

IMPROVING LIVELIHOOD PATTERN OF HAND WEAVERS PARTICULARLY WOMEN IN KISHOREGANJ DISTRICT OF BANGLADESH

H. M. Sammy¹, S. Islam², M. M. Riad³ and S. J. Rayhan⁴

ABSTRACT

Bangladesh is a small South Asian country and has the highest population density in the world. It has an agro-based economy, where about half of the total population is female and a majority of them, about 80%, live in rural areas. Most of the rural women have little opportunity to participate in intra-household, socio-economic and political decision-making processes as well as very limited interaction with people outside of the home. The works of women in Bangladesh are mostly confined to the homestead due to cultural, religious and social restrictions. Most of the rural people are poor and family depends on income of male person; but ensuring the income of women is an essential precondition for the elimination of poverty. At present women are involved in some income generating activities, Hand Weaving is one of them, not only women are taking benefit from this new sector but also men are getting more advantages from this. Socio-economic analysis, cost & return was estimated to show their income level as well as livelihood. The main objectives of the study are to improve livelihood of rural people, to analyze the proportion of income from various sources, to compare the income of weaver between present and past and to identify the determinants of income of weaver at household level through Multiple Classification Analysis (MCA).

Keywords: hand weaving, income, livelihood, women, MCA

INTRODUCTION

Hand weaving is generally defined as "Cloths designing with the help of hand through weaving, mostly with the help of needle or simple tools". Such as making *Shari, Jama, Orna, and Panjabi* using *stone, chunki, moti, jori, pipe, lace* and *colourful threads*. Generally, different types of design are embroidered on the cloths to make beautiful cloths which have a great demand to the customer. A person's livelihood refers to their "means of securing the basic necessities -food, water, shelter and clothing- of life". Livelihood is defined as a set of activities, involving securing water, food, fodder, medicine, shelter, clothing and the capacity to acquire above necessities working either individually or as a group by using endowments (both human and material) for meeting the requirements of the self and his/her household on a sustainable basis with dignity. Livelihoods can be defined as "a means of gaining living", which refers to the way of living rather than income and consumption alone (Stroud, 1996; Avnimelech, 1998; Chambers and Conway, 1991). The main purpose of this study is to provide sound information which can help to improve livelihood through hand weaving activities for the surveyed women of the Kishoreganj district in Bangladesh. The specific objectives of this study are as to find out livelihood pattern of the hand weavers of the rural community of Kishoreganj, to identify the determinants of income of weaver at household level, to examine the extent of dependence (in terms of livelihood) of the hand weaver on this sector and any other livelihood options and to suggest the policy recommendations for improvement of livelihood pattern of hand weaver.

MATERIALS AND METHODS

Researchers visited rural area of Kishoreganj district where hand weaving activities take place. Mostly, women are involved in hand weaving activities except agents and painters who are men in the hand

¹Lecturer, Department of Agricultural Statistics, ²Student of MBA in Agribusiness, Sher-e-Bangla Agricultural University, Dhaka, ³Associate Professor, Department of Basic Science, Patuakhali Science and Technology University, Patuakhali, ⁴Assistant Professor, Department of Management and Finance, Sher-e-Bangla Agricultural University, Dhaka, Bangladesh.

weaving activities. Data were collected through personal interviews with the respondents. Data were collected applying face to face interview during the period from 15 June, 2013 to 5 July, 2013. The researcher separately interacted with the local weavers and agents along with school teachers, religious leaders and local elites through structured Focus Group Discussions (FGD's). The issues on which these discussions deliberated include:

- ❖ Number of people in the area involved in the activity.
- ❖ Level of dependence (in terms of livelihood) on the hand weaving and other livelihood options of the rural community.
- ❖ Source of raw material and extent of sustainability (future) of the sector based on the raw material.
- ❖ Mode of product sale, any middle-men involved.
- ❖ Existing and future Government /institutional support required.

Considering all this aspects about 50 samples were randomly selected. A purposive random sampling technique was followed in this study.

Primary data were collected from those area engaged in hand weaving Kishoreganj (Kishoreganj, Hossainpur and Pakundia Upazilla). Circle colour points in the map indicate the survey areas.

