

RESEARCH

Socio-economic Status of Dalit and Minority Communities and the Impact of Climate Change on them with special Focus on Women and Girls



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Executive Summary

This research investigates the intersection of climate change and socio-economic vulnerabilities among Dalit and ethnic minority communities in the southwestern coastal region of Bangladesh, with a particular focus on women and girls. The study was conducted in four climate-vulnerable upazilas (Assasuni, Dacope, Paikgachha, and Shyamnagar) using a mixed-methods approach, combining quantitative and qualitative interviews.

Context and Rationale

Bangladesh's coastal belt is increasingly exposed to climate-induced hazards such as cyclones, salinity intrusion, waterlogging, and riverbank erosion. These events disproportionately affect marginalized communities, especially Dalits and ethnic minorities, who face systemic exclusion due to caste, ethnicity, and poverty. Women and girls within these groups bear the brunt of these impacts due to entrenched gender inequalities, limited access to resources, and social norms that restrict their mobility and decision-making.

Despite their heightened vulnerability, these communities are largely excluded from national climate adaptation planning, including the National Adaptation Programme of Action (NAPA). This study aims to understand the gap by documenting their lived experiences and identifying pathways for inclusive resilience-building.

Key Findings

1. Multidimensional Vulnerability

- The **Composite Vulnerability Index (CVI)** shows high vulnerability in financial and human capital, especially in Shyamnagar Upazila.
- **Financial capital** is strained due to limited income opportunities, low asset ownership, and poor access to financial services.
- **Human capital** is affected by low education levels, reduced working ability due to heat stress, and high disease prevalence.
- **Social capital** is weak, with limited participation in community groups and restricted access to safe drinking water.

2. Gendered Impacts

- The **Gender Vulnerability Index (GVI)** reveals moderate to high vulnerability among women, particularly in Assasuni Upazila.
- Women face **economic exclusion**, with only 44% engaged in income-generating activities; mostly low-paid labor.
- **Ownership of productive assets** is minimal; only 27% of women own livestock, and almost none own land or vehicles.
- **Decision-making power** is limited; only 3% of women make independent decisions about household assets.
- **Health vulnerabilities** include reproductive health issues linked to salinity, poor sanitation, and lack of access to care.

3. Climate-Induced Livelihood Loss

- Climate events such as cyclones, salinity, and waterlogging have disrupted both farm and non-farm employment.

- Livelihoods dependent on natural resources (fishing, shrimp fry collection, forest products) are declining.
- Migration is common, with 30% of households reporting at least one member migrating for work often under unsafe conditions.

4. Violence and Social Risks

- Climate stressors exacerbate **gender-based violence (GBV)**, including domestic abuse, workplace harassment, and social stigmatization.
- Women face violence while accessing natural resources and water, with 22% reporting harassment during water collection.
- Migration increases vulnerability to violence, especially for women working in unfamiliar and unregulated environments.

5. Education and Child Marriage

- Climate events have led to school closures and dropout rates, with 16% of households discontinuing children's education.
- **Child marriage** is prevalent and culturally accepted, often seen as a coping mechanism for economic hardship and social insecurity.

6. Limited Access to Development Support

- Only 16% of households received livelihood support, mostly from NGOs.
- Barriers include lack of awareness, exclusion from beneficiary lists, and corruption.
- Social protection programs rarely include minority communities, and participation in savings groups is minimal.

Recommendations (details are presented in narrative part)

- Develop localized resilience plans** for highly vulnerable areas like Shyamnagar Upazila, integrating minority voices.
- Promote skill development** for diversified livelihoods, especially for migrants and women.
- Create safe and inclusive workplaces** for women with legal protections and employer training.
- Strengthen community leadership** and representation in local governance and planning.
- Improve access to government services**, including health, education, and social protection.
- Address child marriage** through awareness campaigns and education incentives.
- Introduce climate-resilient technologies**, such as mini-poultry farming and ventilated livestock sheds.
- Collaborate with development** agencies to develop heatwave coping strategies.
- Enhance preventive health education**, especially for reproductive and menstrual health of women and girls.
- Build group-based livelihood models** and empower community changemakers.
- Expand social protection coverage** and ensure minority inclusion in social groups.

Conclusion

This research underscores the urgent need for intersectional and inclusive climate adaptation strategies that recognize the compounded vulnerabilities of Dalit and ethnic minority women and girls. Addressing these challenges is essential not only for climate resilience but also for achieving Sustainable Development Goals (SDGs) related to gender equality, health, and reduced inequalities.

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The Author

Acronyms

ANC	Antenatal Care
BDERM	Bangladesh Dalit and Excluded Rights Movement
BDP	Bangladesh Dalit Parishad
CVI	Climate Vulnerability Index
CBOs	Community-Based Organizations
CVI	Composite Vulnerability Index
DSS	Department of Social Services
FGD	Focus group discussion
GBV	Gender Based Violence
GVI	Gender Vulnerability Index
GVI	Gender Vulnerability Index
HH	Household
KII	Key Informant Interview
NAPA	National Adaptation Programme of Action
ODK	Open Data Kit
PNC	Postnatal Care
SRHR	Sexual and Reproductive Health Rights
SLF	Sustainable Livelihoods Framework
SLF	Sustainable Livelihoods Framework

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1.0 Background

The intersection of geography, poverty, and climatic stress makes Bangladesh one of the most climate-sensitive countries in the world. The coastal regions of Bangladesh have been repeatedly affected by climate-related events such as intensified cyclones, rising sea levels, increased soil salinity, and frequent riverbank erosion over the past few decades (World Bank 2024; IPCC 2021; Bangladesh Delta Plan 2100). Recently, the rising sea level is estimated at 6-8 mm per year, which is higher than the world average (IPCC 2021). According to Bhattacharya (2014), saline water intrusion in Bangladesh's coastal aquifers has advanced 20-30 km inland over the last three decades.

Water and soil salinity increased by 26% between 2000 and 2019 due to climate change, which severely impacted agriculture and freshwater access (BARC 2023). Recent reports highlight its severe impact on livelihoods and freshwater availability (World Bank 2024), resulting in decreased agricultural production and employment opportunities. This situation leads to displacement and migration. Additionally, frequent climate disasters, including Cyclone Sidr (2007), Cyclone Aila (2009), Cyclone Bulbul (2019), and Cyclone Amphan (2020), along with riverbank erosion and tidal surges, have contributed to widespread displacement and loss of livelihoods, especially in Khulna, Satkhira, and Bagerhat districts (southwestern region) (GoB 2018; Islam and Hasan 2020).

People are being affected and are in vulnerable conditions due to climatic events in these areas. Their livelihood, health, and access to different services are severely affected by climate change. Moreover, climate change disproportionately affects women by exacerbating their vulnerabilities in livelihoods, Gender Based Violence (GBV) and health due to limited access to resources, services, and decision-making in these areas (Mondal 2014). This directly undermines progress toward Sustainable Development Goal 5 (SDG-5 related to Gender Equality), particularly targets SDG-5.1 (end discrimination), SDG-5.2 (eliminate GBV), and SDG-5.6 (ensure reproductive health and rights).

Due to the increased effects of climate hazards, such as the loss of agricultural productivity and rising gender-based vulnerability, marginalized women are facing these consequences through early marriage, dowry burdens, food insecurity, unemployment, illiteracy, and violence. Women in the southwestern coastal region of Bangladesh are disproportionately vulnerable to both short and long-term climate change impacts due to existing gender inequalities (Ashrafuzzaman, Gomes, Dias and Cerdà 2022). Moreover, in coastal Bangladesh, high salinity and poor sanitation have been linked to pregnancy complications, menstrual disorders, and infections (Khan et al., 2011; Rasul & Sharma, 2014). These issues highlight critical gaps in achieving SDG-6 (Clean Water and Sanitation).

However, the situation is even worse for ethnic minorities and Dalit in these areas, especially due to their minority identity. These groups tend to have lower household incomes, limited access to public services (e.g., healthcare, education), and less land ownership, key factors that heighten their exposure and sensitivity to climate risks (Uddin, Haque and Mahmud 2021; Alam, Ray-Bennett and Rahman 2018). Additionally, institutional exclusion and linguistic barriers further marginalize these communities during disaster management (Mallick and Vogt 2012). Displacement worsens access to healthcare for marginalized ethnic minorities and Dalit women (Alston 2014;

Mallick and Taneja 2020). Ethnic and Dalit women face more vulnerability than men. Increased tension related to climate change impact, such as the lack of income sources and other livelihood problems, often affects Ethnic and Dalit women badly. Social stigma, lack of legal recognition, and discrimination also compound their exclusion in climate change programming (Biswas and Kabir 2020; Chaudhury et al., 2022). Sometimes minority women face an extra workload, and other GBV from their male household members.

Furthermore, the absence of targeted policy interventions addressing intersectional vulnerabilities limits the adaptive capacity of Dalit and ethnic women, making them more prone to long-term socio-economic insecurity (Bhowmik 2019; Roy and Alam 2023). This reflects persistent structural inequalities that contradict the objectives of SDG 10 (Reduced Inequalities), particularly target SDG-10.2 (empower and promote the inclusion of all) and SDG-10.3 (eliminate discriminatory laws and practices). Moreover, traditional and social practices like early marriage and gender-based violence further increase their health risks (Nasreen, 2012; Mohanty, 2021).

Despite the severe vulnerability of ethnic minorities and Dalit people, and women of their community, most of the research overlooked their intersectionality. In Bangladesh minorities were not even consulted during preparation of country's official plan for coping with climate change- the National Adaptation Programme of Action (NAPA) (Baird 2008). These frameworks largely center on mainstream Bengali communities and have systematically excluded ethnic minorities, Dalit, Munda, and other marginalized groups. The authority didn't consult with them and their representatives to engage in the plan (Ahmed, 2020).

Therefore, keeping research gaps in mind, the study was undertaken to understand how climate change intersects with socioeconomic vulnerabilities of ethnic minorities and Dalit women and girls in coastal population. In alignment with SDG-5, SDG-6, and SDG-10, the study aims to explore the link between climate change and GBV, and the effects on women's health and reproductive systems in the community. The study also explores how climate change causes displacement and loss of income of ethnic minorities and Dalit community. It also aims to gather insight into the effectiveness of local organizations in addressing challenges related to intersectionality.

Research Questions

To address the research objectives following research questions were formulated:

- How does climate change affect the socio-economic vulnerabilities of ethnic minorities and Dalit women in climate-affected areas?
- What is the link between climate change and GBV in the ethnic minority and Dalit communities in these areas?
- What is the impact of climate change on ethnic minorities and Dalit women's health and on Sexual and Reproductive Health Rights (SRHR)?
- What is the impact of climate change on displacement, including migration in these areas?
- What is the impact of climate change on livelihood loss?

2.0 Methodology

2.1 Study matrix

The study adopted a concurrent mixed method of research approach. For secondary data, a comprehensive desk review was done. In the case of primary data collection, questionnaire survey was conducted as part of the quantitative method while Focus group discussion (FGD), Key Informant Interview (KII) and Case Study were used as part of the qualitative method. The following study matrix (Table 1) depicts how different methods of data gathering addressed the study objectives.

Table 1: Study matrix followed as guiding driver of the study

Study objectives	Source of Information	Method of Data Collection	Research Approach
Analyze the socio-economic vulnerabilities of women in climate-affected areas	<ul style="list-style-type: none"> Literature Dalit community and ethnic minorities (women, girls, and men) 	<ul style="list-style-type: none"> Document review Questionnaire Survey FGD 	<ul style="list-style-type: none"> Qualitative Quantitative
Examine the link between climate change and gender-based violence	<ul style="list-style-type: none"> Dalit community and ethnic minorities (women, girls, and men) Representative of Women and Children Affairs Office Representative of Upazila Health Complex Representative of Department of Disaster Management BDERM Religious leader 	<ul style="list-style-type: none"> FGD Questionnaire Survey KII 	<ul style="list-style-type: none"> Qualitative Quantitative
Assess climate change's impact on women's health and on SRHR	<ul style="list-style-type: none"> Representative of Upazila health complex Targeted Dalit Community and ethnic minorities (women, girls) Representative of Women and Children Affairs Representative of Upazila health complex 	<ul style="list-style-type: none"> KII FGD Questionnaire Survey 	<ul style="list-style-type: none"> Qualitative Quantitative
Assess climate change's impact on displacement and livelihood loss	<ul style="list-style-type: none"> Community leaders of Dalit and minority communities Representative of local government Representative of Bangladesh Dalit and Excluded Rights Movement (BDERM) Representatives of NGOs in similar interest Representatives of community-based organizations (CBOs) working for Dalit and minority communities Dalit community and ethnic minorities (women, girls and men) 	<ul style="list-style-type: none"> KII FGD Questionnaire Survey 	<ul style="list-style-type: none"> Qualitative Quantitative
Document case studies of affected women and community responses	<ul style="list-style-type: none"> Targeted Dalit Community and ethnic minorities (women, girls) 	<ul style="list-style-type: none"> Case study FGD 	<ul style="list-style-type: none"> Qualitative
Evaluate the effectiveness of local organizations in addressing these challenges	<ul style="list-style-type: none"> Representatives of CBOs working for Dalit and minority communities Representatives of NGOs in similar interest Community leaders from Dalit and minority communities Representative of local government (Women Union Parishad Member) Dalit Community and ethnic minorities (women, girls and men) 	<ul style="list-style-type: none"> KII FGD 	<ul style="list-style-type: none"> Qualitative

2.2 Theoretical Framework

For this study, a combination of the Intersectionality Framework and the Sustainable Livelihoods Framework (SLF) were used to address both structural exclusion and adaptive capacity, layering with a Human Rights lens for strengthening advocacy and policy implications.

