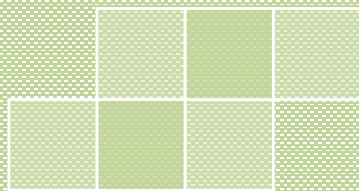


**Regenerative Agriculture and Sustainable
Livelihood for Vulnerable Ecosystems
(RESOLVE)**

**Baseline Survey Report
Shariatpur, Bangladesh**



Regenerative Agriculture and Sustainable Livelihood for Vulnerable Ecosystems (RESOLVE)

Area: Shariatpur, Bangladesh

Acknowledgement

The report titled “Baseline Survey on Regenerative Agriculture and Sustainable Livelihood for Vulnerable Ecosystems (RESOLVE)” is an assessment of present situation of living condition of people of different village of Gosairhat upazila. **This report is an output of RESOLVE project, implemented by GKS, GUK, SDS and Unnayan Onneshan with financial support from Oxfam Novib.** The report is prepared by Unnayan Onneshan Social policy unit with the assistance from SDS and Oxfam Novib. We further thank A. Z. M. Saleh of Unnayan Onneshan for editing language and formatting the report.



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1. INTRODUCTION

Climate change has increased the frequency and severity of extreme events in Bangladesh such as cyclone, floods, hailstorms, droughts and salinity intrusion that threatens various sectors of the economy. Geographically, the northern and central regions of Bangladesh are flood plain, formed through siltation carried by three mighty rivers namely Padma, Jamuna, Bramhaputra from upstream. Historically, the regions are inundated every year and local ecosystems are influenced by periodic flooding. In spite of people's sufferings due to the impact of these floods, they make the cultivable lands fertile through siltation and thereby shape the life and economy of those areas. However, climate change has modified the scenario. Different climate change impacts such as recurring but unpredictable extent of floods, increasing river bank erosion, early/late drought in dry season, increased salinity as a result of back water effect, downing ground water level have been contributing to add to the vulnerability of the people living in these regions. Despite these well observed climate change impacts, the regions continue to receive insufficient attention from the government. Contextual analysis suggests that unless urgent actions are taken, climate change will undermine efforts to ensure the food security of the regions.

Case studies across the world confirm the truth that 'business as usual' approach is not sufficient to support vulnerable rural communities in addressing unprecedented climate change related food security challenges. There is an urgent need for adopting a strategy that could mutually ensure food security while decreasing vulnerabilities to climate change impacts. The RESOLVE project is innovative in its approach by applying and demonstrating an ecosystem approach during its implementation. Other than segregating action, the project will use an integrated approach that includes field intervention, capacity building, and advocacy initiatives; with strong cross-cutting concerns for gender equity and of raising the voices of the most vulnerable households. It will improve the resilience to current climate variability and future climate change of food insecure households by developing and supporting cost-effective strategies at both household and community levels; and advocating for policies and measures at the local, national and regional levels, that will improve food security in the context of climate change.

The project, RESOLVE stands for Regenerative Agriculture and Sustainable Livelihoods for Vulnerable Ecosystems. It has been designed to achieve the goal of making communities more resilient to climate shocks while ensuring food security through a combination of intervention strategies: direct poverty reduction through practicing adaptive agriculture techniques and technologies; diversifying livelihoods (on-farm, off-farm and non-farm) of the rural poor; working with grassroots and civil society; conducting research and evidenced-based lobby and advocacy at various strategic levels (national, regional and global); managing knowledge and innovative techniques; and maintaining and/or creating linkages to foster cross learning among different stakeholders (see Figure 1 for the project's conceptual framework).

RESOLVE is aimed at implementing a pilot project in climate vulnerable and poverty stricken Sirajgonj, Gaibandha, Shariatpur and Rajshahi districts for a duration of 2 years (2011-2012), which will follow another two programme phases of 3 years each; phase 1 (2013-2015) and phase 2 (2016-2018). The model will be replicated and scaled up in different locations in the same agro ecological zones (AEZs) or districts in phase 1 and in other AEZs (districts) in phase 2. Since a graduation cycle of a household generally takes 3-5 years, therefore each new phase will start by replication and/or scaling up keeping continuation with existing beneficiaries through a phase out strategy.

The design of interventions under the project is based on a vulnerability analysis incorporating the climate change impacts, which predict how the welfare of livelihood groups may change in the future. As such, action will be localised in ‘climatic hot spots’ in Bangladesh where not only people's vulnerability will be compounded but also their livelihoods will be addressed which are currently being eroded due to climate change impacts. In Bangladesh, the climatic hot spots have been identified by country level research through assessing the extent to which communities will be geographically exposed to specific change (using agro-ecological zoning mapping) and their capacity to adapt to the impacts (using poverty map and analysis). Since most of the people living in climatic hot spots are dependent on agriculture, it is pertinent to set project objectives by giving priority to adaptation in agriculture that will ensure food security.

Considering experiences on local context, four Non-Government Development Organizations and one research organization grouped together to implement the project. Having long-standing experience in the selected areas, these organisations will implement proposed activities; Gana Unnayan Kendra (GUK) in Gaibandha, Gono Kalyan Sangstha (GKS) in Sirajgonj, and Shariatpur Development Society (SDS) in Shariatpur and Unnayan Onneshan will provide technical support to the implementing organizations.

A baseline survey is a prerequisite for informed decision making. Without having a clear picture of socio-ecological context the project areas, intervention strategies may not be able to produce the desired output. Moreover a measurable and verifiable system has to be developed to ensure transparency and accountability in activities so that the survey could play an important role. Through baseline survey, existing socio-economic condition of the right holders could be explored and after a project cycle these information will help to measure their progress towards moving from existing Condition A to expected Condition B; and also the effectiveness of the intervention strategies. In this sense baseline survey report is the reference point for monitoring and evaluation.

As a starting point of RESOLVE activity, a baseline survey was conducted in Goshairhat Upazila in Shariatpur, where SDS will implement RESOLVE activities. Overall goal of the study was to prepare a socio-economic profile of right holders based on existing situation. Moreover, another 100 households were also surveyed in order to prepare a reference point to measure the progress of the right holders compare to those who are out of RESOLVE intervention.

2. THE APPROACH AND METHODS OF THE STUDY

To conduct the baseline survey, the study followed multidisciplinary approaches. A semi structured questionnaire was developed considering socio-economic condition of the area based upon secondary literature and consultation with key stakeholders. The questionnaire then tested in the field to review its performance whether the questionnaire is comprehensive enough to collect required data or need any inclusion or exclusion. A number of observations were suggested by field data collectors from the field test and the questionnaire was finalized by taking their account into suggestion. Other than household survey, the study also used BCAS feasibility study on the RESOLVE working areas as reference point. Couple of Focus Group Discussions (FGDs) were carried to assess local people's awareness regarding climate change impacts and their attempts to confront those. The study surveyed 400 households by using the questionnaire, out of which 300 households are right holders (in RESOLVE the target group are termed as right holders based on the understanding that they are climate victim but not responsible for causing climate change. Therefore, development towards a prosperous life is their right) and rest 100 household taken from outside RESOLVE intervention.

2.1 Selection of Project area and Right Holders

Climatic vulnerability, professions of community and livelihood activities are the three major driving forces to select the target group for RESOLVE project. Since the project is intended to improve the life and livelihood of the poorer part of the community objectively, therefore small holder, landless and women headed households have been selected as target groups in Nalmori union of Gosairhat Upazila in Shariatpur district as they are the most vulnerable to climate change in terms of physical, human, natural and social capital.

