



ORIGINAL ARTICLES

Women access to household and farm resources in Sunamganj haor area of Bangladesh

Farhana Yeasmin^{1*}, Md. Abdul Momen Miah², M. Hummadur Rahman² and Md. Showkot Osman Shamim³

¹ Department of Agricultural Extension and Rural Development, Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipuru 1706, Bangladesh

² Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh, Bangladesh

³ Department of Youth Development, Ministry of Youth and Sports, Sunamganj

ARTICLE INFO

Keywords:

Haor, women, access, resources.

Received : 21 November 2023

Revised : 21 December 2023

Accepted : 30 December 2023

Published : 30 December 2023

Citation:

Yeasmin, F., M. A. M. Miah, M. H. Rahman and M. S. O. Shamim. 2023. Women access to household and farm resources in Sunamganj haor area of Bangladesh. *Ann. Bangladesh Agric.* 27(2):145-159.

ABSTRACT

In this present investigation the access of women to their household and farm resources were examined in Sunamganj haor areas of Bangladesh. Data were collected using a structured questionnaire from November 2016 to March 2017 through face-to-face contact with 200 sampled respondents who were selected following simple random sampling method. Access of woman to household and farm resources was measured based on their extent of access to those two selected resources considering (house hold and farm resources), each resource comprising 22 items. The findings of the study revealed that 49% of the respondents had low access and fifty one percent had medium access to household resources. Twenty-nine percent of the women had low access whereas seventy one percent of the women having medium access to farm resources. Thirty-nine percent of the haor women had low access and Sixty one percent⁰ having medium access to overall resources. None of the *haor* women was found with higher access to mutual household and farm resources. The finding indicated that the majority of the women were deprived of having power and authority to use and control over the household resources and they were also lagged behind in respect to use and control over farm resources. In addition, out of fourteen attributes, five attributes, namely, education, household farm size, role in family decision-making, availability of household resources, and availability of farm resources had significant influence on the access to resources of women in the haor area. Finally, it is concluded that the findings of the study can be utilized by the policymakers and planners of the country to formulate future plan of haor women to improve their livelihood and empowerment.

Introduction

Haors with their unique hydro-ecological characteristics are large bowl-shaped floodplain depressions located in the north-eastern region of

Bangladesh covering about 1.99 million hectares (19,998 km²) of area and accommodating about 19.37 million people (MoWR, 2012).

Haor are mostly located in greater Sylhet and Mymensingh regions in Bangladesh. In Bangladesh

*Corresponding Author: Department of Agricultural Extension and Rural Development, Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipuru 1706, Bangladesh. Email: farhanaaer@bsmrau.edu.bd

<https://doi.org/10.3329/aba.v27i2.72542>

ISSN 1025-482X (Print)/2521-5477 (Online) © 2023 ABA. Published by BSMRAU. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/bync-nd/4.0/>)

there are 373 haors in the districts of Sunamganj, Habiganj, Netrokona, Kishoreganj, Sylhet, Moulavibazar and Brahmanbaria which cover about 43% area of these *haor* districts (Kazal *et al.*, 2018). Natural disaster, seasonal food deficiency and patterns of socio-economic and political exploitation are common scenario in *haor* area of Bangladesh (CARE, 2016).

Women living in the *haor* are mostly disadvantaged and vulnerable (BHWDB, 2012). The *haor* region has long been lagging behind mainstream national development though the economic development of Bangladesh is moving steadily at a moderate pace. It is difficult to foresee the country's overall progress without the development of the *haor* region as it covers a major part of the country and population of which deserves special development initiatives (Uddin *et al.*, 2019).

The overriding challenge of *haor* inhabitants is perhaps the fact that they have limited livelihood options if their existing livelihoods are disrupted by natural calamities. The complexity of this challenge restricts their livelihood options holding them back from joining the journey towards national progress (The Daily Star, 2018).

Traditionally the women living in the *haor* area are less privileged because of their poor access to resources in comparison to plain land women. Basically, the availability of resources in the *haor* area is inadequate in comparison to the plain land area. In addition, the existing illiteracy, norms and values of the *haor* social system are rather traditional. These factors add to the backwardness and vulnerability of the women in respect to access to resources. The empowerment of women largely depends on their extent of access to resources in terms of both farm and household resources. This prolonged vulnerability significantly curtails their capacity to fulfill their basic needs and aspirations. These are the concerns that prompted the idea of *haor* women's state of access to resources, which are needed to be identified and explored. There are very limited empirical studies on the women access

to household and farm resources in *haor* area. Several research works have been conducted on the economic empowerment of *haor* women (Khanum *et al.*, 2015); (Uddin *et al.*, 2019) and access of rural women to productive resources (Parveen, 2008). But, to date, no available study was found on access to household and farm resources of *haor* women. Thus, the present study has been undertaken to examine the extent of access to household and farm resources of *haor* women. Keeping the above in view, the investigators undertook this study with following objectives i) to describe the selected characteristics of the respondents; ii) to find out the extent of *haor* women access to household and farm resources and iii) to explore the relationship between *haor* women access to household and farm resources with their selected characteristics and iv) to identify the factors affecting *haor* women's access to household and farm resources.