Analytical Tools and Techniques

Multiple Classification Analysis (MCA)

Multiple classification analysis (MCA) is an extension of multiple regression analysis and it is logically similar to multiple regression analysis with dummy variables (Suits, 1957). The MCA technique is applicable in both the cases when the dependent variable is measured either in an interval scale or in a ratio scale and the independent variables or predictor variables are measured in terms of ordinal or nominal scale. In MCA approach, each subgroup of an independent variable is transmitted into a dummy variable that may take the value of one or zero, depending on whether the case falls or does not fall in that particular subgroup. Further MCA deals with linear as well as non-linear relationship among the predictors and the dependent variables. It is also to be noted here that conventional standardization technique is quite analogous to MCA, and when appropriate each should give almost same conclusion. The MCA is a more sophisticated technique, as compared to standardization, which controls simultaneously a number of variables in framework of an additive model fitted by the method of least squares. The additive assumption implies that the differences according to one predictor are the same for all the values of the other predictors included in the model.

The statistical model can be expressed as,

$$Y_{ij\dots n} = Y + a_i + b_j + \dots + e_{ij\dots n}$$

Where,

$Y_{ij\dots n}$ is the value of the dependent variable of the particular respondent who falls into *ith* category of predictor A, *jth* category of predictor B, etc.

Y is the grand mean of the dependent variable

a_i is the added effect of *ith* category of predictor A (difference between grand mean Y and the mean of the *ith* category of predictor A)

b_j is the added effect of *jth* category of predictor B (difference between grand mean Y and the mean of the *jth* category of predictor B)

$e_{ij\dots n}$ is the error term for this respondent.

Dependent and Independent Variables

Before executing any statistical analysis, it is important to check the data very carefully and selecting dependent and independent variables carefully is also important. In this study, only one dependent variable and 6 independent variables are used for multiple classification analysis (MCA). The construction of variables and their categories are discussed below.

Dependent variable

Since the study measures determinants the hand weaving income thus hand weaving income is used as dependent variable in Multiple Classification Analysis (MCA). In Multiple Classification Analysis (MCA), dependent variable (hand weaving income) is used as a continuous variable

Independent variables

The study includes a total of 6 independent variables for multiple classification analysis (Table 1). The selected independent variables and their categories are given:

Table 1. Independent Variables for Multiple Classification Analysis

S.N	Independent variables for MCA	S.N	Independent variables for MCA
01	Household annual income excluding hand weaving	02	Land of the household
	1 = Poor (\leq TK. 36000)		1 = No land (<5 decimals)
	2 = Medium (TK. 36001-72000)		2 = Minimum (5-10 decimal)
	3 = Rich (TK. 72001+)		3 = Medium (11-50) decimal
03	Relationship of migrant with HH		4 = Maximum (51+ decimal)
	1 = Household Head	04	Marital status
	2 = Wife		1 = Married
	3 = Daughter		2 = Unmarried
05	No. of Shari prepared monthly	06	Education
	1 = 2-3 Shari		1 = No Education and Primary
	2 = 4-6 Shari		2 = Secondary and Above

RESULTS AND DISCUSSION

Rural Community and Hand Weaving as Livelihood Option

In Bangladesh most of the rural people live below the poverty line. There are no available employments opportunities for both men and women; women are more lag behind than men. They cannot maintain their better living of standard and suffer from different lacking of basic needs. The rural economy is also equally distinctive since it is closed and undifferentiated characterized by adoption of primitive technology in economic pursuits. The rural people earn in their livelihood by undertaking many occupations such as agriculture, industrial labor, animal husbandry, fishing, small scale service, traditional commerce of which household industry including handicrafts is of prime importance. There is substantial gap in the level of development between the rural low income people and the rest of the population. A majority of the rural people irrespective of their occupation is living below the poverty line. Their poverty levels are reflected in their low levels of incomes and expenditures as well as their standard of living. Lack of basic facilities and infrastructure along with secluded life cut off from the rest of the country further characterize the rural life in the country.

Government Initiatives

It is new idea and government does not take any initiative to improve or develop the sector. Without help of government support rural community involved in hand weaving run their activities. If government takes necessary steps to improve the sector and provide proper support to community then the hand weaving sector will be developed and there by the economic condition of rural community as well as national economy will be developed.

Institutions Involved for Promotion of Hand Weaving

Some NGOs are pioneer to improve the hand weaving activity; they provide financial support as micro-credit to agent who runs their activity through this financial support. Proshika, BRAC and Grameen Bank are common micro-credit organizations; they mostly work in rural community to eradicate poverty, improve living of standard, increase sanitation and create employment opportunity.

Comparison of the Livelihood Issues for Weavers

The people who are involved in hand weaving are so much happy doing this type of handicraft activity, because at present they are well comparison to past in term of livelihood issues. Following tables show comparison of the livelihood issues between present and past.

