

Project Completion Report

Assessing Community Resilience to Drought: A Community Capitals Perspective in the Barind Tract Region of Bangladesh

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01. Project in Brief

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02. Brief description of the project:

a) Abstract

The Barind Tract region of Bangladesh experiences frequent droughts, which have a substantial effect on the local communities residing in this area. Evaluating the community's ability to withstand and rebound from drought is essential for comprehending how these communities might enhance their capacity to manage and recuperate from the impacts of drought. The study aims to evaluate the resilience of the Barind Tract region to drought by using a community capitals viewpoint. The study will analyze several types of capitals present in the community in order to gain a thorough understanding of the community's capacity to endure and recover from drought occurrences. The literature on community resilience in Bangladesh mostly concentrates on coastal regions prone to cyclones and floods, neglecting drought-prone regions like Barind Tract. There is a study deficit in understanding community resilience to drought in Bangladesh's Barind Tract region from a community capitals approach. The community capitals framework, which includes social, human, natural, physical, financial, and political capitals, provides a holistic perspective on community resilience. Using this perspective, the proposed research intends to cover this void and shed light on the interactions between various community capitals and their role in enhancing resilience. A mixed-methods research design and a range of data gathering strategies, such as focus groups, key informant interviews, household questionnaire surveys using the KOBO toolkit, and secondary data analysis, will be used in the ensuing study. Simple random sampling with a 5% margin of error and a 95% confidence level was used in the current investigation. The total number of Households (HHs) required for the study is around 384. Each upazila held one focus group discussion, nine important informants were interviewed, and their perceptive perspectives were evaluated. The study revealed that Mohanpur and Godagari, possessing rich resources, require both economic diversification and conservation endeavors. Baghmara, given its economic and environmental constraints, can gain advantages from specific and focused actions. The research can greatly assist in the planning of drought risk management, especially in the Barind tract regions of Bangladesh, which are susceptible to the effects of climate change. This will assist in developing proactive measures with significant policy implications at the local, state, and federal levels.

b) Research Questions and Hypothesis

RQ 1: What is the extent of accessibility to fundamental services and infrastructure that are essential during periods of drought?

RQ 2: How do vulnerable communities respond to the perceived changes, and are these responses adequate and sufficient?

RQ 3: What is the dimension of assets of vulnerable communities for coping with, and adapting to, drought, and what are their needs?

RQ 4: What traditional and indigenous knowledge techniques does the community use to cope with drought and build resilience?

Based on the aforementioned research questions the central research hypothesis is as following;

“Community with higher dimension of capitals and traditional ecological knowledge exhibits higher level of resilience to drought”.

c) Objectives and aims of the project

The aim of the research is to assess the community’s resilience to drought in the barind tract region of Bangladesh using asset/capital-based approach.

To put forward the aim of the study, the specific objectives of the research are as follows;

- a. To assess vulnerability and capacity of the community in relation to drought.
- b. To evaluate different dimensions of community capitals considering drought resilience.
- c. To explore the local knowledge utilized by the community to cope with and adapt to existing drought situations.

d) Significance of the Study/Relevance of the Study to National Development

Agriculture is the backbone of Bangladesh's economy, employing over 43 percent of the labor force and contributing about 14 percent to GDP. The majority of residents depend directly or indirectly on agricultural subsectors for their livelihoods. Significant volumes of rice, wheat, and jute are cultivated in the agriculturally significant North-West region of Bangladesh (BBS, 2019). However, climate change-related drought events that keep happening and endanger the nation's food supply are a major worry. The drought has left about 3.5 million acres of land susceptible to crop production (Hannan et al., 2021). According to the Intergovernmental Panel on Climate Change (IPCC), approximately 8 million Bangladeshis will be affected by droughts by 2050 (Huq, 2015). The country loses 2% of its GDP annually due to climate extremes, and this loss is expected to increase to 17% by 2050 (Seraj, 2022). Thus, in order to guarantee long-term food security for people, it is crucial to establish an economically viable, environmentally friendly, and sustainable agricultural system. The dependence on agriculture enhances the significance of drought risk analysis. The challenge, however, is preventing droughts from becoming catastrophic. The susceptibility and resilience of the agricultural sector and individual farmers are crucial to drought prevention and mitigation. Vulnerability and coping capacity are crucial components of drought risk because they represent man-made factors that can be addressed to mitigate drought risk (A. J. Jordaan et al., 2018). The community capitals framework is an effective tool to assess the community's vulnerability and coping capacity to drought.

The community capitals-based drought risk assessment is significant because it informs policy regarding how the government should support farmers and assure food security in the face of more intense and frequent droughts and provide strategies for reducing drought vulnerability. The categorization of indicators according to community capitals provides a comprehensive framework for drought risk assessment, enabling farmers, government agencies, and development organizations to identify and prioritize critical indicators. These policies and strategies will strengthen climate change adaptation and ensure climatic sustainability in accordance with the United Nations Millennium Development Goals and the 2030 development agenda for the Sustainable Development Goals (A. Jordaan et al., 2005).

e) Review of literature on the subject matter of the project and rationale behind the present initiative

Due to climate change, Bangladesh will be among the most susceptible nations in the world (Khatun, 2013). Northwestern Bangladesh is significantly affected by thunderstorms, floods, cold and heat waves, drought, heat stress, riverbank erosion, water scarcity, and decreased river flows during the dry season (Karmakar, 2019). The Barind tract, a region in northwest Bangladesh, is experiencing extremely harsh climate conditions, which have significantly worsened the area's drought conditions (Huq, 2020). Natural disaster Resilience has risen to the top of environmental research's priority list as a result of global climate change. Academics and practitioners from various fields and organizations delineate the process of constructing resilient communities by incorporating a number of dimensions. Adaptive capacity and community capitals continue to be the most important theoretical components of community resilience to natural disasters (Mojammel & Raihan, 2023).

Resilience/Community Resilience/Resilient Community

Research Details	Definition
(Norris et al., 2008), (Brogden et al., 2022)	How communities bounce back and adjust to new circumstances. Community resilience calls for localized, context-specific resilience, emphasizing the social components of sustainable development. It is a process that links a network of adaptive capacities (resources with dynamic properties) to adaptation following a disturbance or adversity.
(Walker & Salt, 2006)	Resilience is the capacity of a system to withstand disturbances and change while retaining its fundamental function, structure, and feedbacks.
(<i>Millennium Ecosystem Assessment</i> , 2007)	Resilience is the quantity of disturbance or stress that a system can withstand and still be able to return to its pre-disturbance state.
(<i>Resilience Alliance</i> , 2007)	Ecosystem resilience is the capacity of an ecosystem to withstand disturbance without transitioning into a qualitatively distinct state governed by a distinct set of processes. Thus, a resilient ecosystem is capable of withstanding disturbances and regenerating itself when required. The capacity of humans to anticipate and plan for the future is a component of social system resilience.
(Walker et al.,	Resilience is the capacity of a system to remain in a particular

2002)	configuration and maintain its feedbacks and functions, as well as its capacity to reorganize in response to disturbance-driven change.
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Intersectionality of Climate Change-Induced Drought, Community Capitals and Resilience

Resilience related to adaptive capability and vulnerability (Gallopín, 2015) and (Engle & Bank, 2017). Resilience is a broader concept than vulnerability and adaptive capacity, whereas vulnerability and adaptive capacity are distinct but interconnected concepts. The concept of disaster resilience that incorporates the relationship between a community's vulnerability to hazards and its capacity to absorb, cope with, and recover relatively quickly from disaster impacts. The degree of capacity and disaster vulnerability could be used to determine the degree of disaster resilience (YOON & KANG, 2013).

$$\text{Degree of Disaster Resilience} = \frac{\text{Degree of Capacity}}{\text{Degree of Vulnerability}}$$

This equation demonstrates that disaster-resilient communities are less vulnerable to disasters and have greater capacity to respond to disasters than communities with lower resilience (Klein et al., 2011).

Drought brought on by climate change intersects significantly with community capital and resilience. Hazard, vulnerability, and coping ability all affect how likely a drought is to occur, with variables grouped under social, environmental, and economic capital. A community's capacity to recover and deal with post-disaster circumstances, shaped by internal and external shocks, including climatic hazards and community capital, is measured by resilience. It is anticipated that climate change will modify the patterns of disturbance in freshwater ecosystems, such as droughts, which will affect the adaptability of macroinvertebrate groups. Drought imperils a number of facets of community life, including social cohesiveness, livelihoods, and food security. The necessity to comprehend and address the effects of drought on communities and their capacity for adaptation and recovery is generally highlighted by the intersectionality of climate change-induced drought, community capital, and resilience.

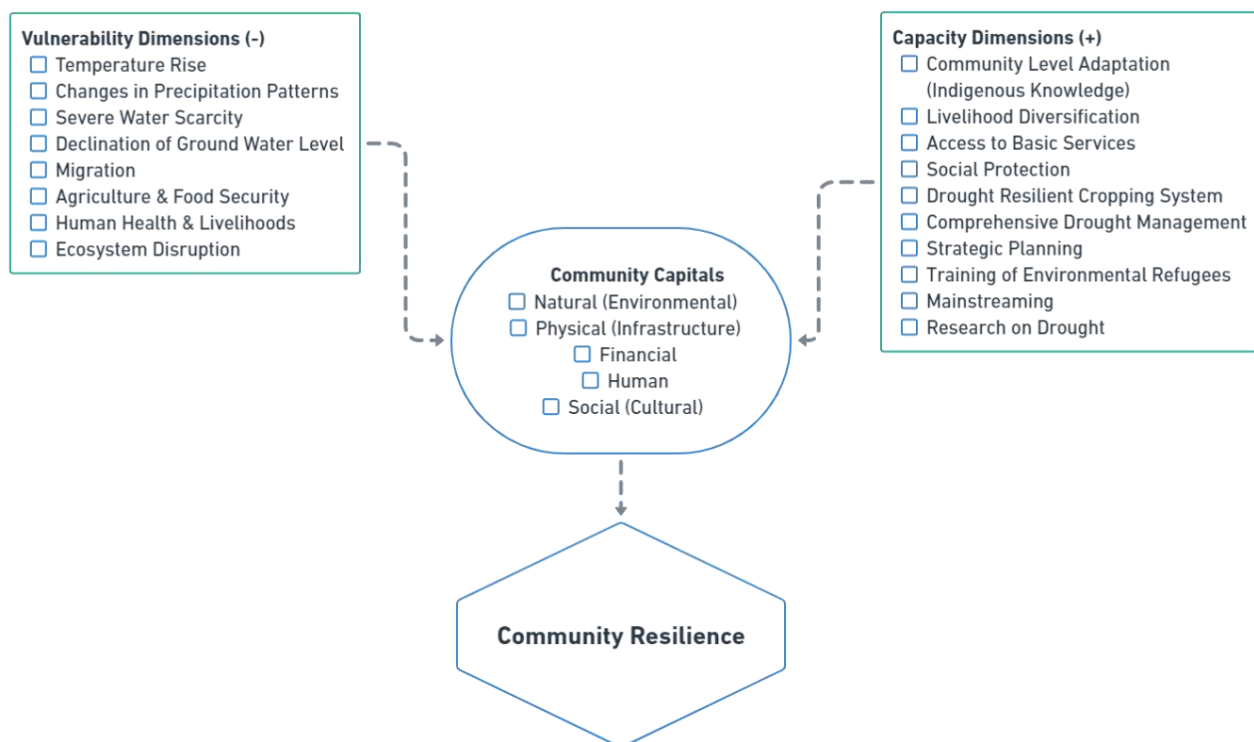


Figure 1: Conceptual Framework of Climate Change Induced Drought, Community Capitals and Community Resilience.

Source: Adapted and Modified from Kais & Islam, 2016.

The comprehensive review has shown that climate change induced drought, community capitals and community resilience are comprehensively interlinked. A community that is climate resilient has enough resources and assets to support its ability to adapt to long-term changes. The resilience of a community to disturbances, such as those brought on by climate change, is increased by the balanced combination of diverse community capitals, such as human, cultural, economic, physical, political, environmental, and social resources. The critical triangle of economic, social, and environmental capitals can be established in a community and their interactions can be used to conceptualize a community's resilience (Kais, 2016).

The capacity of a community to endure and rebound from climate shocks depends on how well-developed its social, economic, and other community capitals are. The global environment is impacted by climate-related drivers such as warming trends, extreme temperatures, drying trends, extreme precipitation, destructive cyclones, flooding, and storm surges, as well as ocean acidification, seasonality temporal shifts, and the resulting sea-level rise (SLR) and salinization of water and soil. The effects of these factors on people's livelihoods and communities are severe (Kais, 2016; McCrea, 2014).

A resilient community has unique characteristics in terms of how it makes use of its resources to deal with climatic shocks. It depends on the community's wealth in terms of different

capitals, how quickly and effectively it recovers from losses through effective use of resources and capitals, how well the community functions as a cohesive unit, how devoted and persistent its members are, how well it recognizes its barriers and facilitators, how well it is connected to other groups and institutions both horizontally and vertically, and how dynamic and strategic its community leaders are (Kais, 2016). In conclusion, community capitals are essential for increasing a community's resistance to the effects of climate change.

Asset/Capital-Based Community Resilience Assessment

The concept of capital is highly congruent with the concept of sustainability, which is related to and frequently associated with the concept of disaster resilience. The essence of the capital approach is that capital comprises of the elements required for the development of a sustainable local economy. Conventional wisdom holds that the more economic opportunities a community has, the greater its potential for mitigating disaster impacts, and thus the more resilient it becomes. The capital-based strategy is not a novel concept in the disaster and hazard disciplines. It has been extensively implemented in programs for sustainable development and poverty alleviation (Mayunga, 2007).

Assets are envisioned as "stocks" that can produce economic, psychological, social, and political advantages that support social mobility and resilience. According to this definition, an asset can be both tangible and intangible, as well as individual or collective, depending on who owns it—a person, a family, a community, or a society. Assets or capital endowments are typically divided into five categories: physical, natural, social, financial, and human capital (Jabeen, 2012).

Physical capital is the stock of buildings, machinery, infrastructure, and other productive resources that are owned by private persons, businesses, or the nation as a whole. The built environment, which includes residential houses, public structures, commercial and industrial establishments, dams and levees, and shelters, are referred to as physical capital. Along with important infrastructure like hospitals, schools, fire and police stations, and nursing homes, it also includes lifelines like power, water, and telephone service. One of the most crucial resources for enhancing the community's ability to handle calamities is physical capital (Mayunga, 2007).

Financial capital refers to the financial resources available to individuals, such as savings, remittances, and credit. They are regarded as one of the most effective means of escaping poverty: their accumulation signals a move away from poverty (Jabeen, 2012). Economic capital makes a clear contribution to enhancing community resilience by enhancing the capability of people, groups, and communities to withstand the effects of disasters and hasten the healing process. It can be applied directly to lessen susceptibility, such as through the purchase of insurance and home renovations. Economic capital has a significant role in determining how resilient a community is (Mayunga, 2007).

Human capital is the investment in an individual's education, health, and nutrition. Human capital is intimately related to labor and health (which influences a person's ability to work):

talent and education determine the returns on their labor (Jabeen, 2012). The term "human capital" is most frequently used to refer to education, which encompasses the information and abilities that are acquired via various levels of education, training, and experience. The wellbeing of people who are working age is another definition of human capital. This means that the population cannot access other forms of capital unless it is in good health. Among various types of capital, human capital is undoubtedly one of the most crucial factors in determining resilience. Economic development and capacity building require a sufficient, skilled, and trained labor force. This indicates that a community has a greater capacity to develop resilience the more human capital it has available to it (Mayunga, 2007).

Social capital is defined as the rules, norms, obligations, reciprocity, and trust ingrained in social relationships, social structures, and institutional arrangements of societies. As they are ingrained at the micro-institutional level of families and communities as well as in the norms and regulations regulating formal institutions in the marketplace, political system, and civil society, they can be owned by households and communities (Jabeen, 2012).

Environmental/Natural capital, which is the stock of resources that the environment provides (such as soil, atmosphere, forests, minerals, water, and wetlands), may seem to be a vital resource for the poor in rural communities, but given the growing significance of climate change, it should be considered one of the five assets of urban capital (Jabeen, 2012).

Local/Traditional/Indigenous Knowledge

Research Details	Definition
(Osunade, 1994), (Warren, 1992)	Local knowledge that has been institutionalized is referred to as indigenous knowledge that has been developed and transmitted orally from one generation to the next.
(Magni, 2017), (Hoppers, 2001)	Indigenous knowledge serves as the foundation of socioeconomic development and scientific and technological advancements. It consists of local cultural practices, rituals, values, traditions, beliefs, viewpoints, norms, and taboos. Indigenous knowledge ensures that future generations will have similar lifestyle and employment opportunities because of its close ties to the physical and sociocultural surroundings.
(Kelman et al., 2012), (Dekens, 2007)	Indigenous knowledge is derived from understanding of the environment that is revealed through intuitions, dreams, or visions. It has been passed down through generations. It might be portrayed as traditional or local knowledge. Indigenous knowledge is unique to a community and stable over time, sometimes evolving through generations.
(Iloka, 2015)	Indigenous knowledge is valuable information that has aided the survival of local communities across the globe for generations. This knowledge is the result of the interaction between community members and their living environment.
	A local knowledge system is composed of diverse knowledge categories, practices and beliefs, values, and worldviews. Such systems are in a constant state of change due to the influence of power relations and cross-scale ties within and beyond the community.

Overview and Key Findings of the Various Relevant Literature

Research Details	Contribution to Community Resiliency
(Kadir, 2021)	<ul style="list-style-type: none"> • Women are the most vulnerable in hazard studies, but their ability to absorb, recover, and adapt to disasters is uncertain and undervalued. • Women still struggle with disaster resilience, but they've made improvements in health, community involvement, education, and the economy.
(M. U. I. Choudhury et al., 2021)	<ul style="list-style-type: none"> • Local culture might limit risk framing and critical reflection and learning without action won't boost resilience. • Experiential learning can lead to a false sense of security by assuming that past disasters will not be repeated. • Forward-thinking mindsets and innovative methods like social networking can boost climate-related disaster resilience.
(Rana & Moniruzzaman, 2021)	Resilient agro forestation requires an integrated agricultural and rural development policy involving farmers and stakeholders.
(Walters, 2015)	Understanding contextual elements that shape communities is crucial when assessing disaster resilience.
(Akter & Mallick, 2013)	<ul style="list-style-type: none"> • According to the social vulnerability literature, the poor were more vulnerable and incurred greater economic, physical, and structural damage. • This high sensitivity did not necessarily correlate to low resilience, since the poor were better able to endure the shock than their non-poor neighbors.
(Faruque et al., 2017)	Integrated systems with a greater diversity lower both risk and susceptibility.
(Jordan, 2015)	Social capital and climate stress resilience have a complex relationship.
(Béné & Haque, 2022)	Resilience-focused interventions should consider those factors that strengthen long-term resilience of local communities.
(Islam et al., 2021)	<ul style="list-style-type: none"> • Within a given area, people's social toughness might fluctuate widely over the course of time and place. • Resilience is highly influenced by basic readiness training, emergency response, social connection, and reconstruction and rehabilitation.
(Ciullo et al., 2017)	Green systems (non-structural measures) are more resilient than technology ones and can survive environmental and social changes.
(M.-U.-I. Choudhury et al., 2021)	<ul style="list-style-type: none"> • Indigenous and local knowledge (ILK) is generally excluded from social learning processes by formal institutions, which dominate communities to resilience rather than active agents. • Early cyclone warnings can be obtained through ILK of environmental phenomena by local communities.
(Azad et al., 2022)	Social learning supports collective action through institutional collaboration, partnership, and multi-stakeholder participation.
(Kamal et al., 2018)	<ul style="list-style-type: none"> • Religious faith plays an important role in helping communities recover from natural disasters and move on with their lives.