Methodology

The investigation was conducted in a *haor* area of Bishwambarpur Upazila under Sunamganj district. In all there are eleven upazilas in the district of Sunamganj. Among the eleven Upazilas Bishwambarpur was again purposively selected for this study. The reasons for selection of the study area are that Bishwambarpur is a unique *haor* area of the district and the people are more disadvantaged in terms of living standards. From Bishwambarpur Upazila, two unions, namely Fatehpur and Palash were randomly selected for the study (Fig.1). These two unions are situated in a relatively remote area than other unions. Moreover, these are also deep *haor* areas. Three villages under Fatehpur union and one village under Palash union were randomly selected. These villages are situated in the deep *haor* area, which is naturally low land. Every year flood occurs in the study areas and causes human sufferings and damages of crops, livestock, fisheries and other resources. People have been living in the *haor* for generation after generation and struggling with natural calamities.

The *haor* is a potential area for addressing food security though increasing production of crop cultivation, rearing of ducks and other livestock and open water fisheries thereby improving livelihood quality of the people.



Fig. 1. Map Bishwambarpur upazila of Sunamganj district indicating the five study villages under Fatepur and Polash unions.

Data were collected from the women of Fatepur and Polash union under Bishwambarpur Upazila of Sunamganj district. All women (2,005) of these villages were the population of the study. A total of 10 percent women of the population were randomly

Variables and their measurement

The variable is an important factor in descriptive social research. In this study, access of women to household and farm resources was the dependent

Table 1. Distribution of population and sample size of the respondents of the study area

Study area (Union)	Village	Population (women)	Sample size	Reserve list
Fatehpur	Bahadurpur	355	35	5
	Bishwambarpur notunhati	460	46	5
	Dhorerpar	570	57	5
Palash	Raipur	620	62	5
Total		2,005	200	20

selected as a sample by using a simple random sampling method. Thus, the total sample size stood at 200. Table 1 shows that the population and sample size of different villages included in the study are presented in Table 1. Besides, a reserve list of 20 haor women was prepared. Haor women of the reserve list was not available during collection of data.

variable. The selected characteristics of haor women were considered as the independent variables of the study.

Measurement of independent variables

The independent variables of this study were 14 selected characteristics of the *haor* women. These were age, level of education, household size,

household farm size, annual family income, personal ownership of asset, extension media exposure, training exposure, household food availability, participation in household decision - making, self - esteem, livelihood aspiration, availability of household resources and availability of farm resources. Proper statistical scale and scores were used for measurement of these variable.

A respondent's age was calculated in years based on the actual age of his life. The personal education was measured in terms of one's year of schooling. Household size was measured by the total number of members, including the respondent herself, spouse, children and other members who jointly lived). Farm size of a *haor* woman referred to the total area of land on which her family carried out farming operations, the area being estimated in terms of full benefit of her family at the time of interview. It was expressed in hectare. Annual family income of a respondent was measured by taking the sum of income earned by the respondent herself and other members of the family in a year from different sources like crop, livestock, fisheries and some other non-agricultural sources. Personal ownership of asset refers to the amount of assets a woman possesses regarding land, cattle, goat, poultry (ducks, fowls, pigeons), trees, cash (savings), fishing net, boat, sewing machine, jewelry, television/radio and vehicle (rickshaw/van/auto rickshaw/CNG in respect of current value/amount of money. Each respondent was asked to indicate the assets that a woman possessed. It was measured in terms of money (Taka) considering the current value of each item that a woman possessed. In this study extension media exposure score was computed for each respondent on the basis of the extent of her contact with twelve selected extension communication media. A 4-point rating scale was used. The range of the score could range between 0-36, where 0 indicated no extension media exposure and 36 very high extension media exposure. The training was measured by the total number of trainings which she received on various subject matter related to farming and non-farming provided by different government and non-government organizations during her life time.

Participation in household decision-making:

Decision-making ability was measured by using a 4-point rating scale, each respondent was asked to indicate the extent of decision-making role in the family in each of the 12 activities by checking any one of the responses- "independently", "decision with husband", "consultation with all family

members" and "no role in decision making" and then weight assigned to these responses were 3, 2, 1, 0 respectively. Total score of a respondent was calculated finding the summation of her obtained score in respect of all items. Possible score could vary from 0 to 36 while 0 indicated no role in decision- making and 36 indicating the respondent can take decision independently meaning high decision-making role in the family (Haque, 2003; Hosen, 2016).

Self-esteem

Haor women's self-esteem was measured by one of the most widely used instruments. Rosenberg self-esteem scale_(RSES) developed by (Rosenberg, 1989). RSES is a 10-item self-esteem scale scores that require participants to indicate their level of agreement with a series of statements about themselves. The selected statements were either positive or negative in view. The respondents were expressing their opinions against 4-point rating scale as "strongly agree = 3", "agree = 2", "disagree = 1" and "strongly disagree = 0". The weights were assigned as, 3, 2, 1 and 0, respectively, for a positive statement and reverse score was given for all negative statements (Naher, 2011). The self-confidence score could range from 0 to 30, where 0 indicates no self-confidence and 30, very high self-confidence.