Table 1: Target group and their vulnerability to climate change

Right holders	Characteristics	Vulnerability by Climatic Hazards	This Project cover Estimated number of beneficiary (HHs)
(i) Smallholders	<ul style="list-style-type: none"> • Owner of 10 decimal size of farmland • Cultivating seasonal crops (paddy), chilli & vegetables in own land & other land through share cropping • Day laboring • Livestock & poultry rearing 	<ul style="list-style-type: none"> • Geographically living in lower part of the meghna river (end side of Barisal, Shariatpur and Chandpur and close with Riverbank of the Meghna) • Living in poor housing • Livelihood maintaining by seasonal paddy, chilli & other robi crops cultivation in government khasland, own and share cropping in private owner land • Every year livelihood faces tidal surge, flood & storms, drought • Existing livelihood options, household farming, household base IGA & house damaged 	100
(ii) Landless	<ul style="list-style-type: none"> • Daily earning by wages • off farm & on farm labouring • Cultivating crops (paddy) and chilli by 	<ul style="list-style-type: none"> • Geographically living in lower part of the meghna river (end side of the barisa and shariatpur board and close with Riverbank of the Meghna) • Livelihood maintained by seasonal paddy, 	100

	leases and share cropping <ul style="list-style-type: none"> • No own farmland • Living with kind land (locally called Rayat) • Isolate Char dwellers • Seasonal unemployment (jobless) • Per year income less than 27,000 (306 Euro) • - Livestock & poultry rearing 	chilli & other robi crops cultivation in government khasland and share cropping in private own land <ul style="list-style-type: none"> • Every year livelihood faces tidal surge, flood & storms, drought • - Existing livelihood options, household farming, household base IGA & house damaged 	
(iii) fisherman/fisher folk	<ul style="list-style-type: none"> • Fishing labor with landlord fisherman • No own fishing inputs & logistics • Fishing in open water sheds/rivers • Seasonal fishing • Day labouring in lean period • per year income less than 20,000 (227 Euro) • - Livestock & poultry rearing 	<ul style="list-style-type: none"> • Geographically living in lower part of the meghna river (end side of Barisal, Shariatpur and Chandpur and close with Riverbank of the Meghna) • Livelihood maintained by fishing • Some of fishermen seasonally engage for chilli & other robi crops cultivation by share cropping. • Every year livelihood face by tidal surge, flood & storms, drought • Existing livelihood options, household farming, household base IGA & house damaged 	50
(iii) women headed household	<ul style="list-style-type: none"> • Seasonal crops harvesting (like chilli harvesting) • Livestock & poultry rearing • Fishing net sewing • Making hogla mat • Made service in other landlord farmers • Per year income less than 15 thousand (170 Euro) 	<ul style="list-style-type: none"> • Geographically living in lower part of the meghna river (end side of Barisal, Shariatpur and Chandpur and close with Riverbank of the Meghna) 	50

2.2 Secondary Data

Secondary data on population, households etc. of villages under the Gosairhat upazila have been obtained from the published documents of Bangladesh Bureau of Statistics (BBS). The census report of 1991 and 2001, the Household Expenditure Survey (2007) as well as other relevant documents have been used to gather information on physical aspects, natural resources, agriculture and livestock, economic condition etc. from the Bangladesh District Gazetteers.

2.3 RESOLVE Villages

To implement RESOLVE; three villages named Pachkati, Char Bhuiya and Kulchuri Patachar of Nalmori union under Gosairhat upazila of Shariatpur have been selected purposively considering their grave vulnerability to climate change and higher rate of poverty. Total 400 households were

surveyed in the baseline study; out of which 300 households are covered under RESOLVE and rest 100 households, who are not intervened by RESOLVE, will be used as reference points to measure the progress of the right holders compare to them. For RESOLVE pilot phase I, 191 right holders were selected from Pachkati village. Whereas 62 and 42 right holder were selected from Char Bhuiya and Kulchuri Patarchar respectively.

On the other hand, In case of the uncontrolled households (households that do not covered under RESOLVE) 53, 19 and 28 (total 100) households were surveyed from Pachkati, Char Bhuiya and Kulchuri Patarchar respectively.

Table 2: Right holder distribution in Shariatpur

Village	Frequency	Percent
Pachkati	191	63.7
Char Bhuiya	62	20.7
KulChuri Patarchar	47	15.7
Total	300	100.0

Table 3: Distribution of uncontrolled households

Village	Frequency	Valid Percent
Pachkati	53	53.0
Char Bhuiya	19	19.0
Kul Churi Patarchar	28	28.0
Total	100	100.0

2.3.1 Geographic and demographic profile of Gosairhathat Upazila

Gosairhat Upazila with an area of 167.86 sq km is bounded by DAMUDYA and BHEDARGANJ upazilas on the north, MULADI and HIZLA upazilas on the south, HAIMCHAR upazila on the east, and KALKINI upazila on the west. The main rivers are MEGHNA and Jayanti. Gosairhat Thana was established in 1921 and was turned into an upazila in 1983. It consists of 7 union parishads, 84 mouzas and 199 villages. Total population of Gosairhat upazila is 115882; male 50.48 percent and female 49.52 percent; Muslim 95.01 percent, Hindu 4.91 percent and others 0.08 percent. Agriculture is the main occupation in the upazila (51.10 percent) followed by agricultural laborer (26.98 percent), commerce (6.34 percent), service (3.09 percent), wage laborer (2.69 percent) and fishing (1.04 percent).

Land use pattern of the upazila is dominated by cultivable land, which occupied an area of 10526.51 hectares. Most of the cultivable land is under double cropping (51 percent). On the other hand 29 percent and 20 percent land is under single and treble cropping respectively.

Per capita land ownership is 0.04 hectares and a considerable percentage of the people are landless (14 percent). Paddy is major crop of the upazila and it is cultivated in 75 percent of the cultivable land. But, chili is abundantly produced in the newly accreted char land. Jute cultivation is becoming popular among medium farmers recently.

Literacy situation of Goshairhat upazila is not satisfactory. Only 20.23 percent people are literate, out of which male 26.01 percent and female 14.3 percent. There are 45 government primary schools and 28 non-government registered primary schools, nine high schools, eight madrassahs and a college in the upazila.

3. DEMOGRAPHIC FEATURES OF RESOLVE VILLAGES

83.7 percent are male headed and 16.3 percent are female headed households among 300 right holders (Figure 1). On the other hand, among 100 uncontrolled households, 99 percent households are male headed and only one percent is female headed.

Figure 1: Population distribution of right holder

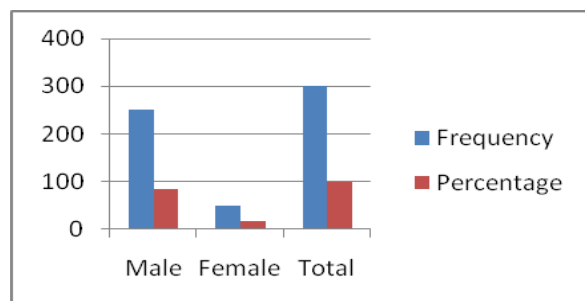


Table 4: Family Composition of uncontrolled group

Member of household composition	Frequency	Total member	Valid percent
2	7	14	7.0
3	20	60	20.0
4	22	88	22.0
5	25	125	25.0
6	18	108	18.0
7	5	35	5.0
8	3	24	3.0
Total	100	454	100.0

Total population size of the right holders' family is 1455; out of which male members consists of 51.40 percent and female member 48.60 percent (Table 3.2). In case of family composition; 19.7 percent right holders have three family members at the highest, 21 percent right holders have four family members each, 24.3 percent has five family members and 34.4 percent right holders have more than five family members. However, baseline survey revealed that total 454 family members belongs to 100 uncontrolled households, within which seven percent households have only two family members, 20 percent has three, 22 percent households have four family members, 25 percent has five, 18 percent households have six family members, five percent households have seven family members and the rest three percent households have eight family members.

Table 5: Distribution of family members by age and sex of the right holders

Household members by age	Members by sex	Total number	Percentage by sex	Total percentage
Number of family members between age 0-5	Number of male members between age 0-5	150	10.31	18.01
	Number of female members between age 0-5	112	7.70	
Number of members between age 6-14	Number of male members between age 6-14	192	13.20	26.60
	Number of female members between age 6-14	195	13.40	
Number of members between age 15-59	Number of male members between age 15-59	397	27.29	54.71
	Number of female members between age 15-59	399	27.42	
Number of members age 60+ and above	Number of male members age 60+ and above	4	0.27	0.68
	Number of female members age 60+ and above	6	0.41	
Total		1455	100	100

Table 6: Distribution of family members by age and sex of uncontrolled group

Household members by age	Members by sex		Total number
	Number of male members	Number of female members	
Number of members between age 0-5	Number of male members between age 0-5	42	79
	Number of female members between age 0-5	37	
Number of members between age 6-14	Number of male members between age 6-14	67	126
	Number of female members between age 6-14	59	
Number of members between age 15-59	Number of male members between age 15-59	121	251
	Number of female members between age 15-59	130	
Number of members age 60+ and above	Number of male members age 60+ and above	3	4
	Number of female members age 60+ and above	1	
Total		460	460

Table 7: Female members in right holders' household

Number of female member in your family	Frequency	Percent
1	78	26.0
2	114	38.0
3	53	17.7
4	34	11.3
5	20	6.7
6	1	0.3
Total	300	100.0

The survey revealed that 26 percent right holders have only one female member, 38 percent right holders have two, 17.7 percent right holders have three female members, 11.3 percent right holders have four female members, 6.7 percent right holders have five and 0.3 percent right holders have six female members.