	<ul style="list-style-type: none"> • Because of cultural and religious restrictions, women are more vulnerable and less resilient.
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The literature on community resilience in Bangladesh mostly concentrates on coastal regions prone to cyclones and floods, neglecting drought-prone regions like Barind Tract. There is a study deficit in understanding community resilience to drought in Bangladesh's Barind Tract region from a community capitals perspective. The community capitals framework, which includes social, human, natural, physical, financial, and political capitals, provides a holistic perspective on community resilience. Using this perspective, the proposed research will bridge the existing research gap and shed light on the interactions between various community capitals and their role in enhancing resilience.

Taking into account various international experiences and other research findings, this particular study aims to assess the community's resilience to drought in the barind tract region of Bangladesh, with a specific focus on slum communities. In order to fulfill the purpose this particular study (i) Assessed vulnerability and capacity of the community in relation to drought (ii) Evaluated different dimensions of community capitals considering drought resilience and (iii) Explored the local knowledge utilized by the community to cope with and adapt to existing drought situations.

In order to examine the validity of this hypothesis, it is recommended that a research study be undertaken, utilizing various methodologies including household questionnaire surveys, key informant interviews, focus group discussion and direct observations.

Based on the findings from the extensive literature review, this research note emphasizes the urgent requirement for a comprehensive research program to comprehend climate change-induced drought. This approach informs policy, enabling farmers, government agencies, and development organizations to identify and prioritize critical indicators, strengthening climate change adaptation and ensuring climatic sustainability in line with the United Nations Millennium Development Goals and the 2030 development agenda.

d) Experiment work/Methodology to be adopted in the investigation

Methods of the Study

The proposed research will adopt the following guiding methodology that will describe the working procedure of the research by adopting a systematic approach. Logical and operational link will be developed through the methodology to make the research viable in context of result and economical use of time and money. The following sections will detail out the processes that will be adopted for the research.

Research Area and Research Procedure

The study area for the proposed research will be the north-western region of Bangladesh. Barind Multipurpose Development Authority (BMDA) has categorized the entire Barind Tract into three categories: High, Mid, and Low based on surface elevation. For the experimental design, one upazila is chosen at random from each tract. They are godagari

(High tract), mohanpur (Middle tract), and bagmara (Low tract) in the Rajshahi District. The research will be a mixed one, supported by both quantitative and qualitative data wherever necessary. The proposed research is primarily exploratory in nature, and mixed method research is the main research technique that frames the research procedure.

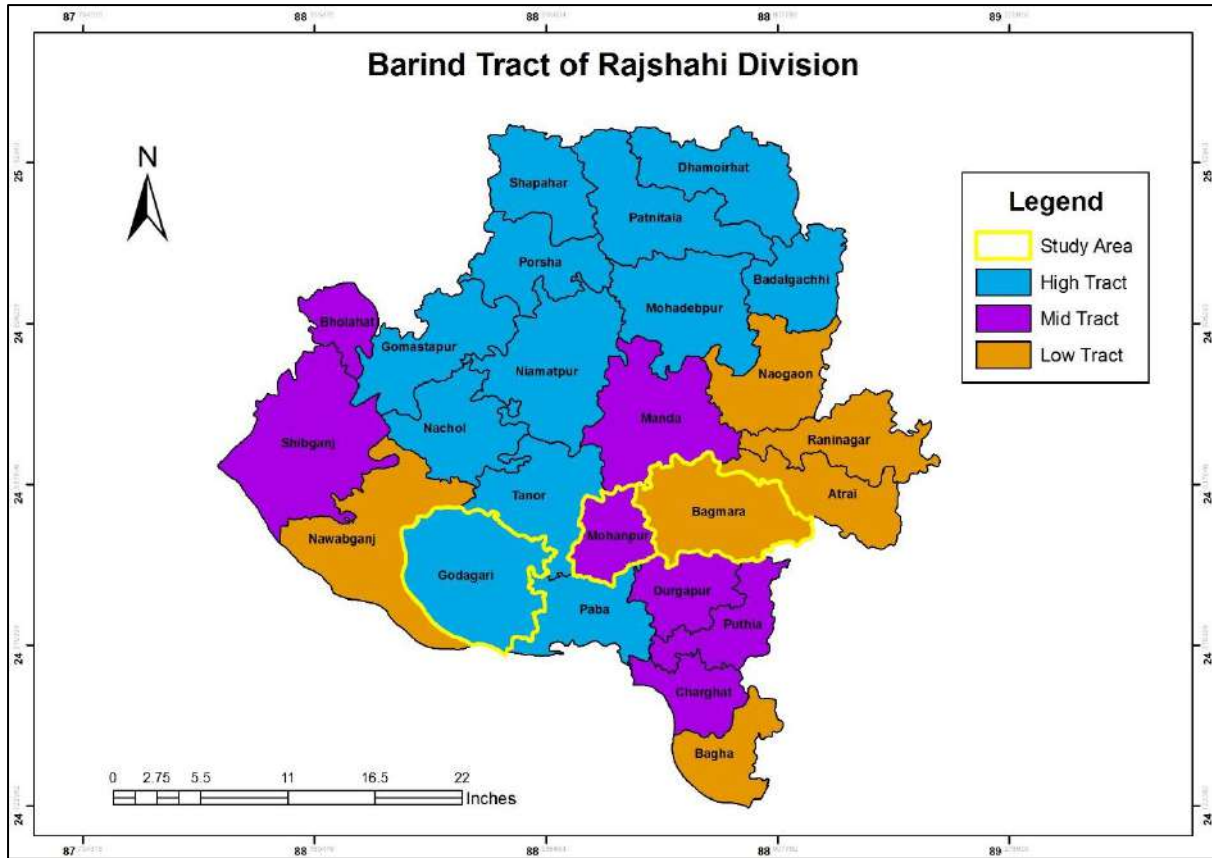


Figure 2: Map of the Study Area.

Source: Adapted from BMDA, 2018a

Research Design

The following research will use a mixed method research design employing multiple methods of data collection including reconnaissance survey, questionnaire survey, and key informant interviews, focus group discussions. As a mixed method research, it will focus on collecting, analyzing, and mixing both quantitative and qualitative data. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either adopting the approach alone.

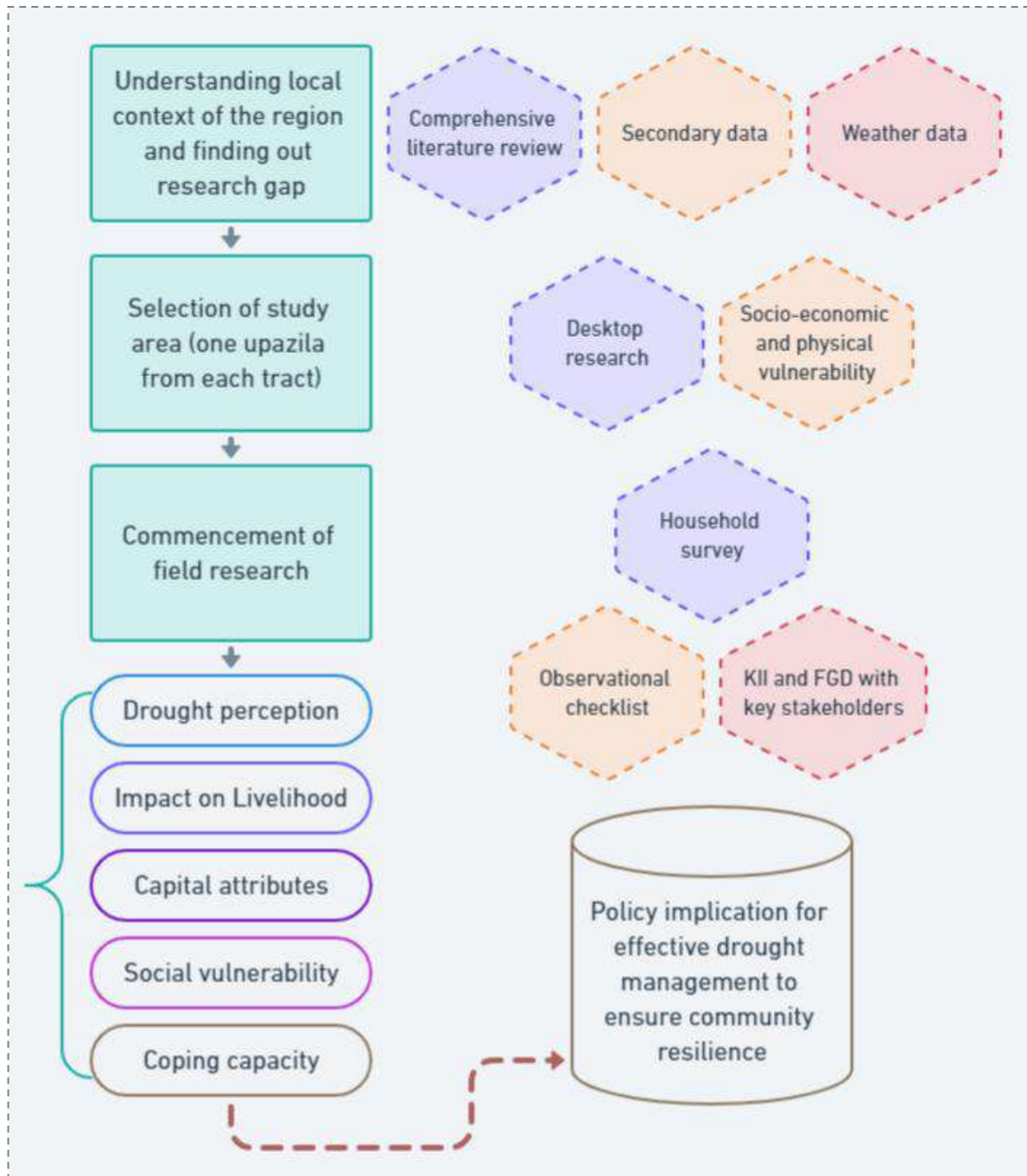


Figure 3: Methodological Framework of the Study.

Source: Author, 2024

Research Method, Technique and Instruments/Tools

Research Purpose	Research Method	Data Collection Technique	Data and Variable
To evaluate different dimensions of community capitals considering drought resilience	Mixed (Quantitative & Qualitative)	Household Questionnaire Survey, Published Report, Statistical Synopses, Monitoring Records, Census data	Indicator of Natural Capital, Physical Capital, Financial Capital, Human Capital and Social Capital
To determine the factors that influence community drought resilience	Mixed (Quantitative & Qualitative)		
To explore the local knowledge utilized by the community to cope with and adapt to existing drought situations	Qualitative	Key Informant Interview (KII), Focus Group Discussion (FGD), Direct Observation	Activity and Mobility Patterns, Livelihood Impacts, Livelihood Adaptation, Economic Benefit/Loss Valuation

Research Purpose	Research Method	Data Collection Technique	Data and Variable
To assess vulnerability and capacity of the community in relation to drought	Mixed (Quantitative & Qualitative)	Household Questionnaire Survey, Expert Opinion	Indicator of Natural Capital, Physical Capital, Financial Capital, Human Capital and Social Capital
To evaluate different dimensions of community capitals considering drought resilience	Mixed (Quantitative & Qualitative)	Published Report, Statistical Synopses, Monitoring Records, Census data	
To explore the local knowledge utilized by the community to cope with and adapt to existing drought situations	Qualitative	Key Informant Interview (KII) Focus Group Discussion (FGD) Direct Observation	Activity and Mobility Patterns, Livelihood Impacts, Livelihood Adaptation, Economic Benefit/Loss Valuation

Data Processing Method

In this study, index method has been used to measure the community resilience. Indicators adopted from community disaster resilience index (CDRI) have been modified with the socio-economic context of the selected communities of Barind tract to construct the index. There are 112 indicators based on community capital that are theoretically pertinent to various farm and off-farm activities. The selection of these variables is based on two considerations: existing literature concerning urban droughts and the availability of data from pertinent institutional data sources. When figuring out sub-indices and adaptive capacity scores, there are four steps (1) standardization or normalization, (2) reliability test, (3) figuring out sub-indices, and (4) figuring out community disaster resilience index (CDRI).

Normalization

It is essential to a standardize or normalize the data used to measure indicators, as they are derived from a variety of sources and statistical units. The indicators are normalized so as to prevent extreme values and reduce certain data quality issues (Shabrina et al., 2018). The Min-Max method is used to normalize indicators in this study. The Min-max formula is illustrated by expression 1

$$X_n = \frac{X_0 - X_{min}}{X_{max} - X_{min}}$$

Where,

X_n = Indicator index

X_0 = Original value of the variable

X_{min} = Minimum value of the data set

X_{max} = Maximum value of the data set

Reliability Test

The assessment of reliability was used to evaluate the internal consistency of the indicators and to facilitate the selection of indicators. On the basis of their internal consistency (Cronbach's alpha) and inter-item correlations, indicators were chosen. In addition, the reliability evaluation assisted in determining whether the sub-indices possessed sufficient precision (Joseph Stephen Mayunga, 2009). Cronbach's alpha is given by the following equation;

$$\alpha = \frac{k}{k - 1} \left(1 - \frac{\sum \text{indicator variances}}{\text{scale variance}} \right)$$

Where,

K= Number of items or indicators

Cronbach's alpha coefficients can range from 0 to 1, with 1 indicating immaculate reliability and 0 indicating an extremely unreliable measure. In the early phases of research, a Cronbach's alpha coefficient near 0.70 is acceptable, according to a substantial body of literature. To determine the reliability of the overall index and sub-indices for this study, it is reasonable to use an alpha level of approximately 0.70 as a baseline (Joseph Stephen Mayunga, 2009).

Calculation of Sub-Indices

In this study, eight sub-indices (physical capital, natural capital, human capital, financial capital and social capital) have been used. In order to get the score of each sub-index, the following equation has been used to calculate the mean score of the indicators (Shabrina et al., 2018).

$$SI = \frac{\sum_{i=1}^N Z}{N}$$

Where,

SI= Sub-index score

Z= Standardized score of an indicator

N= Number of indicators of a sub-index

Calculation of Community Disaster Resilience Index (CDRI).

The community capital based approach has been used to calculate the overall adaptive capacity index using the following formula (Lawrence & Meigh, 2003) (Naher & Khulna, 2012).

$$CDRI = \frac{PC + NC + FC + HC + SC}{5}$$

Where,

PC= Physical capital sub-index

NC= Natural capital sub-index

FC= Financial capital sub-index

HC= Human capital sub-index

SC= Social capital sub-index

e) Results and Discussions

Description of the Study Areas

Table 1: Socio-Demographic Information of the Respondent

Variables	Category	Percentage (%)
Age	<40	49.7
	>65	3.9
	41-65	46.4
Sex	Female	27.1
	Male	72.9
Type of Residence	Owned	97.1
	Rent Free	2.9
Education Level	Illiterate	22.9
	Primary	48.7
	Secondary	25.3
	Tertiary	3.1
Religion	Muslim	100.0
Marital Status	Married	96.9
	Single	3.1
Years in the Community (belongingness)	20+	96.9
	6-10	3.1
	Business	21.6
Occupation	Farmer	45.1
	Housewife	24.0
	Laborer	3.1
	Others	6.3
	Less than TK 10000	3.1
Monthly Average Household Income	TK 10001 – 20000	71.9
	TK 20001 – 30000	25.0
	<25 %	37.0
	>75%	3.9
% of Income that Comes from Agricultural Activity	26-50 %	52.1
	51-75%	7.0
	No	81.3
Have You Received Any Specific Training in Agriculture?	Yes	18.8
Farm Size (acre)	<0.05	24.2
	0.05-2.49	62.0
	2.50-7.49	13.8
	Owner Holding	81.5
Farm Ownership	Tenant Holding	18.5
	Type of Land	Irrigated
Irrigated + Non-Irrigated		9.9

Source: Field Survey, 2024

The respondents in this study have a socio-demographic profile that represents a varied makeup of individuals within the examined community. 49.7% of the participants are below the age of 40, while 46.4% are within the age range of 41-65. The gender breakdown shows a significant majority of males (72.9%). The majority of individuals, specifically 97.1%, possess ownership of their residential properties. The level of education achievement displays variation, with 22.9% of the population lacking basic literacy skills and 3.1% possessing advanced academic qualifications. All participants self-identify as Muslim, indicating a high level of religious uniformity. The prevalence of marriage is extensive, with 96.9% of individuals being married. Additionally, a substantial proportion (96.9%) of the population has had a long-standing affiliation with the community for 20 or more years. The largest occupational category consists of farmers, comprising 45.1% of the total, followed by business professionals at 21.6%. Income distribution indicates that a significant share (71.9%) of individuals receive a monthly income ranging from TK 10001 to 20000. Most individuals (81.3%) do not possess specialized agricultural education. The sizes of farms vary from less than 0.05 acres (24.2%) to 2.50-7.49 acres (13.8%). The majority of ownership is held by individuals who own the property (81.5%), and 90.1% of the participants have land that is equipped with irrigation systems.

Cronbach’s alpha (α) reliability test

The quantification of different types of capital is essential in a wide range of research fields, including environmental sustainability, economics, and social sciences. Table 1 displays the Cronbach's α coefficients for each capital type, along with the appropriate number of elements. The results demonstrate varied levels of internal coherence among different forms of capital. The reliability of Financial Capital is demonstrated to be good ($\alpha = 0.788$), indicating a strong level of consistency among the assessment items. Social Capital demonstrates strong reliability ($\alpha = 0.874$), suggesting a consistent underlying structure. The dependability of Natural Capital and Physical Capital, as indicated by their α values of 0.699 and 0.676, respectively, is moderate. The α coefficient of 0.703 indicates that Human Capital falls within a comparable range.

Table 2: Cronbach’s α Coefficients

Items	Number of items	Cronbach’s α
Natural Capital	17	.699
Physical Capital	21	.676
Financial Capital	8	.788
Human Capital	18	.703
Social Capital	48	.874

Status of Different Community Capital

The data offers information regarding the average values and standard deviations of each component of natural capital, revealing the extent of variation and distribution throughout the community.

The community has a mean ownership of agricultural land of 0.690, with a standard deviation of 0.4631, indicating a moderate level of variability. The average technical support provided by agricultural laborers is 0.161, with a standard deviation of 0.3684. The primary provider of this aid has a reported average of 0.667, with a standard deviation of 0.4720. In addition, agricultural cooperatives have an average of 0.193 with a standard deviation of 0.3949. The average provision of credit and loans to agricultural producers is 0.424, with a standard deviation of 0.4949. The average harvests/yields have a mean of 0.753 and a standard deviation of 0.3613, suggesting that agricultural circumstances are pretty steady.

The assessment covers several environmental issues, such as waste dumping (mean = 0.90, standard deviation = 0.302), standing water or stagnant pools (mean = 0.97, standard deviation = 0.181), slaughterhouses (mean = 0.38, standard deviation = 0.486), and polluting businesses (mean = 0.03, standard deviation = 0.181). The current environmental situation has an average of 0.6862 and a small standard deviation of 0.10914. The environmental circumstances during the past three years have exhibited a mean of 0.790 and a standard deviation of 0.3307, suggesting a greater level of unpredictability.

The mean availability of safe drinking water sources is 0.93, with a standard deviation of 0.252. A significant proportion of the community has access to piped or tube well water, with a mean of 0.8223 and a standard deviation of 0.17277. The average potable water service for the past three years is 0.884, with a standard deviation of 0.2803. In contrast, the current potable water service has an average of 0.7018 and a relatively low standard deviation of 0.13260.