Livelihood aspiration

A respondent was asked to indicate the level of aspiration a *haor* woman possesses for her own life. They were asked to give their opinion on eight selected aspects. A 5-point rating scale was used for computing the aspiration scores. Thus, the possible aspiration score of the respondent could range from 0 to 32. While, 0 indicated no aspiration and 32, a high level of aspirations (Hosen, 2016; Roy, 2014).

Household food availability

Household food availability means the availability of food throughout the year in her family. The information was collected for twelve months. Household food availability of a respondent was measured by using a three-point rating scale. The respondents have expressed their opinion against 3-point rating scale as "availability of insufficient food", "availability of moderately sufficient food" and "availability of sufficient food" The score assigned against each response as 3, 2 and 1 respectively. The Household food availability score could vary from 0 to 36, 0 indicates very low household food

availability while 36 very high household food availability (Hosen, 2016; Al-Amin, 2009).

Measurement of dependent variables

Access of haor woman to household and farm resources was the dependent variable. Access is right or opportunity to use, manage or control over a particular resource (Nicholas *et al.*, 1999). According to (Ribot and Peluso, 2003) access as “the ability” to derive benefits from things; the right to benefit from things; “a bundle of powers” than to the property’s notion of a “bundle of rights”. Access means the ability of a rural woman to get different socio-economic resources and increase benefits from them (Parveen, 2008). Resources are things that facilitate profit what is required. Access to resources measures the ability, influence, or permission to use and/or get benefits from selected resources.

Access of haor woman to household and farm resources was measured based on their extent of access to two selected resources (household and farm resources), considering each resource comprising number of 22 items. Among many household resources the major selected resources are-personal/own land, household cash, available nutritious high value food, dry fish, tube well, sanitary latrine, sewing machine, homestead land (arable land), commercial land/shop, bank account, mobile bank account, small livestock (indigenous poultry birds, goats etc.). Similarly, the selected farm resources are - family farm land, existing crops, milking cow, goat and sheep farm, duck farm, small scale cattle fattening farm, power pump/STW for irrigation, mechanized farm equipment’s, credit/capital, family pond.

A total of 22 items (12 items under household resources and 10 items under farm resources) was considered in calculating and computing the access score of haor women to resources. Four-point rating scale was used to measure the extent of access of haor women to household and farm resources, such as “high access”, “medium access”, “low access” and “very low access”. Appropriate weights were assigned to each of the responses of the women such as 3, 2 and 1 and respectively. The access of haor women to household and farm resources was calculated by adding the respective weights/values assigned to each of the responses. Thus, the access score of haor women to household resources could range from 0 to 36, where 36 representing high access and zero showing no access to household resources. Similarly, the access score of haor

women to farm resources could range from 0 to 30, where 30 designates high access and zero designates no access to farm resources. The overall access of haor women to both household and farm resources was added together and thus overall access score of the haor women could range from 0 to 66, where 66 signifying high access and zero defines very low access to household and farm resources.

The respondents were classified according to their access score. In this study the access of women to both household and farm resources were examined separately and combinedly. The access of household resources means having the right to use and control over the household resources from the context of the *haor* women. They were classified into three categories according to their household and farm resources access score. These are low access, medium access and high access. Similar procedure to measure access to resources in their study also previously followed by others (Naher, 2011 and Haque, 2010).

Overall access to resources means having the right to use and control over both the household and farm resources of *haor* women by their own decisions. The *haor* women are classified into three categories according to their overall access scores. These are low access, medium access and high access.

To examine the extent of access of haor women to each of the 22 (12 + 10) items of resources, a rank order of all the 22 items of both household and farm resources was computed. The haor women access to household resources index (HWAHRI) and women access to farm resources index (HWAfri) was computed by using number of citations against each of the responses of women multiplied by the weight of each of the scale value. By adding all values/ weights against each of the responses, the HWAHRI, HWAfri values are calculated. Total index score for all the respondents together was computed for each item, by summing up the scores of the respective items.

Data collection, processing and analysis

Data were collected through a pre-tested interview schedule. The primary data was collected from, November 16 to March 2017. Appropriate descriptive statistical measures and correlation analysis were used for the interpretation of the findings. The Statistical Package for Social Science (SPSS) was used to analyse the data, and statistical

tests such as frequency count, percentage, mean, were conducted. The contribution of the independent variables to dependent variable was examined using 0.01 level of probability.

Results and Discussion

Selected characteristics of the haor women

Findings indicated that about (97 %) of the respondents were young to middle aged. Majority of the haor women (74.5%) of the respondents were young aged compared to 22% being middle-aged

category while only a negligible proportion (3.5%) was under old category. Greater part (59.5%) of the haor women had primary education, near about one-fourth (23.5%) of the haor women were illiterate compared to 13.5% could only sign and a small proportion (3.5%) of the respondents had secondary level of education. Larger part (64.5%) of the haor women had medium size household compared to 10% have large household and 25.5% percent having small size household. Majority (53%) of the haor women had small farm while 23.3% of them were landless and 21.0% of them having marginal farm. Only a few (2.5%) of them had medium farm.