Table 2. Comparison of the landholding

Items		Before Hand Weaving	After Hand Weaving
Total operational holding size \pm SD		(24.28 \pm 38.60) Decimal	(23.58 \pm 38.33) Decimal
Sources of drinking water	Personal tube-well	4%	12%
	Public tube-well	96%	88%
Type of residence	Kacha	26%	14%
	Tin shade	68%	74%
	Sami paka	4%	10%
	Paka	2%	2%

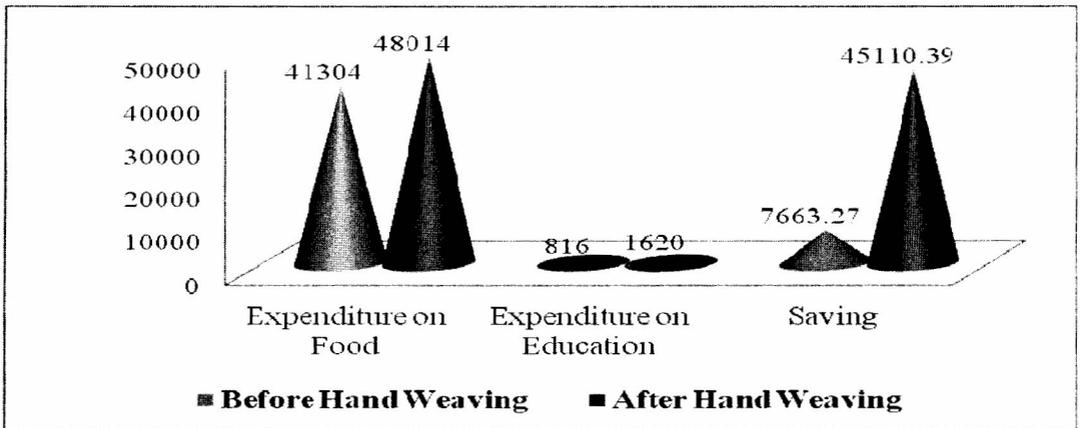


Figure 1. Comparison of Expenditure on Food, Expenditure on Education and Saving (Tk./Year)

From the Table 2, it is observed that total operational holding size is reduced 24.28 decimal to 23.58 decimal, because rural women of study area were busy with their hand weaving activity since some families are not interested to do share cropping. The residence situation is improved to weaver; at present all the family live in their own house but 2% family stayed on other's land at before. Significant change is happened in Residence type, their Kacha house is declined from 26% to 14% and 6% increasing is looked for both Semi paka and Tin shade housing compare to previous situation. 86% families had separate kitchen but at now this figure is improved by 98% (Table 2). In Bangladesh, government provides public tube well to a group of family, so most of the people used Public Tube well. At present this scenario is being changing, 12% weaver use personal tube well whereas only 4% people used personal tube well (Table 2).

Expenditure on food and education is increased also along with increasing the income; weavers spent on food Tk.41304 per year which increased to Tk.48014 per year and outlay on education is twofold than past. Besides, there is huge difference between present and past family saving, they save yearly about Tk. 45110 but only Tk.7663 was saved by them at before (Figure 1). Observing the above tables it can be conclude that in study areas weavers improve their livelihood in case of all livelihood issues. a great change in economic situation as well as social issues.

Impact of Rural Hand Weaving on Economic and Social Aspects

Hand Weaving has brought has been observed that-

- ✘ Rural people improve their economic condition through hand weaving.
- ✘ Rural women who did not do any work without household activities and there was no income earned by them but at present they earn money and help to family income.
- ✘ Hand weaving helps to reduce the migration of rural community from rural to urban through generating of employment opportunity.

- ✱ It increases the participation of women in decision making through earning.
- ✱ It helps to establish women right.
- ✱ It helps to reduce social conflict and family quarrel to one another, because women are busy at hand weaving after household works, they do not get free time to gossip with others.

Monthly Income (In Taka) of Weaver at Present and Past

Rural communities are traditionally engaged in agriculture and some of them migrate rural to urban to maintain their livelihood. Those are live in rural area basically, they are daily wagger. In comparison, their income is very low to urban people. A number of people came back from urban to village and involved in hand weaving. Their present monthly income is quite enough to run the family where male person is involved in job at town and female member along with children come back to village and they earn more money through doing hand weaving. Besides, weaver especially women live in rural area earn money which is totally extra income, because, women were not involved in any outside activity without household activity and there was no income to support family at past. But at present they earn money along with maintaining other family aspects (Table 3).

