PEOPLE'S ADAPTATION PLAN – NARIKELTOLA GUCCHO GRAM

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DESCRIPTIONS

Sector
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Executive Summary

A locally led, highly participatory process identified the primary climate threat to this community to be limited access to clean drinking water. The Sheikh Hasina Abashon Prokolpo People's Adaptation Plan calls for immediate redress via four priority adaptation solutions:

(i) a 100,000-liter water tank at community level;
(ii) 20x 2,000-liter water tanks for households;
(iii) excavation of the existing pond; and
(iv) provision of three additional water supply taps connected to the Municipality source.

Financing of USD 33,000 is required to address this water need. A series of other climate adaptation solutions were identified, including building of hygienic toilets, improvements to housing and strengthening community capacity for climate resilient livelihoods. GCA and BRAC already invested USD 27,000 to establish a 20,000-litre water tank at community level and excavate an existing pond with provision of solar powered pond sand filter; and USD 1000 to provide training and distribute materials related to urban agriculture to community representatives, particularly women farmers. Further resources of USD 17,000 would be required for the remaining solutions taking total financing for this People's Adaptation Plan to USD 51,000.

The Municipality, in partnership with GCA and BRAC, has overseen the installation of a 20,000-liter water tank and 10 new toilets in the settlement, in part implementation of the People's Adaptation Plan.

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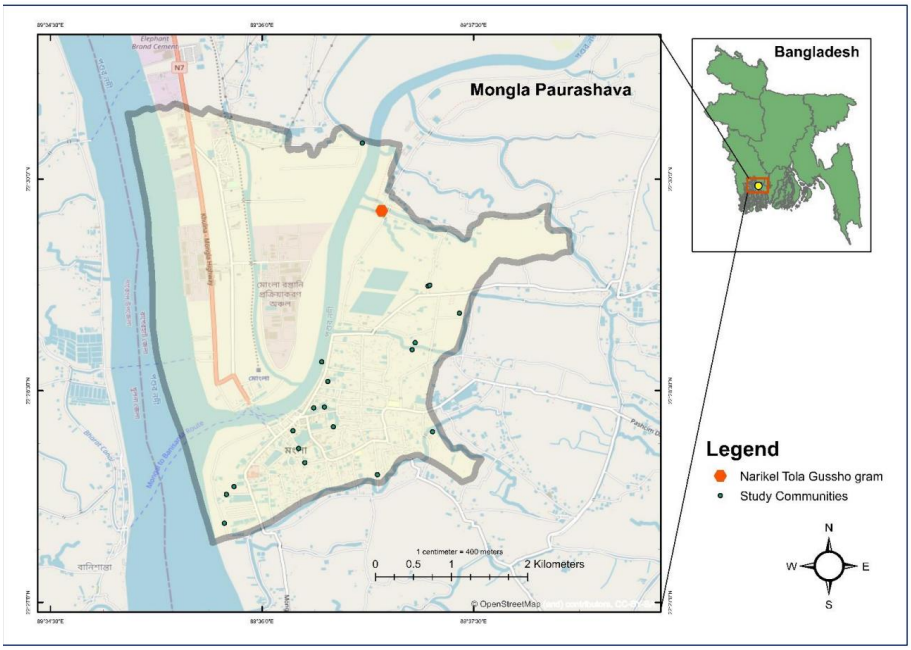
1. INTRODUCTION

1.1 About Narikeltola Guccho Gram



Sheikh Hasina Abashon Prokolpo community, locally known as Narikeltola Guccho Gram, was established by the Government of Bangladesh in 2008 in the aftermath of cyclone Aila. It was founded to provide shelter to the incoming migrants from Aila affected areas such as Satkhira, Bagerhat and Barisal. Initially, these migrants stayed in rented houses where an extremely significant portion of their income went towards rent. Housing here is free, by provision of the government. However, the geographic location and absence of basic services make the community highly vulnerable to the impacts of climate change. Located in Ward no. 1, this settlement is surrounded by two canals, with the Pashur river flowing nearby. Its low-lying terrain makes it susceptible to waterlogging, particularly during heavy rainfall or high tide, which is further exacerbated by an inadequate drainage system.