Intersectionality Framework was applied as an analytical tool to understand how multiple forms of disadvantage (e.g., caste, ethnicity, gender, poverty) intersect to shape Dalit and ethnic minority's experiences across different dimensions, economic vulnerability, livelihood, GBV, reproductive health, and displacement. Crenshaw (1991) first used intersectionality to find out how black women's experiences were marginalized; this foundation is directly relevant for Dalit and ethnic minority women in climate contexts. This framework was also used by Kaijser and Kronsell (2014) in the climate governance context and showed how ignoring intersecting identities leads to exclusionary adaptation practices.

They concluded, "women from marginalized communities experience climate-related displacement differently due to multiple layers of discrimination that are not captured by single-axis analyses". Using the framework in climate-vulnerable regions, Djoudi et al. (2016) found that overlapping vulnerabilities, including ethnicity and gender, shape adaptation capacity. They stated, "intersectionality enables a more comprehensive understanding of how climate change exacerbates existing structural inequalities, particularly among marginalized women". Therefore, this framework allows a nuanced analysis of how climate-induced risks, such as livelihood loss, GBV, reproductive health, and displacement, disproportionately affect Dalit and ethnic minority, who already experience multiple layers of marginalization. The framework helped to map out how identity of Dalit and ethnic minority and gender together create heightened exposure to climate risks. It helped to document how institutional neglect (e.g., exclusion from decision-making, programme designing) affects these communities. It also informed policy recommendations by emphasizing the need for differentiated adaptation strategies, tailored to the specific vulnerabilities of Dalit and ethnic minority.

Mainly DFID (1999) introduced the SLF as a people-centered tool for livelihood analysis in development contexts. This framework identifies five types of capital — human, natural, social, financial, and physical. These capitals collectively determine livelihood outcomes and people's ability to survive and recover from external shocks. Therefore, this foundation is directly relevant in climate contexts. To investigate the impact of climate change on the sustainable livelihood strategies of coastal people of Bangladesh, Rahman et al., (2024) utilized SFL and they found that climate change primarily affects natural and physical capital and leads to different forms of vulnerabilities. Ahmed et al. (2008) also used the framework and found that sustainable livelihoods are achieved through access to a range of livelihood assets. Saadat and Islam (2011) also used the SFL in climate change context of Bangladesh to identify the plausible impact of climate change in the rural livelihoods of coastal area.

The combination of Intersectionality Framework and SLF provides a robust multidimensional perspective to analyze the climate change impacts on Dalit and ethnic minority communities in Bangladesh. This combination was layered with human rights lens to analyze the impact of climate change on GBV and reproductive health. The study views GBV, including intimate partner violence, early and forced marriage, harassment, and sexual exploitation, as violations of funda-

mental human rights. It is assumed that climate-induced stressors like displacement, livelihood loss, etc., can intensify women's exposure to GBV by increasing dependency, insecurity, and limiting access to services. The study considers, reproductive health which comprises access to family planning, antenatal care, menstrual hygiene, and maternal health services as a core aspect of the right to health. Climate change may disrupt these rights by impacting healthcare systems, infrastructure, and household mobility, often disproportionately affecting Dalit and ethnic minority who are already socially excluded. It also helps to examine the role of duty-bearers and the participation of rights-holders. The study assesses to what extent Dalit and ethnic minority women are included in climate adaptation planning, health policy formulation, and local decision-making processes.

2.3 Desk Review

For this study, a set of documents were reviewed, including national census data for demographic insights, government policies on climate and gender equality, health studies on reproductive issues linked to salinity, environmental reports on coastal challenges, socio-economic surveys on poverty and wage disparities, research on GBV, displacement and livelihood analyses, NGO reports on local interventions, academic studies for theoretical grounding, local government records on service access, international development reports for global context, and media narratives for community perspectives. All provided a robust evidence base for analysis and recommendations.

2.4 Sampling Technique

Quantitative sampling: For the study, stratified simple random sampling technique was applied. The stratification includes community type and gender. Six strata were identified as following:

- a) Women in Dalit Community
- b) Girls in Dalit Community
- c) Men in Dalit Community
- d) Women in ethnic minority
- e) Girls in ethnic minority
- f) Men in in ethnic minority

Sample size is estimated using following Cochran's formula with 95% confidence level and 5% margin of error:

Sample size: $(n) = Z^2 \times p(1-p) / MOE^2$

Where:
z = z value (1.965 for 95% confidence level)
p = percentage picking a choice expressed as a decimal (0.5)
MoE = Margin of Error (5%)
N= Population

Using this statistical formula, the estimated sample size was 384 and finally data was collected from 396 samples. Despite it being intended to distribute samples equally among the strata, the samples in each stratum were not available as targets. The samples were chosen from all targeted geographical areas (Dacope, Paikgacha, Asasuni and Shyamnagar upazilas). Distribution of samples by areas, identity (Ethnic minority and Dalit) and sex is presented in Table 2. Number of samples by each sub-cast is also presented in [Annex 3](#).

Table 2: Sample distribution

Area	Ethnic minority				Dalit				Grand total
	Male	Female	Girl	Total	Male	Female	Girl	Total	
Assasuni	-	-	-	-	22	53	21	96	96
Dacope	-	-	-	-	30	50	21	101	101
Paikgachha	-	-	-	-	38	81	35	154	154
Shyamnagar	17	20	8	45	-	-	-	-	45
Total	17	20	8	45	90	184	77	351	396

Qualitative data: The purposive sampling method was employed, with the principle of saturation applied to determine the sample size for data collection. The following table outlines the qualitative sample distribution and the tentative number of participants:

Table 3: Qualitative sample distribution

#	Sampling Frame	Sample Size	Description
A	FGDs	11	
A1	Women in Dalit Community	02	Paikgacha, Assasuni
A2	Girls in Dalit Community	03	Assasuni, Dacope, Paikgacha
A3	Men in Dalit Community	02	Assasuni, Paikgacha
A4	Women in Ethnic Minority Communities	02	Shyamnagar
A5	Girls in Ethnic Minority Communities	-	
A6	Men in in Ethnic Minority Communities	02	Shyamnagar
B	KIIs	15	
B1	Local government (Women Union parishad member)	01	Paikgacha
B2	Women and Children Affairs	01	One from Khulna region
B3	Community leaders from Dalit and ethnic minority communities	02	Dalit- Paikgacha and ethnic minorities community- Shyamnagar
B4	Community-based organizations (CBOs) working for Dalit and ethnic minority communities	02	Dalit- Paikgacha and ethnic minorities community- Shyamnagar
B5	Bangladesh Dalit Parishad (BDP)	01	One from Khulna region
B6	Upazila Health Complex	02	Paikgacha and Dacope
B7	Teachers from a university or an expert working on climate change	01	Khulna University
B8	Religious leader	01	Shyamnagar
B9	NGOs in similar interest	02	Shyamnagar and Paikgacha
B10	Youth club working for violence and climate	02	Paikgach and Assasuni
C	Case stories	04	
C1	Women in Dalit Community	01	Shyamnagar-2, Paikgach-1 and Dacope-1
C2	Girls in Dalit Community	01	
C3	Women in ethnic Minority Communities	01	
C4	Girls in ethnic Minority Communities	01	
D	Total (FGD + KII + Case Studies)	30	

2.4 Data Collection Tools Development

Questionnaire: In line with the research questions, the questionnaire was drafted first and shared with Nagorik Uddog. In response to the feedback, necessary modifications were made to the questionnaire. The questionnaire was then translated into Bengali version (Annex 1). The questionnaire was then digitized through transforming into Open Data Kit (ODK).

Checklists: Checklists for FGD were drafted first in line with research and in a manner so that the findings can explain quantitative finding, particularly the indicators. Besides, checklists of KII were developed to collect informed perspectives of the study area. The draft checklists were shared for feedback. The draft was finalized through addressing feedback (Annex 2).

Ethics tools and No Harm Policy: A detailed consent note was prepared to explain the study's purpose, anonymity, and confidentiality. It included questionnaire and checklists to obtain informed consent from respondents. The study ensured that all participants gave consent and enumerators documented appropriately. A No Harm Policy was developed to uphold the safety and dignity for all participants, programme staff, and teams. Participants were informed of their right to withdraw at any time without consequences. Since a significant part of the survey was with girls, special attention was given to child protection and gender policies.

2.5 Training for Data Collection Team

Two days long training was delivered to both quantitative and qualitative teams. The training was made interactive through integrating role play and mock test sessions. The questionnaire was piloted in the first half of the second day. Feedback of the piloting was then incorporated in the questionnaire and accordingly the digitized version was modified.

Table 4: Content of the training

Sessions	Number of days
Basic orientation and theoretical discussion	1
Checklists understanding	
Role plays and mock test on electronic data collection device	
Field practice and questionnaire modification (if any)	1
Total	2 days

2.6 Data collection

The eight data enumerators conducted questionnaire survey. Since the sample frame (base population) was relatively small and the target individuals lived in clusters, enumerators visited these clusters and conducted interviews based on availability and sampling criteria (adult women and men aged 18 and above, and girls aged 11 to 18) until the target sample size was reached. Each of the enumerators interviewed 5-6 questionnaires daily. The FGDs, KIIs and case stories were carried out by another research team led by the Team Leader. Data was collected in May-June 2025.

2.7 Data Quality Control

The heart of our data collection process is a commitment to accuracy, real-time support, and continuous improvement. Ensuring the highest standards throughout the fieldwork process is very important. Training was the first orientation of data quality control. A group supervisor supervised data collection through cross visits, spot check, and revisits. The supervisor reported daily the progress and the data verification report. According to the report, the supervisor validated data through 6% cross visits, 5% spot checks, and 5% revisits.



Figure 1: Data quality assurance process applied

2.8 Transcription, Data Cleaning and Analysis

Quantitative data: Quantitative data was managed and cleaned by using MS Excel Software. During cleaning field completion checking and logical tests were done. The data was analyzed using the same MS Excel Software.

Intersectionality Framework and Sustainable Livelihoods Framework (SLF) were applied through measuring Composite Vulnerability Index (CVI), Gender Vulnerability Index (GVI) and Severity Score. For measuring the CVI and GVI, the variables were coded as score (0-1) and average score was calculated to understand the extent of vulnerability and severity of the ethnic minority and Dalit community. For measuring Severity Score, selected variable or factors coded following Islam M M (2017). Detail scoring and calculation method is presented in Annex 25.

Descriptive statistics (frequencies, means, percentages) were applied to summarize other key findings. Findings were disaggregated, as appropriate, by location, sex and identity. The results were reviewed, validated and triangulated with FGDs and KIIs.

Qualitative data: For qualitative data, a edited transcription was done. After that, the transcribed text was cleaned (quality reviewed against the original audio). Finalized content was stored in word processing files (MS Word) on password-protected computers. We followed step by step coding approach. The transcripts from KII, FGD and Case stories was sorted using deductive and inductive coding techniques. They were then categorized and summarized to form emerging themes, following an iterative process. Then the quotation was extracted and integrated in the report.

2.9 Limitation of the Study

- a) The FGD with adolescent girls from the Munda community was not conducted due to the unavailability of participants, as many had been subjected to child marriage.
- b) In the Rishi community, most men are employed at a gas company with working hours from 09:00 to 17:00, which interrupted the scheduled interview time. As a result, in some cases, women were interviewed by replacing the men samples.
- c) In certain instances, caregivers joined the discussions alongside adolescents. During questions related to menstruation, some adolescents felt shy, which may have affected the completeness and accuracy of the information collected.
- d) In Dacope Upazila, the FGD with adolescents was delayed due to conflicts with school hours.
- e) During conversations with the Munda community, language barriers posed challenges due to differences in local dialects. Although participants attempted to communicate in standard Bengali, their explanations were often unclear. As a result, some parts of the conversation may have been missed or misunderstood.