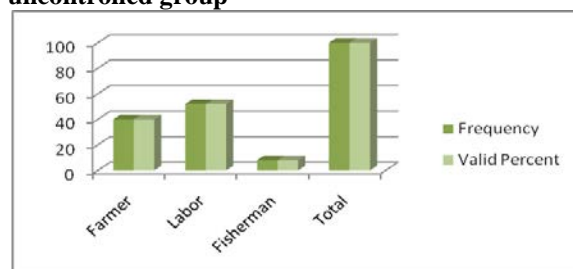
4. OCCUPATIONAL STRUCTURE

4.1 Primary Occupation

From the baseline survey it is found that 47.7 percent household head of the right holder's primary occupation is agriculture, 33.7 percent are wage labourers and 17.3 percent are fisherman (Table 4.1). On the other hand, 40 percent households were found to be engaged in agriculture and 52 percent are labours and rest eight percent households are fisherman in the uncontrolled group.

Table 8: Distribution of primary occupation of right holders

Main Occupation Of House hold Head	Frequency	Percent
Farmer	143	47.7
Wage Labour	101	33.7
Small Business	1	.3
Fisherman	52	17.3
Mowali	1	0.3
Others	2	0.7
Total	300	100.0

Figure 2: Primary occupation distribution of uncontrolled group

4.2 Secondary Occupation

Majority of the right holders are engaged only with one occupation. However, some of the right holders change their occupation depending on seasonality. From the survey it is found that 10.7

percent right holders use agriculture as their secondary occupation and 21.7 percent becomes day labours based on seasonality, particularly in lean period (Table 4.2).

Table 9: Distribution of secondary occupation of right holders

Other Occupation	Frequency	Percentage
Farmer	32	10.7
Labour	65	21.7
Fisherman	29	9.7
Others	3	1.0
No Secondary occupation	171	57.0
Total	300	100.0

In case of the uncontrolled group, 65 percent households found having single occupation and 12 percent found with having agriculture as their second occupation. 13 percent of the labour use fishing as their second occupation to bear their family expenses.

5. EDUCATION

Table 10: Distribution of family members' education according to age and sex within right holders group

Composition of educational qualification by age	Composition of educational qualification by age and sex	Number	Total number
Number of members who are illiterate, age above 15	Number of male members who are illiterate, age above 15	172	338
	Number of female members who are illiterate, age above 15	166	
Number of members who can only sign, age above 15	Number of male members who can only sign, age above 15	24	47
	Number of female members who can only sign, age above 15	23	
Number of members who can only write & read, age above 15	Number of male members who can only write & read, age above 15	28	57
	Number of female members who can only write & read, age above 15	29	
Number of members who have education below class 5	Number of male members who have education below class 5	297	595
	Number of female members who have education below class 5	298	
Number of members who have education between class 5 and class 10	Number of male members who have education between class 5 and class 10	80	165
	Number of female members who have education between class 5 and class 10	85	
Number of members who have education SSC and above	Number of male members who have education SSC and above	6	7
	Number of female members who have education SSC and above	1	
Total		1209	1209

Table 11: Distribution of family members' education according to age and sex within uncontrolled group

Composition of educational qualification by age	Composition of educational qualification by age and sex	Number	Total number
Number of members who are illiterate, age above 15	Number of male members who are illiterate, age above 15	45	99
	Number of female members who are illiterate, age above 15	54	
Number of members who can only sign, age above 15	Number of male members who can only sign, age above 15	9	17
	Number of female members who can only sign, age above 15	8	
Number of members who can only write & read, age above 15	Number of male members who can only write & read, age above 15	18	36
	Number of female members who can only write & read, age above 15	18	
Number of members who have education below class 5	Number of male members who have education below class 5	95	187
	Number of female members who have education below class 5	92	
Number of members who have education between class 5 and class 10	Number of male members who have education between class 5 and class 10	29	60
	Number of female members who have education between class 5 and class 10	31	
Number of members who have education SSC and above	Number of male members who have education SSC and above	3	4
	Number of female members who have education SSC and above	1	
Total		403	403

5.1 Enrollment

Within 300 right holders households, 320 members were found enrolled in different schools out of which 53.75 percent is female 46.25 percent of them are male. This result shows evidence of growing awareness regarding female education. On the other hand, total 133 members were found enrolled in the uncontrolled group, within whom male and female enrollment ratio is almost equal.

Table 12: Enrollment status of right holders

Enrollment in School or collage	Male/Female			Percentage
	Male enrollment	148		320
Female enrollment	172	53.75		
Total		320	320	100.00

Table 13: Enrollment status of uncontrolled group

Current Enrollment in School and Collage	Male/Female			Percent
	Current male enrollment	67		133
Current female enrollment	66	49.63%		
Total		133	133	100%

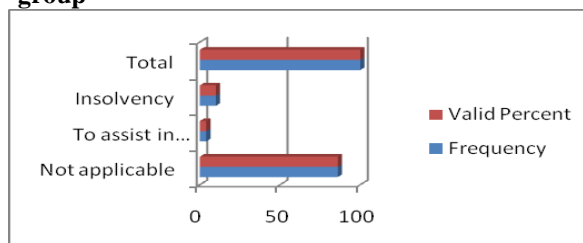
5.2 Dropout

In the right holders' household, dropout rate is 13.7 percent (Table 5.5). On the other hand, 14 percent is the dropout rate in the uncontrolled group.

Table 14: Reasons for dropout in right holders

Reasons for drop out	Frequency	Percent
No drop out	261	87.0
To assist in income earning activity	3	1.0
Insolvency	36	12.0
Total	300	100.0

Figure 3: Reasons for drop out in uncontrolled group



To identify reasons behind dropout, it is found that in the right holders group only one percent is dropped out of school to assist his/her family income through conducting earning activities. In the uncontrolled group the share is 4 percent on the other hand. In both cases, economic insolvency is the major reason behind dropout and from the survey it is revealed that 12 percent and 10 percent were dropped out of schools due to economic insolvency in case of the right holders and the uncontrolled group respectively.

5.3 Adult Education

In the right holders group, only 2.7 percent was found to have received adult education facilities. Alternatively, it is one percent in case of the uncontrolled group.

5.4 Female Education

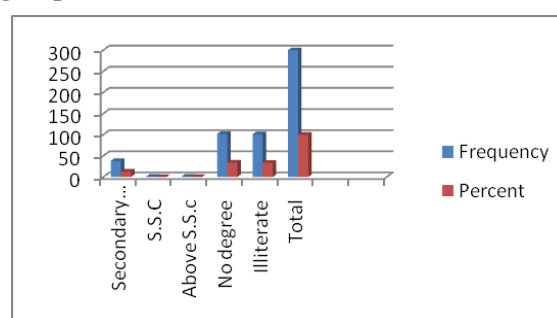
Within the right holders, 34 percent female can only sign and 33.7 percent is illiterate. In case of literate female; 18.7 percent has obtained primary education, 12.7 percent has received secondary education and 0.9 percent female passed SSC or higher education.

On the contrary, 26.47 percent illiterate female were identified in the uncontrolled households and 57.85 percent female were found with minimum education up to class five, who can both read and write their names.

Table 15: Obstacles faced by female students in right holders group

The main obstacle	Frequency	Percent
Stalking	1	0.3
Religious restriction	2	0.7
Do not face any problem	298	99
Total	300	100.0

Figure 4: Female education status of right holders group



Even though female illiteracy rate is higher both in the right holders and the uncontrolled group, but current enrollment is satisfactory in both cases. It seems people of RESOLVE area are well-aware of

girls' education. However; 0.3 percent girls notified that they face difficulties, particularly due to stalking while going to schools and 0.7 percent face difficulties in the name religious construction (Table 5.6).