Key Features of the Community:
Total no. of HHs: 60
Total Population: 190 (approx.)
Avg. HH size: 3.5
Climate vulnerability ranking by communities: 1st
Gender ratio: Male (48.9%), Female (51%)
Dominant Religion: Islam
Female headed HHs: 18%
Per capita income: BDT 3,084 (USD 26.34)
Avg. distance to nearest health complex: 1.8 km
Source of drinking water: Pond water and rainwater

The house-to-house study indicates that the majority of the men in this settlement are day laborers, engaged in ship repairing at Mongla port, or in small businesses. Women are mostly employed at the Ready Made Garments (RMG) factories located within the Export Processing Zone (EPZ). The average household income in this community is BDT 10,655 (~USD 91.02) while the average household expenditure stands at BDT 10,763 (~USD 92). Around 56% of households have taken loans from local microfinance institutes, cooperatives or NGOs. Only 15% of households currently access social benefits as not all families are eligible, despite very low wage conditions. Migrants often face discrimination when it comes to accessing such social benefit schemes.

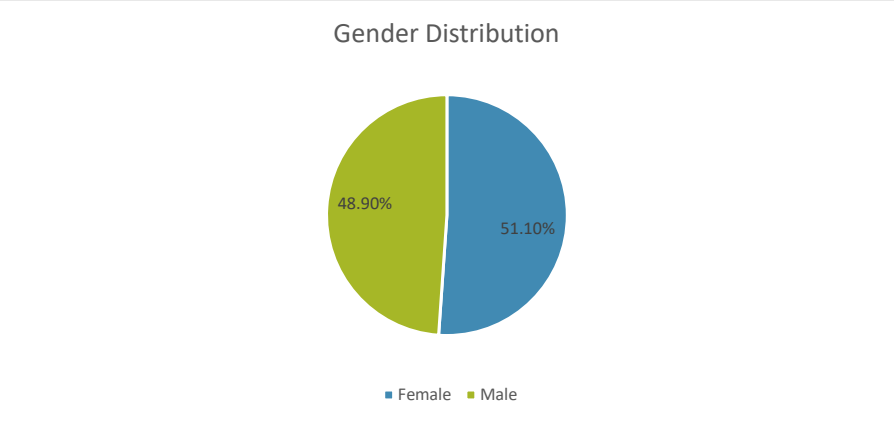
2. SITUATIONAL ANALYSIS OF ARAJI MAKORDHON

2.1 Demographic and Socio-Economic Overview

2.1.1 Population Size & Composition

Narikeltola Guccho Gram is an area with estimated 102 residents, where 51 are males (50%) and 51 are females (50%), underscoring its demographic importance. Male-headed households constitute the majority, accounting for 88% (90 households), while female-headed households represent 12% (12 households).

This highlights the community's adherence to traditional gender roles, where men are generally recognized as the primary providers of households even if the majority of the household are female. However, the presence of a considerable proportion of female-headed households points to arising changes in social structures. This shift may be linked to factors such as male migration, widowhood, and changing economic or social conditions that encourage women to take on more leadership responsibilities within their families.



Household sizes in Narikeltola Guccho Gram vary considerably, with an average of 4.03 persons per household. Male-headed households continue to dominate, comprising 88%, while female-headed households represent 12% (12 households). Small households of 1 to 3 members are the most common, accounting for 45.10% (46 households), followed by medium-sized households of 4 to 6 members at 48.04% (49 households). Large households with seven or more members are relatively rare, making up only 6.86% (7 households), with the largest household recorded at 11 members, including both nuclear and extended family members. This distribution reflects a trend towards middle size family units in the area, possibly driven by urbanization, evolving family dynamics, and economic pressures that shape household composition and living arrangements.