3.0 Result and Discussion

3.1 Demographic Information

Age of respondents: The majority of respondents, 91%, were aged between 15 and 64 years, and few were aged 65 years and above. It was also found that 8% of respondents were under the age of 15, primarily representing young girls (Table 5).

Table 5: Percentage of respondents by age

Age (year)	%
Under 15	8%
15 to 64	91%
More than 64	1%

Religion: In terms of religious affiliation, the majority of respondents (70%) identified as Hindu, followed by 22% who identified as Christian, most of whom reported that they or their families had migrated from the Hindu community (during FGDs). The remaining 8% of respondents identified as Muslim. Furthermore, all the surveyed households from various sub-castes, except for the Pramanic and Jola groups, follow the Hindu religion. Few individuals among Hirojon, Rishi, Jele, and Shil are also followers of Christianity. All members of the Pramanic sub-caste are Christian, while those from the Jola sub-caste are Muslim (Annex 3).

Table 6: Percentage of respondents by religion

Religion	%
1. Hindu	70%
2. Cristian	22%
4. Muslim (Jola)	8%
5. Others	1%

Educational level of respondents: In educational attainment, approximately 44% of respondents reported having completed secondary education, while 30% had completed primary education. A further few of the respondents (7%) had attained education beyond the higher secondary level. Notably, 18% of respondents reported having no formal education.

Table 7: Level of education of respondents

Schooling Year	%
No education	18%
Primary	30%
Secondary	44%
Higher Secondary and Above	8%

Marital status of respondents: Among the respondents 90% male respondent were married where 67% of female were married. the proportion was less since the girls are also counted as female respondents. A few of them (3%) were also found divorced or widow or widower.

Table 8: Marital status of respondents

Status	Male	Female	Grand Total
1. Single	8%	29%	24%
2. Married	90%	67%	73%
3. Divorced	1%	1%	1%
5. Widow/Widower	1%	3%	2%
Grand Total	100%	100%	100%

Persons with disabilities: Out of the total 396 respondents, 7 individuals reported having at least a disability. Among them, only 4 possessed a Suborno Card, a government-issued identification card, that facilitates access to various support and assistance programs for persons with disabilities (Table 9). Out of 7, 3 were found difficulties in seeing, followed by walking (Annex 4).

Table 9: Status of households with members with disabilities and access to government SafetyNet program

Variables	Number
No. of HHs with members with disabilities	7 (Out of 396)
No. of HHs had Suborno ¹ Card	4 (Out of 7)

Family size: The average family size of respondents was 4.2 members, comprising male and female members equality. On average, each household included one child (aged 12 to 14) and one elderly person (aged over 65 years). It was observed that in certain communities, particularly the Munda community, no adolescent girls were found in their family, as they had already been married (Source: FGDs). This trend of child marriage is driven by economic hardship and social vulnerability.

Table 10: family size and sex and age distribution of family members

#	HH size	Average
A	Family size	4.2
B	Sex	
	Male member in HH	2.1
	Female member in HH	2.1
C	Age	
	Children (<=14 years) in HH	1.0
	Members (15-64 years) in HH	2.9
	Elderly people (>=65) in HH	0.3
	Overall	4.2

¹ The Suborno Card is a smart ID card issued by the Department of Social Services (DSS) under the Ministry of Social Welfare. It is part of efforts to ensure inclusiveness, dignity, and transparency in delivering social protection services to persons with disabilities and the elderly

3.2 Composite Vulnerability Index

The Composite Vulnerability Index encompasses vulnerabilities across three key dimensions: financial, human, and social capital. A higher score indicates greater vulnerability, with 1 representing the highest level of vulnerability and 0 the lowest.

Financial capital vulnerability is measured using four indicators: livelihood or earning capacity, women’s employment status, existence of productive asset and access to financial services. Among these indicators, minority households exhibited the highest vulnerability in income earning, with a score of 0.94. In contrast, the lowest vulnerability was observed in women’s engagement in work. The overall financial capital vulnerability score was 0.7, which is significantly above the average threshold of score 0.5, indicating that minority households are highly vulnerable in terms of financial capital (Table 11).

Human capital vulnerability is assessed using three indicators: highest educational qualification of household members, impact of climate change (e.g., extreme heat or cold) on the working ability of family members, and prevalence of disease among household members. Among these indicators, minority households reported the greatest vulnerability due to reduced working ability caused by climate change impacts. This was followed by a significant level of vulnerability related to disease prevalence among family members.

Social capital vulnerability is measured using two indicators: household members’ access to existing local groups (such as credit groups, school committees, market committees, etc.), and access to drinking water (frequency of changes in drinking water sources over the time). Given that many households rely on deep tube wells, ponds, community-supplied water, and rainwater harvesting systems, access to drinking water is considered a component of social capital. In both indicators, minority households showed relatively low levels of vulnerability, indicating stronger resilience in terms of social capital.

Details of the different types of capitals are presented to get in-depth analysis below.

Table 11: Extent of vulnerability of the minority households

Vulnerability factors	Assasuni	Dacope	Paikgachha	Shyamnagar	Overall
Financial vulnerability score	0.7	0.7	0.6	0.8	0.7
Livelihood score	0.98	0.97	0.87	1.00	0.94
Women employment score	0.52	0.61	0.42	0.71	0.53
Productive assets score	0.70	0.58	0.47	0.78	0.59
Financial service access score	0.73	0.72	0.58	0.83	0.68
Human capital vulnerability score	0.6	0.6	0.6	0.6	0.6
Educational qualification score	0.17	0.20	0.14	0.18	0.16
Impact on working ability due to climate change impact (heat, cold etc) score	0.93	0.80	0.92	1.00	0.90
Prevalence of diseases of family member score	0.85	0.81	0.73	0.76	0.79
Social capital vulnerability score	0.2	0.2	0.2	0.3	0.2
Membership in local groups score	0.15	0.08	0.16	0.27	0.15
Changes of drinking water source score	0.30	0.23	0.31	0.27	0.28
Overall Composite Vulnerability Index	0.6	0.5	0.5	0.5	0.5

3.3 Financial Capital

Primary sources of income: There was significant variation in the primary sources of household income among different sub-cast identifies. The highest numbers of them (23%) were engaged in non-farm-based daily wage work, while 18% depend on fishing as their main income source. Shrimp rearing ponds (locally called *Gher*), canal and rivers are the fishing area, they mentioned during FGDs. Additionally, 14% of them relied on small businesses, such as small grocery shops. A significant portion (10%) operated their livelihood as barbers and 8% depended on farm-based day labour, primarily in agricultural fields.

Few of them also earned income by pulling rickshaws or vans, bamboo and cane work, agricultural farming, collecting shrimp fry from rivers, employed in formal jobs etc. very few of them had also earning from other sources stated in Table 11.

Table 12: Primary sources of income

Main income source	%
Non-Farm labor	23%
Fishing	18%
Small business	14%
Barber	10%
Farm-based day labor	8%
Rickshaw van pulling	5%
Bamboo and cane work	3%
Agriculture farming	3%
Others *	16%

* **Note:** Shop or factory employee, job, collecting shrimp fry from river, mending or preparing shoes, domestic help, motorcycle riding, aquaculture, remittances, auto driver, pig rearing, cow or goat rearing, sewing, wood works etc.

Secondary sources of income: Respondents reported engaging in a variety of activities to supplement their household income. The most common additional income sources were non-farm-based day labour and farm-based day labour. Additionally, 11% of respondents reported being involved in agricultural farming on own and rented land as a secondary occupation.

Other secondary livelihood options included rickshaw or van pulling, bamboo and cane work, shoe mending and preparation, barber services, livestock rearing, collecting shrimp fry from rivers, and other informal activities (Annex 6).

Average earning member of household: For each of the households had at least one earning member. There was no significant different for earning member across geographical area. Most of the cases male were the primary wage earner and women contribute to families with their little earnings (Figure 2).

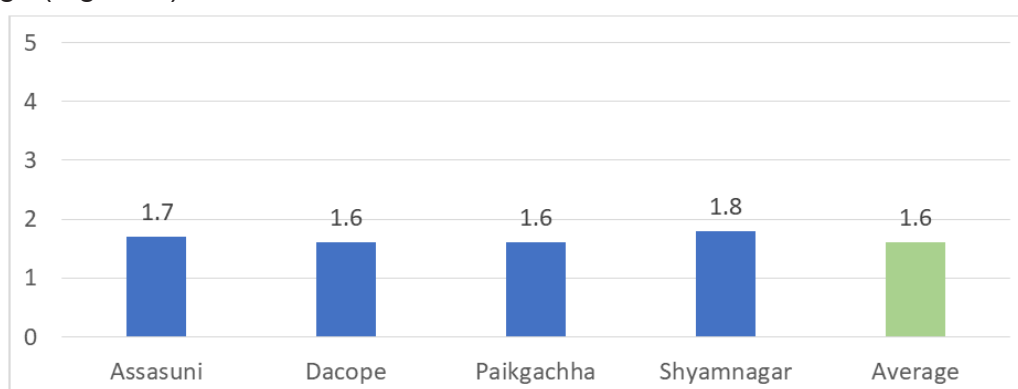


Figure 2: Average earning members of monetary households

3.3 Access to Drinking Water

Source of drinking water: In terms of drinking water sources, 32% of respondents reported that shallow tubewells serve as their primary source of drinking water, although they noted (during FGDs) that this source is not available year-round. A significant portion, 24%, depend on pond water, while 16% reported relying on rainwater harvesting for drinking purposes. It was noted that rainwater is used throughout the year, especially when other sources are no longer available. Additionally, 11% of respondents reported depending on bottled water for drinking. It is noted that the people collect water in bottle from larger tank established by NGOs.

(Upazila wise sources are presented in Annex 7)

Table 13: Main drinking water source of households

Main drinking water source of the HH	%
Shallow tubewell	32%
Deep tubewell	8%
Pond sand filter	4%
Pond (treated)	24%
Rainwater harvesting	16%
Piped water	6%
Bottled water (supplied from large tank)	11%

Changes of drinking water sources: Nearly half of the respondents reported that they have changed their primary sources of drinking water in last 10 years. However, variations were observed across different upazilas. In Dacope, fewer respondents reported changing their water sources, as ponds remain their primary source of drinking water, for the salinity intuition there is less shallow tubewell available.

In contrast, 53% of respondents in both Assasuni and Paikgacha reported changing their water sources, primarily because shallow tubewells are their main source of drinking water. The highest rate of change was reported in Shyamnagar, where most households rely on rainwater harvesting, making them more susceptible to source changes. Overall, 63% of households changed once and the frequency of changes was the highest in Shyamnagar area (Figure 3).

The findings indicate that climate change has significantly impacted the availability and quality of drinking water sources, leading many respondents to change their primary water source. Among the respondents, 39% reported (highest was in Dacope and Assasuni) that their previous pond became contaminated, forcing them to seek alternative sources. An additional 8% reported (highest was in Assasuni) that their ponds dried up, while 10% cited (highest in Assasuni) increased salinity as the reason for changing their drinking water source. Most of those affected by salinity now rely on bottled water, commonly referred to as locally supplied water. The remaining respondents reported that their previous water sources are now too far from their dwellings, which has led them to depend primarily on rainwater harvesting for drinking purposes (Annex 8: Reason for changing drinking water source and FGDs).

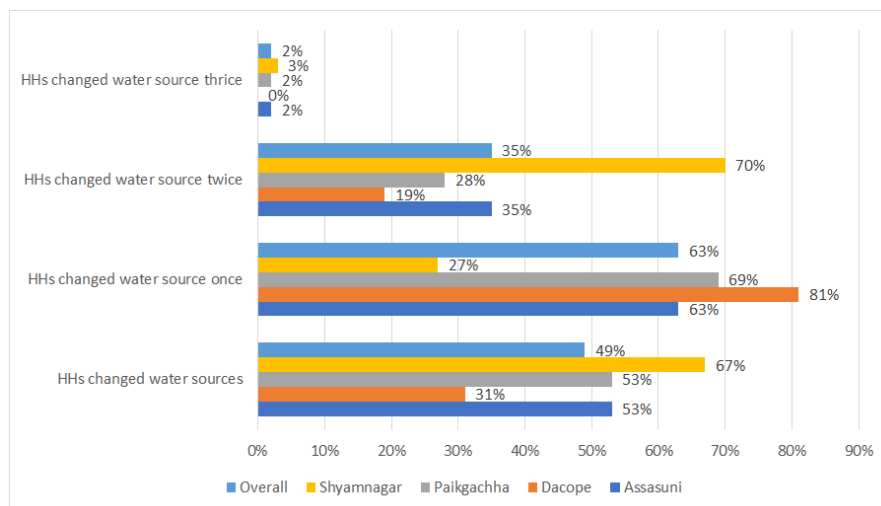


Figure 3: HHs changed main source of drinking water in past 10 years and frequency of change

Challenges in accessing water during to identity: Although respondents generally expressed a positive perspective (87%) regarding access to drinking water and reported that they usually do not face significant challenges when fetching water, they did report specific difficulties. Few of them noticed challenges. Among them, 6% reported experiencing bullying while collecting water, 4% mentioned the issue of long queues at water collection points, and 1% reported incidents of harassment, violence, or being restricted by their community when attempting to access water (Annex 9: Challenge in accessing drinking water).