Table 2. Selected characteristics profile of the respondents (n = 200)

Selected Characteristics (Measuring units)	Categories	Percent	Mean	SD
Age (year)	Young (up to 35)	74.5	31.58	9.28
	Middle (36-51)	22.0		
	Old (51 years and above)	3.5		
Level of education (actual level)	Illiterate (0)	23.5	2.02	2.19
	Can sign only (0.5)	13.5		
	Primary (1-5)	59.5		
	Secondary (6-10)	3.5		
Household size (no. of members)	Small (up to 4)	25.5	5.77	2.13
	Medium (5-6)	64.5		
	Large (7 and above)	10.0		
Household farm size (hectare)	Landless (<0.02 ha)	23.5	0.271	0.255
	Marginal (0.02-0.20 ha)	21.0		
	Small farm family (0.201-1.0 ha)	53.0		
	Medium farm family (1.01-3 ha)	2.5		
Family annual income ('000' taka)	Low income (up to 150)	98.5	92.29	20.09
	Medium income (151—250)	1.5		
Ownership of personal asset ('000' taka)	Low (up to 13)	92.0	4.00	5.27
	Medium (14-26)	8.0		
	High (27 and above)	0		
Extension media exposure (scores)	Low (up to 10)	14.0	5.31	1.50
	Medium (11-20)	86.0		
	High (21 and above)	0		
Training exposure (days)	No training (0)	85.0	0.80	3.07
	Short duration (1 to 5)	11.0		
	Medium duration (6-15)	3.5		
	Long duration (16 and above)	0.5		
Household food availability (score)	Availability of insufficient food (up to 12)	56.0	14.78	3.90
	Availability of moderately sufficient food (13- 24)	44.0		
	Availability of sufficient food (25 and above)	0		
Self-esteem (Scoro)	Low (Up to 10)	34.5	11.2	2.09
	Medium (11-20)	65.5		
	High (21 and above)	0		
Livelihood aspiration	Low (Up to 11)	16	19.70	3.51
	Medium (12-23)	76		
	High (24 and above)	8		
Participation in household decision-making (score)	Low (up to 12)	64.5	14.35	3.24
	Medium (13-24)	35.5		
	High (25 and above)	0		

Note: SD means Standard Deviation

All (100 %) of the respondents of the study area belonged to low to medium income categories. No high-income family was found in the study area. Majority (92%) of the respondents had low personal ownership of assets while 8.0% of the respondents had medium personal ownership of assets and none of the haor women were found having higher personal ownership of asset. Larger part (86%) of the haor women were found having medium media contact compared to 14% having low media contact and nobody had high media contact with various extension information sources for getting farm information.

Greater part (85%) of the respondents had no training exposure followed by 11% having short duration training exposure. Only 3.5% and 0.5% had medium and long duration training exposure respectively. More than half (56%) of the haor women do not have sufficient food availability compared to (44%) having moderately sufficient food and none of the respondents have found sufficient food availability. Total (64.5%) of the haor women played the role of not so important decision- makers and the rest (35.5%) of the respondents fell into low decision-making category and none of them were found to perform important role in decision-making. Major

(8%) numbers of women had fell in high aspiration category.

Haor women's access to resources

The access of haor women to the household and farm resources has been discussed in the following sections. This is presented in 3 sub-sections such as access to household resources, access to farm resources and overall access to resources.

Access to household resources

The access of household resources means having the right to use and control over the household resources. Household resources access score ranged from 6 to 21 against the possible range of 0 to 36, with an average of 12.50 and standard deviation 2.82. Haor women were classified into three categories based on the possible score of household resources.

The information presented in Table 3 indicates that almost half (49.0%) of the respondents had low access while slightly above half (51.0%) having medium access to household resources. This means the haor women had low to medium access to the household resources meaning they have low to medium authority to use 12 selected aspects of household resources. None of the haor

Table 3. Classification of the respondents according to their household resources

Categories of haor women and score range	Respondents (n = 200)		Mean	Standard Deviation
	Number	Percent		
Low access (12)	98	49.0		
Medium access (13-24)	102	51.0	12.50	2.82
High access (>24)	0	0		
Total	200	100.0		

part (65.5%) of the haor women had a medium level of self-esteem. Among rest of the respondents, 34.5% had low level of confidence and none of the respondents had found high level of self-esteem. Slightly above three-fourths (76%) of the haor women had medium livelihood aspiration compared to less than one-sixth (16%) of the haor women having low level of aspiration. Very few

woman was found having higher access to their household resources. This may be due to the reason that generally the social system of Bangladesh is traditional in nature. The haor society in particular is traditional and backward in belief and wisdom. This might hinder access of haor women to household resources to a greater extent. One of the studies conducted by (IFPRI, 2000) revealed that

improving women's access to resources increased household expenditure on the education of children, while no impact was observed when more access was provided to man.

For better understanding, regarding the access to household resources according to the item, rank order and Haor Women's Access to Household Resources Index (HWAHRI) were computed and presented in Table 4 and Fig. 2.