2.1.2 Socio-Economic Indicators

Household income and expenditure

Household baseline survey shows that the average monthly household income in Narikeltola Guccho Gram is BDT 16,995 (USD 137), while the average monthly expenditure is BDT 17,113 (USD 142) along with the per capita income is BDT 4,217 (35 USD). Majority of the residents have a monthly income in between BDT 5,000-10,000 per month and for the monthly expenditure it falls in the different range which

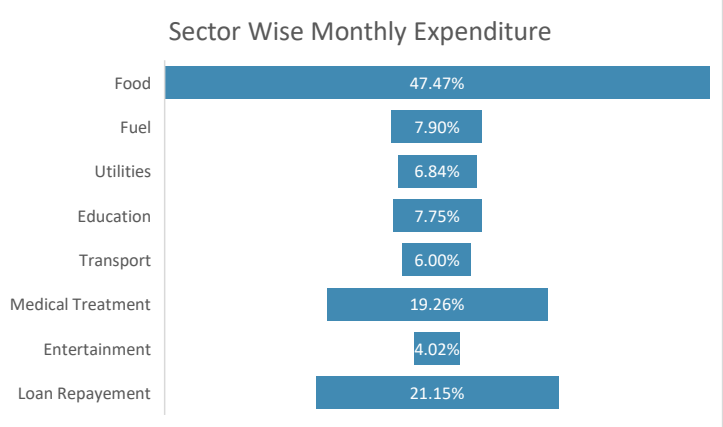
is 10,001-15000. This shows that for most households, monthly expenditure exceeds their income, suggesting financial vulnerability and a reliance on borrowing, credit, or irregular income sources to meet daily needs.

Monthly household Income (BDT)	Percentage
<5,000	14.04%
5,001-10,000	50.88%
10,001-15,000	24.56%
15,001-20,000	8.77%
20,001-30,000	1.75%
Above 30,000	0.00%
Grand Total	100.00%

Analysis of household expenditure in Narikeltola Guccho Gram indicates that the majority of households (95.93%) incur moderate to high monthly spending, ranging from BDT 5,001 to 30,000. In contrast, only 4.90 % of households report low monthly expenditures below BDT 5,000, highlighting limited financial capacity among a small segment of the community. This pattern indicates economic disparity and financial vulnerability within the community, where many families experience limited or unstable income yet manage relatively high living costs. Encouraging sustainable income-generating activities and ensuring access to affordable financial resources could help strengthen household resilience and improve the community's overall socio-economic condition.

Monthly household expenditure (BDT)	Percentage
<5,000	5.26%
5,001-10,000	57.89%
10,001-15,000	33.33%
15,001-20,000	0.00%
20,001-30,000	3.51%
Above 30,000	0.00%
Grand Total	100.00%

An analysis of sectoral expenditure reveals that the largest share of monthly household spending is on food (44.54 %). A significant portion (26.64%) is allocated to loan repayments, highlighting financial instability and over-reliance on credit. Households also spend 10.36% of their income on medical treatment, reflecting prevalent health concerns in Narikeltola Guccho Gram.



Household savings and loan

The average monthly household savings in Narikeltola Guccho Gram is only BDT 1881.37 (USD 15.46), reflecting an unstable financial condition among residents. Despite limited income levels, the community demonstrates varying savings capacities, with 90.74% of households saving less than BDT 5,000 per month. To cope with rising living costs, around 40% of households currently access social benefits from NGos and other beneficiaries. These findings highlight the community's limited savings capacity, heavy dependence on credit, and unequal access to social support, underscoring the need for inclusive financial services and targeted income-generating opportunities to strengthen overall economic resilience.

Monthly household savings (BDT)	Percentage
<5,000	84.21%
5,001-10,000	5.26%
10,001-15,000	10.53%
15,001-20,000	0.00%
20001-30000	0.00%
>30000	0.00%
Grand Total	100.00%

Among the households with loans, the average loan amount is about BDT 77,309 (USD 635.24) with an average monthly installment of BDT 6,838 (USD 56.19).

Total loaned amount (BDT)	Percentage
<5,000	35.48%
5,001-10,000	6.45%
10,001-15,000	0.00%
15,001-20,000	12.90%
20,001-30,000	22.58%
Above 30,000	22.58%
Grand Total	100.00%

The analysis of loan utilization shows that the highest share of borrowers (33.3%) used their loans for mixed purposes that were not limited to a single category. About 10.8% of households utilized their borrowed money to support business-related activities, while 17.6% spent it on home repair. Around 4.9% of respondents reported taking loans specifically for treatment-related expenses, and 3.9% used the loan for family expenses. Another 3.9% invested in purchasing or repairing rickshaws or vans to support their livelihood. In addition, 2.9% of the loans were used for land-related purposes such as mortgage, lease or purchase. A small share of loans (2.0%) was spent on marriage-related expenses, while 1.0% of respondents indicated using the loan for domestic animals, traveling abroad, furniture, electronics, education needs alongside other expenses, and repayment of previous loans.