Access to electricity: In terms of electricity access, 97% of households had electricity connection with their households. Among these, 76% have their independent connection, while the remaining 24% rely on joint or shared connections (Table 14).

Table 14: Per cent of households had electricity connection and the connection type

Variables	%
HH have electricity connection	97% (384 out of 396)
HHs take connection electricity jointly with other HHs	24% (92 out of 384)

3.4 Natural Capital

A total 37% of respondents reported they need to depend on natural resources such as forests, rivers, canals, and the sea to sustain their livelihoods. Among them, the majority (91%) rely on rivers, followed by 17% who depend on the sea. Only five respondents of Shyamnagar Upazila reported their needs to rely on forest resources for earning income and survival. The need to depend on rivers was reported to be lower in Paikgacha and Shyamnagar compared to other upazilas, largely due to the limited presence of rivers in Paikgacha (Table 15 and Annex 10: Dependency on natural resources by upazilas). During the FGDs, participants stated that *“they previously had a higher dependency on the forest. However, due to government restrictions, this dependency has decreased. Instead, they now rely more on the river for income-generating activities such as fishing and crab seed collection.”*

Further, majority of respondents agreed about impact of climate changes on natural resources over the past 10 years. However, extent of impacts varies across the study areas. With the exception of Paikgacha, all other upazilas are coastal and exhibit a higher dependency on natural resources (Annex 11: Impact of climate change on natural resources)

Table 15: Households need to depend on natural resources

#	Variables	No.	%
A	HHs depend on natural resources	145	37%
B	Types of dependency		
B1	Forests	7	5%
B2	Rivers/canals	132	91%
B3	Sea	25	17%
B4	Others	1	1%
	n	145	-

3.5 Climate Change and Impacts on Livelihood

Climate Change Experience: While respondents from Paikgacha expressed uncertainty about whether natural resources had been affected, a strong consensus emerged in relation to climate change itself. Across all areas, 99% of respondents reported having observed noticeable changes in the climate over the past decade ([Annex 12: Changes in climate](#)).

Households experienced various types of climate-related changes over the past decade. Among these, the most commonly cited was an increase in the frequency of cyclones (89%), followed closely by changes in precipitation patterns (87%). Other cited impacts included rising temperatures and heatwaves, decreased duration of rainfall, waterlogging, increased salinity, riverbank erosion, and other related phenomena. Few of them, however, observed sea level rise, possibly because most of the areas are situated along rivers (not close to sea), and such changes are not perceived as part of their immediate or regular experience.

Perceptions of specific changes varied slightly among the upazilas. For example, the proportion of respondents in Dacope reporting decreased winter duration and increased waterlogging was lower compared to other areas while responses from other upazilas remained relatively consistent. Majority of respondents of Shyamnagar noticed about soil and water salinity, likely due to the severe salinity present in local water sources (Table 16).

Table 16: Households observed climate changes in past 10 years

Values	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
Changes in precipitation (increased, decreased, changes in timing)	88%	82%	85%	100%	87%
Increased heat and heatwave	75%	83%	92%	76%	84%
The duration of winter decreased	41%	22%	44%	47%	38%
Increasing the intensity of the winter.	6%	24%	19%	7%	16%
Lowering water table	23%	4%	8%	7%	11%
Sea level rise	1%	8%	0%	0%	2%
Water loggings increased	76%	29%	53%	76%	55%
Cyclone increased,	96%	82%	88%	96%	89%
Flood increased	47%	45%	34%	58%	42%
Soil and water salinity increased	59%	35%	27%	84%	43%
Riverbank erosion	45%	56%	6%	11%	29%
12. Others (specify)	2%	4%	3%	0%	3%
n	96	101	154	45	396

Impacts on livelihood due to waterlogging: Among the respondents who experienced increased waterlogging, they mainly noticed interruption of reaching workplan (58% reported) and decreasing opportunity to work as non-farm labor (52% reported). Over one third, however, reported a reduction in farm labor availability due to water logging (Table 17). During FGDs the participants shared that due to persistent waterlogging, agricultural lands often remain submerged, making cultivation difficult and frequently disrupting access to farmlands. Additionally, inadequate road infrastructure worsens the situation, hindering transportation and making it difficult for individuals to reach their workplaces. There were notable differences across the upazilas. A significant decline in non-farm labor opportunities was observed across all upazilas. Respondents from both Shyamnagar and Assasuni upazilas reported significant disruptions in communication (mainly road access), when trying to reach their workplaces

(Annex 13: Impacts on livelihood due to water logging by upazilas).

Impacts on livelihood due to soil and water salinity: The most commonly reported a decrease in working opportunity as farm labor. This was closely followed by increased pressure on non-farm labor (50%), suggesting that many individuals were forced to shift away from agriculture due to reduced farming opportunities. Other effects include a decrease in livestock rearing opportunities (33%) and a reduction in homestead gardening activities (32%), both of which are important for household food security and supplemental income. This happened due to increasing soil salinity. Additionally, 6% of respondents reported a decline in income from trees (fruits or timber), reflecting the broader ecological consequences of salinity intrusion (Table 17). Salinity intrusion was higher in Shyamnagar, than followed by Assasuni (Annex 14: Impact on livelihood due to soil and water salinity).

Impacts on livelihood due to precipitation and heat: As a consequence of these climatic changes, 43% of respondents reported decreased opportunities for livestock rearing, followed by 38% who reported a decline in farm labor opportunities. While the farming is getting loss due to high precipitation or heat resulted reduction in farm-based employment led many to shift toward non-farm labor. The reduction increased pressure on non-farm work opportunities.

Limited indoor space for livestock rearing also poses challenges, particularly during heavy rains, when feeding animals becomes difficult due to inaccessibility of fodder, thereby disrupting livestock management. Furthermore, (according to FGDs) *“Excessive heat has led to the decline of certain local fish species, such as kuichcha (mud eel), reducing income sources.”*

Area-wise differences were also observed. In Shyamnagar, where cultivable land is limited, households rely more heavily on farm labor and livestock rearing compared to other upazilas. Consequently, 87% of respondents in Shyamnagar reported adverse effects on farm labor opportunities, followed by 40% in Assasuni. (Annex 15: Impact on livelihood due to precipitation or heat).

Impacts on livelihood due to increase of cyclone events: Like other climate changes discussed earlier, majority of the respondents (56%) also reported a decrease in non-farm employment opportunities. Secondly, they noticed a reduction of farm employment opportunity during and after cyclone. Additionally, 24% of respondents stated about decline of fishing opportunities due to high tides in rivers and the sea (Table 17 and FGDs).

Furthermore, they mentioned various livelihood-related challenges associated with cyclones and prolonged rainfall. Participants of the FGDs added that these included frequent livestock deaths, especially during extended periods of extreme weather. Respondents also noted limiting household income from small-scale trade. Damage to essential work equipment, such as boats and fishing nets, was also mentioned, making it difficult to resume work. In addition, shop owners experienced a drop in customer turnout during storms, resulting in decreased sales. Many respondents mentioned having to accept lower wages due to irregular work availability during such periods.

The highest number of participants in Dacope reported a decline in fishing opportunities, whereas the most severe impact on fishing was observed in Assasuni. In Shyamnagar, farm-based employment was primarily disrupted (Annex 16: Impact on livelihoods due to cyclone events).

Impacts on livelihoods due to river bank erosion:

The river bank erosion also affects both farm and non-farm employment. Moreover, as result of river bank erosion, water enter their dwelling as result their livestock basically poultry died (32% reported). Participants from Shyamnagar also reported greater damage to agricultural land compared to other areas (Annex 17: Impact on livelihood due to river bank erosion).

Overall, Shyamnagar appears to be the most vulnerable area in terms of livelihood impacts such as disruptions to both farm and non-farm employment, and significant damage to agricultural land due to climate change.

Table 17: Types of climate changes and their impacts on their livelihood

Type of impact	Waterlogging	Salinity	Precipitation	Cyclone	River bank erosion
Agricultural land reduced that resulted income loss	10%	-	-	-	14%
Communication to agricultural land interrupted which reduced employment opportunity	25%	-	-	-	16%
Bamboo, cane and other raw materials availability decreased	6%	-	-	-	7%
Rickshaw/ van pulling opportunity decreased	6%	-	10%	10%	
Farm labor opportunity decreased	38%	51%	38%	38%	33%
Non-farm labor opportunity decreased	52%	-	-	56%	57%
Business place sink/damage	3%	-	-	-	11%
Reaching at workplace interrupted	58%	-	-	-	-
Homestead garden sink or decrease	17%	32%	-	-	-
Increased pressure on non-farm labor due to stressed farm labor opportunity affected livelihood	-	50%	57%	-	-
Decreased livestock rearing opportunities	-	33%	43%	-	47%
Decreased income from tree (fruits/timber)	-	6%	-	-	-
Fishing opportunity decreased at river and sea	-	-	-	24%	-
Labor related to fishing at sea decreased	-	-	-	13%	-
Labor related to fish processing (handling, packaging) decreased	-	-	-	4%	-
Fishing gear related employment decreased	-	-	-	5%	-
Others (specify)	10%	4%	21%	20%	8%
Nothing happened	2%	15%	4%	6%	14%

Kranti Das (pseudonym) is a housewife from the Rishi community in Khajra Union. Her husband works as a day laborer at a barbershop in the local market. Since the area is disaster-prone, the shop often remains closed due to storms, heavy rainfall, and waterlogging. Especially during the monsoon season, the shop stays closed almost every day, which significantly reduces the household income.

Living in Silence – My Life Behind Closed Doors

The frustration of a man having little income and no steady work is mostly borne by his wife. From something as minor as the amount of salt in a curry to expressing her own opinions, Kranti Das endures both physical and mental abuse. Scolding, verbal abuse, slaps, forced physical relations, and even threats of being sent back to her parental home—these are everyday occurrences in her life. She doesn't even have the courage to step outside the house without her husband's permission.

To her, the relationship with her husband feels like a form of social security. If she were to leave him and return to her parents' home, she would become a burden on her aging parents, and society would speak ill of her. So, despite all the abuse, Kranti silently continues to live in her husband's household.

Impact of climate change on women's employment: Overall, 53% of respondents reported that women's employment has been negatively affected by climate-related events. The perception of impact did not vary significantly between male and female respondents. However, 9% of respondents were uncertain about whether employment opportunities for women had increased, decreased, or remained the same in response to climatic changes.

Table 18: Impact on women's employment opportunities due to climate change

Impact on women employment	Male	Female	Grand Total
1. Yes	48%	54%	53%
2. No	41%	38%	39%
3. Not sure	11%	8%	9%
Grand Total	100%	100%	100%

A closer examination reveals that half of the respondents (53%) reported a decline in non-farm employment opportunities for women (the highest was in Shyamnagar), followed by 49% who indicated a reduction in work opportunities in neighboring areas for the women (again the highest in Shyamnagar). Additionally, 38% of respondents noted a decrease in livestock rearing opportunities, a sector in which women traditionally play a central role. This was also greatly happened in Shyamnagar (Table 19).

The perception of impact differs by gender, largely due to the division of roles within households. As men are more often engaged in income-generating activities outside the home, they tend to have greater awareness of employment-related changes, which is reflected in their responses. For instance, 57% of male respondents reported a decrease in farm-based employment opportunities for women, compared to only 27% of female respondents who identified the same (Annex 18: Impact on women employment by sex of respondents)

Table 19: Types of impact on employment opportunities for women by areas

Types of impact on women employment	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
1. Farm based employment opportunities decreased for women	34%	26%	27%	66%	34%
2. non-Farm employment opportunities decreased for women	46%	53%	50%	69%	53%
3. Working opportunities in neighboring area has been decreased	50%	35%	53%	63%	49%
4. Reaching workplace interrupted	34%	24%	42%	53%	37%
5. Number of job places or employers decreased	56%	27%	33%	53%	40%
6. Homestead gardening opportunities decreased	30%	32%	20%	19%	26%
7. Livestock rearing opportunities decreased	44%	32%	28%	59%	38%
8. Others (specify)	2%	8%	8%	3%	6%
N	50	62	64	32	208

Loss of productive assets due to climate change:

Overall, 59% of respondents reported that their households had experienced losses of productive assets due to climate-related events. The rate of reported loss was nearly the same in Shyamnagar and Assasuni, both of which are highly exposed (over 70%) to frequent climatic shocks. In Dacope, 58% of respondents reported similar losses. By contrast, Paikgacha reported a comparatively lower rate of asset loss, with 47% of respondents affected.