Table 4. Rank order of the characteristics of resources on the basis of their access to women's household resources

Items	Item Acronyms	Number of Response (n=200)			
		High	Medium	Low	No
Access to rearing hen/ducks/goat/ pigeon etc. and selling to the village market	HRI-1	78	100	15	7
Access/ right to use of homestead arable land as a kitchen garden or houses etc.	HRI-2	13	119	55	13
Access to processing or storage of dry fish and selling to the market	HRI-3	1	76	119	4
Equal access/right to consume nutritious food (e.g. meat, egg, fish, milk, etc.)	HRI-4	0	80	107	13
Access to tube well for safe drinking water	HRI-5	0	69	128	3
Access to using mobile banking	HRI-6	0	71	109	20
Access to open a bank account and operating banking facilities	HRI-7	0	56	44	100
Equal access/right to personal or own land	HRI-8	0	27	78	95
Equal access / right to spend money	HRI-9	0	10	99	91
Access to use sewing machine to earn money	HRI-10	0	10	27	163
Access/right to use other land which not used for agricultural purposes e.g. shop	HRI-11	0	3	24	173
Access to use of sanitary latrine	HRI-12	1	4	13	182

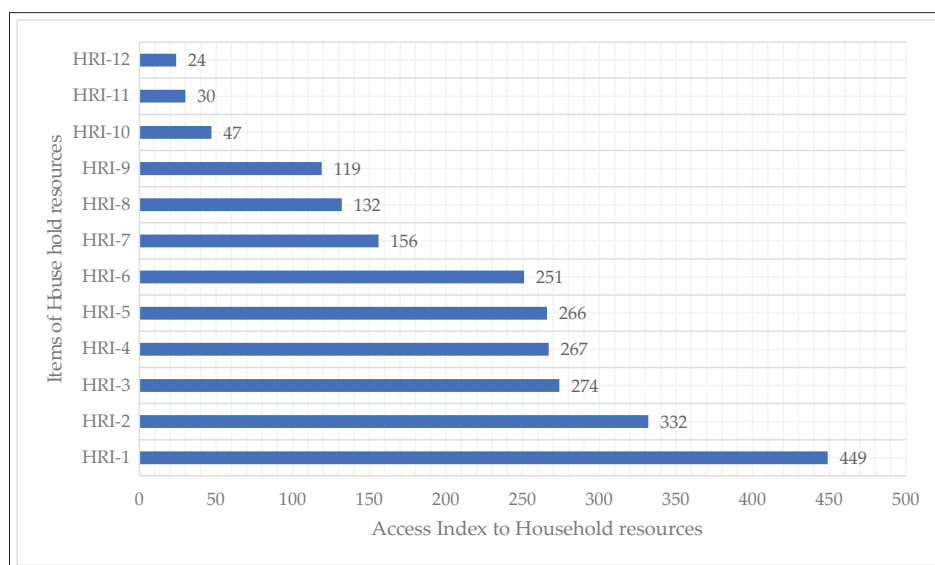


Fig. 2. Extent of item wise Haor Women's Access to household resources.

HWAHRI of the respondents against 12 items in household resources ranged from 24-449. Opportunities to rearing hen/ducks/goat/pigeon etc. access/right to use of homestead arable land as a kitchen garden or houses, access to processing or storage of dry fish and selling to the market, equal access /right to consume nutritious food (e.g., meat, egg, fish, milk, etc.), were the top four items of household resources. Among the top four items “opportunities to rearing hen/ducks/goat /pigeon etc. and selling to the village market” (HRI-1) had the highest HWAHRI value of 449 and ranked 1st, “access/ right to use of homestead arable land as a kitchen garden or houses etc.” (HRI-2) occupied 2nd position with value of 332 an “access to processing or storage of dry fish and selling to the market” (HRI-3) ranked as third with value of 274. The access of the respondent for “use of sanitary latrine” (HRI-12) was the lowest one. “Access to rearing hen/ducks/goat/pigeon etc. and selling to the village market” was indicated as the top-most household resources by its highest HWARI (449). Boro crops and land are destroyed almost every

Access to farm resources

The access of farm resources means having the right to use and control over the farm resources of haor women. The access of farm resources scores of the haor women ranged from 6 to 27 against the possible range of 0 to 30, with mean value 11.51 and standard deviation 2.65. The haor women were classified into three categories based on the possible score of farm resources.

The information presented in Table 5 indicates that 29% of the respondents had low access while majority (71%) of the respondents had medium access to farm resources. This means that haor women had low to medium access to farm resources meaning women have low to medium authority to use 10 selected aspects of farm resources. None of the haor woman was found having higher access to their farm resources. (Paul and Rani, 2016) found in their study that there were notable differences between men and women in the access to and control

Table 5. Classification of the respondents according to their farm resources

Categories of haor women and score range	Respondents (n = 200)		Mean	Standard deviation
	Number	Percent		
Low access (10) (<10)	58	29	11.51	2.65
Medium access (11-20)	142	71		
High access (>20)	0	0		
Total	200	100		

year by floods in the study area. Many women in study area have found alternative source of income in duck/hen/goat rearing at home after losing their crops to recurrent floods. A significant number of haor women were involved in duck/hen/goat rearing farm. Duck/hen/goat farm can be a very important tool to improve women’s status. With the earning from selling eggs and meat, haor women maintain their family. The small income from duck/hen/goat rearing has helped them to ease their struggle for survival.