The situation is identical in the uncontrolled group as well. In the uncontrolled group, three percent households were found to have posed restrictions on their girls' education by showing religious cause.

Investigate was conducted to find out the mode of communication used for schooling through the baseline survey. Within the right holders 52 percent students were found going to school on foot. In case of the uncontrolled group, the rate is 60 percent. Only one percent is found in both categories that used vans for going to school. However, the question was not applicable for 47 percent and 39 percent households in the right holders and the uncontrolled group respectively as no school-going children was found in those houses.

6. INCOME AND EXPENDITURE

6.1 Income

Most of the right holders are extremely poor and their annual income is below 30000 taka (USD 400).The baseline study revealed that 64.3 percent right holders' annual income is equal or below 30000 taka. However, 35.7 percent right holders were found with an income of more than 30000 taka (Table 6.1).

Table 16: Income information of right holders

Income level	Frequency	Valid Percent	Percent
Less than 20000	52	17.9	17.3
20000- 29999	135	46.4	45.0
30000 +	104	35.7	34.7
Total	291	100.0	97.0
Missing Value	9		3.0
Total	300		100.0

Table 17: Income information of uncontrolled group

Yearly Income	Frequency	Valid Percent
Less than 15001	8	8
15001 to 29999	60	60
30000+	32	32
Total	100	100

On the other hand, 68 percent were identified as extremely poor whose income is equal or less than 30000 taka within the uncontrolled group (Table 6.2).

6.2 Expenditure

There is a huge discrepancy between income and expenditure in the RESOLVE area. Even though more than 60 percent right holders were found with less than 30000 taka income but, 73.4 percent right holders' yearly expenditure is more than 30000 taka.

This is due to aid received from different government and NGO programmes. However, a reverse scenario discovered in the uncontrolled group where only 15 percent households were found whose annual expenditure is more than 30000 taka.

Table 18: Expenditure status of right holders

Expenditure level	Frequency	Valid Percent
Less than 20000	23	7.9
20000- 29999	54	18.6
Over 30000+	213	73.4
Total	290	100.0
Missing Value	10	
Total	300	

Table 19: Expenditure status of uncontrolled group

Yearly Expenditure	Frequency	Valid Percent
Less than 21001	23	23
21001 to 30000	62	62
More than 30000	15	15
Total	100	100

6.3 Feeding Capability

Since the right holders are extremely poor, most of them cannot arrange food three times in day. The baseline data depicts that 3.3 percent of the total households' members can have a meal once each day (that is not square even), 94.7 percent households' members eat twice everyday and only two percent households members eat three times each day. Moreover, 94.7 percent household head is incapable to feed his/her family three times a day.

Figure 5: Feeding capability of right holders

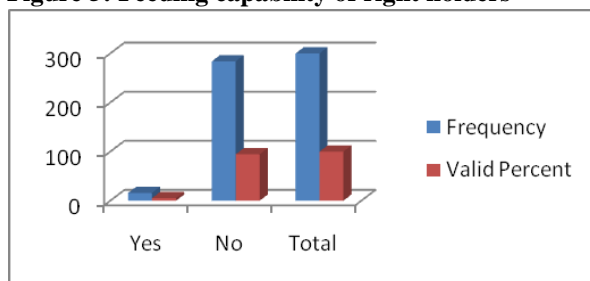
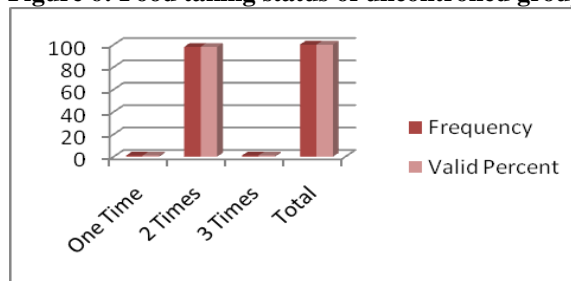


Figure 6: Food taking status of uncontrolled group



Feeding scenario is identical for uncontrolled group as well. Within the uncontrolled group, only one percent of the total household members eat thrice a day. And, no household head is capable of feeding his/her family members three times in a day in case of the uncontrolled group.

7. DESCRIPTION OF DWELLING

7.1 Ownership Pattern

Table 20: Household ownership status of Right holders

Ownership of house	Frequency	Valid Percent
Owned	32	32.0
Others	68	68.0
Total	100	100.0

Within 300 right holders, 52.7 percent has their own house and 47.3 percent lives in others' places. 75.3 percent house has only one room, 21.3 percent house has two rooms and only three percent has three rooms. On the other hand, 32 percent of the uncontrolled group has their own house and 68 percent live in others' places.

7.2 House Materials

The lion's share (99.7 percent) of the right holders' household floor is made of mud and the rest (0.3 percent) is made of brick. In case of roof; 99.3 percent is covered by tin and only 0.7 percent is covered by others materials. In addition, only 0.7 percent households' wall is prepared by tin,

one percent has got wood-made wall, rest 98.3 percent house wall is made of bamboo and straw. Similarly, 97 percent household's floor of the uncontrolled group is made of mud and 97 percent of this group's household roof is covered with tin.

Road communication: Most of the households (99.7 percent) of right holders are surrounded by mud. While, 94 percent houses of the uncontrolled group is surrounded by mud.

7.3 Source of Light

Only 2.7 percent of the household of the right holders has access to electricity. 96 percent house depends on Kerosene and 0.7 percent uses solar energy as for a source of light. On the other hand, one percent of the controlled group has access to electricity, 94 percent uses kerosene and only five percent uses solar energy.

7.4 Cooking System

Almost all the houses of both the right holders and the uncontrolled group practice their culinary in open places. Within the right holders, only 0.3 percent has separate place for cooking. The scenario is identical for the uncontrolled group as well. 99.7 percent house hold use leaves, straws and wood for cooking.

7.5 Fuel System

The right holders depend on nature for fuel. 99.7 percent of the right holders use wood, straw, leaves etc. as fuel and collect those from their surroundings. On the other hand, 94 percent households of the uncontrolled group use leaves, straw and woods as fuel.

It is quite common elsewhere in rural Bangladesh, where female member of the family is responsible for collecting fuel for house and RESOLVE project area showed same pattern. Within the right holders group 97 percent female is engaged in collecting fuel wood; and to collect it, 60.4 percent female spend an hour or more. 31.7 percent female was found to spend 30 minutes to collect fuel for their home.

Within uncontrolled group the scenario is identical. 72 percent of female was identified spending an hour or more in collecting fuel for their home and 27 percent spends 30 minutes to collect fuel wood.

8. WATER AND SANITATION

8.1 Drinking Water

Over the decades rural Bangladesh has been dependant on using tube well for drinking water. Similarly, almost all the right holders use tube well to meet up their demand of drinking water. However, not all the tube wells are placed adjacent to the right holder's household. Rather they have to walk few minutes to collect pure drinking water. From the survey it is found that only one percent house hold has tube wells in their house premise and they collect water without spending mention-worthy time, 48.7 percent needs 15 minutes, 38.3 percent needs 30 minutes and 12 percent needs an hour to collect drinking water from the source. In case of collection

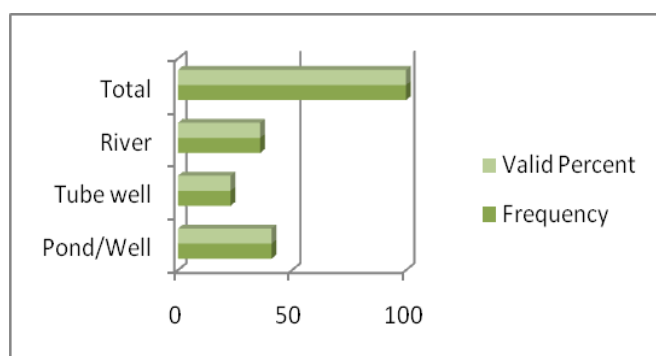
frequency, it is found that 25.7 percent households collect once, 51 percent collects twice and 22.3 percent of the total households collect thrice a day to meet their demand of drinking water.

Alternatively, one percent of the total household depends on supply water, three percent on ponds/wells and the rest 96 percent is dependent on tube-wells for drinking water in the uncontrolled group. 29 percent households need to spend 15 minutes, 44 percent needs 30 minutes and in 27 percent needs an hour to collect drinking water from the source. From the baseline survey it is found that five percent of the total household collect drinking water once a day, it is twice in case of 57 percent and 38 percent collects thrice a day.