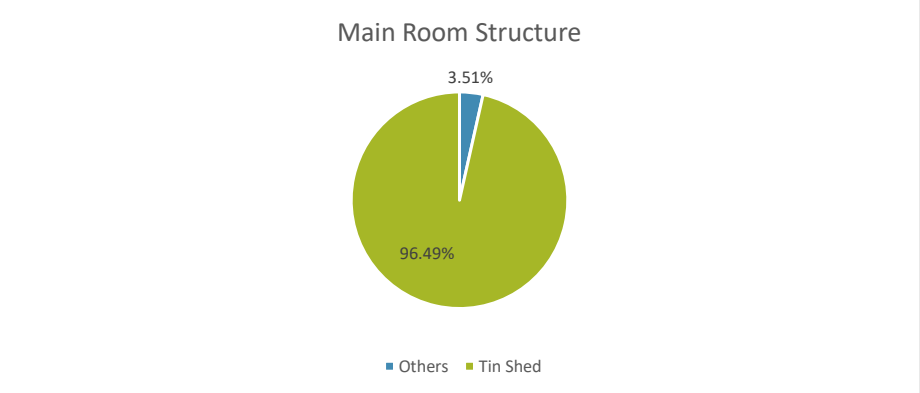
2.2 Settlement Patterns

2.2.1 Access to Land

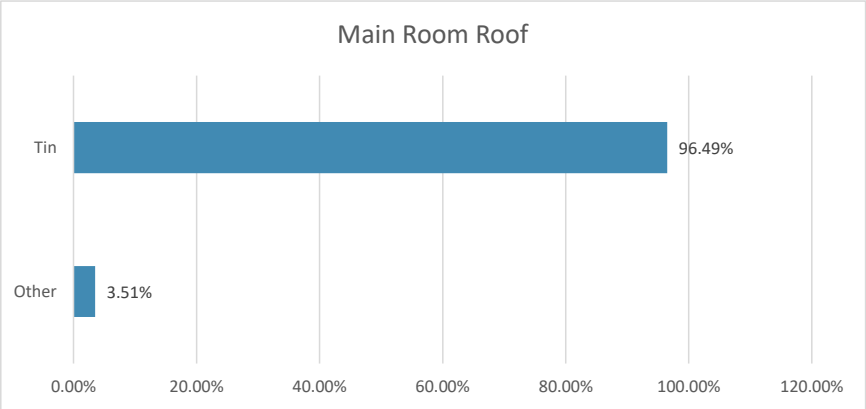
Enumeration data indicates that every household (100%) live on government land which shows no rent to the tenants. The typical household has 1.98 rooms. Insecure tenure, particularly for those on rented or government land, increases the risk of displacement and exacerbates the challenges associated with poor housing conditions and environmental vulnerabilities.

2.2.2 Housing Types and Conditions

Data shows that households in the settlement have an average of 2.07 rooms, with an average household size of 4.03 persons. This indicates a severe congestion, as many families must manage limited living space, which can result in overcrowding and reduced privacy. Furthermore, the reliance on shared resources among households' places additional strain on available amenities, potentially affecting overall living conditions and quality of life. Addressing housing adequacy and improving access to essential services are critical steps toward alleviating these challenges and enhancing residents' well-being.



Housing conditions in Narikeltola Guccho Gram remain critically underprivileged. Data reveal that 78.43% of homes are Tin Shed, 8.82% are Semi Pucca, and 4.90% are Pucca structures. In this area 5.88% houses are Jhupri or mud types which shows the vulnerability of the area.The majority being Tin Sheds indicates that most homes are highly vulnerable, with poor durability and limited resilience to environmental hazards. Semi Pucca and Pucca homes are relatively better, yet many still face issues of maintenance and structural safety. While some families have relocated, a large number remain, continuing to live in precarious conditions.



