2	3.3
	Dairy cows	22	36.7	38	68.3	0	0.0
	Goats	9	15.0	51	85.0	0	0.0
	Pigs	25	41.7	30	50.0	5	8.3

† Source: Field survey by the authors in 2017

Table 7. Calorie intake by the sample households †

Categories	No. of respondents	% of total respondents	Avg. calorie intake (Kcal person^{-1} d^{-1})
Ultra poor (<1600 Kcal)	14	23.33	1485
Hand core poor (1600 – 1804 Kcal)	16	26.67	1705
Absolute poor (1805 – 2122 Kcal)	11	18.33	1894
Non-poor (>2122 Kcal)	19	31.67	2297

† Source: Authors' estimation

Table 8. Food intake by the respondents †

Major food items	Respondent avg. intake (g person^{-1} d^{-1})	National avg. intake (g person^{-1} d^{-1})	Difference from national value (g person^{-1} d^{-1})
Rice	538.5	515.16	23.34
Potato	18.56	96.45	−78.02
Vegetables	90.5	109.58	−19.08
Pulses	6.7	9.86	3.16
Oil	20.03	5.75	14.28
Meat	11.23	23.24	−12.01
Egg	2.7	8.03	−5.33
Milk	24.86	21.64	3.22
Fish	67.9	44.65	23.25

† Source: Authors' estimation

Although government data indicated 24.3% people of the Bangladesh are food insecure, but we found the value was significantly high that was 68.33% for the tribal people who got microcredit. The reason for this variation was due to lack of income generating activities.

3.8 Individual food intake

Household consumption data of last 7 d were collected. Per capita daily food consumption is the level of daily food consumption in individual level. Table 8 shows the per capita daily food items consumption level and a comparison national average. Table 8 shows that the tribal people in the study area consumed more rice, pulses, oil, milk and fish compare to national average. This was happening because of, they produced rice and pulses themselves and most of them were rearing cows for milking and fish was available in the market with reasonable price. On the other hand, they consumed less potato, vegetables, meat and egg compare to national average. All of the vegetables including potato and meat and egg were very expensive for them. They were not able to buy required amount of those food items.

4 Conclusions

Considering the important role of microfinance in food security and livelihood improvement, the study looked at the loan profile of the respondents, effect of credit on livelihood and consumption level of the sample households. The findings indicated that the required amount of loan was received by the beneficiaries and the loan used productive purposes mostly. The loan recovery rate was highly satisfactory. After investing the loan money in different economic activities, different assets possesses by the households were positively changed. But the food security situation was not so good. Only 31.67% family members of the respondents had 2,297 Kcal person^{-1} d^{-1}. Therefore, it can be summarized that, most of the respondents (68.33%) were food insecure. The challenge for the future will be to pursue a tangible accomplishment of equity in access to resources by tribal people to attain food security through produce food, increasing purchasing power to buy food where it is not produced and improve their livelihoods through increasing their different capitals. Adequate and timely provision of credit ensures that people invest more in their productive purposes which also could help the tribal group of people in this district to improve their socio-economic status. From the above discussion, we can conclude that all types of financial institutions should come forward with different financial products to increase the outreach of the microfinance facilities for improvement of food security and livelihoods of the tribal people.

Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

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