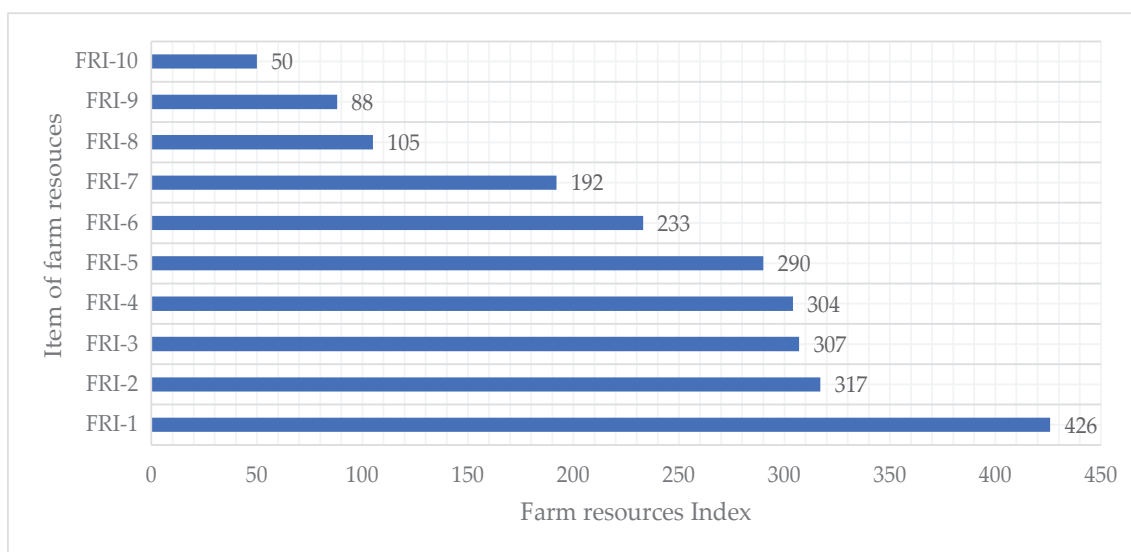
over the farm resources. Men had greater access and control over farm resources like seeds, pesticides and fertilizers, farm implements, water and agricultural loans used for the farm when compared to women. Though women participated in farm activities they had less access to and control over farm resources when compared to women. For better understanding, regarding the access to farm resources according to the item, rank order and Haor Women’s Access to Farm Resources Index (HWAHRI) were computed and presented in Table 6 and Fig. 3.

Table 6. Rank order of the characteristics of resources on the basis of their access to women's household resources

Items	Item Acronyms	Number of responses				Rank
		High	Medium	Low	No	
Opportunities to rear duck for farming	FRI-1	31	164	5	0	1
Opportunities to cattle fattening	FRI-2	34	86	43	37	2
Access to rearing cross breed cow for milk	FRI-3	7	105	76	12	3
Opportunities to rear goat and sheep	FRI-4	0	110	70	20	4
Opportunity to get loans, micro-credit from any formal or informal institutions and utilization of credit money	FRI-5	4	112	83	1	5
Power to use family farm land for production purposes.	FRI-6	1	87	56	56	6
Freedom to crop/variety selection for cultivation	FRI-7	0	37	118	45	7
Access to power pump/STW for irrigation	FRI-8	0	25	79	96	8
Access to mechanized farm equipment e.g. power tiller, pump, thrashers, harvesters etc.	FRI-9	0	2	84	114	9
Opportunities to use labour and power (labour, ox/buffalo power)	FRI-10	0	11	28	161	10

Results of Fig. 3. indicated that Computed HWAFRI of the respondents against 10 items in farm resources ranged from 50 to 426. Table 6 presented that “Opportunities to rear duck for farming” (FRI-1) had the highest HWAFRI value of 426 and ranked 1st, “opportunities to cattle fattening for farming”

(FRI-2) occupied 2nd position with value of 317 and “access to rearing cross breed cow for milk for farming” (FRI-1) ranked as third with value of 307. The farm resources access for “Opportunities to use labour and power (labour, all ox/buffalo power)” (FRI-10) was the lowest one.

**Fig. 3. Haor Women's Access to Farm Resources Index (HWAFRI).**

Overall access to resources

Overall access to resources means having the right to use and control over both the household and farm resources of haor women by their own decisions.

use 22 selected aspects of resources by their own decisions. None of the haor woman was found having higher access to both household and farm resources. Hossain (2007) found in his study that a

■ Low access ■ Medium access ■ High access

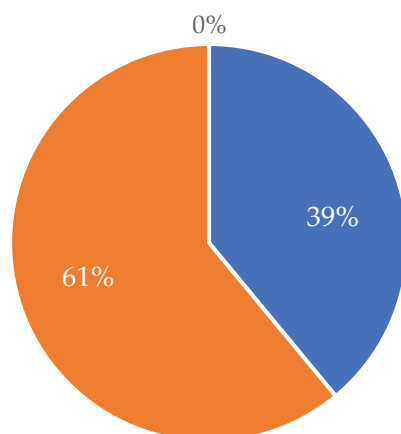


Fig. 4. Distribution of the respondents according to their overall access to resources score.