Regarding main room conditions, 13.73% are in good condition, recently built with improved materials and requiring no renovation, while 83.33% are in moderate condition, still livable but needing refurbishment. About 2.94% are dilapidated and unsafe for habitation. In terms of roofing, 87.25% of households have tin roofs, 5.88% have concrete (paka/brick), and 6.86% use golpata or leaves. The dominance of fragile roofing materials increases vulnerability to heavy rain and cyclones, highlighting the need for more durable and climate-resilient housing.

2.2.3 Energy

Electricity supply and access

Field data indicates that 70.18% of households rely on the electricity grid as their primary source of power, while 7.02% use kerosene and 22.81% use solar power. No households reported using battery chargers as a main source. This shows that most families have access to electricity, though reliance on solar power indicates partial supplementation where grid supply may be unstable. Frequent outages and inconsistent connections continue to affect daily life and limit the use of essential appliances, which can hinder small businesses that require a reliable power supply.

Cooking energy

Field data shows that wood is the primary cooking fuel for 96.5 percent of households in Narikeltola Guccho Gram, largely due to its affordability, availability, and familiarity, particularly in low-income and informal settlements. Continued dependence on firewood contributes to deforestation and exposes households, especially women and children, to harmful indoor air pollution and long-term health risks. Only 3.5 percent of households use Liquefied Petroleum Gas, reflecting limited adoption of cleaner cooking options. Other fuels such as cattle excrement, charcoal, coal, electricity, grass, herbs or bark, or food not cooked at home were not reported as primary sources.

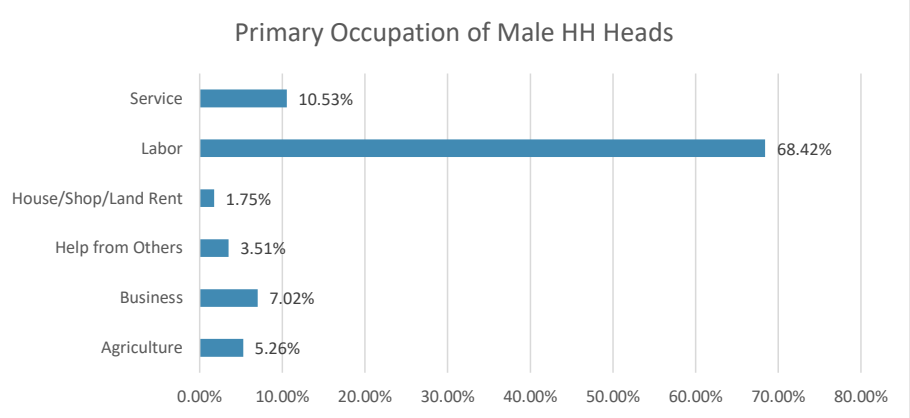
Main Source of Cooking Energy	Households (%)
Wood	96.5%
LPG Gas	3.5%
Total	100

2.3 Livelihood Systems and Vulnerabilities

2.3.1 Primary Livelihoods

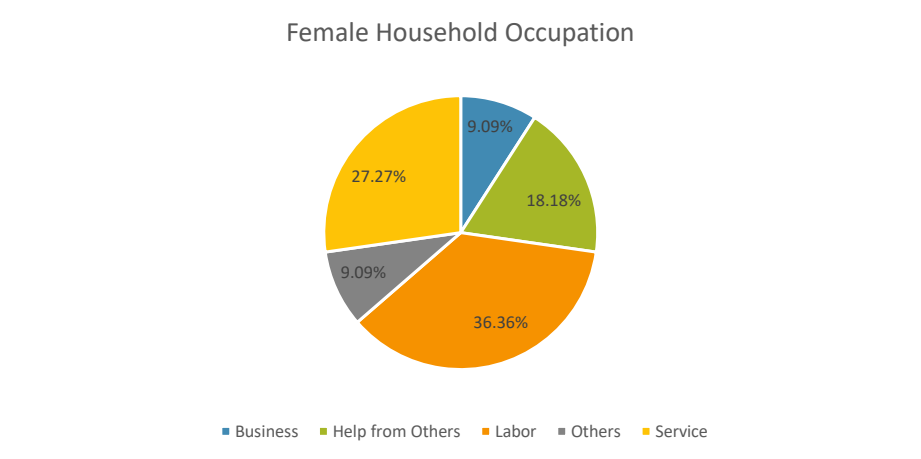
Male headed households

Analysis of the enumeration data shows that male-headed households in Narikeltola Guccho Gram are primarily engaged in labor work, accounting for 68.42 percent of respondents. Service activities represent 10.53 percent, business 7.02 percent, agriculture 5.26 percent, help from others 3.51 percent, and income from house, shop or land rent 1.75 percent. No households reported earnings from other sources or pension or allowance. This indicates that labor-based work is the dominant livelihood source for male-headed households, reflecting vulnerability to wage fluctuations and employment instability.