Table 3. Comparison of Monthly Income of Weaver

	Before Hand Weaving	After Hand Weaving
Personal income (Tk.)	118	1777
Family income (Tk.)	5323	7286

The graph provides information about hand weaving worker's income at present and past. It is observed from graph that when weaver were involved in others activity rather than hand weaving income is low compared to present income. Most of the women did not earn money but at now they contribute to family through earning money which helps them to participate in decision making. Agents earn huge money than before doing hand weaving activity, as a result their living of standard is improving day by day.

Rural Hand Weaving Economy

There are three primary group of hand weaving e.g. Weaver, Painter and Agent; so the economic activities are different to different workers. All the activities are completed in a sequential process; one task is interrelated to another. If one task is incomplete then next task will not start, so all the procedures of activity are maintained perfectly. Here, we only discuss about weaver.

However, weaver's functions are so simple; they do not need more money, with a very small capital they can start weaving. They take cloth and all types of raw materials from agent except a frame made of wood which working life time is 3 to 4 years. So, involving in hand weaving for weaver is quite easy. Weaver works on Shari, Jama, Orna, Panjabi etc., payment are varies on product to product. For example payments on different Shari are different, because some Shari needs more work and some needs little work. Agents provide value to weaver according to working on cloth. At rural area, there is no earning facility or employment opportunity for women, for this reason agents are taking advantages from availability of worker. So, weavers are given very low payment. How a weaver gets her income from hand weaving is shown below at Table 4.

Table 4. Monthly Costs and Income of Weaver (In Taka)

Instrument	Fixed cost (Tk.) ± SD	Product	Unit ± SD	Value (Tk.) ± SD	Income (Tk.) ± SD
Frame (made of wood) Lifetime-3.5 years, Price-Tk. 500	15.06 ± 2.56	Shari	3.58 ± 0.76	1812 ± 371.78	1777 ± 376.95

N. B. 1day equal to 5.5 hours

Determination of the Predictors of Incomes from weaving through Multiple Classification Analysis

As pointed out earlier in the methodology chapter, Multiple Classification Analysis (MCA) has been used to measure the effects of some selected covariates on the volume of incomes from hand weaving. The dependent or response variable is the last year's household incomes from hand weaving. The unadjusted effects of MCA are the effective means of the dependent variables in each subclass of the independent variable. The adjusted effect evaluates those of the predictors alone after taking into account the effect of other predictors. The adjusted effect indicates how the households in a given sub-group differ from the households in other sub-group with respect to the dependent variable with controlling the effect of all other predictors. The highest value of the adjusted beta corresponding to a predictor indicates that this predictor has the most significant effect on the dependent variable. The main effects of ANOVA are shown in Table 5.

Discussion of the empirical findings from the main effects of MCA

Three continuous covariates have been taken into consideration for the response variable of the last year's hand weaving incomes: Age of the respondents, household size and number of workable person in family. Analysis of variation (ANOVA) has shown that all of these covariates have insignificant impacts on the response variable without workable person in family. The main effect of the overall model was found highly significant (Table 5).

Table 5. Main effects of analysis of variance on the amount of income from hand weaving

		Sum of Squares	d.f	F statistic	P-value
Main Effects	(Combined)	5739000000	10	2.657	0.015
	Household Annual Income Excluding Weaving	1433000000	2	3.317	0.048
	Landholdings	1507000000	3	2.326	0.091
	Relationship of Weaver with HH	2168000000	2	5.019	0.012
	Marital Status of the weaver	1898000000	1	0.879	0.355
	No. of Shari prepared monthly	16021948.406	1	0.074	0.787
	Education	47828.189	1	0.000	0.988
Covariates	(Combined)	1351000000	3	2.085	0.119
	Age of Respondent	28854133.145	1	0.134	0.717
	Household Size	477000000	1	2.209	0.146
	Workable person in family	714400000	1	3.308	0.077
R = 0.691; R² = 0.477					

The findings indicate that the main effects of household annual income excluding weaving, landholdings of the household and relationship of the weaver with HH have had significant effect on the volume of last year's hand weaving incomes. But marital Status of the weaver, quantity of Shari prepared monthly and Education have been found out to have statistically insignificant effect on the hand weaving earning to rural Bangladesh.