The mean of direct access to water bodies/irrigation water is 0.97, with a standard deviation of 0.181. A considerable proportion of the community has access to irrigation water facilities, with a mean of 0.7878 and a standard deviation of 0.20488. The average irrigation water service for the past three years is 0.783, with a standard deviation of 0.3598. In comparison, the current irrigation water service has an average of 0.6777 and a relatively low standard deviation of 0.11348 (Table 3)

Table 3: Present Status of Natural Capital in the Study Region

Descriptive Statistics			
Components of Natural Capital	Item/Description	Mean	Std. Deviation
Agricultural Land	Ownership of Agriculture land	.690	.4631
	Technical assistance of agricultural workers	.161	.3684
	Agricultural cooperative	.193	.3949
	Provision of credit and loans to agricultural producers	.424	.4949
	Status of harvests/yields	.753	.3613
Environmental Issues	Garbage dumping	.90	.302
	Standing water or stagnant pools	.97	.181
	Polluting industries	.03	.181
	Present Environmental condition	.6862	.10914
	Last three years' environmental conditions	.790	.3307

Drinking Water	Availability of safe drinking water source	.93	.252
	Part of the community having pipe-borne/ tubewell water	.8223	.17277
	Last three years' potable water service	.884	.2803
	Current potable water service	.7018	.13260
Irrigation Water	Direct access to water body/irrigation water	.97	.181
	Last three years' irrigation water service	.783	.3598
	Current irrigation water service	.6777	.11348

Table 4: Present Status of Physical Capital in the Study Region

Descriptive Statistics			
Components of Physical Capital	Item/Description	Mean	Std. Deviation
Electricity	Community has household electrical service	.8223	.17277
	Last three years' electrical service	.820	.3617
	Current quality of electrical service	.6771	.12986
Housing	Construction material of roof	.8470	.35151
	Construction material of floor	.9249	.2010
	Sanitary services	.6727	.2340
Communication Services	Public telephones/cell phone	.872	.3341
	Last three years' public telephone/cell phone service	.932	.2152
	Current public telephone/cell phone service	.7852	.15667
	Community access to public Internet service	.7480	.26765
	Public Internet access services availability	.9030	.26154
Public Market	Existence of public market	1.000	.0000
	Openness of market	.889	.2079
	Last three years' market quality and service	.983	.0905
	Number of people use the market	.8945	.12363
Transportation	Public transport system	1.000	.0000
	Public transportation availability	.984	.0871
	Last three years' public transportation quality and service	.949	.1512
	User of Public transportation	.8945	.12363
	Current public transportation service status	.7637	.15428

This study provides a thorough review of the current state of physical assets in the studied area. Physical capital comprises crucial elements such energy, housing, communication services, public markets, and transportation. Comprehending the descriptive statistics of these components is essential for evaluating the overall infrastructure and developmental environment of the region.

The average values suggest a rather high degree of availability of domestic electrical service (Mean = 0.8223, SD = 0.17277). Nevertheless, the present electrical service exhibits a little diminished quality (Mean = 0.6771, SD = 0.12986), indicating possible opportunities for enhancement. The roofs and floors of the buildings have reasonably high mean values (Roof: Mean = 0.8470, SD = 0.35151; Floor: Mean = 0.9249, SD = 0.2010), suggesting that the housing infrastructure is of good quality. Nevertheless, the average value for sanitary services is relatively lower (Mean = 0.6727, SD = 0.2340), suggesting the presence of possible deficiencies in sanitation infrastructure. The neighborhood has a high level of accessibility to public telephones/cell phones, with a mean of 0.872 and a standard deviation of 0.3341. Additionally, the community has a high level of accessibility to public Internet services, with a mean of 0.7480 and a standard deviation of 0.26765. Nevertheless, there is room for improvement in the existing level of public telephone/cell phone service and public Internet access services, as indicated by the mean scores of 0.7852 (with a standard deviation of 0.15667) and 0.9030 (with a standard deviation of 0.26154), respectively. The public market infrastructure is sturdy, with maximal existence and high openness (Mean = 1.000, SD = 0.0000 and Mean = 0.889, SD = 0.2079, respectively). The market has consistently demonstrated strong quality and service levels over the previous three years, with a mean of 0.983 and a standard deviation of 0.0905. The region has a reliable and widely accessible public transportation system, with a high level of availability (Mean = 1.000, SD = 0.0000) and a high level of reliability (Mean = 0.984, SD = 0.0871). Nevertheless, the existing status of public transportation service has potential for enhancement, as indicated by a mean value of 0.7637 and a standard deviation of 0.15428 (Table 4).

Table 5: Present Status of Financial Capital in the Study Region

Descriptive Statistics		
Item/Description of Financial Capital	Mean	Std. Deviation
Median household income	.44965	.159088
Employment	.4701	.12017
Alternative Income Source (on-farm and off-farm)	.688	.4641
Community Fund/ Local emergency fund	.474	.5000
Government support for drought affected sector/ Access to national fund/ Agricultural Support	.378	.4854
Investment in Water Infrastructure	.221	.4157
Savings	.259	.4385
Health insurance	.253	.4351

This report provides a comprehensive analysis of the current state of financial capital in the studied region. Financial capital covers essential elements necessary for economic stability

and growth, such as personal income, job prospects, supplementary sources of income, communal finances, government assistance programs, infrastructure investments, savings, and availability of health insurance. The table presents descriptive data for each component of financial capital, including the mean values and standard deviations. This information helps to comprehend the distribution and variability across various variables.

The average median household income in the region (Mean = 0.44965, SD = 0.159088) indicates a moderate degree of economic well-being. It is a key factor in determining household financial stability and overall quality of life. The average employment rate indicates a consistently steady work market in the region (Mean = 0.4701, SD = 0.12017), implying favorable conditions for earning income and sustaining one's living. The presence of various alternative sources of income, both related to farming and unrelated to farming, exhibits a substantially elevated average value (Mean = 0.688, SD = 0.4641), suggesting a wide range of income streams and the ability to withstand economic uncertainty. The average score for community funds or local emergency funds suggests a moderate level of accessibility to financial assistance during emergencies (Mean = 0.474, SD = 0.5000), which demonstrates the community's resilience and preparation. The mean value (Mean = 0.378, SD = 0.4854) of government support for drought-affected sectors, access to national finances, and agricultural support is moderate. This emphasizes the importance of policy interventions in strengthening financial stability and reducing agricultural risks. The average investment in water infrastructure indicates a very little amount of capital being allocated to crucial infrastructure projects (Mean = 0.221, SD = 0.4157), suggesting possible deficiencies in resolving water-related concerns and managing resources. The average savings and health insurance coverage values suggest a moderate level of financial readiness for unexpected expenses and healthcare bills (Savings: Mean = 0.259, SD = 0.4385; Health insurance: Mean = 0.253, SD = 0.4351) (Table 5)

Table 6: Present Status of Human Capital in the Study Region

Descriptive Statistics			
Components of Human Capital	Item/Description	Mean	Std. Deviation
Education and Awareness	Existence of public schools	1.000	.0000
	Adequacy of number of schools in this community to serve the number of young children	.932	.2516
	Adequacy of number of teachers in these schools	.932	.2516
	Physical condition of the schools	.7988	.18082
	Percentage of young children attend public preschools	.9121	.13612
	Existence of adult literacy campaign or program	.286	.4527

	Training programs/ awareness building program for this community	.219	.4139
Health	Existence of community health clinic or hospital	.914	.2806
	Basic medicines	.694	.2440
	Equipment instruments	.517	.0905
	Patient beds	.500	.1303
	Ambulances	.500	.0000
	Physicians	.574	.1887
	Nurses	.521	.1519
	Other health staff	.523	.2544
	Family planning program	1.000	.0000
	Program offering entity	.865	.2225
Migration	Members of this community go to other places to work during certain periods of the year	.898	.3025
	Proportion of men and women leave places to go to work	.372	.2856
	Places people go to work primarily	.127	.0964
	People from other communities come to work in this community	.507	.5006
Farming Experience/Training	Specific Training in Agriculture	.195	.3970
	Time employing in agricultural activities	.4017	.16038
	Existence of anyone to continue the agricultural business	.980	.0798

This research study examines the current state of human capital in the study region, including important aspects that contribute to individual well-being, community development, and sustainable growth. The constituents of human capital encompass education and consciousness, health infrastructure, patterns of migration, and farming experience/training. Comprehending the descriptive data linked to these factors is crucial for assessing the human development situation in the region and pinpointing areas that need enhancement.

The public education infrastructure is strong, as evidenced by the presence of fully operational public schools (Mean = 1.000, SD = 0.0000), and sufficient resources in terms of school facilities and teaching staff. Nevertheless, the schools' physical condition shows potential for improvement (Mean = 0.7988, SD = 0.18082), although adult literacy initiatives and training programs are somewhat restricted. The accessibility of healthcare services is rather high, as indicated by the presence of community health clinics or hospitals (Mean = 0.914, SD = 0.2806) and the availability of essential medications. Nevertheless, there is scope for enhancement in terms of equipment and staffing levels, specifically in the areas of instrument availability, patient bed capacity, and medical personnel. The migration patterns suggest that there is a considerable amount of community members who move to different

locations for job prospects. During specific time periods, a large proportion of persons leave the community. The average migration rate is 0.898 with a standard deviation of 0.3025. Nevertheless, the percentage of men and women who depart for work is rather small (Mean = 0.372, SD = 0.2856), indicating the possibility of gender-specific dynamics in migration trends. Although there is a strong consistency in the agricultural industry (Mean = 0.980, SD = 0.0798), there is a noticeable lack of specialized training in agriculture and limited time dedicated to agricultural activities. This suggests that there may be deficiencies in skill development and opportunities to improve productivity in the farming sector (Table 6).

Table 7: Present Status of Social Capital in the Study Region

Descriptive Statistics			
Components of Social Capital	Item/Description	Mean	Std. Deviation
Structural Dimension-Bonding	Frequency of meeting with close family	.7708	.26096
	Frequency of talking to close family about agricultural/drought issues	.7012	.28859
	Satisfaction with the relationship with close family	.7344	.29200
Structural Dimension-Bridging	Frequency of meeting with friends and neighbors	.7617	.21797
	Frequency of talking to friends and neighbors about agricultural/drought issues	.6992	.27816
	Satisfaction with the relationship with friends and neighbors	.7839	.24604
Structural Dimension-Linking	Frequency of taken active part in gatherings of an agricultural/livestock cooperative	.2630	.27486
	Frequency of taken active part in gatherings of a professional agricultural organization	.2728	.31494
	Belongingness to professional associations	.2572	.28355
Generalized Social Trust	Level of trust with people	.6081	.23354
	Level of trust among the neighbors of the community	.6068	.21602
Community Cohesion and Connectedness/ Community Support	Community development committee	.766	.4242
	Cooperative fishing agriculture crafts	.805	.3970
	Parent teacher association	.559	.4972
	Health committee	.839	.3684
	Youth group	.539	.4991
	Sports group	.674	.4692

Cultural group	.281	.4502
Civic group	.000	.0000
Water and sanitation committee	.091	.2882
Disaster risk management committee	.000	.0000
Community disaster response emergency team	.034	.1811
Local government	1.000	.0000
National government	.966	.1811
Politicians	.705	.4567
Religious organizations	.586	.4932
Schoolteachers	.648	.4781
Non-governmental organizations	.302	.4598
Business group	.198	.3989
Service club	.128	.3341
Prosperous citizens	.000	.0000
The community as a whole	.034	.1813
Existence of any institution or person that provides credit and loans to agricultural producers	.372	.4841
Govt banks	1.000	.0000
Agricultural development banks	.938	.2424
Private banks	.643	.4797
Agricultural credit unions or cooperatives	.193	.3949
Private individuals	.253	.4351
Producer associations	.000	.0000
Warehouses or middlemen	.000	.0000
Community center	.497	.5006
Personal homes	.852	.3560
Homes of political leaders	.922	.2690
Homes of other local leaders	.836	.3708
Churches or religious buildings	.225	.4182
Health center/ school	.583	.4936
Government buildings	.523	.5001
Business/ commercial buildings	.188	.3908

This study examines the current state of social capital in the study region, with a specific focus on the several components that are crucial for community cohesiveness, trust, and connectedness. The components of social capital encompass bonding, bridging, linking, generalized social trust, and community cohesiveness. Comprehending the descriptive statistics linked to these elements is essential for evaluating the robustness of social networks, relationships, and institutional connections within the community.

The bonding dimension indicates the presence of positive frequencies and satisfaction levels in close family relationships, characterized by a high frequency of meetings (Mean = 0.7708, SD = 0.26096), discussions on agricultural/drought issues (Mean = 0.7012, SD = 0.28859), and overall satisfaction with family relationships (Mean = 0.7344, SD = 0.29200). Bridging individuals demonstrate robust social connections with friends and neighbors, as evidenced by frequent gatherings (Mean = 0.7617, SD = 0.21797), conversations regarding agricultural/drought concerns (Mean = 0.6992, SD = 0.27816), and overall contentment with these relationships (Mean = 0.7839, SD = 0.24604). The dimension of linkage exhibits a very low frequency of active involvement in agricultural/livestock cooperatives and professional agricultural organizations (Mean = 0.2630 and 0.2728, respectively). This suggests that there is room for further engagement in these networks. The levels of trust within the community and among neighbors are moderately high, with mean values of 0.6081 (standard deviation = 0.23354) and 0.6068 (standard deviation = 0.21602), respectively. This indicates that there is a solid basis of trust within the community. Multiple community organizations exhibit elevated mean values, showing robust community cohesion and support. Some noteworthy examples include cooperative fishing, agriculture crafts (with a mean of 0.805 and a standard deviation of 0.3970), health committee (with a mean of 0.839 and a standard deviation of 0.3684), and personal homes (with a mean of 0.852 and a standard deviation of 0.3560). The levels of confidence in government institutions, such as local and national government, lawmakers, and schools, exhibit moderate to high average values, whereas trust in non-governmental organizations and business groupings is comparatively lower (Table 7).

Differential Community Capital in the Study Area

The figure offers a thorough evaluation of the various dimensions of community capital within the designated study areas. The fluctuations seen in the ratings for natural capital, physical capital, financial capital, human capital and social capital highlight the significance of localized factors in sustainable resource management and development planning. The assessment is performed with an extensive scoring system that spans from 0 to 1. Higher values signify a more advantageous state for the specific natural capital element.

Natural Capital refers to the ecological resources that societies rely on for their sustenance. Mohanpur excels in Natural Capital, boasting a score of 0.75, which indicates its potential for implementing superior environmental sustainability policies. Baghmara and Godagari had similar values of 0.68 and 0.63, respectively, suggesting a moderate yet equivalent degree of dependence on and preservation of natural resources. This dimension encompasses variables such as biodiversity, water resources, and ecological sustainability.

Physical Capital refers to the constructed infrastructure and tangible assets present in a community. Mohanpur exhibits the most elevated Physical Capital Sub-Index, measuring 0.88, indicating a well-established infrastructure and physical resources. Godagari closely follows with a score of 0.80, suggesting significant progress in the creation of physical capital. Baghmara demonstrates strong performance with a score of 0.87, highlighting its resilient physical infrastructure. This dimension assesses variables such as transportation infrastructure, housing availability, and public facilities.

Financial capital refers to the monetary assets that are accessible to a community. Baghmara is now experiencing economic difficulties, as indicated by its low Financial Capital Sub-Index of 0.28. This highlights the importance of pursuing economic diversification and fostering growth. Godagari and Mohanpur have similar scores in this category, with Godagari scoring 0.50 and Mohanpur scoring 0.41. These scores suggest that there is potential for improvement in terms of income levels, employment possibilities, and accessibility to financial services in both areas. This dimension encompasses factors such as income levels, employment prospects, and availability of financial services.

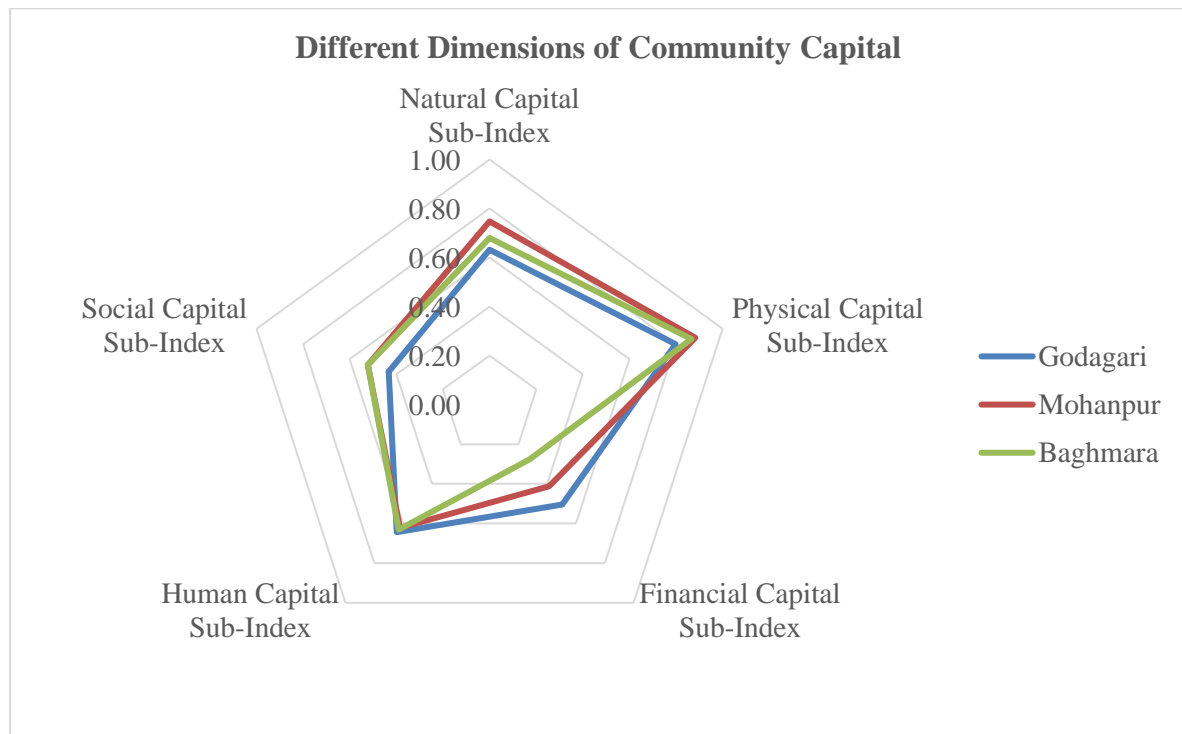


Figure 4: Spider Diagram of Different Community Capital.

Human Capital is concerned with the educational attainment and physical well-being of individuals within a community. This dimension evaluates aspects such as the level of education achieved, the ease of accessing healthcare, and the overall state of well-being. Godagari is at the forefront in terms of Human Capital, boasting a score of 0.64, which indicates superior circumstances in education and health. Baghmara has a Human Capital Sub-Index of 0.63, indicating a similar level of investment in human development. Mohanpur, with a score of 0.62, falls somewhat behind, suggesting the necessity for specific enhancements in education and healthcare.

Social Capital encompasses the collective social bonds, interconnected networks, and interpersonal connections within a community. This dimension encompasses variables such as social trust, social bonding, community engagement, and cooperation. Both Mohanpur and Baghmara have achieved a Social Capital score of 0.52, suggesting that they have comparable levels of community cohesion and social networks. Godagari has a Social Capital Sub-Index of 0.43, indicating a need for community-building efforts and enhanced collaboration.

Mohanpur is a comprehensive community that demonstrates excellence in both Physical and Natural Capital, while there is potential for improvement in Financial Capital. Godagari exhibits a well-rounded performance across all aspects, highlighting its proficiency in Physical, Social, and Human Capital. However, there is room for enhancement in Natural and Financial Capital. Baghmara encounters obstacles in its financial and natural resources, highlighting the necessity for economic diversification and conservation endeavors.

Policymakers can utilize the most effective strategies and methods employed in Mohanpur to improve the infrastructure and promote human development in Godagari and Baghmara. The well-rounded success of Godagari indicates the need of comprehensive development methods that tackle several aspects of community capital. Baghmara could potentially gain advantages from focused actions aimed at enhancing financial resources and promoting environmental conservation endeavors.

Insights derived from the Key Informant Interview (KII)

Key Informant Interview 01- Gogram Union, Godagari Upazila	
	<p>Name: Mst. Rubina Khatun Position: Member Organization: Gogram reserved seat 4, 5 and 6</p>
<p>What are the main problems or needs that community members feel must be addressed or solved? <i>“Implementation of sufficient deep-water pumps should be the major concern. Disruption in agricultural productivity not only impacts on market prices of daily commodities but also hampers the life of low-income farmer communities. Government initiatives must take place to implement such mega projects”</i></p>	
<p>What are the current coping strategies utilized by the community to cope with and adapt to existing drought situations? <i>“Water reservoir and water supply distribution network will solve a major issue of drought resilience”</i></p>	
<p>Which additional coping and adaptive mechanisms (including technologies, infrastructure, information, livelihood options, services, and institutional mechanisms) would help to alleviate the current difficulties the community is facing? <i>“Normalizing the use of technology and global agriculture information through internet and expert training can be an effective way to alleviate current difficulties”</i></p>	

Key Informant Interview 02- Gogram Union, Godagari Upazila



Name: Umme Salma
Position: Teacher
Organization: Gogram Govt. Primary School

What are the main problems or needs that community members feel must be addressed or solved?