8.2 Cooking Water

Most of the households depend on rivers or ponds as sources of water for cooking. From the survey it is revealed that 53 percent of the total household collect cooking water from river, 13.7 percent collects ponds/wells. However, 33 percent collects from tube wells and only 0.3 percent uses municipality water supply. In case of collection time; it is found that 58.7 percent need 15 minutes, 32.7 percent needs 30 minutes, and 7.7 percent needs an hour to collect water for cooking. Most of the households collect their cooking water twice a day (90.3 percent), two percent collects water once a day and it is thrice in case of 6.7 percent. Usually female members are responsible for collecting water and it is found that 99.3 percent household water is collected by the female members.

Figure 7: Cooking water collection status of right holders



Within the uncontrolled group cooking water collection pattern differs a little than that of the right holders' group. The survey revealed that 41 percent collects their cooking water from ponds/wells, 23 percent from tube wells and 36 percent from river.

In case of required time for collecting cooking water, it is found that 31 percent of the total households need 15 minutes; it is 30 minutes in case of 54 percent and the rest 15 percent needs an hour. Within the uncontrolled group, female members correspond to the highest percentage (95 percent) for collecting cooking water. 95 percent household collects twice and the rest five percent house collects their cooking water thrice a day.

8.3 Availability of Water

As evident from the responses, availability of water till now is not a matter of concern in Shariatpur. 98.3 percent household does not face any problem in collecting water. The situation is the same in the uncontrolled group and 99 percent responds favour positively regarding water availability.

8.4 Bathing and Washing Water Source

The district of Shariatpur is surrounded by river from three sides and therefore river is unequivocally linked to inhabitants' lives and livelihoods. Majority of the right holders depend on river (97 percent) for washing and bathing purposes and only 2.7 percent uses tube wells.

Within the uncontrolled group, 93 percent household uses rivers/ponds for washing and bathing. Only four percent uses tube wells and two percent has access to municipality water.

8.5 Sanitation System

8.5.1 Toilet

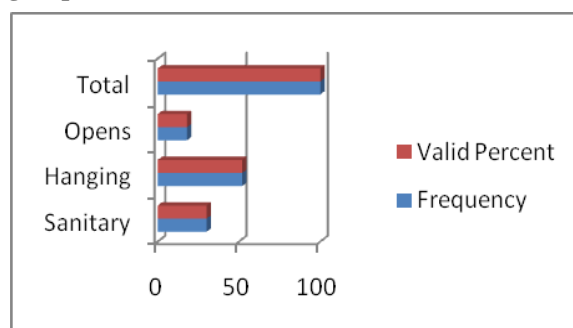
In case of Sanitation; 40.3 percent households use sanitary toilets, 31.3 percent uses hanging ones and 28.3 percent makes use of open places for defecation. In case of distance between toilets and sources of drinking water; it is found that 54.3 percent households' toilets and sources of drinking water distances five meters, 19 percent household has it within ten meters and 16.7 percent is within two meters.

Table 21: Types of toilet used by right holders group

Type of Toilet	Frequency	Percent
Sanitary	121	40.3
Hanging	94	31.3
Open	85	28.3
Total	300	100.0

On the contrary; 30 percent households use sanitary toilet, 52 percent uses hanging ones and 18 percent uses open place for defecation within the uncontrolled group.

Figure 8: Types of toilet used by uncontrolled group



In case of toilet usage, 97 percent households use their own toilets and three percent shares toilet with others. In case of distance between toilet and source of drinking water; it is found that eight percent households' drinking water source and toilet are placed within two meters, 69 percent is within five meters and 23 percent has it within 10 meters.

8.6 Waste management

Due to the lack of both awareness and technical knowledge, waste management system is very poor in rural areas. From the survey it is revealed that almost all the households of the right holders dump their waste in open places. However, good news is that 99 percent cleans garbage area daily. But a meager percentage (0.7 percent) never does it.

The baseline survey gives an impression of the right holders' poor technical knowledge and little awareness regarding using garbage as organic fertilizers. It is found that only 1.3 percent does it

but 97.3 percent never uses their garbage as organic fertilizer. Sometimes they do not even know how to convert garbage into organic fertilizers.

Table 22: Use of garbage as organic fertilizer by right holders

Garbage use as an organic fertilizer	Frequency	Percent
0	4	1.3
Yes	4	1.3
No	292	97.3
Total	300	100.0

In case of the uncontrolled group; 97 percent dumps wastes in open places. In case of frequency of garbage cleaning, 100 percent households clean their garbage daily. However, none cleans

their dumping area ever. In case of preparing organic fertilizers from waste, six percent is found to use garbage as an organic fertilizer and rest of 94 percent does not do it.

9. HEALTH

9.1 Disease

While considering health situation of the right holders; it is found that 81.7 percent family members frequently suffer from fever, six percent is seasonally affected by cough, and two percent is affect by Diarrhea and ten percent by Influenza. In case of the uncontrolled group, incidence of fever found to be the highest (84 percent). Diarrhea incidence is higher in the uncontrolled group (six percent) but Influenza occurrence shows a decreased trend (six percent).

Table 23: Diseases occurrence among right holders

Disease frequently affect your family	Frequency	Percent
Fever	245	81.7
Cough	18	6.0
Diarrhea	6	2.0
Influenza	31	10.3
Total	300	100.0

In case of treatment method, highest percentage found (91.3 percent) to be using allopath in the right holders' family despite taking advice from unregistered village doctors and eight percent is found to use Homeopathy. Only 0.3 percent makes use of herbal elements for treatment.

On the other hand, three percent households take Homoeopathy and the rest (97 percent) prefers Allopathic treatment within the uncontrolled group.

Access to formal medical facility is showing a worrying picture. Almost all (99.7 percent) households of the right holders group use non-government or unregistered village doctors for treatment. Only 0.3 percent goes for government medical facility. Likewise, 100 percent of the uncontrolled group relies on non-government medical facilities for treatment.

While investigating reasons for not using formal medical facilities, distance is found to be the most significant factor. The survey depicts that 36 percent has to travel a kilometer to reach formal medical facility and 31 percent needs to travel two kilometers, 14.7 percent is required to travel three kilometres, 14 percent need to travel four kilometers and it is five kilometers in case of another 1.7 percent.

9.2 Immunization of Children

Table 24: Immunization status of children of right holders

Immunization of children	Frequency	Percent
No children	5	1.7
Completed	158	52.7
Partially	132	44.0
Not given	5	1.7
Total	300	100.0

The rate of children immunization has a satisfactory picture. Within the right holders group; 52.7 percent children (below five years) have completed immunization, 44 percent completed it partially and only 1.7 percent did not receive any.

The uncontrolled group shows a nearly identical case of immunization. Almost all (99 percent) the children received either full or partial immunization.

9.3 Birth Control

Table 25: Birth control status of right holders

Receive Birth Control Method	Frequency	Percent
Yes	285	95.0
No	13	4.3
Not married	1	0.3
No female	1	0.3
Total	300	100.0

In case of birth control, 95 percent reproductively active women use birth control system in the right holders group. Those who use any means of birth control method opined that 0.7 percent of them do not adopt it for religious restriction, 1.7 percent household do not take as their in-laws restrict them and rest 2.7 percent does not adopt it as their

husbands are not interested.

In regard to the uncontrolled group; 96 percent reproductively active women do use birth control methods whereas four percent of them are not using it by showing the same causes akin to the right holders' group.

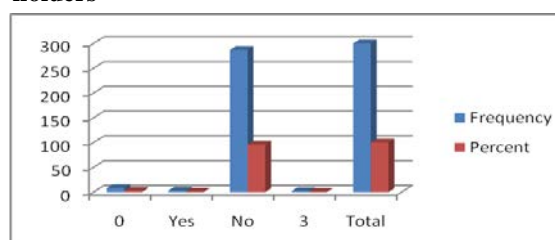
9.4 Maternal Health Facility

Maternal facility is inadequate in the RESOLVE project area. Only one percent of the right holders have received maternal health facilities during pregnancy and 95.7 percent relied on untrained midwife for pregnancy related matter.