In the case of types of losses of productive assets, the majority reported increased death (58%) and disease (33%) of livestock. Further, 25% of respondents said about losing agricultural land and experiencing significant damage to standing crops. During FGDs, the participants explained that *“basically most of our community are not engaged in cultivating rice or other crops so the potentiality of losses of agricultural crops are less.”* Respondents primarily dependent on fisheries reported that their ghers (fish enclosures) and ponds were washed away, and fishing gear was damaged.

Other respondents, particularly those engaged in small-scale trade, reported damage to clay-made items and roadside shops used for selling goods. These disruptions led to unsold inventory, significant income loss, and in some cases, the complete collapse of business operations.

Notably, in Shyamnagar, several respondents had migrated to the area after losing their original homes and land due to the cyclone “Aila.” As a result, they reported higher rates of agricultural land loss and crop damage compared to other upazilas, highlighting the prolonged and compounding effects of past climatic disasters on current livelihood conditions (Table 20)

Table 20: Loss of your productive assets (livestock, agricultural land, pond/gher, shops, rickshaw, van, etc) due to climate change in past 10 years

#	Variables	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
A	HHs reported losses of productive assets	70%	58%	47%	78%	59%
B	Types of losses					
B1	Loss of agricultural land	21%	29%	17%	46%	25%
B2	Increased damage of agricultural crops	21%	27%	17%	51%	26%
B3	Increased frequency of Wash away Gher/pond	12%	8%	21%	11%	14%
B4	Increased diseases of livestock.	61%	39%	60%	80%	58%
B5	Increased death of livestock	30%	31%	32%	49%	33%
B6	Damage of shops	10%	15%	18%	3%	13%
B7	Boat damage	19%	20%	1%	0%	11%
B8	Fishing gear damage	18%	47%	13%	3%	21%
B9	Others	9%	8%	13%	14%	11%
	n	67	59	72	35	233

3.6 Social Capital

Overall, only 15% of respondents reported that s/he or any other members of their family had members in local community groups (such as Village Conservation Groups, Tiger Response Teams, Dolphin Conservation Groups, Community Patrol Groups, Water User Groups, GBV Response Teams, and Adolescent Groups). Among the members, the majority were female (n=43), while only four respondents reported that both male and female members from their families have membership. Furthermore, 76% of respondents involved in community groups stated that their voices were heard during meetings always (Annex 19: voice in the local group)

Table 21: Per cent of family had membership in local groups and sex of the members

#	Variables	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
A	% of family had membership in local group	15%	8%	16%	27%	15%
B	Sex of members of family (n)	14	8	25	12	59
B1	Male (no.)	4	2	5	1	12
B2	Female (no.)	10	5	19	9	43
B3	Both male and female of family (no.)		1	1	2	4
	Grand Total	14	8	25	12	59

3.7 Household Income

The per capita income of ethnic minority groups was found to be slightly lower than that of the Dalit community. Across the different upazilas, there was no much variation in average household income (Table 22). During FGDs, participants shared that their traditional sources of income, such as forest or river based, have declined. As a result of riverbank erosion, many have relocated to new areas where they are now engaged in unfamiliar types of work, such as non-farm labor and agricultural wage labor. These new occupations require skills that they often lack, leading to lower income levels.

Table 22: Monthly household income (BDT)

Upazila	Ethnic minority	Dalit	Total
Assasuni	-	10,771	10,771
Dacope	-	10,510	10,510
Paikgachha	-	11,997	11,997
Shyamnagar	10,578	-	10,578
Total	10,578	11,234	11,159

3.8 Women Engagement in Economic Activities

In the study area, 44% of households had women engaged in economic activities. Among all areas, Shyamnagar upazila had the highest number of women involved in earning activities. In this upazila, most of the earning women (58%) were engaged as agricultural day laborers.

Besides this, many women were also involved in poultry farming and non-agricultural day labor. A similar situation was also observed in Assasuni, Dacope, and Paikgacha upazilas. However, in Paikgacha, a notable number of women (14%) were found to be engaged in paper bag making and packaging factories. A significant proportion of women in the Dacope upazila were involved in fishing and collecting shrimp fry.

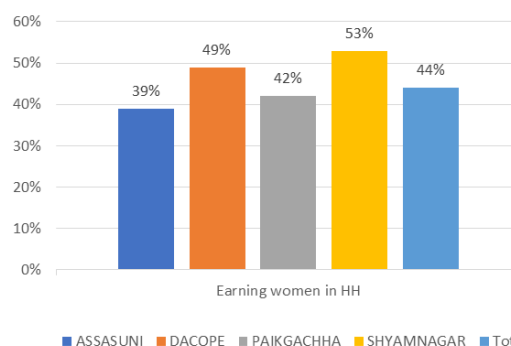


Figure 4: Per cent of households had women engaged in economic activities

It was commonly observed that women of this community were more involved in livelihood activities, especially in agriculture, as mentioned earlier. However, an alarming issue was revealed in the FGDs that the daily wage rate for this indigenous community was lower than that of other laborers in the same area, even women get further lower rate than male.

Table 23: Nature of Women's work in the study area

Type of activities	Assasuni	Dacope	Paikgachha	Shyamnagar	Overall
Fishing	14%	35%	5%	0%	14%
Farm-based day labor	22%	22%	14%	58%	24%
Non-Farm labor	41%	37%	16%	38%	30%
Small business	3%	10%	3%	0%	5%
Sewing	14%	6%	23%	4%	14%
Domestic help	5%	12%	5%	0%	6%
Homestead garden	5%	2%	0%	13%	3%
Poultry rearing	30%	27%	23%	54%	30%
Cow or goat rearing	27%	10%	16%	46%	21%
Collecting shrimp fry from river	5%	22%	0%	0%	7%
Packaging	0%	0%	14%	0%	5%
n	37	49	64	24	174

3.9 Women's Ownership on Household Assets

It was found that about 40% of participants said women had no ownership of any assets. However, a different picture was seen between the ethnic minorities and Dalit communities. Most of the women of ethnic minority (64%) owned livestock while it was much lower (22%) in women of the Dalit community (Table 24). During FGDs, the Dalti participants explained that **"we have no enough homestead space and it is difficult to rear goat or chicken."**

Further, a significant number of women owned gold jewelry. In this case, the situation was almost the same among ethnic and Dali communities. However, some women owned sewing machines. They also added in the FGDs that women almost had no ownership of assets that required outside income generating activities such as rickshaws and vans, motorcycles, battery-run auto-rickshaws (easy bikes), agricultural land, or gher/ponds.

Table 24: Women ownership of household assets

Women ownership of assets	Ethnic minority	Dalit	Overall
1. Homestead/House	0%	2%	2%
2. Agriculture Land	0%	1%	1%
3. Pond/Gher	0%	0%	0%
4. Other land	0%	0%	0%
5. Livestock	64%	22%	27%
6. Rickshaw/van	0%	0%	0%
7. Battery Powered three-wheeler	0%	0%	0%
8. Jewellery (Gold)	31%	30%	30%
9. Jewellery (Silver)	18%	13%	13%
10 Motorcycle for income	0%	2%	2%
12. Others (Specify)	0%	1%	1%
12. Nothing	20%	42%	40%
11. Sewing machine	9%	11%	11%
n	45	351	396

3.10 Women’s Decision Making on Income Generating Assets

When discussing women’s role in maintaining, buying, and selling the assets, discussed earlier, half of the respondents said that decisions were made jointly by husband and wife. However, according to over one third participants, although they decided jointly but final decision take by male members. Very few women (only 3%) of households made such decisions alone. During FGDs, the women participants added that “since male are the main earning member and run families, they also decide about selling assets.”

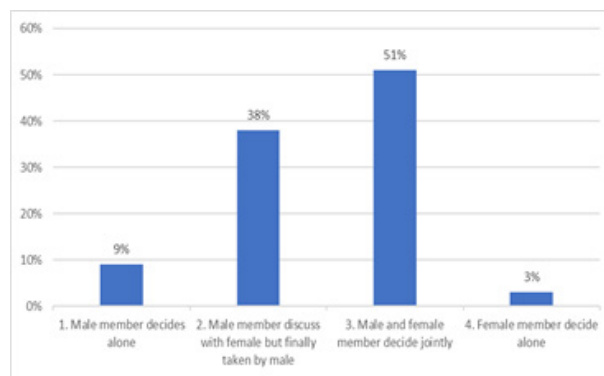


Figure 5: Pattern of decision making in managing, buying and selling assets

3.11 Access to Loan

In response to the question of whether they had any loans, 69% of the participants said they have loans. The access of Ethnic minority to the loan was slightly higher to Dalit community.

Table 25: Per cent of households had loan

Variable	Ethnic minority	Dalit	Overall
Households had loan	78%	68%	69%

Those who had loans mostly took them from different microfinance institutions. About 68% of participants mentioned this. After that, local cooperative societies were the next most mentioned source. They mentioned about both registered and unregistered local cooperative societies. One third of them took loans from cooperatives.

Although there were no major reports of ethnicity-based discrimination in getting loans among ethnic minority and Dalit communities, one Munda individuals respondent said he faced bullying.

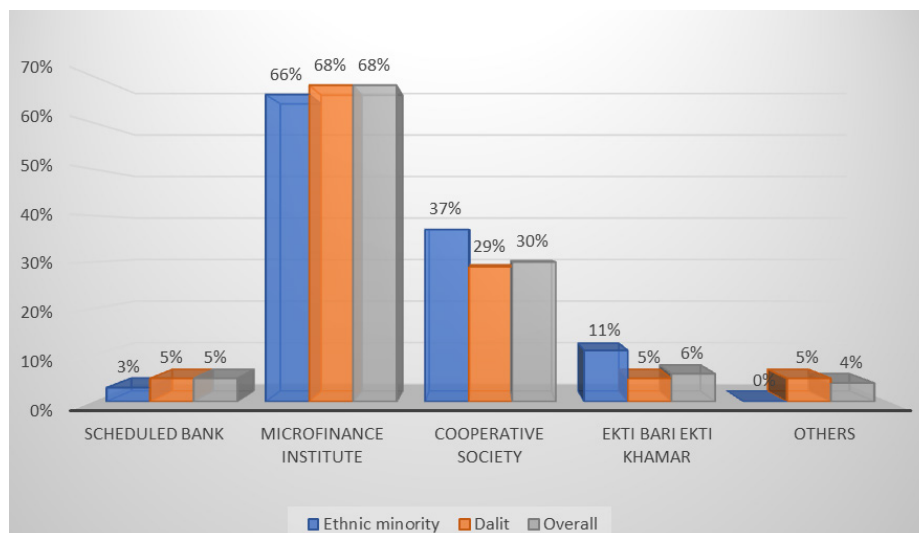


Figure 6: Source of loan of the ethnic minority and Dalit communities

3.12 Impact of Climate Induced Events on Education and Health

Impact of climate induced events on Education: Among the members of households, the highest level of education was primary pass for 42% of households. The highest level of education of the members of 28% households was secondary. Overall, level of education was higher among the members of households found in Assasuni while the lowest was in Dacope.

Table 26: Highest level of education of members of households

Level of education	Assasuni	Dacope	Paikgachha	Shyamnagar	Total
1. Not completed primary	8%	27%	16%	20%	17%
2. Primary	36%	46%	45%	33%	42%
3. Secondary	40%	21%	24%	29%	28%
4. Higher secondary	15%	3%	9%	16%	10%
5. Graduate	1%	2%	3%	2%	2%
6. Post graduate	0%	2%	3%	0%	2%

When it was asked whether natural disasters had damaged school buildings and stopped any children from attending school, 16% of respondents discontinued their children's education (Figure 7). Later, 91 of the children were not enrolled elsewhere due to lack of money. Some also mentioned distance as reason (Annex 20: Reasons of discontinuation of child education).

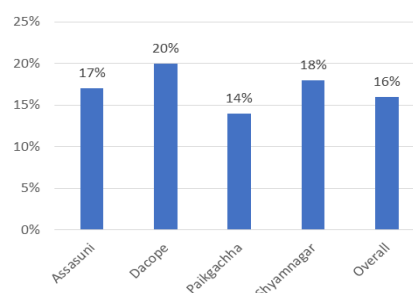


Figure 7: % of households discontinued children's school after damage of schools from natural damage

During a FGD, a woman from the Munda community shared insights into the reasons behind the low levels of education in her community and discontinuation of study. She explained:

- a) “The type of work we do doesn’t require higher education.”
- b) “We don’t have enough money to support continue our children’s education.”
- c) “Even if our children pursue higher education, who will offer them jobs?”