“Plantation of a sufficient number of water pumps for irrigation. Along with water pump installation, attention to water drainage has to be given. After drought cyclones and flash floods often cause damage to yields, Creating employment opportunities for youths”

What are the current coping strategies utilized by the community to cope with and adapt to existing drought situations?

“The literacy rate has increased with the quality of education. The use of technology has emerged in the community. Through mobile phones, computers, and internet connectivity, the community gets updates on major contributing factors like weather forecasts, climate issue, market information, health & education etc. The community have seen raise of entrepreneurial mindset among the local youth in recent years. Poultry farms are one of the most common fields of entrepreneurship”

How could existing coping and adaptive strategies be strengthened and further developed in order to overcome these difficulties?

“Electric pole installation to strengthen power distribution in the village is necessary. Forming social club engaging the youth will enhance the social value of the community. Donation for underprivileged, voluntary support in dry season will increase drought resilience”

“Which additional coping and adaptive mechanisms (including technologies, infrastructure, information, livelihood options, services, and institutional mechanisms) would help to alleviate the current difficulties the community is facing?

Affordable water supply option is a must need for this community. Current charges for water pump/ depo are considered higher. During dry seasons, the cost of water increases”

What type of institutional support would the community need to overcome the current difficulties?

“Micro-credit loan at lower interest rate will form a vital financial foundation to encounter any natural disaster. The community is paying high interest rates to support agricultural production. In dry seasons the cost of production increases and the farmers struggle to meet marginal profit each year. Additionally, agricultural technology can influence production growth if proper training is arranged for the farmers”

Key Informant Interview 03- Gogram Union, Godagari Upazila



Name: Firoz Khan
Position: PS to Chairman
Organization: Gogram Union Parishad

What are the main problems or needs that community members feel must be addressed or solved?

“Agricultural land conversion has become noticeable in the community. Unregulated conversion of land will misdirect rural development”

How could existing coping and adaptive strategies be strengthened and further developed in order to overcome these difficulties?

“Engaging the youth in multifunctional employment will create a solid financial foundation. To ensure that, more employment opportunities have to be introduced. Use of internet and technological advancement has to be promoted. Justice for underprivileged farmers has to be ensured. Optimal pricing to support the farmers has to be monitored through imposing regulatory strategies”

Key Informant Interview 04- Jogi Para Union, Baghmara Upazila



Name: Ariful Islam Rony
Position: Chief Advisor
Organization: Jogi Para Gram Unnoyan Sangha (Establishment Year: 2020)

Can you describe the role of the community development committee and its experience in addressing climate change and drought in the Barind tract region of Bangladesh?

“Groundwater level depletion is common during dry seasons resulting in loss of productivity of agricultural yields, livestock, and domestic supply shortage. The issue can be resolved by planting deep water pumps in each Barind region”

What do the communities do in response to climate change-induced drought hazards? / What are the current coping strategies utilized by the community to cope with and adapt to existing drought situations?

“The community can barely accommodate their water demand for agriculture production and domestic use. The availability of potable water is a major issue in the community causing several health issues. Government intervention is needed to prepare strategic drought resilience activity”

What are the existing measures, initiatives, or programs implemented by the local government, or other stakeholders to mitigate climate change-induced drought impacts and enhance the community's resilience?

“There is no specific initiative or activity dedicated to drought mitigation”

What concrete role do CDC/ other institutions active in the area play in supporting the local people in their efforts to adapt to, or cope with drought situations?

“CDC does not play any role in drought resilience. Privileged individuals install water pumps and water purifiers to ensure the availability of water”

What kind of concrete support do you offer (extension services, knowledge transfer, technological support, income opportunities, loans, and so on)?

“The organization supports the community through road and infrastructure construction, financial backup, and social support. They also support farmers in dry seasons in the irrigation process”

Who is directly benefitting from your organization’s services? Do women and men benefit equally?

“The organization maintains equity in the community, treating all genders equally. In general, the association works with the farmers, and eventually through agricultural support, the organization helps to strengthen household income”

In your opinion, what are the biggest challenges facing local communities at present to cope with climate change-induced?

“Major challenges faced by the community are mostly driven by poverty. Financial support for the community will directly aid the community in drought resilience. Compared to neighboring communities, this village has a lower average household income, thus this community is more exposed to any climate disasters”

What should be done to overcome these challenges?

“Government authorities do not have a clean reputation in the community. Corruption and illegal means have impacted several implementation processes. Beneficiary schemes by the government for rural development often do not reach the root level”

How can your organization support these communities?

“The organization has a large number of young adult volunteers actively participating in different social works. In times of crisis, it does not directly provide financial benefits, but it participates in several voluntary works to support the farmers. Voluntary events include cutting crops for farmers and supporting them in the irrigation process”

Does your institution have any linkages to other institutions active in the area (civic, public, private)? Could you please explain the way you are collaborating with these other institutions?

“The community maintains a healthy relationship with other non-profit organizations in neighboring villages. Using their youth manpower, they collaborate in infrastructure construction, donation events and other social works”

In what way would your organization need external support (resources, skills, or capacities) to help local communities to overcome these challenges?

“Financial and logistic support can elevate the dynamics of the organization in many ways.”

However, rather than waiting for external support, the organization has started an initiative to raise funds among its members to support their social causes”

Key Informant Interview 05- Jogi Para Union, Baghmara Upazila



Name: Md. M A Rahim
Position: Assistant Teacher
Organization: Jogi Para Govt. Primary School

What are the two principal problems facing the agricultural producers of this community in terms of receiving loans and credits?

“Micro-credit loans have high interest rates and vicious psychological implications. Farmers and agricultural businessmen become dependent on the credit system and often fail to meet regular installments. Irregularity in agricultural production and unexpected events interrupting the income stream force loan takers to carry the loan for an extended period. Additionally, mortgaging assets becomes a vital challenge in the loan-taking process”

What are the principal problems facing the agricultural producers of this community in terms of irrigation during drought period/event?

“Groundwater level reduces up to 30 ft during dry seasons causing additional effort to extract groundwater. Extraction of water requires uninterrupted electricity support and strong machinery support. These are the main challenges the community faces during drought seasons”

What are the main problems or needs that community members feel must be addressed or solved?

“Communication network during drought season plays a vital role in the circulation of information. Lack of Mobile network, and poor transportation facilities cause additional problems during the crisis”

What are the current coping strategies utilized by the community to cope with and adapt to existing drought situations?

“Implementation of sufficient deep-water pumps should be the major concern. Disruption in agricultural productivity not only impacts on market prices of daily commodities but also hampers the life of low-income farmer communities. Government initiatives must take place to implement such mega projects. Ensuring alternative water sources can be an effective solution during the dry season. To preserve surface water, upgrading pond infrastructure is very important”

How could existing coping and adaptive strategies be strengthened and further developed in order to overcome these difficulties?

“Government authorities must increase their activities in this area to cope with adaptive strategies. Local government officials, climate experts, and agencies must come together to

support communities during the drought season”

Which additional coping and adaptive mechanisms (including technologies, infrastructure, information, livelihood options, services, and institutional mechanisms) would help to alleviate the current difficulties the community is facing?

“Electricity support will solve a major portion of the challenges the community possess. Extraction of groundwater, distribution and storage of water cannot be done without ensuring electricity. Livelihood options have evolved through times with the help of technology coping with drought issues. Now at this stage, there is no other way than upgrading power supplies”

What type of institutional support would the community need to overcome the current difficulties?

“The community seeks attention of LGED and other government agencies to work together in making strategies for long term drought resilience. Infrastructure development coupled with technological applications can mitigate drought problem”

Key Informant Interview 06- Jogi Para Union, Baghmara Upazila

Did not give his consent to take photograph

Name: Hafez Md. Atikur Rahman
Position: Imam (Representative of Religious community)
Organization: Jogi Para Jame Masjid

What are the two principal problems facing the agricultural producers of this community in terms of receiving loans and credits?

“High interest rates and insufficient loans”

What are the principal problems facing the agricultural producers of this community in terms of irrigation during drought period/event?

“Unsatisfactory water quality causes poor quality agricultural products”

Compared to other communities, how much do people in this community trust each other in matters of lending and borrowing?

“Electricity issue. Mobile Network issue”

Which persons or organizations help or support these community-based organizations?

“Upgradation of transportation facilities will elevate the economic condition of the community. Agricultural product mobility and rural-urban connectivity will be established with paved roads”

Does this community have any institution or person (either in the community or nearby) that provides credit and loans to agricultural producers?

“Local government is expected to take the initiative to undertake rural development projects. Road infrastructure, employment generation and provision of water supply comprehensively

can prepare the community for any climate issue”

What are the three main persons or institutions that provide credit or loans to agricultural producers in this community?

“Load shedding issue, Mobile Network issue”

What buildings do people in this community regularly use for meetings and gatherings?

“Government agencies to work together in making strategies for long-term drought resilience. Infrastructure development coupled with technological applications can mitigate drought problems”

Key Informant Interview 07- Dhurail Union, Mohanpur Upazila



Name: Abdul Matin Sarker
Position: Teacher
Organization: Dhurail Govt. Primary School

What are the main problems or needs that community members feel must be addressed or solved?

“Repair of road is necessary to ensure rural-urban mobility. Agricultural land conversion has to be regulated for constant agricultural production”

What are the current coping strategies utilized by the community to cope with and adapt to existing drought situations?

“Water reservoir alternatives has to be utilized. For instance, deep water pump can be used to fill the ponds in dry season to increase water availability”

How could existing coping and adaptive strategies be strengthened and further developed in order to overcome these difficulties?

“Deeper ponds and canals can be alternative solutions of water shortage”

Which additional coping and adaptive mechanisms (including technologies, infrastructure, information, livelihood options, services, and institutional mechanisms) would help to alleviate the current difficulties the community is facing?

“Zonal industrialization can generate employment”

Key Informant Interview 08- Dhurail Union, Mohanpur Upazila



Name: Ehsan Ali
Position: Teacher
Organization: Dhurail Govt. Primary School

What are the main problems or needs that community members feel must be addressed or solved?

“Repair of road is necessary to ensure rural-urban mobility. Agricultural land conversion has to be regulated for constant agricultural production”

What are the current coping strategies utilized by the community to cope with and adapt to existing drought situations?

“Water reservoir alternatives has to be utilized. For instance, deep water pump can be used to fill the ponds in dry season to increase water availability”

How could existing coping and adaptive strategies be strengthened and further developed in order to overcome these difficulties?

“Deeper ponds and canals can be alternative solutions of water shortage”

Which additional coping and adaptive mechanisms (including technologies, infrastructure, information, livelihood options, services, and institutional mechanisms) would help to alleviate the current difficulties the community is facing?

“Zonal industrialization can generate employment”

Key Informant Interview 09- Dhurail Union, Mohanpur Upazila

Did not give his consent to take photograph

Name: Alam Hossen
Position: Teacher
Organization: Baitul Amin Jame Masjid, Dhurail

How could existing coping and adaptive strategies be strengthened and further developed in order to overcome these difficulties?

“The government must facilitate water pumps in community to ensure equity among the residents. Dig deeper ponds and ensure water availability on dry seasons”

Which additional coping and adaptive mechanisms (including technologies, infrastructure, information, livelihood options, services, and institutional mechanisms) would help to alleviate the current difficulties the community is facing?

“Installation of low-cost submarine can help in drought resilience”

What type of institutional support would the community need to overcome the current difficulties?

“The government must play a leading role in supporting the community”

Insights derived from the Focus Group Discussion (FGD)

Focus Group Discussion 01- Gogram Union, Godagari Upazila

1) Can you share your experiences with drought in this region and how it has impacted your community?

As the groundwater depletes during droughts, especially in Boishakh and Jyoishtho (June-July), the community faces serious challenges like failing crops, water scarcity at home, and struggles to provide for livestock. Farmers deal with reduced yields, households run short on water for daily needs, and animals suffer from lack of grazing and hydration. The pressure is diverted towards water pumps creating tension in the water mobility.

2) From your perspective, what resources/ assets/ capital does the community possess that contribute to its resilience in the face of drought?

Our community relies solely on water motors for extraction in the season of drought, lacking diversity in water sources. Electricity condition is especially a matter of concern as we struggle to accommodate water for both agricultural and domestic use at the same time. Financially, there's no backup limiting our ability to invest in drought-resistant measures. This makes us vulnerable to water shortages during dry spells.

(3) In what ways do social relationships within the community play a role in its ability to withstand and recover from drought?

Regular meetings with key stakeholders facilitate coordinated responses and planning. Sharing resources, like our water pump, ensures equitable access, promoting collective resilience. Additionally, a culture of mutual support and no cruelty fosters unity, making it easier to withstand and recover from the challenges of drought together.

4) How has the economic situation of the community influenced its resilience in times of drought?

Financial struggles during drought lead to loans and NGO support. Selling livestock for quick cash hurts long-term sustainability. Limited funds affect our ability to invest in drought-resistant measures.

5) Are there any external factors or interventions that have positively or negatively impacted the community's resilience to drought?

In drought seasons, the water extraction rate reduces. Thus, it requires more time to irrigate crops. The availability of electricity is a key factor in facilitating sufficient water for agricultural activities. Lack of electricity is a major concern that impacts the community's resilience. Climate condition also impacts the dry season. Uncertain cyclones and storms after dry season cause more damage to the crops than the drought itself.

6) Can you share examples of traditional knowledge or practices that the community has used to cope with drought in the past?

We've traditionally relied upon wells for drinking water. Additionally, using ponds for livestock has been a longstanding practice, ensuring animals have access to water even during dry spells.

7) How does the community currently manage and utilize groundwater resources during periods of drought, and what role do you believe groundwater plays in the community's overall resilience?

Extraction from groundwater is the major source of water during the dry season. The community solely depends on groundwater resulting in groundwater depletion. When the demand for water rises, practices like 'renting water pump' keep the community hydrated.

8) How does the community currently manage and utilize surface water resources during periods of drought, and what role do you believe surface water plays in the community's overall resilience?

The use of ponds is very common within the community. Surface water cannot meet the basic needs of agriculture. They rely on the groundwater.

9) How do you see the integration of modern and traditional knowledge in the community's strategies for dealing with drought?

Compared to previous decades, the integration of water storage facilities and groundwater extraction machinery has brought revolutionary change in the community. The severity of drought is hardly faced in current years.

10) Are there specific roles or individuals within the community who are considered experts or leaders in drought preparedness and adaptation?

There are no individuals who are expected to tackle drought resilience in this community. The government officials are the ones who operate awareness campaigns and NGOs are supporting them to withstand financial hurdles.

11) How do community members typically communicate and share information about drought-related issues?

Usually like cyclones and tornados drought do not come as sudden. If the climate forecast indicates that a drought can take place, the community announce the news through loudspeakers in Mosque. Through Television news and mobile phone they communicate with each other.

12) In your opinion, how has climate change affected the frequency or intensity of drought in this region?

In general, climate change has affected agricultural activities. Dry seasons are approaching late in recent years and staying for longer periods. Inaccurate climate forecasting also creates misjudgments in drought resilience.

13) What challenges do you think the community faces in implementing effective drought resilience strategies?

Very few NGO directly work on drought resilience. No specific financial benefit from the government is provided for drought resilience. Community take experiential actions on their own to face drought problems.

14) How Involved do you feel the community is in decision-making processes related to drought preparedness and response?

The community is fully involved in the decision-making process as there is no active NGO or frequent governmental activity on drought resilience. No strategies are taken by any central organization. Individuals try to tackle the issue of drought without any expert.

15) Are there any existing community initiatives or organizations that focus on drought resilience, and how effective do you think they are?

There are no organizations.

16) What measures or changes do you think could enhance the community's resilience to drought in the future?

In general, the community must focus on social development. Drought management will be effective if the community's demographic development takes a positive trajectory.

17) How do you envision the role of external agencies or government in supporting the community's efforts to build resilience against drought?

The government has several governing bodies that can affiliate drought resilience. Rather than depending on individual decision-making processes, structured strategies for long-term drought resilience by experts will eradicate the drought issue completely.

Focus Group Discussion 02- Jogi Para Union, Baghmara Upazila

1) Can you share your experiences with drought in this region and how it has impacted your community?

Livestock management faces struggles to accommodate water facilities, forcing the community to carry water from a distance. In general, productivity is reduced.

2) From your perspective, what resources/ assets/ capital does the community possess that contribute to its resilience in the face of drought?

No specific funds are saved to encounter drought issues. A small number of deep tube wells and water pumps are the only assets.

(3) In what ways do social relationships within the community play a role in its ability to withstand and recover from drought?

Sharing resources, like our water pump, ensures equitable access, promoting collective resilience. Additionally, a culture of mutual support and no cruelty fosters unity, making it easier to withstand and recover from the challenges of drought together.

4) How has the economic situation of the community influenced its resilience in times of drought?

The community supports each other during the dry season. Sharing water pumps, tube-wells and knowledge helps the community encounter the drought.

5) Are there any external factors or interventions that have positively or negatively impacted the community's resilience to drought?

No external factors influence drought resilience.

6) Can you share examples of traditional knowledge or practices that the community has used to cope with drought in the past?

Boring deep tube wells and digging wells were traditionally practiced. Most of the water used to come from neighboring regions. Carrying water from different villages was labor-intensive and inconvenient.

7) How does the community currently manage and utilize groundwater resources during periods of drought, and what role do you believe groundwater plays in the community's overall resilience?

Groundwater is the main contributor to drought resilience. However, due to reduced water levels, deeper holes are bored to extract groundwater.

8) How does the community currently manage and utilize surface water resources during periods of drought, and what role do you believe surface water plays in the community's overall resilience?

Surface water is used in agriculture. When the ground water level reduces, the surface water hydrates the livestock and irrigation process.

9) How do you see the integration of modern and traditional knowledge in the community's strategies for dealing with drought?

The community believes that the use of technology such as water reservoirs, water pumps and potable water supply distribution can demolish the drought crisis.

10) Are there specific roles or individuals within the community who are considered experts or leaders in drought preparedness and adaptation?

There are no individuals in the community who have come forward specifically to support drought resilience.

11) How do community members typically communicate and share information about drought-related issues?

Daily social gatherings and the use of mobile phones help spread the drought news. The availability of television and mobile phones in the community ensures proper communication within each group of people.

12) In your opinion, how has climate change affected the frequency or intensity of drought in this region?

Climate change has resulted in changes in agriculture production. The productivity of agriculture yields has reduced due to unpredictability. Farmers use their experiential knowledge to grow crops and the inability to predict climate conditions has damaged large numbers of yields. Additionally, inaccurate climate forecasting causes a loss of productivity.

13) What challenges do you think the community faces in implementing effective drought resilience strategies?

The community does not face any major problems while preparing for drought resilience.

14) How Involved do you feel the community is in decision-making processes related to drought preparedness and response?

The community shares their resources and the social bonding within themselves makes decision-making easy. They make their own decisions.

15) Are there any existing community initiatives or organizations that focus on drought resilience, and how effective do you think they are?

No specific NGO is available for drought resilience. However, financial support is available through a micro-credit system. With financial support, the community prepares itself for drought season.

16) What measures or changes do you think could enhance the community's resilience to drought in the future?

Electricity plays an important role in encountering drought crises. As the government is failing to ensure uninterrupted electricity, the community should focus on renewable energy to ensure uninterrupted electricity. Water extraction for agricultural usage should be ensured. Implementation of deep-water pumps is required.

17) How do you envision the role of external agencies or government in supporting the community's efforts to build resilience against drought?

Currently, no governmental or external agencies are supporting the community. The community expects the government to increase electricity provision during the dry seasons to maintain agricultural productivity.

Focus Group Discussion 03- Dhurail Union, Mohanpur Upazila

1) Can you share your experiences with drought in this region and how it has impacted your community?