Table 26: Access to vaccination during pregnancy

Vaccination During Pregnancy	Frequency	Percent
Not pregnant yet	11	3.7
Yes	100	33.3
No	189	63.0
Total	300	100.0

Figure 9: Maternal health facility access by right holders



The situation is slightly better in case of the uncontrolled group. Within the group, four percent has received formal maternal health facilities during pregnancy.

9.5 Vaccination During Pregnancy

Within right holders, 33.3 percent pregnant women have taken vaccination during pregnancy and the rest 63 percent did not take any. On the other hand, 15 percent pregnant women of the uncontrolled group have taken vaccine during pregnancy and 80 percent did not take any.

10. AGRICULTURAL AND LAND DISTRIBUTION SYSTEM

Most of the right holders are either landless poor or have tiny amount of land, which is evident from survey result as well. From survey it is found that 93.7 percent household do not have any agricultural lands of their own. Alternatively, within the uncontrolled group 91 percent household do not have any productive agriculture land.

10.1 Size of Agriculture Land

Table 27: Agriculture land ownership status of right holders

Ownership of agricultural Land	Frequency	Percent
Yes	19	6.3
No	281	93.7
Total	300	100.0

Since most of the right holders are landless or small holders, therefore only 1.6 percent right holders were found to have more than 10 decimal agriculture

land. On the other hand, four percent household have 10 decimal, three percent is found to have 20 decimal and two percent has more than 20 decimal productive agriculture lands within the uncontrolled group.

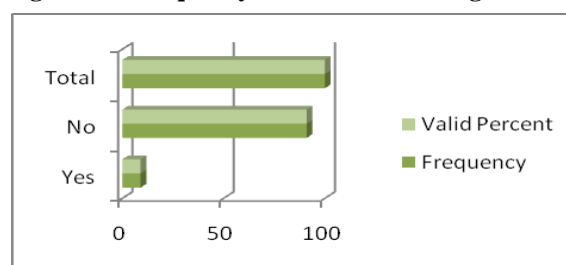
10.2 Leased Land

Some of the farmers use leased land for agricultural production. Within the right holders, 5.7 percent uses leased lands; and within the uncontrolled group only two percent uses leased lands for agriculture production.

Table 28: Size of leased land

Leased land in decimal	Frequency	Percent
No leased land	284	94.7
Less than 5	8	2.7
5 to 8	4	1.3
8 to 12	4	1.3
Total	300	100.0

Figure 10: Frequency of leased land of right holders



10.3 Size of the Leased Land

The baseline survey revealed that 5.3 percent household use leased lands for agriculture and within them 2.7 percent has less than five decimal lands, 1.3 percent has 5 to 8 decimal. From the data it is clearly evident that most of the right holders are either landless or smallholder farmer.

10.4 Share Cropping

Within the right holders, 55 percent is engaged in share cropping. Within the sharecroppers; 14.2 percent cultivates 11 to 32 decimal lands, 26.7 percent cultivates 40 to 100 decimal and 3.6 percent cultivates more than 100 decimal of land. On the other hand, 52 percent is engaged with sharecropping within the uncontrolled group. Within the sharecroppers in the uncontrolled group; six percent cultivates 1.60 decimal, eight percent cultivates 20 decimal, one percent cultivates 24 decimal, two percent household cultivate 30 decimal, 11 percent household cultivate 40 decimal, one percent household cultivate 45 decimal, two percent household cultivate 48 decimal, three percent household cultivate 50 decimal, one percent cultivates 64 decimal, 13 percent household cultivate 80 decimal, one percent household cultivate 100 decimal and two percent household cultivate 200 decimal land.

10.5 Ownership of Pond

In case of ownership of pond, within the right holders only 0.3 percent has ponds of their own and the rest of 97.3 percent use others' pond for bathing, washing and cooking.

10.6 Poultry

Within the right holders, 46.7 percent household has poultry resources and the uncontrolled households do not possess any. In case income from poultry resources, it is found that 33.9 percent earns less than 501 taka monthly, 11.4 percent households' income is in between 501 to 1000 and only two percent earns more than 1000 taka per month.

10.7 Livestock

Livestock is considered as an important natural capital for rural people and a considerable income comes from it. However, most of the right holders do not have any livestock. From the survey it is found that only 21 percent right holders have livestock and nine percent of them earn more than 15000 taka monthly from livestock. Whereas, within the uncontrolled group 14 percent have livestock and six percent of them earn more than 12000 taka per month.

10.8 Agricultural Activities

Table 29: Status of engagement in agricultural activities

Engaged in agricultural activities	Frequency	Percent
0	6	2.0
Yes	176	58.7
No	118	39.3
Total	300	100.0

In the project area 58.7 percent is engaged in agricultural activities among the right holders. On the other hand, 55 percent households of the uncontrolled group are engaged in agriculture activities.

10.9 Cultivation Intensity

Most of the lands in the project area are under double cropping. It is also evident from survey as 58 percent farmers cultivate their land twice a year and only 0.7 percent used theirs for single

cropping. Likewise, within the uncontrolled group, 54 percent practices double cropping and only two percent produces single crop in their lands.

10.10 Productive Crop

Table 30: Crop production status

Most productive crop	Frequency	Percent
Not engaged in farming	122	40.7
Rice	176	58.7
Wheat	2	0.7
Total	300	100.0

Like other parts of Bangladesh, rice is also major crop for project villages. The survey revealed that 58.7 percent farmers grow rice in their fields, whereas only 0.7 percent farmers grow wheat. The uncontrolled group follows the same practice and

almost all the farmers grow rice.

10.11 Seed Used for Crop Production

The farmers of rural Bangladesh are used to grow crop from locally produced seeds. However, the trend is changing slowly and hybrid seeds are replacing indigenous ones. Within the right holders, it is found that almost all the farmers use locally produced seeds. On the other hand, within the uncontrolled group one percent is found using hybrid seeds. The rest 99 percent relies on locally produced seeds for production. In case of seed preservation, it is found that 58.2 percent farmers are preserving seeds for future use in the right holders group, whereas the percentage is 56 percent within the uncontrolled group.

10.12 Use of Agriculture Tools

Subsistence agriculture in rural Bangladesh is gradually shifting towards mechanized agriculture, which is manifested from the survey as well. It is found that out of 58.7 percent farmers of the right holders group; 17.7 percent uses traditional agricultural tools, one percent uses modern agricultural appliances and 40 percent use both the traditional and modern ones. Out of 57 percent farmers within the uncontrolled group; 52 percent uses both whereas only five percent relies on traditional ones.

10.13 Source of Irrigation

Table 31: Irrigation source used by right holders

Source of irrigation	Frequency	Percent
Not applicable	123	41.0
Surface water	151	50.3
Ground water	26	8.7
Total	300	100.0

Irrigation is an important issue for agriculture production. More particularly, irrigation is crucial for Boro production. Within right holders group; 50.3 percent farmers use surface water and 8.7 percent uses ground water. In the uncontrolled

group, however, 55 percent farmers' source of irrigation is surface water and two percent uses ground water.

10.14 Main Obstacles for Agriculture Production

10.14.1 Obstacles for Agricultural Production

Agriculture is a weather sensitive sector. Even a slight change in climate eventually hampers the production. Farmers of the RESOLVE area are confronting multiple stressors. However, flood is the dominating factor that has an ambivalent affect. In one side it makes lands fertile through silt deposition; on the other hand cause destruction by inundating the whole production. Among the right holders group, it has been found that 58.3 percent considered flood as a major threat. 0.7 percent recognized drought and it is salinity for another 1.3 percent as the hindrances for agricultural production.

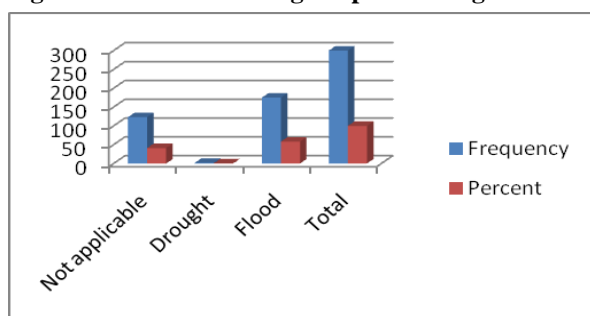
10.14.2 Effect of Climate Change in Agriculture

Agricultural sector is very sensitive to climate change, where direct loss is incurred. Climate change posed multifaceted impacts on agriculture. In the right holders group; 41.3 percent farmers noticed change of variety of crops as an impact of climate change whereas 0.3 percent identified reduction of agricultural productivity. 15.3 percent farmers argued change of crop calendar to be the major impact of climate change. Most of the farmers (54 percent) of the uncontrolled group also addressed change of crop variety as one of the major impacts of climate change, whereas one percent argued that the total productivity has been reduced due to climate change. On the other hand, two percent has identified change of crop calendar as major climate change impact.