The overall access to resources scores of the respondents ranged from 13 to 48, against the possible range of 0 to 66, with mean value of 24.95 and standard deviation 4.56. Data furnished in Fig. 4 indicated that almost 39 % of the respondents had low access and more than 61% of the respondents having medium access to household and farm resources. This means that haor women had low to medium access to resources meaning women have poor and inadequate authority and control over to

substantial proportion (60 %) of the women had very low access, about one-third (34.2 %) had low access and only 5.8% had high access to resources.

Contribution of the Selected Characteristics of Haor Women on their Access to Resources

The outcomes of a regression analysis are presented in Table 8.

Table 8. Regression co-efficient of access to resources of haor women with their selected characteristics

Variables code	Independent variables	Unstandardized coefficients		Standardized coefficients	t values	Significance level
		B	Std. Error	Beta		
Constant		11.324	3.354		3.377	0.001
X ₁	Age	0.025	0.031	0.050	0.791	0.430
X ₂	Level of education	0.923	0.169	0.443	5.457	0.000**
X ₃	Household size	0.046	0.0120	0.021	0.380	0.705
X ₄	Household farm size	4.236	1.305	0.237	3.246	0.001**
X ₅	Annual family income	-0.003	0.014	-0.016	-0.231	0.818
X ₆	Personal ownership of asset	0.019	0.050	0.022	0.389	0.698
X ₇	Extension media exposure	0.195	0.179	0.064	1.088	0.278
X ₈	Training exposure	0.007	0.084	0.005	0.087	0.931

X ₉	Participation in household decision- making	0.222	0.100	0.157	2.217	0.028**
X ₁₀	Self esteem	-0.047	0.131	-0.021	-0.355	0.723
X ₁₁	Livelihood aspiration	0.028	0.076	0.021	0.365	0.715
X ₁₂	Household food availability	0.024	0.066	0.020	0.360	0.720
X ₁₃	Availability of household resources	0.455	0.222	0.121	2.046	0.042**
X ₁₄	Availability of farm resources	0.416	0.217	0.118	1.922	0.056**

R² = .472, Multiple R = .687, Adjusted R² = .444, F ratio = 10.974, Standard error of the estimate = 3.450

** Significant at 0.01 level, B is an unstandardized between -1 to +1 in range and show the strength of the prediction.

The information presented in the Table 8 indicates that out of fourteen individual variables entered for linear multiple regression analysis, only five variables namely, education, household farm size, participation in family decision-making and availability of household resources and Availability of farm resources were statistically significant. This R-Square value indicated that, 14 independent variables combinedly explained 47.2% variation in *haor* women's access to resources by these four variables together in access to resources of *haor* women and the rest 52.8 % remained unexplained.

Regression coefficient for level of education (0.923) showed a significant positive contribution to *haor* women's access to resources. The regression coefficient 0.000** Significant at 0.01 level suggested that more education of women the more likely have the access to resources. It is quite identified that education of a women enables her to gain knowledge, attitude and improves skills (KAS) and in this way increase her decision-making ability in the family. Moreover, education helps an individual to reached technical aspects of using households and farming resources which in turn provide better farming output. The educated women can exchange and share their ideas and information during decision making for farming, family, household and other activities of the family. These facts lead to the conclusion that any attempts to improve family livelihoods, women education could certainly a paramount endeavour in accelerating family status and welfare. This eventually helps to increase woman empowerment in the social power structure.

Regression coefficient for household farm size (4.236) showed a significant positive contribution to *haor* women's access to resources. This characteristic was significant at the 1% level. The regression coefficient 'B = (4.236) showed that one unit increase in farm size would increase respondents' access towards resources by 0.923 units. That means if the farm size of the respondents increased it would positively change their access to resources. Regression co-efficient for household participation in family decision-making (0.222) showed a significant positive contribution to *haor* women's access to resources. This characteristic was significant at the 1% level. The regression coefficient 'B = (0.222) showed that one unit increase in participation in family decision-making would increase respondents' access towards resources by (0.222) units. That means if household participation in family decision-making of the respondents increased it would positively change their access to resources. Regression coefficient for availability of household resources (0.455) showed a significant positive contribution to *haor* women's access to resources. This characteristic was significant at the 1% level. The regression coefficient 'B = (0.455) showed that one unit increase in availability of household resources would increase respondents' access towards resources by (0.455) units. That means if availability of household resources of the respondents increased it would positively change their access to resources. Regression coefficient for availability of farm size (0.416) showed a significant positive contribution to *haor* women's access to resources.

The women who had more education, household farm size, higher participation in family decision-making and availability of household and farm resources were found to perform better livelihood. It can be said that access to resources increased significantly with the increase in education of *haor* women, with the increase in household farm size, with the increase in household resources availability and with the increased participation in household decision-making by the *haor* women.