Impact of climate induced events on health:

Working ability is closely linked to individuals’ health conditions and other factors. According to responses from minority communities, there has been a noticeable decline in working ability, and this trend appears consistent across different working areas. Approximately 79% of households reported that at least one member suffered from illnesses such as diarrhea, typhoid, skin diseases, pneumonia, dengue, malaria, cervical cancer within the past year.

Interestingly, while most people did not observe a significant increase in illness over the past 10 years, this does not necessarily rule out climate change as a contributing factor to reduced working ability (Table 27).

During FGD with women added that when women collect shrimp post larvae from river, due to long lasting in the water it caused skin disease and urinary tract infections.

During FGDs, participants acknowledged that climate-induced events have increased, but they also noted improvements in the healthcare system. Access to local hospitals and private clinics has made it easier for people to seek treatment for serious illnesses.

Table 27: Changes of working ability and disease incidence

#	Variables	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
A	Changes in working ability of members due to weather pattern changes* in past 10 years					
A1	3. No change	7%	20%	8%	0%	10%
A2	4. Mostly decreased	58%	43%	58%	69%	55%
A3	5. Slightly decreased	34%	38%	34%	31%	35%
A4	HH members affected from illness					
B	% of HHs affected	85%	81%	73%	76%	79%
C	Frequency of disease incidence in last 10 years					
C1	1. Mostly increased	5%	2%	5%	9%	5%
C2	2. Slightly increased	13%	17%	10%	32%	15%
C3	3. No change	6%	17%	9%	0%	9%
C4	4. Mostly decreased	23%	33%	35%	9%	29%
C5	5. Slightly decreased	52%	30%	41%	50%	42%

Note: * Extreme heat, floods, irregular rainfall etc

Kabita (pseudonym) is 40 years old and belong to the Jola indigenous community in Pirojpur village, under Khajra Union of Assasuni Upazila. People in our area often refer to us as Karigar (clothe crafting). They cultivated a small piece of own land and worked as a day laborer during the paddy harvesting season on other people's farms along with the crafting. Their income was never much, but it was enough to survive.

However, everything started to change nearly two years ago. Frequent natural disasters, prolonged waterlogging, and the closure of the local sluice gate after river dredging have made impossible to continue farming. Most of the land remains submerged for couple of months, leaving it uncultivable. Under the stressed situation, her husband went to capital city (Dhaka) and worked there. He now works as a porter there. Although her husband works very hard, but earning is barely enough to meet our family's needs.

A Woman's Struggle for Survival Amid Health Complications

Meanwhile, she is facing serious health problems. She has been suffering from chronic uterine issues, including pus and blood discharge. The doctor told her it is likely due to the use of contaminated water and lack of access to safe drinking water. Sadly, they cannot afford to buy purified water for this, even for drinking.

With my husband away, she has to manage everything on my own. It is especially difficult because there is no adult male in the house. She faces challenges whenever she needs to go to the market, visit the health center, or deal with safety issues. Her illness makes it even harder, she can't work or contribute to the household in any meaningful way.

Despite all of this, She has somehow managed to arrange marriages for my three elder daughters, mostly by taking loans and incurring debt. Their youngest daughter, who is just 11 years old, still lives with her. Together, they struggle every day, surviving on borrowed money, occasional support from neighbors, and sheer willpower.

3.13 Vulnerability and Risk to Climate Change

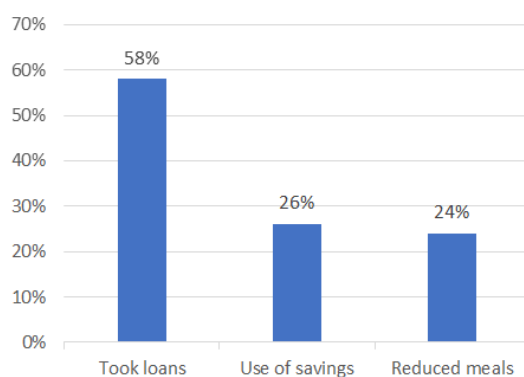


Figure 8: Major coping strategy to manage shocks of climate induced events

The cyclone is the most common climate induced events in these areas. Almost every year, one or more cyclones, small or large, occur in these areas. This was followed by heatwaves (15%) and waterlogging (14%) (Annex 21: Common disasters). Some people think that poor drainage system is the main cause of the waterlogging in this area. Among the damages caused by these disasters, houses were the most affected (59%). Respondents mentioned household members' injuries. Damage of trees and plants and losses related to livestock, roads, boats and agricultural lands (Annex 22: Major damages from climate induced events).

To cope with such natural disasters, people in the area adopted various coping strategies. More than half of the participants (58%) said they had to take loans. These loans were usually taken from relatives or local moneylenders. Some people also borrowed from local NGOs or community organizations. About 24% reduce their daily meal. Alongside these negative coping strategies, some participants followed positive ones. They used their savings to deal with the situation.

Shampa Biswas, a 32-year-old woman from the Behara community, lives in Nasirpur village of Paikgacha Upazila. Her life is marked not only by physical pain but also by the long shadow of silent neglect.

Due to extreme heat and frequent waterlogging from heavy rainfall, there living places often faces environmental stress, which contributes to her ongoing physical health issues. She has long suffered from uterine complications, including burning and itching in the vaginal area, urinary infections, and internal inflammation. She also experiences bleeding during intercourse, which is painful and frightening for her every time.

The Silent Pain of an Over-looked Woman

Despite informing her husband about these painful symptoms, she receives no support. Her husband ignores the severity of her condition and doesn't see the need for medical treatment.

This neglect has created a deep sense of social isolation and emotional distress in her life. Her story reflects how women are often left to silently endure suffering just to keep the family together.

Her case reveals the broader reality of women from the Behara community, society's indifference to their health and dignity, the toll of climate change on their bodies, and the burden of a patriarchal system that lacks empathy. Her physical pain is not just due to a lack of medical care; it is a reflection of a profound absence of compassion.

3.14 Access to Development Project

The government and NGOs provided different types of livelihood support in this area as part of development projects. Only 16% of minority communities received such livelihood support.

Among the received households, 86% of them received supports through NGOs, followed by local government. Few also received supports from other upazila level government officials like Agricultural Office and Fisheries Office. Agricultural Office generally provides seeds of different high yielding varieties.

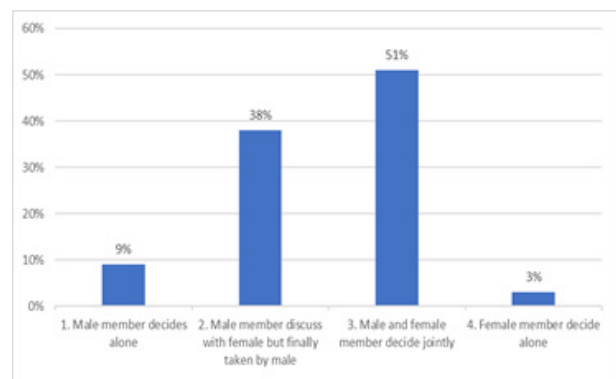


Figure 9: Per cent of households received livelihood supports

When asked whether there were any challenges in getting the support, almost everyone except a few said they did not face any challenges. However, those who faced issues mentioned that their names were not included in the committee-made list, although they considered themselves eligible for the support.

On the other hand, when asked why the 84% who were not under livelihood support did not receive it, most of them (65%) said they were not aware of such services

(Annex 23: Reasons of not getting livelihood support).

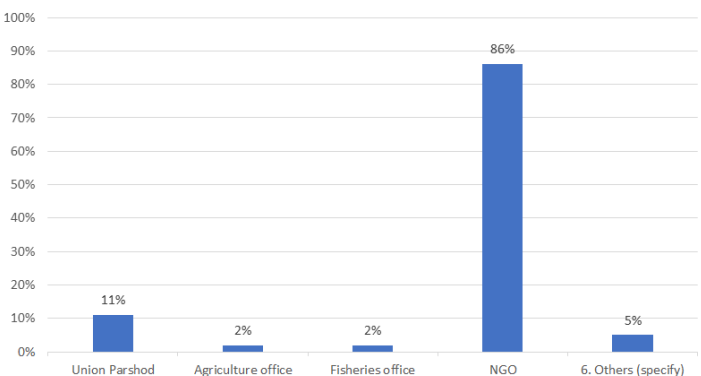


Figure 10: Types of institutions or departments provided livelihood supports to the minority

3.15 Gender Vulnerability Index

Gender vulnerability is assessed by examining the extent of women's involvement in economic activities, their access to social participation, and their access to health services. The vulnerability scale follows the same structure as the Climate Vulnerability Index (CVI), where a score of 1 represents the highest level of vulnerability and 0 the lowest.

An economic vulnerability score of 0.52 indicates a moderate level of vulnerability. Women's participation in income-generating activities was limited, with the lowest engagement observed in Assasuni, which had the highest vulnerability score in this category. However, women were found to be less vulnerable in terms of ownership, primarily because many of them owned livestock and poultry, which provided alternative sources of livelihood. When climate change events disrupt overall livelihood activities, they also affect women's specific income sources such as poultry rearing, daily wage labor, and domestic work like serving as maids. In this context (reference #A3), women were found moderately vulnerable.

Women from minority communities were found more economically vulnerable than socially vulnerable. Within the broader spectrum of socioeconomic vulnerability, the highest levels were observed among women who had migrated, and this vulnerability extended to the households they belonged to. In addition to economic challenges, women also faced significant vulnerability related to household-level violence and personal protection. During FGDs, female participants shared that *“they frequently experienced violence from multiple angles, particularly from their husbands. Physical and verbal abuse was reported as a common occurrence in their daily lives. The situation worsened when husbands consumed alcohol, leading to more severe forms of torture and mistreatment.”*

Women from minority communities demonstrated less than moderate access to health services (score 0.55), particularly in areas such as antenatal care (ANC) and postnatal care (PNC). However, women residing in Assasuni were found to experience the highest level of health-related vulnerability (Table 28).

The overall score of the Gender Vulnerability Index (GVI)-0.46 indicates a moderate level of gender-based vulnerability among women in these communities. Within this context, women from Assasuni ranked highest level of vulnerability, reflecting compounded challenges across economic, social, and health dimensions.

Table 28: Gender vulnerability score of women of minority

#	Variable	Assasuni	Dacope	Paikgachha	Shyamnagar	Overall
A	Economic vulnerability	0.53	0.58	0.48	0.49	0.52
A1	Women's engagement in income-generating activities	0.68	0.61	0.63	0.55	0.63
A2	Women's ownership of productive assets	0.39	0.50	0.40	0.20	0.40
A3	Impact of climate change on women's livelihood activities	0.52	0.61	0.42	0.71	0.53
B	Social vulnerability	0.32	0.28	0.34	0.33	0.32
B1	Women participation in decision-making	0.38	0.28	0.43	0.37	0.37
B2	Impact on girls due to decreasing income	0.26	0.09	0.26	0.04	0.20
B3	Risk on migrated households	0.84	0.97	0.94	0.98	0.93
B4	Women migration	0.98	0.92	0.97	1.00	0.97
B5	Violence accessing natural resource	0.53	0.71	0.42	0.83	0.58
B6	Violence during collecting water	0.19	0.21	0.24	0.25	0.22

B7	Violence against women and protection risk at household	0.68	0.77	0.75	0.93	0.76
C	Health vulnerability					
C1	Access to ANC, PNC, receiving iron tablet and folic acid etc	0.62	0.59	0.47	0.56	0.55
D	Overall	0.49	0.47	0.45	0.45	0.46

Remi Das (Pseudonym) is a girl from the Rishi community in Khajra Union of Assasuni Upazila. Because she belongs to the Rishi community, other girls at school do not want to mix with her or sit beside her. She is also excluded from various student groups at school. Her father, Sani Das, had a motorbike accident about a year ago and is currently unable to work. Occasionally, he works as daily labor. Her mother, teaches children from the Dalit community in the area. They once tried growing vegetables at home, but due to excessive salinity in the soil and water, they couldn't succeed. As a result, there is little income in the family.

A Young Dalit Girl's Silent Struggle with Health and Exclusion

In August 2024, Remi Das had her first menstrual period, which lasted for 5–7 days. However, over the past year, she hasn't had her second period at all. Her parents believe this may be due to iron deficiency caused by a lack of regular vegetable intake and the effect of consuming saline water. It takes about 10 minutes to walk from their house to the local community clinic. Still, due to a lack of awareness and knowledge about menstrual and reproductive health, her parents have never sought medical advice for their daughter.