11. CLIMATE CHANGE AND NATURAL HAZARDS

57.3 percent households of the right holders answered that they are affected by climate change; while 12.3 percent answered that they have heard about climate change but could not notice any effect of it. However, 30.3 percent respondents showed their ignorance regarding this issue.

Figure 11: Climate Change impacts on right holders



Knowledge regarding climate change among the uncontrolled group showed similar patterns likewise the right holders group. In this case, 56 percent addressed climate change as a major threat to their lives and livelihood. On the other hand, 15 percent respondents answered that they have heard about climate change and did not notice any effect of it. Regrettably 29 percent respondents were unaware of the fact.

11.1 Hazard Frequency

Table 32: Hazard frequency according to right holders

Calamities occur in locally	Frequency	Percent
Do not answer	1	0.3
Flood	297	99.0
Drought	2	0.7
Total	300	100.0

According to respondents among the right holders group, flood is the most frequent hazard ever faced. Whereas, 2 respondents identified drought as major hazard that could incur great loss.

On the other hand, within the uncontrolled group, 95 percent respondents identified flood as the most frequent hazard and five percent salinity intrusion to be the most hazardous. It is to be noted that people living lower Meghna basin identified salinity as a major problem.

11.2 Impact on Livelihood

Table 33: Effect of natural hazard on livelihood according to right holders

Natural Hazards Affecting livelihood	Percent
Flood, Cyclone	61.3
Flood and drought	21.3
Cyclone	11.3
Salinity	5.0
Total	100.0

Within the right holders' group 61.3 percent marked both flood and cyclone as major problems that are affecting their livelihood, and 21.3 percent households marked flood and drought to be so. In addition, 11.3 percent households recognized only cyclone to be the main problem

affecting their livelihood and five percent identified salinity to be the main problem hampering their lives.

11.3 Relief and Recovery after Disaster

Even though Bangladesh has been cited as a model for disaster management worldwide, however the RESOLVE project area shows a disappointing scenario in case of receiving relief and recovery assistance after disaster. The survey revealed that only 6.3 percent of the households get assistance out of which 2.3 percent receives assistance from government, four percent gets assistance from NGOs and 0.3 percent has received assistance from both the sources. Alternatively, 89 percent households of the uncontrolled group did not receive cash assistance from any formal or informal organization after disasters.

11.4 Access to Shelter Center

The right holders are living in a fragile ecosystem and they are the most vulnerable to disasters. However, their access to flood or cyclone centre is limited. This is partly due to the distance and partly due to people's general tendency of staying in their places in order to protect livestock and other resources in times of flood or other natural hazards. The survey revealed that only 0.7 percent of the right holders go to shelter centre during flood, cyclone or other natural hazards. However, within the uncontrolled group the share of going to shelter centre is eight percent.

11.5 Weather Forecasting System

Table 34: Access to weather forecasting system

Access to weather forecasting system	Frequency	Percent
Yes	166	55.3
No	134	44.7
Total	300	100.0

uncontrolled group, 47 percent respondents do not have access to weather forecasting system.

The right holders are very vulnerable to disasters and weather forecasting is very important for securing themselves from devastation. However, nearly half of the households (44.7 percent) have the weather forecasting system. In case of the

11.6 The Medium of Weather Forecasting

Among the right holders who have access to weather forecasting, 53.7 percent of the total respondents use radio and only a percent use television as a medium of weather forecasting. On the other hand, 52 percent respondents of the uncontrolled group use radio as medium of weather forecasting and six percent uses television. Only two percent is notified about weather through declaration via mikes.

12. FINANCIAL SYSTEM

12.1 Savings

Since the right holders are poorest among poor, they do not have any savings. The survey also revealed similar results for both the right holders and the uncontrolled group. Only 0.3 percent has savings and they prefer banks for this purpose.

12.2 Loan

The survey revealed that 73 percent households have to take loans for a number of reasons. The highest number (30 percent) are found in taking loans for purchasing food which is followed by treatment (26.5 percent), child's education (0.5 percent) and rest of 16 percent takes loans for varied reasons. On the other hand; 43 percent households of the uncontrolled group take loan to purchase food, 21 percent borrows for treatment, and one percent borrows for education of their children.

12.3 Source of Loan

Table 35: Source of Loan

Source of loan	Frequency	Percent
Do not take loan	82	27.3
NGO (micro credit providers)	213	71.0
Money lender	1	0.3
Relatives	2	0.7
Neighbor	2	0.6
Total	300	100.0

credit provider NGOs for loan and only one percent takes loans from neighbor and relatives.

Micro credit has appeared as major source of capital for the poor people in rural Bangladesh even if there are some controversies regarding its effectiveness. Majority of the borrower (71 percent) uses micro credit provider NGOs as a source of loan. Only 1.3 percent takes loan from relatives and neighbours. In case of the uncontrolled group, 64 percent relies on micro

12.4 Debt Situation

Since right holders are poor, they are compelled to take loan to meet up their daily expenses. The survey explored that 73.3 percent households are in debt. Majority of the respondents of uncontrolled group (66 percent) are also in a similar condition.

Table 36: Debt status of right holders

Amount of debt	Frequency	Percent
Not Applicable	76	25.3
1000 to 10000	100	33.3
11000 to 20000	91	30.4
22000 to 40000	25	8.4
45000 to 80000	8	2.6
Total	300	100

Among the right holders group; 33.3 percent debts between 1000 to 10000 taka, 30.4 percent between 11000 to 20000 taka, 8.4 percent between 22000 to 40000 taka and 2.6 percent in between 45000 to 80000 taka. On the other hand, 25 percent of the total households' debt in between 2000 to 10000 taka, 32 percent between 11000 to 25000 taka and nine percent has debt between 30000 to 50000 taka within the uncontrolled group.

13. CAPACITY BUILDING TRAINING

Table 37: Capacity building training received by right holders

Get any capacity building training	Frequency	Percent
Yes	1	0.6
No	298	99.3
Total	300	100.0

The right holders are identified as less capacitated in case of problem reasoning as well as solving. The right holders are not only illiterate but also out of the

ambit of capacity building training offered by both government and NGOs. From the survey shows that only 0.6 percent respondents receive capacity building training.

14. MAJOR FINDINGS OF THE STUDY

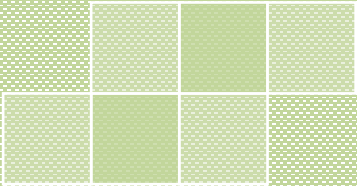
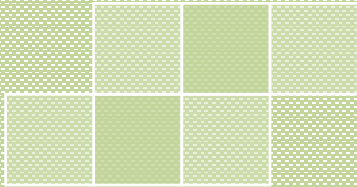
Table 38: Major Findings of the study	
Indicators	Current situation of the Indicators
Population	Total population size of the right holders' family is 1455; with 51.40 percent male and 48.60 percent female. However, baseline survey revealed that total 454 family members belong to the 100 uncontrolled households out of which 51 percent is female members and other 49 percent are males.
Primary Occupation	From the baseline survey it is found that within right holders 47.7 percent household head of right holder's primary occupation is agriculture, 33.7 percent are wage labor, and 17.3 percent are fisherman. On the other hand, among uncontrolled group, 40 percent households were found engaged with agriculture and 52 percent households are labor and rest 8 percent households are fisherman.
Secondary Occupation	Majority of the right holders are only engaged with one occupation. However, some of the right holders change their occupation depending on seasonality. From the survey it is found 10.7 percent right holders use agriculture as their secondary occupation and 21.7 percent become day labor based on seasonality, particularly in lean period. In case of uncontrolled group, 65 percent households found having single occupation and 12 percent found with having agriculture as their second occupation. 13 percent of the labor use fishing as their second occupation to bear their family expenses.
Enrollment	Within 300 right holders households, 320 members were found enrolled in school out of which 53.75 percent are female 46.25 of them are male. This result shows evidence of advancing awareness regarding female education. On the other hand, total 133 members were found enrolled in uncontrolled group, within whom male and female enrollment ratio is almost same.
Female Education	Within right holders, 34 percent household's female member can only sign and 33.7 percent household female member are illiterate. In case of literate female, 18.7 percent obtained primary education, 12.7 percent obtained secondary education and 0.9% female was found with SSC or higher education. On the contrary, 26.47 percent illiterate female were identified in uncontrolled households and 57.85 percent female were found with minimum education of class 5, who can read and write her name.
Income	Most of the right holders are extremely poor and their annual income is below 30000 taka (USD 400). The baseline study revealed that 64.3 percent right holders' annual income is equal or below 30000 taka. However, 35.7 percent right holders are of an annual income that is more than 30000 taka. On the other