Due to groundwater depletion, water pumps are established in the community for adequate water supply. Betel leaf production requires significant amounts of water. During dry seasons production of betel leaves gets damaged. Livestock management faces struggles to accommodate water facilities, forcing the community to carry water from a distance.

2) From your perspective, what resources/ assets/ capital does the community possess that contribute to its resilience in the face of drought?

No specific funds are saved to encounter drought issues. The main drought resilience asset is the water pump which directly relies on electricity. Frequent power shortage disrupt the water supply during drought season.

(3) In what ways do social relationships within the community play a role in its ability to withstand and recover from drought?

The community stands together and co-ordinates with each other through multiple supporting roles. Financial, and Social Integration within the Community helps prepare for drought season. The water pump is shared during the period of crisis to ensure equity.

4) How has the economic situation of the community influenced its resilience in times of drought?

Financial support from NGOs plays an important role in the community. Micro-credit loans and community support help withstand the crisis.

5) Are there any external factors or interventions that have positively or negatively impacted the community's resilience to drought?

Electricity is the major concern as the community depend on groundwater extraction during the season. Lack of water damages betel leaf production and livestock production.

6) Can you share examples of traditional knowledge or practices that the community has used to cope with drought in the past?

The community used to dig wells in the dry season to meet water demand. People- mostly women from a distance used to gather potable water from wells.

7) How does the community currently manage and utilize groundwater resources during periods of drought, and what role do you believe groundwater plays in the community's overall resilience?

Groundwater is the main contributor to drought resilience. However, due to reduced water levels, deeper holes are bored to extract groundwater.

8) How does the community currently manage and utilize surface water resources during periods of drought, and what role do you believe surface water plays in the community's overall resilience?

After the introduction of water pumps, very few households store rainwater. However the traditional practice of storing rainwater in the community helps encounter the drought season.

9) How do you see the integration of modern and traditional knowledge in the community's strategies for dealing with drought?

Drought can be eliminated with proper utilization of technology. Infrastructural development like water reservoir installation, installation of a central water pump for the community, and separate water supply for agriculture are few steps that the government can take.

10) Are there specific roles or individuals within the community who are considered experts or leaders in drought preparedness and adaptation?

There are no individuals in the community who have come forward specifically to support drought resilience.

11) How do community members typically communicate and share information about drought-related issues?

Daily social gatherings and the use of mobile phones help spread the drought news. The availability of television and mobile phones in the community ensures proper communication within each group of people.

12) In your opinion, how has climate change affected the frequency or intensity of drought in this region?

No significant impact of climate change is felt.

13) What challenges do you think the community faces in implementing effective drought resilience strategies?

The community does not face any major problems while preparing for drought resilience.

14) How involved do you feel the community is in decision-making processes related to drought preparedness and response?

The community shares their resources and the social bonding within themselves makes decision-making easy. They make their own decisions.

15) Are there any existing community initiatives or organizations that focus on drought resilience, and how effective do you think they are?

No specific NGO is available for drought resilience. However, financial support is available through a micro-credit system. With financial support, the community prepares themselves for drought season.

16) What measures or changes do you think could enhance the community's resilience to drought in the future?

Availability of electricity is key factor in drought resilience. The government must take specific actions during dry seasons to ensure electricity in rural communities. Implementation of water pump for agricultural use will increase the productivity of the community.

17) How do you envision the role of external agencies or government in supporting the community's efforts to build resilience against drought?

Currently, no governmental or external agencies are supporting the community.

f) **Conclusions and Implications**

The study demonstrates that different forms of capital exhibit varying degrees of internal coherence. Financial Capital exhibits a high level of reliability, Social Capital demonstrates a strong level of reliability, and Natural Capital displays a moderate level of reliability.

The community's natural capital varies moderately, with agricultural land ownership, technical support, and credit. Environmental issues and access to safe water sources are present. The study evaluated the physical assets of Barind tract region, including energy, housing, communication services, public markets, and transportation. It found high availability of domestic electrical service, good housing infrastructure, but lower sanitation services. The community has high accessibility to public telephones and internet services, but room for improvement. The public transportation system is reliable and widely accessible.

The report analyzed the financial capital of a region, focusing on personal income, job prospects, income sources, communal finances, government assistance programs, infrastructure investments, savings, and health insurance availability. It showed moderate economic well-being, stable employment rates, diverse income sources, moderate accessibility to financial assistance, moderate government support, and moderate savings and health insurance coverage. The study explored the state of human capital in a region, focusing on education, health infrastructure, migration patterns, and farming experience. The research highlighted strengths in public education, high healthcare accessibility, gender-specific migration trends, and a lack of specialized training in agriculture, suggesting areas for improvement in these areas.

It also explored the state of social capital in a region, focusing on bonding, bridging, linking, generalized social trust, and community cohesiveness. It found positive frequency and satisfaction in family relationships, robust social connections with friends and neighbors, low active involvement in agricultural organizations, moderately high levels of trust, and high confidence in government institutions. The study also investigated migration patterns inside the community, with a specific focus on social capital elements including bonding, bridging, linking, generalized social trust, and community cohesiveness. The findings indicate that the community possesses robust social networks, interpersonal bonds, and institutional affiliations, characterized by a substantial degree of trust both inside the community and among its residents.

Mohanpur and Godagari are prosperous communities with robust physical and natural resources, while there is potential for enhancement in terms of financial resources. Baghmara encounters obstacles in its financial and natural resources, underscoring the necessity for economic diversification and conservation endeavors. Policymakers might employ Mohanpur's measures to enhance infrastructure and foster human development in Godagari and Baghmara. The success of Godagari indicates the necessity of implementing comprehensive development strategies that encompass many dimensions of community capital. Baghmara stands to gain from targeted measures aimed at bolstering financial resources and advancing environmental preservation.

The Boishakh and Jyoishtho community is confronted with difficulties stemming from drought, such as crop failure, limited water availability, and the inability to adequately support cattle. They depend on water motors for extraction and have limited variety in water sources, rendering them susceptible to drought-resistant strategies. Resilience of individuals is also influenced by social ties, financial challenges, and environmental variables such as climate conditions. Indigenous knowledge and customs, such as the utilization of wells and ponds, have been employed as strategies to mitigate the effects of drought. Groundwater extraction serves as the primary water supply during drought conditions, and the town depends on the rental of water pumps to maintain hydration. The drought resilience strategies of the community are shaped by government officials, non-governmental organizations (NGOs), and communication channels.

The local community actively participates in decision-making processes concerning drought resilience, without receiving any direct financial incentives from the government. They employ experiential measures to address drought issues, without any centralized coordination or plans implemented by a single body. Interpersonal connections within the community contribute to the advancement of shared strength and the cultivation of cohesion. The economic condition has a direct impact on their ability to withstand and recover from drought, since the community provides mutual assistance during periods of water scarcity. The community feels that technology can play a crucial role in mitigating the drought situation, yet groundwater and surface water supplies remain the primary contributors to drought resistance. The occurrence or severity of drought has been impacted by climate change, resulting in a decrease in agricultural output and efficiency. In order to bolster the community's ability to withstand drought in the future, it is imperative for the community to prioritize the use of renewable energy sources and guarantee a continuous supply of electricity.

The community in Mohanpur Upazila is experiencing a drought as a result of the depletion of groundwater, which is negatively impacting the production of betel leaves and the management of animals. The neighborhood is dependent on water pumps to ensure a sufficient supply, but, frequent power outages hamper this process. Resilience is bolstered by social interactions, financial assistance from non-governmental organizations (NGOs), and the preservation of traditional knowledge. The extraction of groundwater is a significant issue, and employing conventional methods such as rainwater storage aids in managing drought conditions. The community engages in resource sharing and communication over drought-related matters through social events and cell phones. There is no dedicated NGO specifically focused on drought resilience. However, individuals can access financial assistance through a micro-credit scheme. In order to bolster resilience, the community must augment electrical supply during periods of low rainfall and establish water pumps for agricultural purposes.

Recommendations of the Study

Minimizing the likelihood of drought is a collective obligation. This obligation necessitates forming partnerships, coordinating efforts, and collaborating among all levels of government, people, local communities, the private sector, and other pertinent stakeholders.

This study presents the following suggestions to enhance the state of community capital and community resilience, particularly in relation to drought-induced natural disasters. An effective strategy for enhancing drought resilience focuses on improving the management of land and water resources. Preventing land degradation, as well as safeguarding and reviving natural resources and ecosystem services, through land rehabilitation, ecological restoration, and allocating water for environmental purposes, will enhance the resilience of ecological, economic, and social systems against the heightened effects of drought and improve their capacity to recover from disasters. Nature-based solutions for drought management offer various ecological advantages, such as minimizing vulnerabilities to other natural calamities and addressing the impacts of climate change through mitigation and adaptation. The involvement of local communities, authorities, social and cultural minorities, as well as traditionally marginalized groups such as women, the poor, disabled individuals, and people of all ages, is crucial in the process of reducing the risks associated with drought. Utilizing natural resources such as land, water, biodiversity, and ecosystems is an essential strategy for mitigating the danger of drought. Apply Integrated Water Resource Management principles to alleviate strain on water resources and enhance water accessibility, thereby minimizing the population's vulnerability to drought effects. Foster community empowerment and employ grassroots strategies to promote economic diversification at the local level. Endorse grassroots endeavors that foster a sense of ownership in methods for drought resilience and risk reduction. Enhance the ability of humans to adapt, particularly in terms of their social capital. Finally, The Sendai Framework's aims and principles serve as a solid basis for implementing policies that aim to enhance drought resilience, adaptation, and management. These policies have the potential to mitigate risks associated with drought at both national and subnational levels.

Limitations and Suggestions for Future Research

Although this work has made significant contributions to the existing knowledge, it is important to acknowledge and resolve its limitations. Due to limitations in time, finance, and geographical factors, the empirical inquiry focused exclusively on three upazilas of Barind tract region of Bangladesh that mainly concentrates on Rajshahi division. Subsequent research endeavors may encompass more regions that hold significance in the community resilience against the natural disasters, in order to obtain comprehensive and conclusive outcomes.

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APPENDICES

Appendix A

QUESTIONNAIRE SURVEY FOR FARM AND NON-FARM HOLDINGS

Date (dd/mm/yy)	Interview number

To be completed by the interviewer

Introduction

This interview aims to assess the community's resilience to drought in the barind tract region of Bangladesh taking into consideration the community capital perspective.

READ THE INFORMED CONSENT FORM TO THE RESPONDENT(S) AND ASK THEM TO SIGN IT.

a. Respondent Information: (WRITE THE RESPONSE BELOW)

SECTION I : SOCIO-DEMOGRAPHIC INFORMATION		
Sl.	Attribute	Possible Responses
1.	Age (উত্তরদাতার বয়স)	1 <input type="checkbox"/> <40 2 <input type="checkbox"/> 41-65 3 <input type="checkbox"/> >65
2.	Sex (উত্তরদাতার সেক্স)	1 <input type="checkbox"/> Male 2 <input type="checkbox"/> Female
3.	Type of Residence (বসবাসের স্থানের মালিকানা)	1 <input type="checkbox"/> Owned 2 <input type="checkbox"/> Rented 3 <input type="checkbox"/> Rent Free
4.	Education Level (শিক্ষার স্তর)	1 <input type="checkbox"/> Illiterate 2 <input type="checkbox"/> Primary 3 <input type="checkbox"/> Secondary 4 <input type="checkbox"/> Tertiary
5.	Religion (ধর্ম)	1 <input type="checkbox"/> Muslim 2 <input type="checkbox"/> Hindu 3 <input type="checkbox"/> Buddhist 4 <input type="checkbox"/> Christian 5 <input type="checkbox"/> Others
6.	Marital Status (বৈবাহিক অবস্থা)	1 <input type="checkbox"/> Single 2 <input type="checkbox"/> Married 3 <input type="checkbox"/> Widowed 4 <input type="checkbox"/> Divorced/Separated
7.	Years in the Community (belongingness) (এই গ্রামে/কমিউনিটি তে কতদিন থেকে বসবাস করছেন?)	1 0-5 years 2 6-10 3 11-15 4 16-20 5 20+
8.	Occupation (পেশা)	1 Farmer 2 Business 3 Labourer 4 Housewife 5 Unemployed 6 Fisherman 7 Artisan 8 Others
9.	Monthly Average Household Income (মাসিক পারিবারিক গড় আয়)	1 Less than TK 10000 2 TK 10001 – 20000 3 TK 20001 – 30000 4 More than TK 30000
10.	% of Income that Comes from Agricultural Activity (কৃষি কাজ থেকে প্রাপ্ত আয়ের শতকরা হার)	1 <input type="checkbox"/> 0 % 2 <input type="checkbox"/> <25 % 3 26-50 % 4 51-75% 5 >75%
11.	Have You Received Any Specific Training in Agriculture? (আপনি কি কৃষিকাজ বিষয়ে কোন নির্দিষ্ট প্রশিক্ষণ পেয়েছেন?)	1 <input type="checkbox"/> Yes 0 <input type="checkbox"/> No
12.	Farm Size (acre) (জমির আয়তন (একর))	1 <input type="checkbox"/> <0.05 2 <input type="checkbox"/> 0.05-2.49 3 <input type="checkbox"/> 2.50-7.49 4 <input type="checkbox"/> >=7.50
13.	Farm Ownership (জমির মালিকানা)	1 <input type="checkbox"/> Owner Holding 2 <input type="checkbox"/> Tenant Holding
14.	Type of Land (জমির ধরন)	1 <input type="checkbox"/> Irrigated 2 <input type="checkbox"/> Non-Irrigated 3 <input type="checkbox"/> Irrigated + Non-Irrigated

SECTION II: COMMUNITY CAPITAL

The following questions are possible items/descriptions of the social capital of your community. Please tick (✓) one response for each question.

Latent Construct (P. Weight)	V. Weight	Item/Description	Possible Responses
NATURAL CAPITAL			
Agricultural Land (কৃষিজমি)		Ownership of Agriculture land (কৃষি জমির মালিকানা)	Landless <input type="checkbox"/> 0 Land owner <input type="checkbox"/> 1
		Do the agricultural workers/producers in this community receive technical assistance? (এই সম্প্রদায়ের কৃষি শ্রমিক/উৎপাদকেরা কি প্রযুক্তিগত সহায়তা পান?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0
		Who is the main provider of this technical assistance? (Probe whether the institution is public or private.) (এই প্রযুক্তিগত সহায়তার প্রধান সরবরাহকারী কে?)	Public institution <input type="checkbox"/> 2 Private institution <input type="checkbox"/> 1
		Does this community have any type of agricultural cooperative? (এই সম্প্রদায়ে কি কোন ধরনের কৃষি সমবায় রয়েছে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0
		Does this community have any institution or person (either in the community or nearby) that provides credit and loans to agricultural producers? (এই সম্প্রদায়ের কি এমন কোনও প্রতিষ্ঠান বা ব্যক্তি রয়েছে (সমাজে বা আশেপাশে) যা কৃষি উৎপাদকদের ঋণ প্রদান করে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0
		In the last three years, the harvests/yields have (গত তিন বছরে, ফসল/ফলন)	Increased <input type="checkbox"/> 2 Decreased <input type="checkbox"/> 1 Remained the same <input type="checkbox"/> 0
Environmental Issues (পরিবেশগত সমস্যা)		Does this community have (এই সম্প্রদায়ে কি নিম্নোক্ত বিষয়গুলো আছে?)	Yes No a. Garbage dumping that contaminates rivers/wells/soil <input type="checkbox"/> 1 <input type="checkbox"/> 0 b. Standing water or stagnant pools <input type="checkbox"/> 1 <input type="checkbox"/> 0 c. Slaughterhouses that dump waste in public places <input type="checkbox"/> 1 <input type="checkbox"/> 0 d. Polluting industries <input type="checkbox"/> 1 <input type="checkbox"/> 0
		Overall, the current environmental condition of the community is (সামগ্রিকভাবে, সম্প্রদায়ের বর্তমান পরিবেশগত অবস্থা হল)	Very good <input type="checkbox"/> 5 Good <input type="checkbox"/> 4 Average <input type="checkbox"/> 3 Poor <input type="checkbox"/> 2 Very poor <input type="checkbox"/> 1
		In the last three years, the environmental conditions in the community have (গত তিন বছরে, সম্প্রদায়ের পরিবেশগত অবস্থা)	Improved <input type="checkbox"/> 3 Worsened <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 1
		What are the two main actions that could be taken to improve the environmental conditions in this community? (এই সম্প্রদায়ের	(a) _____ (b) _____

		পরিবেশগত অবস্থার উন্নতির জন্য দুটি প্রধান পদক্ষেপ কী কী নেওয়া যেতে পারে?)	
Drinking Water (খাবার পানীয়)		Availability of safe drinking water source (tab, tube well) round the year. (সারা বছর নিরাপদ পানীয় জলের উৎসের (ট্যাপ, নলকূপ) প্রাপ্যতা)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0
		What part of the community has pipe-borne/ tubewell water? (সম্প্রদায়ের কোন অংশ পর্যাপ্ত পাইপ-বাহিত/নলকূপের জল রয়েছে?)	The entire community <input type="checkbox"/> 5 Most of the community <input type="checkbox"/> 4 About half the community <input type="checkbox"/> 3 Less than half/very few <input type="checkbox"/> 2 No one in the community <input type="checkbox"/> 1
		In the last three years, potable water service has (গত তিন বছরে, পানীয় জল পরিষেবা)	Improved <input type="checkbox"/> 3 Worsened <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 1
		Currently, the potable water service is (বর্তমানে, পানীয় জল পরিষেবা)	Very good <input type="checkbox"/> 5 Good <input type="checkbox"/> 4 Average <input type="checkbox"/> 3 Poor <input type="checkbox"/> 2 Very poor <input type="checkbox"/> 1
		What are the two main problems with the potable water service? (পানীয় জল পরিষেবা নিয়ে দুটি প্রধান সমস্যা কী কী?)	(a) _____ (b) _____
Irrigation Water (সেচের পানি)		Direct access to water body/irrigation water (Pond/Ditch, Canal/River) (জলাশয়/সেচের জলের সরাসরি অ্যাক্সেস (পুকুর/ডিচ, খাল/নদী))	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0
		What part of the community has irrigation water facility? (সম্প্রদায়ের কোন অংশে সেচের জলের সুবিধা রয়েছে?)	The entire community <input type="checkbox"/> 5 Most of the community <input type="checkbox"/> 4 About half the community <input type="checkbox"/> 3 Less than half/very few <input type="checkbox"/> 2 No one in the community <input type="checkbox"/> 1
		In the last three years, irrigation water service has (গত তিন বছরে, জল সেচ পরিষেবা)	Improved <input type="checkbox"/> 3 Worsened <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 1
		Currently, the irrigation water service is (বর্তমানে, জল সেচ পরিষেবা)	Very good <input type="checkbox"/> 5 Good <input type="checkbox"/> 4 Average <input type="checkbox"/> 3 Poor <input type="checkbox"/> 2 Very poor <input type="checkbox"/> 1
		What are the two main problems with the irrigation facility? (সেচের সুবিধা নিয়ে দুটি প্রধান সমস্যা কী কী?)	(a) _____ (b) _____
PHYSICAL CAPITAL			
Electricity (বিদ্যুৎ)		What fraction of the community has household electrical service? (সম্প্রদায়ের কোন অংশে গৃহস্থালীর বৈদ্যুতিক পরিষেবা রয়েছে?)	The entire community <input type="checkbox"/> 5 Most of the community <input type="checkbox"/> 4 About half the community <input type="checkbox"/> 3 Less than half/very few <input type="checkbox"/> 2 No one in the community <input type="checkbox"/> 1
		In the last three years, the electrical service to this community has ((গত তিন বছরে, এই সম্প্রদায়ের জন্য বৈদ্যুতিক পরিষেবা)	Improved <input type="checkbox"/> 3 Worsened <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 1