Conclusions

On the basis of the findings of the study and their logical interpretation, the following conclusions were drawn:

- Majority of the respondents were young to middle (36-51years) aged. In our social condition, young and middle-aged women are sincerer to perform their household and farm activities and they try to do something to increase their income level. Large part (near about 60%) of the *haor* women having primary education. Majority of the *haor* women had insufficient availability of food compared to (44%) having moderately sufficient food availability and none of the respondents have found sufficient food availability. Greater part of the *haor* women were under medium role in decision-making category and the rest of the respondents fell into role in low decision-making category and none of them were found to perform high role in decision-making. Women in the study area performed low to medium extent of household decision-making. More than half part of the respondents had low to medium livelihood aspiration because; they live in remote rural area, with low education, having low income and limited contact with diverse people.
- The large majority of the respondents had low to medium access to their household and farm resources. It may be concluded that the women are having low to moderate access to their resources; they have very little control over household and farm resources.
- Results of regression analysis exemplified that among the selected fourteen characteristics the five vital characteristics i.e. level of education, household farm size, household and farm resource availability and participation in household decision-making were found to have significant influence over the access of women with their household and farm resources. Based on the findings, it may be concluded that *haor* women having more education, farm size, household and farm resource availability and participation in household decision-making have more access to household and farm resources.

References

- Al-Amin, S. 2009. Role of Women in Maintaining Sustainable Livelihoods as Char Landers in Selected areas of Jamalpur District, PhD Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University.
- BHWDB. 2012. Master Plan of *Haor* Area. Bangladesh *Haor* and Wetland Development Board, Ministry of Water Resources. Retrieved from CARE. 2016. CARE Bangladesh Programme Strategy: *Haor* Region 2015–2020. Retrieved from www.carebangladesh.org
- Haque, E. M. 2003. Farmers Attitude Towards Extension Activities of the Department of Agricultural Extension, MS Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.
- Haque, M. M. 2010. Livelihood Improvement Status of the Farmers Under Special Project for Food Security in Haluaghat Upazila of Mymensingh District, Master's Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.
- Hosen, M. S. 2016. Livelihood Improvement of Extreme Poor Women through Participation in Income Generation Activities, PhD Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University.
- Hossain, A. 2007. Participation and Empowerment of Rural Women through NGO Intervention in Bangladesh PhD Thesis, Department of Agricultural Extension and Rural Development, Bangabandhu Sheikh Mujibur Rahman Agricultural University, Salna, Gazipur. Retrieved from <https://www.tropentag.de/2004/abstracts/full/382.pdf>
- IFPRI. 2000. Resource Allocation and Empowerment of Women in Rural Bangladesh. International Food Policy Research Institute, Washington, DC. Retrieved from <https://ebrary.ifpri.org/digital/collection/p15738coll2/id/478>.
- Kazal, M. M., H. S. Rahman and M. Z. Hossain. 2018. Socio-Economic Determinants of the Varying Levels of Food Insecurity Amongst the *haor* (Ox-Bow Lake) Residents in Bangladesh. *Bangladesh J. Agr. Econ.* 37: 1-2.
- Khanum, R and M.S.A.M. Muhammad. 2015. Economic Empowerment of *Haor* Women Through Duck Farming in Bangladesh. *The Agriculturists*. 13(1) 18-25.
- MoWR, 2012. Master Plan of *Haor* Area. Bangladesh *Haor* and Wetland Development Board. Ministry of Water Resources, Government of the People's Republic of Bangladesh. 1:1–55.
- Naher, K. 2011. Empowerment of Rural Women through Participation in Income Generating Activities of Non-Government Organizations in Bangladesh. PhD Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh, Bangladesh.
- Nicholas, S., E. Crowley and K. Komjathy. 1999. Women Access to Land. Surveyors can Make a Difference. *Survey Quarterly* No. 20: 16-19.
- Parveen, S. 2008. Access of Rural Women to Productive Resources as in Bangladesh: A Pillar for Promoting Their Empowerment. *Int. J. Rural Studies* 5(1): 8.
- Paul, M. and P. Rani. 2016. Gender Differences in Access to and Control Over Farm Resources. *Int. J. Home Sci.* 2(2): 01-02. Retrieved from <https://www.tropentag.de/2004/abstracts/full/382.pdf>.

- Ribot, J. C. and N. L. Peluso. 2003. A Theory of Access Rural Sociology. 68(2): 153–181.
- Rosenberg, M. 1989. Society and the Adolescent Self –Image. Revised Edition. Middletown, CT: Wesleyan University Press. Retrieved from (<http://www.bsos.umd.edu/usocy/grad/Rosenberg.doc>).
- Roy, B. S. 2014. Effectiveness of Social Safety Net Programmes for the Rural Poor in Vulnerable Situation, PhD Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Bangladesh.
- The Daily Star, 2018. World Wetlands Day, Empowering of *Haor* People. Retrieved From <https://www.thedailystar.net>
- Uddin, M. T., H. Najmul and R. D. Aurup. 2019. Business Prospects and Challenges in *Haor* Areas of Bangladesh. *J. Bangladesh Agricul. Univers.* 17(1) 65–72.