Remi Das is currently suffering from malnutrition, menstrual health risks, and issues such as itching or rashes in the genital area. Due to salinity and poverty, she cannot eat nutritious food or vegetables regularly. As a result, her health is gradually deteriorating.

3.16 Child Marriage

Child marriage is a culturally accepted practice among minority communities. Climate change-related events further exacerbated this issue, pushing vulnerable families toward marrying off their daughters at an early age.

The inability to organize a FGD with adolescent girls in the Munda community highlighted the severe prevalence of child marriage. KII with women community leaders helped uncover the underlying reasons. One major concern raised was the fear of love affair through social media without parental consent which is viewed as a breach of traditional norms. Additionally, the perceived threat of sexual abuse by boys from the majority Bengali community was cited as another reason for early marriage. According to the women, boys from majority communities often feel emboldened to verbally or physically harass minority girls, believing that the minority communities lack the social power to seek justice or protection.

Poverty is another strong driver. Families with low or no income see early marriage as a way to reduce financial burden. Many minority parents lack dreams to educate their children, particularly daughters. For them, marrying off girls early is seen as the most secure option for their future.

Some women shared that adolescent today appear to be more mature for their age and increase mobility like going to markets, tutoring centers, or relatives' houses. This increased mobility, they feel, brings a higher risk of premarital relationships and possible pregnancy. If a girl becomes pregnant without marriage, her family would face severe social stigma, and her prospects for marriage would be severely affected.

3.17 Migration and Displacement

Nature of migration or displacement: In disaster-prone areas, families or their members often needed to move to other places in search of livelihood. In some cases, they moved permanently or were forced to do so. It was found that in the past year, at least one member from 30% of the households moved elsewhere for work either temporarily (95%) or permanently (5%). Among them, 5% of households had at least one member who was forced to move permanently. The migration rate was higher (43%) in Assasuni. Female members of 14% households moved elsewhere. They moved basically to work as agricultural and non-agricultural day labor. According to the FGDs and KIIs, the forest areas have been gradually decreasing day by day, which leads to unemployment for some people who were dependent on forest-based livelihoods in the Sundarbans such as honey collection, timber harvesting, and fishing from forest rivers. As a result, they were forced to change their source of income and had to move elsewhere in search of alternative livelihood options.

When asked whether any household had moved elsewhere or had come to this area due to a disaster in the past 10 years, 4% of households said they had lost their home and land due to climate induced events like river erosion or cyclones. As a result, they were forced to leave their place of residence.

Table 29: Per cent of households with migrated members

Variables	Assasuni	Dacope	Paikgachha	Shyamnagar	Total
HHs with any member migrated	43%	26%	23%	31%	30%
HHs with women member migrated	7%	42%	3%	7%	14%
Temporary migration	93%	100%	92%	100%	95%
HHs migrated due to loss home or land due to climate induced events	1%	12%	1%	0%	4%

Migration leading violence against women:

When climate induced events affect daily life, the women faced challenges when any male members migrate to other place for work and women faced violence at migrated workplaces.

One third women faced social stigmatization (33%). They also mentioned stalking, domestic violence, and increased mental abuse. On the other hand, when a female member of the household migrated for work, the challenges were even more at workplace. About 46% of women faced social stigmatization in migrated places.

Moreover, 38% of respondents reported experiencing physical and mental abuse against women in the workplace (Table 30). In addition to abuse, women also faced gender-based discrimination, particularly in wage rates. During FGDs, female participants explained that while men are typically paid BDT 300 per day, women receive only BDT 200–250, despite doing equal workloads. Participants further shared that it is difficult to negotiate with employers, especially in the immediate of climate-induced events. These events often force women to migrate due to the lack of available work in their local areas. During such times, the oversupply of labor allows employers to easily choose alternatives, leaving women with little bargaining power and increased vulnerability.

Table 30: Natura of violence against women as a result of migration

#	Types of violation	%
A	Violence against women at community when male of their HHs migrated (n=288)	
	Stigmatizing by community people	33%
	Stigmatizing by society during communicating male	28%
	Stalking	26%
	Increased workload hampers care work, resulting domestic violence	17%
	Mental violence	14%
B	Violence against women at women’s workplace (when women migrate)	
	Stigmatizing the women by society around workplace	46%
	Psychological and physical violence at workplace	38%
	Stalking	15%
	Domestic violence	15%
	Discrimination based on sex	15%

Violence against women during accessing natural resources:

Although incidents of violence against women during activities such as fishing or collecting firewood from forest areas were reported less frequently, many women have lost the ability or willingness to engage in these tasks due to safety concerns. While most drinking water sources are located relatively nearby, 22% of women still reported experiencing violence while collecting water. During FGDs, women added that *“they normally avoid to send their adolescent girls to collect water and for fishing or collecting woods due to safety concerns.”* During FGD, one adolescent also explained that *“while she was collecting water from a distant source (approximately 1.5 kilometers away), she was harassed by a group of adolescent boys from the majority Bengali community, who forcefully grabbed her hand. Following this incident, her family no longer allows her to go out alone to collect water”.*

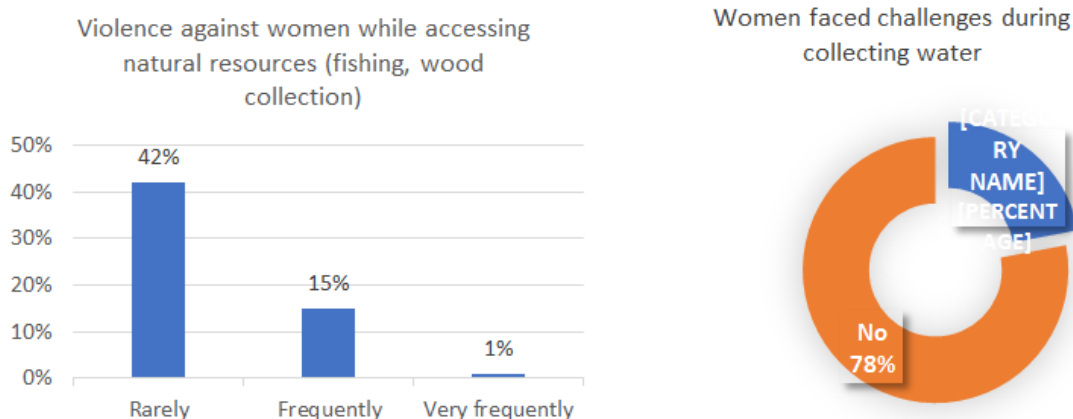


Figure 11: Violence against women during accessing natural resources

3.18 Severity Score

The study area tried to explore how people there experienced the severity level of climate change and disaster-related losses in their lives. In this context, participants in the research were asked about their post-disaster coping mechanisms. From their responses, it was found that although in some cases they followed positive mechanisms, the use of negative mechanisms was more common. For example, the highest number of participants (58%) said they usually took loans to recover from such losses. It is important to mention that the tendency of taking loans was high-

er among participants from Dacope upazila, where 75% of respondents reported taking loans. According to FGD findings, they usually took these loans from local moneylenders or relatives.

The project could work here by encouraging people to save and by arranging awareness sessions on financial transactions. It could also promote formal financial practices to help improve financial security among low-income people.

Followed by, 24% of participants said they were forced to reduce their daily meal. From FGD discussions, it was revealed that they usually cooked only once a day. Those who were a little bit better off financially cooked once for all three meals. On the other hand, less solvent families cooked once and had taken less number of meals than they needed. The reason they said for cooking only once a day was the shortage of fuel. Due to the lack of firewood and cooking space, they cooked only once a day. In this case, no significant difference was found based on area. Even by ethnicity and caste, the situation was the same.

The project has opportunities to work here. The project can encourage the use of alternative fuel in the affected areas and also arrange training on fuel-saving methods.

In addition, some respondents said they were forced to sell their assets, many also reported that after a disaster, they had to stop their children's education, and some even had to send their children to risky and income-generating work (3%).

In all the above cases, the same situation was observed across different areas, ethnicities, and castes.

Negative Mechanism	Ethnicity and sub/out-caste		Area				Overall
	Ethnic minority	Dalit	Assasuni	Dacope	Paikgachha	Shyamnagar	
Took loans	62%	57%	64%	75%	41%	62%	58%
Reduced meals	24%	24%	31%	37%	11%	24%	24%
Sold assets	2%	3%	2%	5%	2%	2%	3%
Married off girls	4%	1%	1%	0%	2%	4%	2%
Married off boys	0%	0%	0%	0%	0%	0%	0%
Stop children's study or send to work	0%	1%	3%	0%	0%	0%	1%
n	45	351	96	101	154	45	396

To identify the severity level, the study followed similar scoring method of CVI and GVI. In this context, participants were asked about their post-disaster coping mechanisms. Negative coping mechanisms were given scores based on their intensity. The negative coping mechanism includes taking loan (score 3.0, reduced meals 1.7 and sold assets 1.5 (the scoring system adopted from Islam M M 2017). Annex 24 presented the calculation methods. The increase of score indicates the highest level of vulnerability. Here, 6.2 is the highest score and 0 the lowest.

Overall average severity score was 2.18 (out of 6.2). It explains that the severity level was almost moderate. It also explains that almost half of the minority households followed negative coping mechanism to cope the post climate induced events. Among the negative coping mechanism taking loan was the highest. During FGDs, the participants borrowed loan with higher interest rate from local people (mostly they are majority Bengali community). The severity was higher among minorities of Assasuni (Table 31). The severity level was higher among ethnic community to Dalit. Alarmingly, some households recorded the maximum severity score of 6.2, underscoring the urgent need for targeted support and inclusive resilience-building strategies (Annex 24: Severity score by types of minorities).

Table 31: Severity score among the minority communities across the study area

Severity score	Assasuni	Dacope	Paikgachha	Shyamnagar	Overall
Average	2.47	2.95	1.44	2.32	2.18
Maximum	6.20	6.20	4.70	6.20	6.20

3.19 Lesson Learned and Recommendations

- a) Shyamnagar Upazila is one of the most vulnerable areas in terms of natural disaster frequency, job opportunities, child marriage, and use of natural resources. A well-defined, contextualized plan is needed to support the minority communities in this region.
- b) Minority individuals frequently migrate and face challenges adapting to new types of work. Therefore, skill development is essential. It is also important to equip them with skills for multiple types of jobs to enhance adaptability in new environments.
- c) Creating an enabling environment for women in the workplace is crucial. Employers should receive training, and women should work under written contracts with clear legal terms and conditions.
- d) As the community heavily relies on the Panchayet system to resolve conflicts, initiatives should be taken to develop leadership capacity within the community.
- e) Minority groups face challenges in accessing government services (like health). The service delivery system should be improved. Placing individuals from minority communities in key positions could be one way to make the system more inclusive.
- f) Child marriage remains a major issue among minority communities. A safe and secure system must be developed to raise awareness among parents at a significant level.
- g) There is a lack of aspiration among parents to send their children for higher education, as they believe their community faces barriers to employment. Initiatives should be taken to inspire both parents and children. This process will also help reduce child marriage along with opening space of financial solvency.
- h) Due to limited homestead space, women in the community have restricted capacity for livestock and poultry rearing. Introducing mini-poultry farming (20–30 birds per shed per household) could be a viable solution. A collaboration can be made with Bangladesh Livestock Research Institute to introduce the technology.
- i) Extreme heat has reduced the working capacity of minority individuals. Coping mechanisms should be introduced in this regard. The Bangladesh Red Crescent Society (BDRCS), with its extensive experience in this area, could be a valuable partner for collaboration or knowledge exchange.
- j) Disease prevalence among minorities due to climate change is high. Initiatives should be taken to increase preventive knowledge and practices.
- k) Some individuals have received livelihood support, but it was not effective in the long term. They suggested developing a livelihood model where community members can work together in groups.
- l) Minority communities often do not report child marriage due to the complexities of accessing (long process, lack of transparency etc.) law enforcement support. Developing people as changemaker within the community could help improve the situation.
- m) Most people rely on labor work in both farm and non-farm sectors, which are affected by climate change. This single-source dependency makes them vulnerable. It is essential to engage the community in diversified employment to build livelihood resilience.
- n) Minority families often depend on a single income earner, typically the male member. Only half of the women are engaged in income-generating activities, mostly as low-paid daily laborers. Reducing dependency on a single earner is important. Employment opportunities should be created for unemployed women.

- o) Climate change affects livestock, making structural support like sheds necessary. To protect against heatwaves, well-ventilated shed technologies should be introduced.
- p) Women who collect shrimp post-larvae from rivers often suffer from skin diseases and urinary tract infections due to prolonged exposure to water. Introducing health protocols could help prevent these issues.
- q) Minority communities lack awareness of social protection groups. Only a few are involved in savings-related groups. Government's departments and NGOs should be sensitized to include minorities in various social protection initiatives.