	Currently, the quality of electrical service within the homes of this community is (বর্তমানে, এই সম্প্রদায়ের বাড়ির মধ্যে বৈদ্যুতিক পরিষেবার মান)	Very good <input type="checkbox"/> 5 Good <input type="checkbox"/> 4 Average <input type="checkbox"/> 3 Poor <input type="checkbox"/> 2 Very poor <input type="checkbox"/> 1
	What are the two main problems with the electrical service? (বিদ্যুৎ পরিষেবার দুটি প্রধান সমস্যা কী কী?)	(a) _____ (b) _____
Housing (বাড়ি)	Housing structure (বাড়ির কাঠামো)	Jhupri <input type="checkbox"/> 1 Katcha/Tin house <input type="checkbox"/> 2 Chhai <input type="checkbox"/> 3 Tin-shed <input type="checkbox"/> 4 Semi-Pucca <input type="checkbox"/> 5 Pucca <input type="checkbox"/> 6
	What is the construction material of most of the roof of this house? (এই এলাকার বেশিরভাগ বাড়ির ছাদের নির্মাণ সামগ্রী কী?)	Concrete/cement <input type="checkbox"/> 6 Tiles <input type="checkbox"/> 5 Metal (zinc, aluminum, etc.) <input type="checkbox"/> 4 Wood <input type="checkbox"/> 3 Straw or thatch <input type="checkbox"/> 2 Other (specify) <input type="checkbox"/> 1
	What is the construction material of most of the floor of this house? (এই এলাকার বেশিরভাগ বাড়ির মেঝের নির্মাণ সামগ্রী কী?)	Concrete/cement <input type="checkbox"/> 7 Tiles, brick, granite <input type="checkbox"/> 6 Wood <input type="checkbox"/> 5 Vinyl <input type="checkbox"/> 4 Earth, sand <input type="checkbox"/> 3 Cane <input type="checkbox"/> 2 Other (specify) <input type="checkbox"/> 1
	What type of sanitary services does this household use? (কোন ধরনের স্বাস্থ্য পরিষেবা ব্যবহার করে?)	Connected to sewage system <input type="checkbox"/> 1 Connected to septic tank <input type="checkbox"/> 2 Latrine <input type="checkbox"/> 3 None <input type="checkbox"/> 0
Communication Services (যোগাযোগ পরিষেবা)	Does this community have public telephones/cell phone? (এই সম্প্রদায়ের কি পাবলিক টেলিফোন/সেল ফোন আছে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0
	In the last three years, the public telephone/cell phone service in this community has (গত তিন বছরে, এই সম্প্রদায়ের পাবলিক টেলিফোন/সেল ফোন পরিষেবা)	Improved <input type="checkbox"/> 3 Worsened <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 1
	Currently, the public telephone/cell phone service in this community is (বর্তমানে, এই সম্প্রদায়ের সর্বজনীন টেলিফোন/সেল ফোন পরিষেবা হল)	Very good <input type="checkbox"/> 5 Good <input type="checkbox"/> 4 Average <input type="checkbox"/> 3 Poor <input type="checkbox"/> 2 Very poor <input type="checkbox"/> 1
	What are the two main problems with the public telephone/cell phone service in this community? (এই সম্প্রদায়ের পাবলিক টেলিফোন/সেল ফোন পরিষেবার দুটি প্রধান সমস্যা কী?)	(a) _____ (b) _____
	What fraction of the community has access to public Internet service? (সম্প্রদায়ের কোন অংশের পাবলিক ইন্টারনেট পরিষেবার অ্যাক্সেস)	The entire community <input type="checkbox"/> 5 Most of the community <input type="checkbox"/> 4 About half the community <input type="checkbox"/> 3 Less than half/very few <input type="checkbox"/> 2

		রয়েছে?)	No one in the community <input type="checkbox"/> 1
		Where are public Internet access services available? (সর্বজনীন ইন্টারনেট পরিষেবা কোথায় পাওয়া যায়?)	Local school <input type="checkbox"/> 5 Library <input type="checkbox"/> 4 Community center <input type="checkbox"/> 3 Training center <input type="checkbox"/> 2 Other (specify) <input type="checkbox"/> 1
Public Market (পাবলিক মার্কেট)		Does this community have a public market? (এই সম্প্রদায়ের জন্য কি কোনও পাবলিক মার্কেট আছে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0
		The market is open (বাজার খোলা)	Every day <input type="checkbox"/> 4 Some days of the week <input type="checkbox"/> 3 One day per week <input type="checkbox"/> 2 Other (specify) <input type="checkbox"/> 1
		In the last three years, the quality and service of this market has (গত তিন বছরে, এই বাজারের গুণমান এবং পরিষেবা)	Improved <input type="checkbox"/> 3 Worsened <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 1
		How many people in the community use the market? (সম্প্রদায়ের কত লোক বাজারটি ব্যবহার করে?)	The entire community <input type="checkbox"/> 5 Most of the community <input type="checkbox"/> 4 About half the community <input type="checkbox"/> 3 Less than half/very few <input type="checkbox"/> 2 No one in the community <input type="checkbox"/> 1
Transportation (যোগাযোগ ব্যবস্থা)		Is this community served by a public transport system? (এই সম্প্রদায়ে কি গণপরিবহন ব্যবস্থা আছে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0
		Public transportation is available (গণপরিবহন সহজলভ্য)	Every day <input type="checkbox"/> 4 Some days of the week <input type="checkbox"/> 3 One day per week <input type="checkbox"/> 2 Other (specify) <input type="checkbox"/> 1
		In the last three years, the quality and service of public transportation has (গত তিন বছরে, গণপরিবহনের গুণমান এবং পরিষেবা)	Improved <input type="checkbox"/> 3 Worsened <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 1
		Public transportation is used by (গণপরিবহন ব্যবহার করে)	The entire community <input type="checkbox"/> 5 Most of the community <input type="checkbox"/> 4 About half the community <input type="checkbox"/> 3 Less than half/very few <input type="checkbox"/> 2 No one in the community <input type="checkbox"/> 1
		Currently, the public transportation service is (বর্তমানে গণপরিবহন পরিষেবা)	Very good <input type="checkbox"/> 5 Good <input type="checkbox"/> 4 Average <input type="checkbox"/> 3 Poor <input type="checkbox"/> 2 Very poor <input type="checkbox"/> 1
		What two main changes can be made to improve public transportation to this community? (এই সম্প্রদায়ের গণপরিবহন ব্যবস্থার উন্নতির জন্য কোন দুটি প্রধান উদ্যোগ গ্রহণ করা যেতে পারে?)	(a) _____ (b) _____
FINANCIAL CAPITAL			
Income ()		Median household income (পরিবারের গড় আয়)	Less than TK 10000 <input type="checkbox"/> 1 TK 10001 – 20000 <input type="checkbox"/> 2 TK 20001 – 30000 <input type="checkbox"/> 3 More than TK 30000 <input type="checkbox"/> 4
Employment		Number of family members	1 member <input type="checkbox"/> 1

()		engaged in income earning activities (আয়ের কাজে নিযুক্ত পরিবারের সদস্যদের সংখ্যা)	2 members [] 2 3 members [] 3 4 members [] 4 None [] 0
Alternative Income Source ()		Alternative on-farm and off-farm income sources (বিকল্প অন-ফার্ম এবং অফ-ফার্ম আয়ের উৎস)	Yes [] 1 No [] 0
Community Fund ()		Local emergency fund (স্থানীয় জরুরি তহবিল)	Yes [] 1 No [] 0
Govt. Support ()		Government support for drought affected sector/ Access to national fund/ Agricultural Support (খরা কবলিত ক্ষেত্রের জন্য সরকারি সহায়তা/জাতীয় তহবিলে প্রবেশাধিকার / কৃষি সহায়তা)	Yes [] 1 No [] 0
Investment ()		Investment in Water Infrastructure (জল অবকাঠামোতে বিনিয়োগ)	Yes [] 1 No [] 0
Savings ()		Savings/deposits (সঞ্চয়/আমানত)	Yes [] 1 No [] 0
Insurance ()		Household with health insurance (স্বাস্থ্য বীমা গ্রহণকারী পরিবার)	Yes [] 1 No [] 0
HUMAN CAPITAL			
Education and Awareness (শিক্ষা ও সচেতনতা)		Does this community have public schools? (এই সম্প্রদায়ে কি পাবলিক স্কুল আছে?)	Yes [] 1 No [] 0
		Is the number of schools in this community sufficient to serve the number of young children in the community? (এই সম্প্রদায়ের স্কুলগুলির সংখ্যা কি সম্প্রদায়ের ছোট শিশুদের সংখ্যাকে শিক্ষার সুযোগ দেয়ার জন্য যথেষ্ট?)	Yes [] 1 No [] 0
		Are the number of teachers in these schools sufficient for the number of children? (এই বিদ্যালয়গুলিতে শিক্ষকদের সংখ্যা কি শিশুদের সংখ্যার জন্য যথেষ্ট?)	Yes [] 1 No [] 0
		The physical condition of the schools are (বিদ্যালয়গুলির ভৌত অবস্থা হল)	Very good [] 5 Good [] 4 Average [] 3 Poor [] 2 Very poor [] 1
		What percentage of young children attend public preschools? (কত শতাংশ ছোট শিশু সরকারি প্রাক বিদ্যালয়ে যায়?)	All children [] 5 Most children [] 4 About half of the children [] 3 Less than half [] 2 Very few/none [] 1
		Is there an adult literacy campaign or program for the community? (এই সম্প্রদায়ে কি কোন প্রাপ্তবয়স্কদের জন্য সাক্ষরতার প্রচারণা বা কর্মসূচি রয়েছে?)	Yes [] 1 No [] 0
		Are there training programs/ awareness building program for	Yes [] 1 No [] 0

		this community? (এই সম্প্রদায়ের জন্য কি প্রশিক্ষণ কর্মসূচি/সচেতনতা তৈরির কর্মসূচি রয়েছে?)																																	
		What are the two principal reasons that people from this community do not attend training programs/ awareness building program? (এই সম্প্রদায়ের লোকেরা প্রশিক্ষণ কর্মসূচি/সচেতনতা তৈরির কর্মসূচিতে অংশ না নেওয়ার দুটি প্রধান কারণ কী?)	(a) _____ (b) _____																																
Health (স্বাস্থ্য)		Does this community have a health clinic or hospital? (এই সম্প্রদায়ে কি কোন স্বাস্থ্য ক্লিনিক বা হাসপাতাল আছে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0																																
		Does the health clinic or hospital regularly have sufficient? (স্বাস্থ্য ক্লিনিক বা হাসপাতাল কি নিয়মিত পর্যাপ্ত পরিমাণ আছে?)	<table border="0"> <tr> <td></td> <td>Sufficient</td> <td>Insufficient</td> <td>None</td> </tr> <tr> <td>a. Basic medicines</td> <td><input type="checkbox"/> 3</td> <td><input type="checkbox"/> 2</td> <td><input type="checkbox"/> 1</td> </tr> <tr> <td>b. Equipment/instruments</td> <td><input type="checkbox"/> 3</td> <td><input type="checkbox"/> 2</td> <td><input type="checkbox"/> 1</td> </tr> <tr> <td>c. Patient beds</td> <td><input type="checkbox"/> 3</td> <td><input type="checkbox"/> 2</td> <td><input type="checkbox"/> 1</td> </tr> <tr> <td>d. Ambulances</td> <td><input type="checkbox"/> 3</td> <td><input type="checkbox"/> 2</td> <td><input type="checkbox"/> 1</td> </tr> <tr> <td>e. Physicians</td> <td><input type="checkbox"/> 3</td> <td><input type="checkbox"/> 2</td> <td><input type="checkbox"/> 1</td> </tr> <tr> <td>f. Nurses</td> <td><input type="checkbox"/> 3</td> <td><input type="checkbox"/> 2</td> <td><input type="checkbox"/> 1</td> </tr> <tr> <td>g. Other health staff</td> <td><input type="checkbox"/> 3</td> <td><input type="checkbox"/> 2</td> <td><input type="checkbox"/> 1</td> </tr> </table>		Sufficient	Insufficient	None	a. Basic medicines	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	b. Equipment/instruments	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	c. Patient beds	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	d. Ambulances	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	e. Physicians	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	f. Nurses	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	g. Other health staff	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1
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g. Other health staff	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1																																
	Does this community have a family planning program? (এই সম্প্রদায়ের কি কোনও পরিবার পরিকল্পনা কর্মসূচি রয়েছে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0																																	
	Who offers the program? (কারা এই কর্মসূচির প্রস্তাব দেয়?)	Government <input type="checkbox"/> 4 NGO <input type="checkbox"/> 3 Private facility <input type="checkbox"/> 2 Other (specify) <input type="checkbox"/> 1																																	
Migration (অভিবাসন)		Are there members of this community who go to other places to work during certain periods of the year? (এই সম্প্রদায়ে কি এমন কোনও সদস্য আছেন যারা বছরের নির্দিষ্ট সময়কালে অন্য জায়গায় কাজ করতে যান?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0																																
		Do more women than men leave to work? Do more men than women leave to work? Or equal numbers of women and men? (পুরুষদের তুলনায় মহিলারা কি বেশি কাজ করতে যান? নারীদের চেয়ে পুরুষরা কি বেশি কাজে চলে যায়? নাকি সমান সংখ্যক নারী ও পুরুষ?)	More women than men <input type="checkbox"/> 1 More men than women <input type="checkbox"/> 2 Equal numbers <input type="checkbox"/> 3																																
		Where do they go to work primarily? (তারা মূলত কোথায় কাজ করতে যায়?)	To a city in this region <input type="checkbox"/> 1 To a city in another region <input type="checkbox"/> 2 To a city in another country <input type="checkbox"/> 3 To a rural area in this region <input type="checkbox"/> 4 To a rural area in another region <input type="checkbox"/> 5 To a rural area in another country <input type="checkbox"/> 6																																
		Are there people from other communities who come to work in this community? (অন্য সম্প্রদায়	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0																																

		থেকে কি এমন লোক আছে যারা এই সম্প্রদায়ের মধ্যে কাজ করতে আসে?)					
		What are the two principal reasons the people migrate for? (অভিবাসনের দুটি প্রধান কারণ কী?)	(a) _____				
			(b) _____				
Farming Experience/Training (কৃষিকাজের অভিজ্ঞতা/প্রশিক্ষণ)		Have You Received Any Specific Training in Agriculture? (আপনি কি কৃষিতে কোনও নির্দিষ্ট প্রশিক্ষণ পেয়েছেন?)	Yes <input type="checkbox"/> 1				
			No <input type="checkbox"/> 0				
		% of time you employ in agricultural activities (শতকরা কত সময় আপনি কৃষি কাজে নিযুক্ত করেন?)	0% <input type="checkbox"/> 0				
			<=25% <input type="checkbox"/> 1				
			26-50% <input type="checkbox"/> 2				
			51-75% <input type="checkbox"/> 3				
			>75% <input type="checkbox"/> 4				
		Is there anyone to continue the business once you retire? (আপনার অবসর গ্রহণের পর ব্যবসা চালিয়ে যাওয়ার মতো কেউ কি আছে?)	Yes, for sure <input type="checkbox"/> 6				
			Quite likely <input type="checkbox"/> 5				
			May be yes, may be no <input type="checkbox"/> 4				
			Very unlikely <input type="checkbox"/> 3				
			Not for sure <input type="checkbox"/> 2				
			Don't know <input type="checkbox"/> 1				
SOCIAL CAPITAL							
<i>Response: 1-5 where 5 is the highest level</i>							
Structural Dimension-Bonding ()		In the last 12 months, how often have you met with your close family? (গত 12 মাসে, আপনি আপনার ঘনিষ্ঠ পরিবারের সঙ্গে কতবার দেখা করেছেন?)	1	2	3	4	5
		How often do you talk to your close family about agricultural/drought issues? (কৃষি/খরার সমস্যা নিয়ে আপনি আপনার ঘনিষ্ঠ পরিবারের সঙ্গে কতবার কথা বলেন?)	1	2	3	4	5
		How satisfied are you with the relationship you have with your close family? (আপনার ঘনিষ্ঠ পরিবারের সঙ্গে আপনার যে সম্পর্ক রয়েছে তাতে আপনি কতটা সন্তুষ্ট?)	1	2	3	4	5
Structural Dimension-Bridging ()		In the last 12 months, how often have you met with your friends and neighbors? (গত 12 মাসে আপনি আপনার বন্ধুবান্ধব এবং প্রতিবেশীদের সঙ্গে কতবার দেখা করেছেন?)	1	2	3	4	5
		How often do you talk to your friends and neighbors about agricultural/drought issues? (আপনি কত ঘন ঘন আপনার বন্ধু এবং প্রতিবেশীদের সঙ্গে কৃষি/খরার সমস্যা নিয়ে কথা বলেন?)	1	2	3	4	5
		How satisfied are you with the relationship you have with your friends and neighbors? (আপনার বন্ধুবান্ধব ও প্রতিবেশীদের সঙ্গে আপনার যে সম্পর্ক রয়েছে, তাতে আপনি কতটা সন্তুষ্ট?)	1	2	3	4	5
Structural Dimension-Linking		In the last year, how often have you taken active part in	1	2	3	4	5

()		gatherings of an agricultural/livestock cooperative? (গত বছরে, আপনি কতবার কৃষি/প্রাণিসম্পদ সমবায়ের সমাবেশে সক্রিয়ভাবে অংশ নিয়েছেন?)					
		In the last year, how often have you taken active part in gatherings of a professional agricultural organization? (গত বছর, আপনি কতবার একটি পেশাদার কৃষি সংস্থার সমাবেশে সক্রিয়ভাবে অংশগ্রহণ করেছেন?)	1	2	3	4	5
		How many of the professional associations cited above do you belong to? (উপরে উল্লিখিত পেশাদার সংগঠনগুলির মধ্যে আপনি কতগুলি সংগঠনের অন্তর্ভুক্ত?)	1	2	3	4	5
Generalized Social Trust ()		Which level of trust do you have with people? (মানুষের প্রতি আপনার কতটা আস্থা রয়েছে?)	1	2	3	4	5
		Which level of trust do you think exists among the neighbors of your community? (আপনার সম্প্রদায়ের প্রতিবেশীদের মধ্যে বিশ্বাসের কোন স্তর রয়েছে বলে আপনি মনে করেন?)	1	2	3	4	5
		In the last year, do you think the level of trust among the neighbors of your community has (1) decreased (2) remained equal or (3) increased? (আপনি কি মনে করেন যে, বিগত বছরে আপনার সম্প্রদায়ের প্রতিবেশীদের মধ্যে আস্থার মাত্রা (1) হ্রাস পেয়েছে, (2) সমান রয়েছে বা (3) বৃদ্ধি পেয়েছে?)	1	2	3		
Community Cohesion and Connectedness/ Community Support ()		Which of the following organizations exist in this community? (এই সম্প্রদায়ে নিম্নলিখিত সংগঠনগুলির মধ্যে কোনটি বিদ্যমান?)			Yes No		
		Which persons or organizations help or support these community-based organizations? (কোন ব্যক্তি বা সংস্থা এই সম্প্রদায়-ভিত্তিক সংস্থাকৃতিকে সহায়তা বা সমর্থন করে?)			Yes No		
		Does this community have any institution or person (either in	Yes	[] 1			
		No	[] 0				

		the community or nearby) that provides credit and loans to agricultural producers? (এই সম্প্রদায়ের কি এমন কোনও প্রতিষ্ঠান বা ব্যক্তি রয়েছে (সমাজে বা আশেপাশে) যা কৃষি উৎপাদকদের ঋণ প্রদান করে?)																															
		What are the three main persons or institutions that provide credit or loans to agricultural producers in this community? (এই সম্প্রদায়ের কৃষি উৎপাদকদের ঋণ প্রদানকারী তিনটি প্রধান ব্যক্তি বা প্রতিষ্ঠান কী কী?)	Govt. banks [] 8 Agricultural/development banks [] 7 Private banks [] 6 Agricultural credit unions or cooperatives [] 5 Private individuals [] 4 Producer associations [] 3 Warehouses or middlemen [] 2 Other (specify) [] 1																														
		What buildings do people in this community regularly use for meetings and gatherings? (এই সম্প্রদায়ের লোকেরা নিয়মিত সভা ও সমাবেশের জন্য কোন ভবনগুলি ব্যবহার করে?)	<table border="0"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>a. Community center</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>b. Personal homes</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>c. Homes of political leaders</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>d. Homes of other local leaders</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>e. Churches or religious buildings</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>f. Health center/school</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>g. Government buildings</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>h. Business/commercial buildings</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>i. Other (specify)</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> </tbody> </table>		Yes	No	a. Community center	<input type="checkbox"/> 1	<input type="checkbox"/> 0	b. Personal homes	<input type="checkbox"/> 1	<input type="checkbox"/> 0	c. Homes of political leaders	<input type="checkbox"/> 1	<input type="checkbox"/> 0	d. Homes of other local leaders	<input type="checkbox"/> 1	<input type="checkbox"/> 0	e. Churches or religious buildings	<input type="checkbox"/> 1	<input type="checkbox"/> 0	f. Health center/school	<input type="checkbox"/> 1	<input type="checkbox"/> 0	g. Government buildings	<input type="checkbox"/> 1	<input type="checkbox"/> 0	h. Business/commercial buildings	<input type="checkbox"/> 1	<input type="checkbox"/> 0	i. Other (specify)	<input type="checkbox"/> 1	<input type="checkbox"/> 0
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SPECIAL INSTRUCTION

Housing Structure

Jhupri Jhupri has a ceiling which is less than 4 feet and is made of very cheap construction materials like straw, bamboo, chhan (grass), goalpata (leaves), polythene sheets, gunny bags etc.