Discussion of the empirical findings from the MCA

Table 6 shows the findings of the multiple classification analysis on the amount of hand weaving income prior to the survey. Here Eta is a symmetric and does not assume a linear relationship between the variables. Eta squared can be interpreted as the proportion of variance in the dependent variable explained by differences among groups. The overall value of R² indicates that about 48% of the variation in the dependent variable (Hand weaving incomes) could be explained by all the predictors in the model. The analysis shows that without taking the effects of other predictors, about 34% variation of the last year's hand weaving incomes could be explained by relationship of the weaver with household head (eta square = 0.336). That is, among the independent variables, relationship of the weaver with household head is a driving force on income. And also indicates that relationship of the weaver with household head is the best predictor of the last year's hand weaving income in the model

as it has the highest value of beta ($\beta=0.553$). Weaver, daughters of household head have the highest mean whereas the weaver act as household head have the lowest mean value of the last year's hand weaving income. The unadjusted predicted mean and the adjusted predicted mean for the former households are 35675.00 and 42365.83 respectively while the unadjusted predicted mean and the adjusted predicted mean values for the latter households are 19796.00 and 18762.50 respectively. The households of weaver related with H. head as wife have the unadjusted predicted mean and the adjusted predicted mean are 22367.40 and 20161.99 respectively.

Table 6. Multiple classification analysis on the amount of hand weaving incomes

Predictor	N	Predicted Mean		Deviation		Eta Square	Beta
		Unadjusted	Adjusted	Unadjusted	Adjusted		Adjusted
Household annual income excluding weaving							
Poor (\leq Tk. 36000)	11	36672.00	38812.17	11265.060	13405.231	0.348	0.415
Medium (Tk. 36001-72000)	25	21882.36	22301.26	-3524.580	-3105.679		
Rich (Tk. 72001+)	14	22849.71	20420.11	-2557.226	-4986.825		
Land of the household							
No land (<5 decimals)	17	26024.71	22438.76	617.766	-2968.184	0.283	0.329
Minimum (5-10 decimals)	16	22548.69	24958.09	-2858.252	-448.854		
Medium (11-50 decimals)	9	34629.33	36910.21	9222.393	11503.273		
Maximum (51+ decimals)	8	19435.50	19670.86	-5971.440	-5736.084		
Relationship of the weaver with household head							
HH	3	19796.00	18762.50	-5610.940	-6644.437	0.336	0.553
Wife	35	22367.40	20161.99	-3039.540	-5244.953		
Daughter	12	35675.00	42365.83	10268.060	16958.888		
Marital status of the weaver							
Married	40	24092.18	27042.60	-1314.765	1635.663	0.153	0.190
Unmarried	10	30666.00	18864.29	5259.060	-6542.651		
No. of Shari prepared monthly							
2-3 Shari	22	22844.18	24631.25	-2562.758	-775.693	0.132	0.040
4-6 shari	28	27420.54	26016.41	2013.596	609.473		
Education							
No Education and Primary	21	25392.00	25448.97	-14.940	42.032	0.001	0.002
Secondary and Above	29	25417.76	25376.50	10.819	-30.437		

The second best predictor of the dependent variable is household annual income excluding weaving ($\beta = 0.415$). But without taking the effects of other predictors, about 35% variation of the last year's hand weaving income could be explained by household annual income excluding weaving (eta square = 0.348). That is, among the independent variables, household annual income excluding weaving is a driving force on the last year's hand weaving incomes. The households possessing poor annual income excluding weaving have the highest mean of the last year's hand weaving incomes whereas the households with rich annual income excluding weaving have the lower mean value than poor annual income of the last year's hand weaving income (adjusted predicted mean for the former is Tk. 38812.17 and adjusted predicted mean for the latter is Tk. 20420.11). The households of medium annual income excluding weaving have the last year's hand weaving income staying in-between the aforesaid two. The unadjusted predicted mean and the adjusted predicted mean for the households of medium annual income are Tk. 21882.36 and Tk. 22301.26 respectively.