4.0 Conclusion

The research highlights the vulnerabilities faced by minority communities living in the southwestern region of Bangladesh. Residing in areas highly prone to climate change events, these communities are affected across multiple dimensions: human, financial, social, and natural capital. Their traditional skill sets limit income opportunities, and access to natural resources has significantly declined. Although some community members migrate temporarily for work, the workplaces, especially for women, are often unsafe. Social participation is minimal, with men holding ultimate decision-making power. Child marriage remains a culturally accepted norm.

Climate change disproportionately affects women and girls, particularly in terms of education and health. There is an urgent need for context-specific support to enhance the economic and social resilience of these communities.

5.0 Annex

Annex 1: Questionnaire used in the study

Attached as separate file

Annex 2: FGD, KII and case stories checklists used in the study

Attached as separate file

Annex 3: Pattern of religion by minority identity

Sub-cast identity	Hindu	Christian	Muslim	Others	Grand Total
1. Horijon	14	20	-	-	34
2. Rishi	32	21	-	-	53
4. Behara	61	-	-	-	61
6. Pal	29	-	-	-	29
7. Jele	18	22	-	-	40
8. Poramanik		21		-	-
9. Rajbongshi	31	-	-	-	31
10. Nomoshudro	35	-	-	-	35
11. Jola		-	30	-	30
13. Shil	15	2	-	-	17
15. Munda	43	-	-	2	45
Grand Total	278	86	30	2	396

Annex 4: Types of disabilities of members of surveyed households

Type of difficulties	
1. Difficulty of seeing, even if wearing glasses	3
2. Difficulty of hearing, even if using a hearing aid	0
3. Difficulty of walking or climbing steps	2
4. Difficulty of remembering or concentrating	1
5. Difficulty of (with self-care such as) washing all over or dressing	0
6. Difficulty of communicating, for example understanding or being	1
Number of HH	396

Annex 5: Source of primary income of minority groups

Main income source	%
Non-Farm labor	23%
Fishing	18%
Small business	14%
Barber	10%
Farm-based day labor	8%
Rickshaw van pulling	5%
Bamboo and cane work	3%
Agriculture farming	3%
Shop or factory employee	2%
Job	2%
Collecting shrimp fry from river	2%
Mending or preparing shoes	1%
Domestic help	1%
Motorcycle riding	1%
Aquaculture	1%
Remittances	1%
Auto driver	1%
Pig rearing	1%
No other source	0%
Cow or goat rearing	0%
Sewing	0%
Wood works	0%
Others (specify)	2%

Annex 6: Source of secondary income

Source name	%
Fishing	16%
4. Agriculture farming	11%
5. Farm-based day labor	30%
6. Non-Farm labor	35%
7. Bamboo and cane work	4%
9. Mending or preparing shoes	3%
12. Rickshaw van pulling	5%
15. Small business	5%

17. Burber	6%
20. Pig rearing	4%
25. Sewing	7%
26. Domestic help	2%
27. Homestead garden	4%
28. Poultry rearing	26%
29. Cow or goat rearing	17%
30. Collecting shrimp fry from river	7%
34. No other source	13%
Packaging	2%
Work in shop or factory	4%
Aquaculture	2%
Others*	12%

* Note: Collecting timber Forest products, Potter, Bajondar, Job, Crab cultivation, Collecting non-timber Forest products [honey, fruits, mangrove etc.], Skinner, Black smith, Wood works, Auto driver, Sweeper, Remittances, Hand loom/power loom, Behara, Funeral, Dome, Motorcycle riding etc

Annex 7: Main source of drinking water by upazila

Row Labels	ASSASUNI	DACOPE	PAIKGACHHA	SHYAMNAGAR	Grand Total
1. Shallow tubewell	46%	22%	33%	18%	32%
2. Deep tubewell	15%	1%	11%	0%	8%
4. Pond sand filter	0%	4%	2%	16%	4%
5. Pond	9%	45%	21%	18%	24%
7. Rainwater harvesting	17%	16%	8%	44%	16%
8. Pipped water	11%	0%	7%	0%	6%
9. Bottled water	2%	13%	17%	2%	11%
10. Others	0%	0%	0%	2%	0%
Grand Total	100%	100%	100%	100%	100%

Annex 8: Reasons for changing drinking water sources by upazilas

Reasons	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
1. Due to lowering water table previous source did not get water	0%	19%	16%	3%	10%
2. Previous pond was contaminated	51%	52%	32%	23%	39%
3. Previous pond was dried	18%	6%	4%	7%	8%
4. Communal conflict	4%	0%	4%	0%	3%
5. Social conflict	4%	0%	1%	0%	2%
6. Afforded bottle water	6%	29%	17%	23%	17%
7. Government supported new sources in neighboring area	6%	6%	0%	0%	3%

8. NGO supported new sources in neighboring area	0%	3%	0%	27%	5%
9. Displacement of household	0%	0%	6%	0%	3%
Increased salinity	0%	16%	12%	13%	10%
water source is far away	10%	0%	11%	10%	9%
rain water	20%	16%	5%	13%	12%
iron or arsenic or contaminated	0%	3%	9%	0%	4%
10. Others (specify)	12%	3%	14%	3%	10%
n	51	31	81	30	193

Annex 9: Challenges in accessing the water due to identity

#	Challenges	No.	%
A	Faced no challenges	235	87%
B	Faced challenges	36	13%
B1	1. Long waiting time in que	12	4%
B2	2. Bullying	17	6%
B3	3. Harassment/violence	2	1%
B4	4. Need to take later than other community	16	6%
B5	5. Restricted by other community	3	1%
B6	6. Others	2	1%

Annex 10: Number of respondents reported their dependency on natural resources by upazilas

Resources	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
1. Forests	1	1	0	5	7
2. Rivers/canals	42	59	24	7	132
3. Sea	17	1	7	0	25
6. Others (specify)	0	0	1	0	1

Annex 11: Households reported about impact of climate changes on natural resources last 10 years

Level	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
1. Strongly agreed	59%	56%	23%	44%	43%
2. Agreed	41%	42%	54%	53%	47%
3. Not sure	0%	2%	23%	2%	10%
Grand Total	100%	100%	100%	100%	100%

Annex 12: Households observed changes in climate in past 10 years

Observing changes	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
HHs observed changes in climate	100%	100%	98%	100%	99%
HHs did not observe change in climate	0%	0%	2%	0%	1%
Grand Total	100%	100%	100%	100%	100%

Annex 13: Impacts on livelihood due to waterlogging in past 10 years

Type of impact	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
1. Agricultural land reduced of our HH as result income lost	14%	7%	1%	24%	10%
2. Communication to agricultural land interrupted which reduced employment opportunity	32%	10%	7%	68%	25%
3. Bamboo, cane and other raw materials availability decreased	4%	14%	2%	12%	6%
4. Rickshaw/ van pulling opportunity decreased	3%	3%	13%	0%	6%
5. Farm labor opportunity decreased	48%	24%	16%	79%	38%
6. Non-farm labor opportunity decreased	48%	52%	45%	76%	52%
7. Business place sink	5%	3%	2%	0%	3%
8. Reaching at workplace interrupted	55%	48%	68%	47%	58%
9. Homestead Garden sink	16%	28%	7%	29%	17%
10. Others (specify)	12%	7%	11%	3%	10%
11.Nothing happened	1%	3%	4%	0%	2%
N	73	29	82	34	218

Annex 14: Impacts on livelihood due to soil and water salinity in past 10 years

Type of impact	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
1. Farm labor opportunity decreased	49%	34%	38%	84%	51%
2. Increased pressure on non-farm labor due to stressed farm labor opportunity affected livelihood	47%	46%	43%	66%	50%
3. Decreased livestock rearing opportunities	18%	43%	29%	53%	33%
4. Decreased homestead gardening opportunity	28%	40%	21%	42%	32%
5. Decreased income from tree (fruits/timber)	2%	9%	2%	16%	6%
7. Nothing happened	14%	11%	31%	3%	15%
6. Other (specify)	2%	3%	10%	3%	4%
n	57	35	42	38	172

Annex 15: Impacts on livelihood due to changes in precipitation or heat in past 10 years?

Types of impact	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
1. Farm labor opportunity decreased	40%	34%	24%	87%	38%
2. Increased pressure on non-farm labor due to stressed farm labor opportunity affected livelihood	54%	67%	44%	78%	57%
3. Decreased livestock rearing opportunities	38%	48%	31%	78%	43%
4. Difficulties increased in pulling rickshaw/van	7%	17%	12%	0%	10%
5. Other (specify)	20%	13%	32%	2%	21%
6. Nothing happened	5%	0%	7%	0%	4%
n	84	83	131	45	343

Annex 16: Impacts on livelihood due to increased event of cyclone in past 10 years

Type of impact	Assasuni	Dacope	Paikgachha	Shyamnagar	Grand total
1. Fishing opportunity decreased at river and sea	36%	46%	10%	0%	24%
2. Labor related to fishing at sea decreased	32%	12%	4%	0%	13%
3. Labor related to fish processing (handling, packaging) decreased	0%	6%	6%	0%	4%
4. Fishing gear related employment decreased	8%	7%	4%	0%	5%
5. Farm based employment opportunity decreased	41%	39%	21%	84%	38%
6. Non-farm employment opportunity decreased	46%	72%	48%	77%	56%
7. Rickshaw van pulling opportunity decreased	7%	13%	12%	2%	10%
8. Others (specify)	21%	14%	26%	12%	20%
9. Nothing happened	3%	2%	13%	0%	6%
n	92	83	136	43	354

Annex 17: Impacts on livelihood due to riverbank erosion in past 10 years

Type of impact	ASSASUNI	DACOPE	PAIKGACHHA	SHYAMNAGAR	Grand Total
1. Agricultural land reduced of our HH as result income lost	9%	14%	11%	60%	14%
2. Communication to agricultural land interrupted which reduced employment opportunity	14%	12%	22%	60%	16%
3. Bamboo, cane and other raw materials availability decreased	5%	9%	11%	0%	7%
4. Farm labor opportunity decreased	28%	32%	44%	80%	33%
5. Non-farm labor opportunity decreased	49%	60%	67%	80%	57%
6. Business place damaged	5%	16%	0%	20%	11%
7. Poultry die	16%	47%	0%	40%	32%
8. Cow/goat die	12%	14%	0%	40%	13%
9. Pig die	2%	0%	11%	0%	2%
10. Others (specify)	9%	9%	0%	0%	8%
11. Nothing happened	14%	12%	33%	0%	14%
11. Riverbank erosion	43	57	9	5	114

Annex 18: Types of impact on employment opportunities for women by sex of respondents

Types of impact	Male respondents	Female respondents	Grand Total
1. Farm based employment opportunities decreased for women	57%	27%	34%
2. Non-Farm employment opportunities decreased for women	63%	50%	53%
3. Working opportunities in neighboring area has been decreased	45%	50%	49%
4. Reaching workplace interrupted	55%	31%	37%

5. Number of job places or employers decreased	41%	39%	40%
6. Homestead gardening opportunities decreased	53%	17%	26%
7. Livestock rearing opportunities decreased	59%	31%	38%
8. Others (specify)	0%	8%	6%
N	51	157	208

Annex 19: Per cent of respondents noticed whether their voice is heard in the group/community

Whether voice is heard	Male	Female	Girl	Total
1. Always	71%	74%	82%	76%
2. Sometimes	29%	17%	12%	17%
3. Rarely	0%	6%	6%	5%
4. Never	0%	3%	0%	2%
n	7	35	17	59

Annex 20: Reasons of discontinuation of children's education after damage of schools from natural disasters

Reasons	#	%
1. Distance from household	4	6%
2. Discrimination	1	2%
3. Inability to pay school's expenses	59	91%
4. Others (specify)	7	11%
n	65	100%

Annex 21: Common disasters in the study area

Disaster type	%
1. Cyclone	60%
5. Heatwave	15%
4. Waterlogging	14%
2. Flood	4%
3. Riverbank erosion	3%
7. Salinity intrusion	3%

Annex 22: Households reported about major types of damage from natural disasters.

Type of loss and damage	%
13. Damage of House	59%
11. HH member injured	27%
14. Damage of trees	24%
4. Diseases of livestock.	19%
5. Death of livestock	15%

Annex 23: Reasons of not getting livelihood supports

Values		
Did not get livelihood related information	215	65%
Officers did not enlist	115	35%
Local leaders (UP members) did not facilitate name for listing	127	38%

Panchayet did not propose name	7	2%
Corruption	40	12%
Others (specify)	23	7%
Not sure	10	3%
n	332	100%

Annex 24: Severity score among the minority communities by types of minorities

Severity score	Ethnic minority	Dalit
Average	2.32	2.16
Maximum	6.20	6.20

Annex 25: Calculation methods of CVI, GVI and Severity Score



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