Katcha/Tin house It is a structure of normal height and has roof and walls made of bamboo/jute sticks/goalpata/straw etc. The floor is made of mud/soil.

Chhai It is a half bow shaped small structure open in front and rear side. It has very low height so that inhabitants enter it by scrawling and can hardly sit upright inside it.

Tin-shed A tin-shed is a structure of normal height and its roof is made of corrugated /plain tin sheets but it does not have wall made of bricks.

Semi-Pucca It is a structure of normal height and has walls made of bricks. The roof is made of any materials other than cement/concrete.

Pucca The structure which has its roof and wall made of bricks and mortar.

Likert Scale

Very good extremely effective performance

Good More than adequate for effective performance

Acceptable adequate for effective performance

Poor Insufficient for performance requirements

Very poor Significantly below criteria required for successful job performance

Appendix B

KEY INFORMANT INTERVIEW FOR COMMUNITY LEADER

Date (dd/mm/yy)	Interview number

To be completed by the interviewer

Introduction

This interview aims to assess the community's resilience to drought in the barind tract region of Bangladesh taking into consideration the community capital perspective.

Guidance: The survey should target the key leadership (2-5 persons) from the Community Development Committee or similar structure.

READ THE INFORMED CONSENT FORM TO THE RESPONDENT(S) AND ASK THEM TO SIGN IT.

a. What is your current position? (WRITE THE RESPONSE BELOW)

Name:
Position:

b. What is your current place of work or institution? (WRITE THE RESPONSE BELOW)

Organization:
Phone:
Email:

c. Respondent Information: (WRITE THE RESPONSE BELOW)

SECTION I : COMMUNITY CHARACTERISTICS		
Sl.	Attribute	Possible Responses
1.	How many years has the community been in existence? (কত বছর ধরে এই সম্প্রদায় এখানে বসবাস করছে?)	More than 20 years [] 1 Between 10 and 20 years [] 2 Fewer than 10 years [] 3
2.	Overall, the level of living of this community may be characterized as (সামগ্রিকভাবে, এই সম্প্রদায়ের জীবনযাত্রার মান কেমন?)	Wealthy [] 1 Well-to-do [] 2 Average [] 3 Poor [] 4 Very poor [] 5
3.	In the last three years, the number of people living in this community has (গত তিন বছরে, এই সম্প্রদায়ে বসবাসকারী মানুষের সংখ্যা)	Increased [] 1 Decreased [] 2 Remained the same [] 3
4.	In the last three years, the overall quality of life of the people living in this community has: (consider job availability, safety and security, agricultural productivity, environment, housing, etc.) (গত তিন	Improved [] 1 Worsened [] 2 Remained the same [] 3

	বছরে, কাজের প্রাপ্যতা, নিরাপত্তা, কৃষি উৎপাদনশীলতা, পরিবেশ ও আবাসন বিবেচনায় এই সম্প্রদায়ের মানুষের সামগ্রিক জীবনযাত্রার মান)	
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SECTION II: INFRASTRUCTURE AND ACCESS TO SERVICES: AGRICULTURE		
Sl.	Attribute	Possible Responses
1.	What are the three principal agricultural or livestock activities undertaken in this community? (এই সম্প্রদায়ের তিনটি প্রধান কৃষি বা প্রাণিসম্পদ কার্যক্রম কী কী?)	(a) _____ (b) _____ (c) _____
2.	Do the agricultural workers/producers in this community receive technical assistance? (এই সম্প্রদায়ের কৃষি শ্রমিক/উৎপাদকেরা কি প্রযুক্তিগত সহায়তা পান?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2
3.	Who is the main provider of this technical assistance? (Probe whether the institution is public or private.) (এই প্রযুক্তিগত সহায়তার প্রধান সরবরাহকারী কে? (প্রতিষ্ঠানটি সরকারি না বেসরকারি, তা খতিয়ে দেখুন।)	Public institution <input type="checkbox"/> 1 Private institution <input type="checkbox"/> 2
4.	Does this community have any type of agricultural cooperative? (এই সম্প্রদায়ের কি কোনও ধরনের কৃষি সমবায় রয়েছে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2
5.	Does this community have any institution or person (either in the community or nearby) that provides credit and loans to agricultural producers? (এই সম্প্রদায়ে কি এমন কোন প্রতিষ্ঠান বা ব্যক্তি রয়েছে (সমাজে বা আশেপাশে) যা কৃষি উৎপাদকদের ঋণ প্রদান করে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2
6.	What are the three main persons or institutions that provide credit or loans to agricultural producers in this community? (এই সম্প্রদায়ের কৃষি উৎপাদকদের ঋণ প্রদানকারী তিনটি প্রধান ব্যক্তি বা প্রতিষ্ঠান কী কী?)	Govt. banks <input type="checkbox"/> 1 Agricultural/development banks <input type="checkbox"/> 2 Private banks <input type="checkbox"/> 3 Agricultural credit unions or cooperatives <input type="checkbox"/> 4 Private individuals <input type="checkbox"/> 5 Producer associations <input type="checkbox"/> 6 Warehouses or middlemen <input type="checkbox"/> 7 Other (specify) <input type="checkbox"/> 8
7.	Do the agricultural producers of this community receive loans or credits from individuals or institutions in other cities or regions? (এই সম্প্রদায়ের কৃষি উৎপাদকেরা কি অন্য শহর বা অঞ্চলের ব্যক্তি বা প্রতিষ্ঠানের কাছ থেকে ঋণ বা ক্রেডিট পান?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2
8.	What percentage of the agricultural producers in this community use loans or credits to support their activities? (এই সম্প্রদায়ের কত শতাংশ কৃষি	

	উৎপাদক তাদের কার্যকলাপকে ত্বরান্বিত করার জন্য ঋণ বা ক্রেডিট ব্যবহার করে?)	
9.	What are the two principal problems facing the agricultural producers of this community in terms of receiving loans and credits? (ঋণ গ্রহণের ক্ষেত্রে এই সম্প্রদায়ের কৃষি উৎপাদকদের দুটি প্রধান সমস্যা কী কী?)	(a) _____ (b) _____
10.	In the last three years, the harvests/yields have (গত তিন বছরে, ফসল/ফলন)	Increased <input type="checkbox"/> 1 Decreased <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 3
11.	What are the principal problems facing the agricultural producers of this community in terms of irrigation during drought period/event? (খরার সময় সেচের ক্ষেত্রে এই সম্প্রদায়ের কৃষি উৎপাদকদের প্রধান সমস্যাগুলি কী কী?)	
12.	In the last three years, the sales of agricultural/livestock products in this community have (গত তিন বছরে, এই সম্প্রদায়ের কৃষি/প্রাণিসম্পদ বিক্রয়)	Increased <input type="checkbox"/> 1 Decreased <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 3

SECTION III: COMMUNITY COHESION AND CONNECTEDNESS/ COMMUNITY SUPPORT																																									
Sl.	Attribute	Possible Responses																																							
1.	Compared to other communities, how much do people in this community trust each other in matters of lending and borrowing? (অন্যান্য সম্প্রদায়ের তুলনায়, এই সম্প্রদায়ের লোকেরা ঋণ দেওয়া এবং ঋণ নেওয়ার ক্ষেত্রে একে অপরকে কতটা বিশ্বাস করে?)	More trust than in other communities <input type="checkbox"/> 1 Less trust than in other communities <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 3																																							
2.	In the last three years, has the level of trust improved, worsened, or stayed the same? (গত তিন বছরে আস্থার স্তর কি উন্নত হয়েছে, খারাপ হয়েছে, নাকি একই রয়ে গেছে?)	Improved <input type="checkbox"/> 1 Worsened <input type="checkbox"/> 2 Remained the same <input type="checkbox"/> 3																																							
3.	Which of the following organizations exist in this community? (এই সম্প্রদায়ে নিম্নলিখিত সংগঠনগুলির মধ্যে কোনটি বিদ্যমান?)	<table border="0"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>a. Community development committee</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>b. Cooperative (fishing, agriculture, crafts)</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>c. Parent-teacher association</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>d. Health committee</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>e. Youth group</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>f. Sports group</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>g. Cultural group</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>h. Civic group</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>i. Water and sanitation committee</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>j. Disaster risk management committee</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>k. Community disaster response/emergency team</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>l. Other</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> </tbody> </table>		Yes	No	a. Community development committee	<input type="checkbox"/> 1	<input type="checkbox"/> 0	b. Cooperative (fishing, agriculture, crafts)	<input type="checkbox"/> 1	<input type="checkbox"/> 0	c. Parent-teacher association	<input type="checkbox"/> 1	<input type="checkbox"/> 0	d. Health committee	<input type="checkbox"/> 1	<input type="checkbox"/> 0	e. Youth group	<input type="checkbox"/> 1	<input type="checkbox"/> 0	f. Sports group	<input type="checkbox"/> 1	<input type="checkbox"/> 0	g. Cultural group	<input type="checkbox"/> 1	<input type="checkbox"/> 0	h. Civic group	<input type="checkbox"/> 1	<input type="checkbox"/> 0	i. Water and sanitation committee	<input type="checkbox"/> 1	<input type="checkbox"/> 0	j. Disaster risk management committee	<input type="checkbox"/> 1	<input type="checkbox"/> 0	k. Community disaster response/emergency team	<input type="checkbox"/> 1	<input type="checkbox"/> 0	l. Other	<input type="checkbox"/> 1	<input type="checkbox"/> 0
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4.	Which persons or organizations help or support these community-based organizations? (কোন ব্যক্তি বা সংস্থা এই)	<table border="0"> <thead> <tr> <th></th> <th>Yes</th> <th>No</th> </tr> </thead> <tbody> <tr> <td>a. Local government</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>b. National government</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>c. Politicians</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> </tbody> </table>		Yes	No	a. Local government	<input type="checkbox"/> 1	<input type="checkbox"/> 0	b. National government	<input type="checkbox"/> 1	<input type="checkbox"/> 0	c. Politicians	<input type="checkbox"/> 1	<input type="checkbox"/> 0																											
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	সম্প্রদায়-ভিত্তিক সংস্থাগুলিকে সহায়তা বা সমর্থন করে?)	d. Religious organizations <input type="checkbox"/> 1 <input type="checkbox"/> 0 e. School/teachers <input type="checkbox"/> 1 <input type="checkbox"/> 0 f. Nongovernmental organizations <input type="checkbox"/> 1 <input type="checkbox"/> 0 g. Business group <input type="checkbox"/> 1 <input type="checkbox"/> 0 h. Service club <input type="checkbox"/> 1 <input type="checkbox"/> 0 i. Prosperous citizens <input type="checkbox"/> 1 <input type="checkbox"/> 0 j. The community as a whole <input type="checkbox"/> 1 <input type="checkbox"/> 0																														
5.	Does this community have any institution or person (either in the community or nearby) that provides credit and loans to agricultural producers? (এই সম্প্রদায়ে কি এমন কোন প্রতিষ্ঠান বা ব্যক্তি রয়েছে (সমাজে বা আশেপাশে) যা কৃষি উৎপাদকদের ঋণ প্রদান করে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 0																														
6.	What are the three main persons or institutions that provide credit or loans to agricultural producers in this community? (এই সম্প্রদায়ের কৃষি উৎপাদকদের ঋণ প্রদানকারী তিনটি প্রধান ব্যক্তি বা প্রতিষ্ঠান কী কী?)	Govt. banks <input type="checkbox"/> 1 Agricultural/development banks <input type="checkbox"/> 2 Private banks <input type="checkbox"/> 3 Agricultural credit unions or cooperatives <input type="checkbox"/> 4 Private individuals <input type="checkbox"/> 5 Producer associations <input type="checkbox"/> 6 Warehouses or middlemen <input type="checkbox"/> 7 Other (specify) <input type="checkbox"/> 8																														
7.	What buildings do people in this community regularly use for meetings and gatherings? (এই সম্প্রদায়ের লোকেরা নিয়মিত সভা ও সমাবেশের জন্য কোন ভবনগুলি ব্যবহার করে?)	<table border="0"> <tr> <td></td> <td>Yes</td> <td>No</td> </tr> <tr> <td>a. Community center</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>b. Personal homes</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>c. Homes of political leaders</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>d. Homes of other local leaders</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>e. Churches or religious buildings</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>f. Health center/school</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>g. Government buildings</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>h. Business/commercial buildings</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> <tr> <td>i. Other (specify)</td> <td><input type="checkbox"/> 1</td> <td><input type="checkbox"/> 0</td> </tr> </table>		Yes	No	a. Community center	<input type="checkbox"/> 1	<input type="checkbox"/> 0	b. Personal homes	<input type="checkbox"/> 1	<input type="checkbox"/> 0	c. Homes of political leaders	<input type="checkbox"/> 1	<input type="checkbox"/> 0	d. Homes of other local leaders	<input type="checkbox"/> 1	<input type="checkbox"/> 0	e. Churches or religious buildings	<input type="checkbox"/> 1	<input type="checkbox"/> 0	f. Health center/school	<input type="checkbox"/> 1	<input type="checkbox"/> 0	g. Government buildings	<input type="checkbox"/> 1	<input type="checkbox"/> 0	h. Business/commercial buildings	<input type="checkbox"/> 1	<input type="checkbox"/> 0	i. Other (specify)	<input type="checkbox"/> 1	<input type="checkbox"/> 0
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i. Other (specify)	<input type="checkbox"/> 1	<input type="checkbox"/> 0																														
8.	Which members of the community participate most in solving the issues facing the community? (সম্প্রদায়ের কোন সদস্যরা সম্প্রদায়ের সমস্যা সমাধানে সবচেয়ে বেশি অংশগ্রহণ করে?)	(a) By gender Men <input type="checkbox"/> 1 Women <input type="checkbox"/> 2 Men and women equally <input type="checkbox"/> 3 Neither participate <input type="checkbox"/> 4 (b) By age Youth and adolescents <input type="checkbox"/> 1 Adults <input type="checkbox"/> 2 Older persons <input type="checkbox"/> 3 Youth, adults, and elders equally <input type="checkbox"/> 4 None participate <input type="checkbox"/> 5 (c) By employment status Workers <input type="checkbox"/> 1 Unemployed or nonworkers <input type="checkbox"/> 2 Workers and nonworkers equally <input type="checkbox"/> 3 Neither participate <input type="checkbox"/> 4																														
9.	In the last three years, has the community organized to address a need or problem? (গত তিন বছরে, সম্প্রদায় কি কোন প্রয়োজন বা সমস্যা সমাধানের জন্য সংগঠিত হয়েছে?)	Yes <input type="checkbox"/> 1 No <input type="checkbox"/> 2																														
10.	Around what issue(s) did the community organize? (সম্প্রদায়টি কোন বিষয় (গুলি) ঘিরে সংগঠিত হয়েছিল?)	(a) _____ (b) _____																														

11.	Was/were the initiative(s) successful? (উদ্যোগ (গুলি) কি সফল হয়েছিল?)	Yes	No	Ongoing	
		a. Initiative #1	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3
		b. Initiative #2	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

SECTION IV: NEED ASSESSMENT		
1.	What are the main problems or needs that community members feel must be addressed or solved? (মূল সমস্যাগুলি বা চাহিদাগুলি কী কী যা সম্প্রদায়ের সদস্যরা মনে করেন যে অবশ্যই সমাধান করা উচিত?)	
2.	Are there any specific assistance programs to this community? (এই সম্প্রদায়ের জন্য কি কোন বিশেষ সহায়তা কর্মসূচি রয়েছে?)	Yes <input type="checkbox"/> 1 (go to question 13) No <input type="checkbox"/> 2
3.	What are the two main programs and the institutions that support them? (দুটি প্রধান কর্মসূচি এবং তাদের সমর্থনকারী প্রতিষ্ঠানগুলি কী কী?)	(a) Program/institution _____ (b) Program/institution _____
4.	What are the current coping strategies utilized by the community to cope with and adapt to existing drought situations? (বিদ্যমান খরা পরিস্থিতি মোকাবেলা এবং মানিয়ে নেওয়ার জন্য সম্প্রদায়ের দ্বারা ব্যবহৃত বর্তমান মোকাবেলা কৌশলগুলি কী কী?)	
5.	How could existing coping and adaptive strategies be strengthened and further developed in order to overcome these difficulties? (এই সমস্যাগুলি কাটিয়ে ওঠার জন্য কীভাবে বিদ্যমান মোকাবেলা এবং অভিযোজিত কৌশলগুলিকে শক্তিশালী ও আরও উন্নত করা যেতে পারে?)	
6.	Which additional coping and adaptive mechanisms (including technologies, infrastructure, information, livelihood options, services, and institutional mechanisms) would help to alleviate the current difficulties the community is facing? (কোন অতিরিক্ত মোকাবেলা এবং অভিযোজিত ব্যবস্থা (প্রযুক্তি, পরিকাঠামো, তথ্য, জীবিকার বিকল্প, পরিষেবা এবং প্রাতিষ্ঠানিক ব্যবস্থা সহ) সম্প্রদায়ের বর্তমান সমস্যাগুলি দূর করতে সহায়তা করবে?)	
7.	What type of institutional support would the community need to overcome the current difficulties? (বর্তমান সমস্যাগুলি কাটিয়ে উঠতে সম্প্রদায়ের কী ধরনের প্রাতিষ্ঠানিক সহায়তার প্রয়োজন হবে?)	

Appendix C

KEY INFORMANT INTERVIEW (KII) FOR CDC/LOCAL INSTITUTION

Location	Date (dd/mm/yy)	Time

To be completed by the interviewer

1. Introduction

This interview aims to assess the community's resilience to drought in the barind tract region of Bangladesh taking into consideration the community capital perspective.

Guidance: The survey should target the key leadership (2-5 persons) from the Community Development Committee or similar structure.