	hand, within the uncontrolled group, 68 percent were identified as extremely poor whose income is equal or less than 30000 taka.
Expenditure	There is a huge discrepancy between the income and expenditure in the RESOLVE area. Even though more than 60 percent right holders were found with less than an annual income of 30000 taka, 73.4 percent right holders' yearly expenditure is more than 30000 taka. Aids received from different government and NGO programmes are the reasons behind. However, a reverse scenario is discovered in the uncontrolled group where only 15 percent households were found with an annual expenditure which is more than 30000 taka.
Feeding Capability	Since the right holders are extremely poor, most of them cannot eat three times in day. The baseline data depicts that 3.3 percent right holders can eat once and 94.7 percent can eat twice a day; only 2 percent can eat three times in day. Within the uncontrolled group no household head is capable of feeding his/her family members three times a day.
Ownership of House	Within 300 right holders, 52.7 percent has their own house and 47.3 percent live in others' place. 75.3 percent house has only one room, 21.3 percent house has two rooms and only 3 percent house has three rooms. On the other hand, 32 percent of uncontrolled group has their own house and 68 percent live in other's place.
Source of Light	Among right holders only 2.7 percent of household of right holders has accessibility to electricity and 96 percent house hold of them depend on Kerosene; and 0.7 percent uses solar energy as their source of light. In contrast, only 1 percent household of uncontrolled group has access to electricity and 94 percent of them use kerosene, whereas 5 percent uses solar energy to light their houses.
Fuel System	In case of fuel system for cooking, the right holders depend on nature for their fuel. 99.7 percent of the right holders use wood, straw, leaves as fuel and collect those from their surroundings. On the other hand, 94 percent of uncontrolled group uses leaves, straw and wood as fuel.
Water	In case of drinking water among right holders it is revealed that 100 percent households depend on tube well water. Alternatively, within uncontrolled group 1 percent household depends on supply water, 3 percent household depends on ponds/well water and 96 percent household depends on tube well drinking water. In case of cooking water, From the survey it is revealed that within right holders 53 percent households collect cooking water

	<p>from river, 13.7 percent household collect water from pond/well. However, 33 household collects from tube well and only 0.3 percent household collects water from municipality supply. Within uncontrolled group cooking water collection pattern differs a little from right holders group. The survey revealed that 41 percent household collect their cooking water from pond/well, 23 percent household collect from tube well and 36 percent household collect from River.</p>
Sanitation systems	<p>In case of Sanitation, among right holders 40.3 percent household use sanitary toilet, 31.3 percent household use hanging toilet and 28.3 percent household use open place for defecation. On the contrary, within uncontrolled group 30 percent household use sanitary toilet, 52 percent household use hanging and 18 percent household use open place for defecation.</p>
Waste management	<p>From the survey it is revealed that almost all household of right holders place their waste in open place. However, good news is that 99 percent household clean garbage area daily, 0.7 percent household never cleans their dumping area. In case of uncontrolled group, 97 percent household found, who dump waste in open places.</p>
Diseases	<p>While considering health situation of right holders, it is found that 81.7 percent household's family members frequently suffer from fever, six percent is seasonally affected by cough, two percent by Diarrhea and another 10 percent by Influenza. In case of the uncontrolled group, incidence of fever found to be the highest (84 percent). Diarrhea incidence is higher in the uncontrolled group (six percent) but Influenza occurrence showed a decreased trend (six percent).</p>
Immunization of Children	<p>The rate of children immunization depicts a satisfactory picture. Within the right holders group; 52.7 percent children (below five year) have completed immunization, 44 percent children completed partial immunization and only 1.7 percent children did not receive any. The uncontrolled group shows similar picture in case of immunization. Almost all (99 percent) children received full or partial immunization.</p>
Birth control	<p>In case of birth control, 95 percent reproductively active women use birth control system in right holders group. Those who use any birth control method opined that 0.7 percent of them do not take for religious restriction, 1.7 percent household do not take as their parent in laws restrict them and rest 2.7 percent household do not take as their husband is not interested. In regard to uncontrolled group, 96 percent reproductively active women are using birth control methods, whereas 4 percent are not using showing same cause as the right holders group faces.</p>

Vaccination During Pregnancy	Within right holders 33.3 percent pregnant women take vaccination during pregnancy and rest 63 percent do not take any vaccination during pregnancy. On the other hand, 20 percent pregnant women of uncontrolled group take vaccine during pregnancy and 80 percent household do not take any vaccine.
Agricultural Land Ownership	Most of the right holders are landless poor or have tiny amount of land, which is evident from survey result as well. From survey it is found that 93.7 percent household do not have any ownership on agricultural land. Alternatively, within uncontrolled group 91 percent household do not have any productive agriculture land
Agricultural activities	In the project area among right holders 58.7 percent are engaged in agricultural activities. On the other hand, 55 percent households of uncontrolled group are engaged with agriculture activities.
Productive Crop	Like any other parts of Bangladesh rice is also major crop for project villages. The survey revealed that 58.7 percent of right holders grow rice in their field, whereas only 0.7 percent farmers grow wheat. Uncontrolled group follow same practice and almost all farmers grow rice.
Seed use for agricultural production	The farmers in rural Bangladesh are used to grow crop from locally produced seeds. However, the trend is changing slowly and hybrid seed is replacing indigenous seeds. Within right holders it is found that almost all farmers use locally produced seeds. On the other hand, within uncontrolled group 1 percent farmer found using hybrid seed. Rest 99 percent rely on locally produced seeds for production.
Use of agricultural tools	Subsistence agriculture in rural Bangladesh is gradually shifting towards mechanized agriculture, which is manifested from the survey as well. It is found that out of 58.7 percent farmers of right holders group, 17.7 percent use traditional agricultural tools, 1 percent uses modern agricultural tools and 40 use both traditional and modern agricultural tools. Within the uncontrolled group the share of modern and traditional tool use shows similar pattern. Out of 57 percent farmers 52 percent use both modern and traditional tools, whereas only 5 percent rely on traditional tools for agriculture.
Obstacles of Agricultural Production	Agriculture is a weather sensitive sector. Any changes in climate will eventually hamper agricultural production. Farmers of RESOLVE area are confronting to multiple stressors. However, flood is the dominating factor that has ambivalent affect. In one side it make land fertile through silt deposition, on the other hand cause destruction through washing out whole production. Among right holders group we have found quite a number flood victim and 58.3 percent recognized flood as main obstacles for agriculture production. Only 0.7 percent identified drought as

	major threat. Even though salinity ingress ion still remains to minimum level, however 1.3 percent thought that salinity could be a major threat to agriculture in near future.
Effect of climate change on agriculture	In the right holders group, 41.3 percent farmers noticed change of variety of crops as an impact of climate change, where as 0.3 percent identified reduction of agricultural productivity, 15.3 percent farmers argued change of crop calendar as the major impact of climate change. Most of the farmers (54 percent) of the uncontrolled group also addressed change of crop variety as the major impact of climate change, whereas one percent argued that total productivity reduced due to climate change. On the other hand, 2percent identified change of crop calendar as major climate change impact.
Climate change and Natural hazards	According to respondents among right holders flood is the most frequent hazard faced by community. Whereas, 2 respondents identified drought as major hazard that could incur great loss. On the other hand, within uncontrolled group, 95 percent respondents identified flood as most frequent hazard and five percent identified salinity intrusion as major hazard. It is to be noted that people living lower Meghna basin identified salinity as major problem.



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