The analysis also shows that without taking the effects of other predictors, only about 28% variation of the last year's hand weaving incomes could be explained by landholding (eta square = 0.283). That is, among the independent variables, landholding is a driving force on hand weaving incomes. And also indicates that landholding is the third predictor of the last year's hand weaving incomes in the model as it has the value of beta ($\beta=0.329$). The households possessing medium land have the highest mean whereas the households with maximum have the lowest mean value of the last year's hand weaving incomes. The unadjusted predicted mean and the adjusted predicted mean for the former households are 34629.33 and 36910.21 respectively while the unadjusted predicted mean and the adjusted predicted mean values for the latter households are 19435.50 and 19670.86 respectively. The households of no landholding and minimum landholding have the unadjusted predicted mean are 26024.71 and 22548.69 where the adjusted predicted mean are 22438.76 and 24958.09 respectively. The fourth best predictor as found out in the analysis is marital status of weaver ($\beta = 0.190$). The multiple classification analysis indicates that the unmarried weavers have the higher unadjusted mean value of the last year's hand weaving incomes whereas the married weavers have the lower unadjusted mean value of the last year's hand weaving incomes (unadjusted predicted mean and adjusted predicted mean for the former are 30666.00 and 18864.29 respectively while unadjusted predicted mean and adjusted predicted mean for the latter are 24092.18 and 27042.60 respectively). This predictor explains about 15% of the variation in the dependent variable of the model (eta square = 0.153).

The multiple classification analysis indicates that the households are preparing 4-6 shari monthly have the higher mean value of the last year's hand weaving incomes than their counterparts having 2-3 shari per month and the value of β is 0.040. The unadjusted predicted mean and the adjusted predicted mean for the former households are 27420.54 and 26016.41 respectively while the unadjusted predicted mean and the adjusted predicted mean values for the later households are 22844.18 and 24631.25 respectively. This predictor explains 13% variation of the last year's hand weaving incomes (eta square = 0.132).

The sixth best predictor as found out in the analysis is education ($\beta = 0.002$). The multiple classification analysis indicates that the weavers having secondary or above education have the higher mean value of the last year's hand weaving incomes whereas the weavers having primary education or no education have the lower mean value of the last year's hand weaving incomes (unadjusted predicted mean and adjusted predicted mean for the former are 25417.76 and 25376.50 respectively while unadjusted predicted mean and adjusted predicted mean for the latter are 25392.00 and 25448.97 respectively). This predictor explains about 0.1% of the variation in the dependent variable of the model (eta square = 0.001).

CONCLUSIONS AND RECOMMENDATIONS

From the above analysis the following points emerge.

- ❖ Women (weaver) are deprived from right payment; they work more but get lower money.
- ❖ There is large number of weavers and little number of agents, for this reason agents get an advantage of available worker with low cost.
- ❖ Government does not provide any financial or organizational support to this new sector. Without government interferes it will be unorganized and a monopoly power will be expressed by agents.
- ❖ Government does not any take necessary step to improve this sector as well as export the products to other countries. If the government is not aware of this sector one day it will be collapse.
- ❖ The number of dependents is reduced through women participation in hand weaving.
- ❖ Women earn more money at present in contrast to prior and contribute to family income as well as take part in family decision making.

The estimated total household expenditure of surveyed people on food, clothing, social function expenses, and education were the highest and the combined contributions from these four items of expenditure made up 86% of the total household expenditures. About two-third of total household expenditure was on food. Rural households spent the least on fuel or electricity, personal care, cinema, theater and entertainments, and these items comprised only 5 percent of the total household expenditure.

It is clearly seen that livelihood indicators like land owned, residence, water supply and sanitation, income, expenditure on food, expenditure on education and saving have been improved contrast with previous situation. Weaver are being benefited from this sector; especially rural women who were not involved in any income generating activity. It is also easy to understand that rural people are improving their livelihood through hand weaving activity, according to one of the estimate about one lakh people are engaged in hand weaving sector all over the country and their annual production is around one thousand crore (Tk.). In study area, hand weaving activities are primary earning source to some people and some people take it as their secondary or tertiary earning source. Mostly, women are taking extra money through weaving which they did not get at before.

The MCA findings indicate that the main effects of Household annual income excluding hand weaving income, landholdings of the household, Relationship of migrant with HH, Marital status, No. of Shari prepared monthly, and Education have had significant effect on remittances flow. The independent variables dynamically influence the income of hand weaving. Hence the present study has shown that if the above significant predictors have positively effect on the income from hand weaving then increase the volume of income.

REFERENCES

- Avnimelech, Y. 1998. Minimal Discharge from Intensive Fishponds. *World Aquaculture* 29: 32-37.
- Chambers, R. and Conway, G. R. 1991. Sustainable Rural Livelihoods: Practical Concepts for the 21st Century. In IDS Discussion Paper 296. Institute of Development Studies (IDS), Brighton, GB.
- Stroud, A. 1996. Farmer participatory research -- Rhetoric and reality. *Agricultural Systems*, 51 (3): 364-367.
- Suits, D. B. 1957. Use of Dummy Variables in Regression Equations. *J. American Statistical Assoc.* 52(280):313-551