READ THE INFORMED CONSENT FORM TO THE RESPONDENT(S) AND ASK THEM TO SIGN IT.

b. What is your current position? (WRITE THE RESPONSE BELOW)

Name:
Position:

c. What is your current place of work or institution? (WRITE THE RESPONSE BELOW)

Organization:
Phone:
Email:

Sl.	Attribute	Status	Instruction
1	Can you describe the role of community development committee and its experience in addressing climate change and drought in the barind tract region of Bangladesh? (আপনি কি বাংলাদেশের বরেন্দ্র অঞ্চলে জলবায়ু পরিবর্তন ও খরা মোকাবেলায় কমিউনিটি ডেভেলপমেন্ট কমিটির ভূমিকা এবং তার অভিজ্ঞতা বর্ণনা করতে পারেন?)		
2	In your view, how do climate change and drought related hazards affect the livelihoods (daily activities and living conditions) of the people living here? (আপনার দৃষ্টিতে, জলবায়ু পরিবর্তন এবং খরা সম্পর্কিত বিপত্তিগুলি এখানে বসবাসকারী মানুষের জীবিকাকে (দৈনন্দিন কাজকর্ম এবং জীবনযাত্রার অবস্থা) কীভাবে প্রভাবিত করে?)		
3	What do the communities do in		

	<p>response to climate change induced drought hazards?/ What are the current coping strategies utilized by the community to cope with and adapt to existing drought situations? (জলবায়ু পরিবর্তনজনিত খরার ঝুঁকির প্রতিক্রিয়া হিসাবে সম্প্রদায়গুলি কী করে?/বিদ্যমান খরা পরিস্থিতি মোকাবেলা এবং মানিয়ে নেওয়ার জন্য সম্প্রদায়ের দ্বারা ব্যবহৃত বর্তমান মোকাবেলা কৌশলগুলি কী কী?)</p>		
4	<p>What are the existing measures, initiatives, or programs implemented by the local government, or other stakeholders to mitigate climate change induced drought impacts and enhance the community's resilience? (জলবায়ু পরিবর্তনজনিত খরার প্রভাব প্রশমিত করতে এবং সম্প্রদায়ের স্থিতিস্থাপকতা বাড়াতে স্থানীয় সরকার বা অন্যান্য অংশীদারদের দ্বারা বাস্তবায়িত বিদ্যমান ব্যবস্থা, উদ্যোগ বা কর্মসূচিগুলি কী কী?)</p>		
5	<p>What concrete role does CDC/ other institutions active in the area play in supporting the local people in their efforts to adapt to, or cope with drought situation? (খরা পরিস্থিতির সঙ্গে খাপ খাইয়ে নেওয়ার বা মোকাবিলা করার প্রচেষ্টায় স্থানীয় জনগণকে সহায়তা করার ক্ষেত্রে সিডিসি/এলাকায় সক্রিয় অন্যান্য প্রতিষ্ঠানগুলি কী দৃঢ় ভূমিকা পালন করে?)</p>		
6	<p>What kind of concrete support do you offer (extension services, knowledge transfer, technological support, income opportunities, loans, and so on)? (আপনি কী ধরনের সুনির্দিষ্ট সহায়তা প্রদান করেন (সম্প্রসারণ পরিষেবা, জ্ঞান স্থানান্তর, প্রযুক্তিগত সহায়তা, আয়ের সুযোগ, ঋণ ইত্যাদি)</p>		
7	<p>Who is directly benefitting from your organisation's services? Do women and men benefit equally? (আপনার সংস্থার পরিষেবা থেকে কারা সরাসরি উপকৃত হচ্ছে? নারী ও পুরুষ কি সমানভাবে উপকৃত হয়?)</p>		
8	<p>In your opinion, what are the biggest challenge facing local communities at present to cope with climate change induced drought vulnerability? (আপনার মতে, জলবায়ু পরিবর্তনজনিত খরার ঝুঁকি মোকাবেলায় বর্তমানে স্থানীয় সম্প্রদায়ের সামনে সবচেয়ে বড় চ্যালেঞ্জ কী?)</p>		
9	<p>What should be done first to overcome these challenges? (এই সমস্যাগুলি কাটিয়ে ওঠার জন্য প্রথমে কী করা উচিত?)</p>		
10	<p>How can your organization support these communities? (আপনার সংগঠন কীভাবে</p>		

	এই সম্প্রদায়গুলিকে সহায়তা করতে পারে?)		
11	Does your institution have any linkages to other institutions active in the area (civic, public, private)? Could you please explain the way you are collaborating with these other institutions? (আপনার প্রতিষ্ঠানের কি এলাকায় সক্রিয় অন্যান্য প্রতিষ্ঠানের (নাগরিক, সরকারি, বেসরকারি) সঙ্গে কোনও যোগসূত্র আছে? আপনি কি ব্যাখ্যা করতে পারেন যে আপনি কীভাবে এই অন্যান্য প্রতিষ্ঠানের সঙ্গে সহযোগিতা করছেন?)		
12	In what way would your organisation need external support (resources, skills, or capacities) to help local communities to overcome these challenges? (এই চ্যালেঞ্জগুলি কাটিয়ে উঠতে স্থানীয় সম্প্রদায়গুলিকে সাহায্য করার জন্য আপনার সংস্থার বাহ্যিক কি ধরনের সহায়তার (সম্পদ, দক্ষতা বা সক্ষমতা) প্রয়োজন হবে?)		

SPECIAL INSTRUCTION

CBO

There are several types of community-based organizations (CBOs) that can be found in slum areas of Bangladesh. Here are some common types:

Community Development Committees (CDCs): CDCs are typically formed by a group of residents within a slum community to work on common issues such as sanitation, water supply, and waste management. They may also engage in advocacy and community organizing activities.

Women's groups: Women's groups are often formed within slum communities to address issues such as domestic violence, women's health, and economic empowerment. These groups can provide a safe space for women to discuss their concerns and support each other.

Youth groups: Youth groups can be formed to provide educational and recreational activities for young people in the slum community. They may also engage in community service activities and advocacy.

Savings groups: Savings groups can be formed to promote financial inclusion and provide access to credit and savings services to slum residents who may not have access to formal banking systems.

Health committees: Health committees can be formed to address issues related to health and hygiene within the slum community, such as promoting safe drinking water, sanitation, and disease prevention.

Appendix D

FOCUS GROUP DISCUSSION (FGD) WITH COMMUNITY PEOPLE

Location	Date (dd/mm/yy)	Time

To be completed by the interviewer

Moderator:

Note Taker:

PARTICIPANT'S PROFILE					
SL No.	Name	Age	Gender	Occupation	Contact No.
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

OUTLINE FOR FGD

- 1) Can you share your experiences with drought in this region and how it has impacted your community? (আপনি কি এই অঞ্চলের খরা নিয়ে আপনার অভিজ্ঞতা এবং এটি আপনার সম্প্রদায়কে কীভাবে প্রভাবিত করেছে তা জানাতে পারেন?)
- 2) From your perspective, what resources or assets or capital does the community possess that contribute to its resilience in the face of drought? (আপনার দৃষ্টিকোণ থেকে, এই সম্প্রদায়ের কোন ধরনের সম্পদ/ মূলধন রয়েছে যা খরার মুখে এর সহনশীলতায় অবদান রাখে/ খরার ঝুঁকি প্রতিহত করতে সহায়তা করে?)
- 3) In what ways do social relationships within the community play a role in its ability to withstand and recover from drought? (কোন কোন উপায়ে সমাজের মধ্যে সামাজিক সম্পর্ক খরা সহ্য ও পুনরুদ্ধারের ক্ষমতার ক্ষেত্রে ভূমিকা পালন করে?)

- 4) How has the economic situation of the community influenced its resilience in times of drought? (খরার সময়ে এই সম্প্রদায়ের অর্থনৈতিক পরিস্থিতি কীভাবে খরার ঝুঁকি প্রতিহত করতে সহায়তা করেছে?)
- 5) Are there any external factors or interventions that have positively or negatively impacted the community's resilience to drought? (এমন কোনও বাহ্যিক কারণ বা হস্তক্ষেপ আছে কি যা খরার প্রতি সম্প্রদায়ের সহনশীলতাকে ইতিবাচক বা নেতিবাচকভাবে প্রভাবিত করেছে?)
- 6) Can you share examples of traditional knowledge or practices that the community has used to cope with drought in the past? (আপনি কি প্রচলিত জ্ঞান বা অনুশীলনের উদাহরণ দিতে পারেন যা সম্প্রদায় অতীতে খরা মোকাবেলায় ব্যবহার করেছে?)
- 7) How does the community currently manage and utilize groundwater resources during periods of drought, and what role do you believe groundwater plays in the community's overall resilience? (বর্তমানে খরা চলাকালীন সময়ে সম্প্রদায়টি ভূগর্ভস্থ জলের ব্যবস্থাপনা কীভাবে করে এবং সম্প্রদায়ের সামগ্রিক খরা সহনশীলতায় ভূগর্ভস্থ জল কী ভূমিকা পালন করে বলে আপনি মনে করেন?)
- 8) How does the community currently manage and utilize surface water resources during periods of drought, and what role do you believe surface water plays in the community's overall resilience? (বর্তমানে খরা চলাকালীন সময়ে সম্প্রদায়টি ভূপৃষ্ঠের জলের ব্যবস্থাপনা কীভাবে করে এবং সম্প্রদায়ের সামগ্রিক খরা সহনশীলতায় ভূপৃষ্ঠের জল কী ভূমিকা পালন করে বলে আপনি মনে করেন?)
- 9) How do you see the integration of modern and traditional knowledge in the community's strategies for dealing with drought? (খরা মোকাবেলায় সমাজের কৌশলগুলিতে আধুনিক ও প্রচলিত জ্ঞানের সংহতকরণকে আপনি কীভাবে দেখেন?)
- 10) Are there specific roles or individuals within the community who are considered experts or leaders in drought preparedness and adaptation? (খরার প্রস্তুতি এবং অভিযোজনে বিশেষজ্ঞ বা নেতা হিসাবে বিবেচিত সম্প্রদায়ের মধ্যে কি নির্দিষ্ট ভূমিকা বা ব্যক্তি রয়েছে?)
- 11) How do community members typically communicate and share information about drought-related issues? (কীভাবে সম্প্রদায়ের সদস্যরা সাধারণত খরা-সম্পর্কিত বিষয়গুলি সম্পর্কে যোগাযোগ এবং তথ্য ভাগ করে নেন?)

- 12) In your opinion, how has climate change affected the frequency or intensity of drought in this region? (আপনার মতে, জলবায়ু পরিবর্তন কীভাবে এই অঞ্চলে খরার ফ্রিকোয়েন্সি বা তীব্রতাকে প্রভাবিত করেছে?)
- 13) What challenges do you think the community faces in implementing effective drought resilience strategies? (কার্যকর খরা প্রতিরোধের কৌশল বাস্তবায়নে সম্প্রদায়টিতে কী কী চ্যালেঞ্জ আছে বলে আপনি মনে করেন?)
- 14) How involved do you feel the community is in decision-making processes related to drought preparedness and response? (খরা প্রস্তুতি এবং প্রতিক্রিয়া সম্পর্কিত সিদ্ধান্ত গ্রহণের প্রক্রিয়াগুলিতে সম্প্রদায়টি কতটা সুসংহত বলে আপনি মনে করেন?)
- 15) Are there any existing community initiatives or organizations that focus on drought resilience, and how effective do you think they are? (খরা প্রতিরোধের উপায় নিয়ে কাজ করছে এমন কোন বিদ্যমান সম্প্রদায়ের উদ্যোগ বা সংস্থা সম্প্রদায়ে/ অত্র এলাকায় আছে কি এবং তাদের উদ্যোগ কতটা কার্যকর বলে আপনি মনে করেন?)
- 16) What measures or changes do you think could enhance the community's resilience to drought in the future? (কোন পদক্ষেপ বা পরিবর্তনগুলি ভবিষ্যতে খরার বিরুদ্ধে সম্প্রদায়ের সহনশীলতাকে বাড়িয়ে তুলতে পারে বলে আপনি মনে করেন?)
- 17) How do you envision the role of external agencies or government in supporting the community's efforts to build resilience against drought? (খরার বিরুদ্ধে সহনশীলতা গড়ে তোলার জন্য সম্প্রদায়ের প্রচেষ্টাকে সমর্থন করার ক্ষেত্রে বহিরাগত সংস্থা বা সরকারের ভূমিকার কথা আপনি কীভাবে কল্পনা করেন?)

Appendix E- Reliability Statistics of Different Dimensions of Community Capital

Natural Capital

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Ownership of Agriculture land	27.10	12.423	-.120	.725
Technical assistance of agricultural workers	27.64	11.733	.146	.699
Agricultural cooperative	27.61	12.303	-.078	.718
Provision of credit and loans to agricultural producers	27.37	10.888	.338	.681
Status of harvests/yields	26.25	9.617	.517	.653
Garbage dumping	26.88	11.916	.150	.698
Standing water or stagnant pools	26.85	12.363	-.117	.709
Polluting industries	27.78	12.828	-.468	.721
Present Environmental condition	24.04	11.893	.060	.707
Last three years' environmental conditions	26.21	10.377	.334	.682
Availability of safe drinking water source	26.88	11.494	.396	.684
Part of the community having pipe-borne/ tubewell water	23.51	8.910	.680	.624
Last three years' potable water service	26.05	9.968	.544	.653
Current potable water service	26.85	12.082	.101	.700
Direct access to water body/irrigation water	23.69	8.387	.673	.620
Last three years' irrigation water service	26.19	8.820	.750	.615
Current irrigation water service	24.08	11.865	.061	.708

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
27.81	12.245	3.499	17

Physical Capital

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Community has household electrical service	61.95	28.959	.510	.640
Last three years' electrical service	64.60	30.919	.222	.667
Current quality of electrical service	62.53	32.223	.125	.675
Construction material of roof	62.90	27.230	.210	.692
Construction material of floor	61.85	22.788	.630	.597
Sanitary services	59.69	24.156	.643	.600
Public telephones/cell phone	64.22	32.608	.016	.686
Last three years' public telephone/cell phone service	65.37	32.610	.133	.674
Current public telephone/cell phone service	64.38	31.515	.316	.663
Community access to public Internet service	62.10	32.279	.078	.679
Public Internet access services availability	62.25	25.556	.603	.612
Existence of public market	61.63	28.228	.351	.652
Openness of market	65.24	33.228	.000	.678
Last three years' market quality and service	63.46	33.106	-.010	.682
Number of people use the market	64.28	32.770	.205	.673
Public transport system	61.66	30.903	.379	.658
Public transportation availability	65.24	33.228	.000	.678
Last three years' public transportation quality and service	63.27	33.244	-.023	.679
User of Public transportation	64.34	32.456	.198	.672

Current public transportation service status	61.66	31.602	.249	.666
Community has household electrical service	62.19	33.573	-.101	.693

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
66.24	33.228	5.764	21

Financial Capital

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Median household income	4.148	4.305	.508	.762
Employment	4.598	4.214	.530	.759
Alternative Income Source (on-farm and off-farm)	5.798	4.681	.303	.794
Community Fund/ Local emergency fund	5.984	4.373	.426	.777
Government support for drought affected sector/ Access to national fund/ Agricultural Support	6.084	4.136	.574	.751
Investment in Water Infrastructure	6.245	4.602	.408	.777
Savings	6.216	4.267	.583	.751
Health insurance	6.248	4.225	.647	.742

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
6.474	5.515	2.3484	8

Human Capital

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Existence of public schools	34.74	8.677	.000	.706
Adequacy of number of schools in this community to serve the number of young children	34.81	8.233	.264	.695
Adequacy of number of teachers in these schools	34.81	8.233	.264	.695
Physical condition of the schools	31.55	5.596	.748	.609
Percentage of young children attend public preschools	31.09	7.135	.428	.673
Existence of adult literacy campaign or program	35.46	7.664	.323	.687
Training programs/ awareness building program for this community	35.52	7.869	.274	.692
Basic medicines	33.35	6.997	.559	.656
Equipment instruments	33.71	8.359	.273	.696
Patient beds	33.74	8.140	.316	.691
Ambulances	33.74	8.677	.000	.706
Nurses	33.70	8.424	.091	.707
Family planning program	34.74	8.677	.000	.706
Program offering entity	33.01	7.480	.411	.677
Places people go to work primarily	34.11	7.166	.496	.665
Specific Training in Agriculture	35.55	8.102	.185	.701
Time employing in agricultural activities	34.14	7.574	.196	.712
Existence of anyone to continue the agricultural business	29.84	8.748	-.098	.728

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
35.74	8.677	2.946	18

Social Capital




Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Frequency of meeting with close family	49.40	101.115	.812	.859
Frequency of talking to close family about agricultural/drought issues	49.70	100.990	.734	.861
Satisfaction with the relationship with close family	49.56	99.328	.796	.858
Frequency of meeting with friends and neighbors	49.42	105.953	.690	.863
Frequency of talking to friends and neighbors about agricultural/drought issues	49.65	104.140	.608	.865
Satisfaction with the relationship with friends and neighbors	49.35	102.218	.801	.859
Frequency of taken active part in gatherings of an agricultural/livestock cooperative	51.36	107.480	.486	.868
Frequency of taken active part in gatherings of a professional agricultural organization	51.34	108.931	.346	.874
Belongingness to professional associations	51.45	110.797	.297	.875
Level of trust with people	50.05	105.658	.674	.863
Level of trust among the neighbors of the community	50.08	108.276	.593	.866
Community development committee	52.68	120.577	-.164	.877
Cooperative fishing agriculture crafts	52.64	119.027	.003	.875
Parent teacher association	52.91	119.543	-.053	.877
Health committee	52.61	117.214	.228	.873
Youth group	52.90	114.886	.381	.871
Sports group	52.75	114.180	.483	.869
Cultural group	53.15	113.385	.586	.868
Civic group	53.44	119.216	.000	.874
Water and sanitation committee	53.34	117.514	.254	.873
Disaster risk management committee	53.44	119.216	.000	.874

Community disaster response emergency team	53.40	118.991	.046	.874
Local government	52.44	119.216	.000	.874
National government	52.47	117.617	.385	.872
Politicians	52.75	117.432	.156	.874
Religious organizations	52.85	115.766	.302	.872
Schoolteachers	52.81	116.715	.216	.873
Non-governmental organizations	53.13	114.621	.445	.870
Business group	53.25	114.388	.556	.869
Service club	53.30	116.306	.379	.871
Prosperous citizens	53.44	119.216	.000	.874
The community as a whole	53.40	119.423	-.059	.875
Existence of any institution or person that provides credit and loans to agricultural producers	53.06	118.781	.019	.875
Govt banks	52.44	119.216	.000	.874
Agricultural development banks	52.49	118.256	.186	.873
Private banks	52.78	120.195	-.116	.877
Agricultural credit unions or cooperatives	53.25	117.117	.230	.873
Private individuals	53.18	116.106	.312	.872
Producer associations	53.44	119.216	.000	.874
Warehouses or middlemen	53.44	119.216	.000	.874
Community center	52.97	110.775	.779	.865
Personal homes	52.59	116.337	.347	.872
Homes of political leaders	52.52	116.642	.416	.871
Homes of other local leaders	52.61	117.336	.210	.873
Churches or religious buildings	53.22	121.415	-.260	.878
Health center/ school	52.88	118.515	.042	.875
Government buildings	52.92	117.500	.135	.874
Business/ commercial buildings	53.25	115.204	.466	.870

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
53.44	119.216	10.919	48

Appendix F- Photographs of the Study Area

Focus Group Discussion	Participants Profile				
	Gogram- Godagari				
	Sl. No.	Name	Age	Gender	Occupation
	1	Md. Sirajul	50	Male	Farmer
	2	Mizanur Rahman	67		
	3	Ehsan	37		
	4	Atikul Islam	27		
	5	Rezaul Karim	56		
	6	Soni	24		
	7	Shefali	40	Female	Housewife
	8	Nashrin	40		
9	Maghura	38			
10	Rabeya	35			
	Jogi Para- Baghmara				
	Sl. No.	Name	Age	Gender	Occupation
	1	Md. Yeasin	63	Male	Farmer
	2	Md. Taher Sardar	58		Farmer
	3	Md. Saber Ali	40		Business
	4	Md. Tohid Anik	38		Business+ Farmer
	5	Rahid Islam	27		Farmer
	6	Mst. Rejana	40	Female	Housewife
	7	Mst. Majeda	55		
	8	Mst. Asma	50		
9	Mst. Najma	38			
10	Mst. Samshun Nahar	30			
	Dhurail- Mohanpur				
	Sl. No.	Name	Age	Gender	Occupation
	1	Masud Rana	35	Male	Business
	2	Kalam Azad	47		Farmer
	3	Sohidul	35		Farmer
	4	Oboidullah	32		Business+ Farmer
	5	Alamin	32		Farmer
	6	Halima	62	Female	Housewife
	7	Sabrin	20		
	8	Ishrat Jahan	18		
9	Fency Begum	30			
10	Hajra	60			

Household Questionnaire Survey



Household Questionnaire Survey



Study Area Profile: Godagari



Study Area Profile: Baghmara



Study Area Profile: Mohanpur