Female headed households

Female-headed households show more diversified income sources but remain economically constrained. Labor is the primary source of income for 36.36 percent of households, followed by service 27.27 percent, business 9.09 percent, help from others 18.18 percent, and other sources 9.09 percent. No female-headed households reported engagement in agriculture or income from house, shop or land rent. These patterns highlight that female-headed households depend on informal or low-paid work, social support, and limited livelihood options, making them particularly vulnerable to economic shocks.



2.4 Infrastructure and Services Baseline (WASH, Housing, Roads, Drainage, Energy, Health)

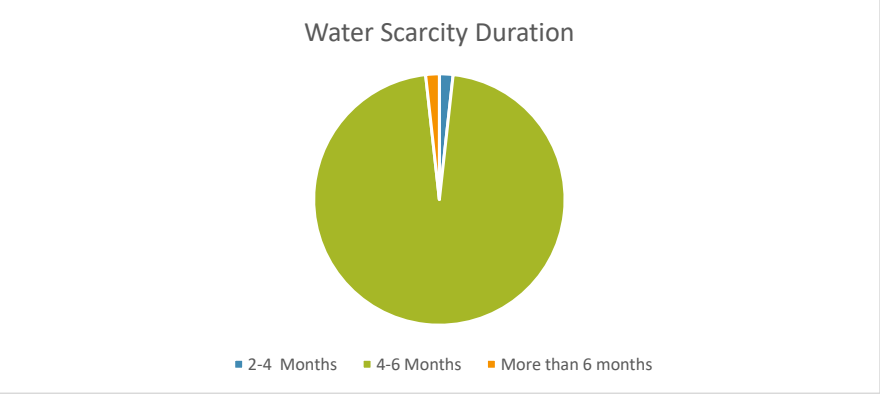
2.4.1 Water

Access to and supply of drinking water

In Narikeltola Guccho Gram, access to safe drinking water remains extremely limited, with households depending heavily on informal and naturally available sources rather than reliable piped supply. The primary source of drinking water is surface water from ponds, canals, rivers or sinkhole (100%). The near absence of piped water directly into dwellings reflects the structural inequalities and infrastructural gaps faced by informal and climate-vulnerable settlements. As a result, households are compelled to travel significant distances, collect water manually, store it in containers, and often wait in queues, activities that are physically demanding and time-consuming.

Women and girls typically collect water every day, traveling long distances while carrying containers and often waiting in queues for extended periods. On average, households are located 1,442.11 meters from their primary water source, and it takes approximately 24.21 minutes to collect water. This makes the task physically demanding and time-consuming. The absence of direct household connections, combined with seasonal variability and reliance on untreated water, increases health risks, exposure to contamination, and poses a major challenge to public health and climate resilience in the settlement.

Water scarcity in Narikeltola Guccho Gram is widespread and prolonged. According to enumeration data, 96.5% of households experience shortages lasting 4–6 months each year, 1.8% face scarcity for 2–4 months, and 1.8% for more than six months. This extended period of scarcity creates significant stress, particularly during the dry season, when households are forced to depend heavily on unsafe alternative sources. Women and girls primarily bear the responsibility of water collection, often requiring multiple trips and waiting long periods at water sources.



Access to and supply of water for household chores

For general household activities, all households (100%) rely on surface water from ponds, canals, or rivers. Heavy reliance on untreated water places households at risk of waterborne diseases and skin-related health problems.

2.4.2 Sanitation

Sanitation facilities in Narikeltola Guccho Gram remain inadequate and pose significant public health risks. All households (100%) use ring slab toilets without water seals. A ring slab toilet consists of a concrete or masonry slab placed over a pit to provide a stable platform for defecation. In versions with a water seal, a U-shaped water trap prevents odors, gases, and insects from escaping, improving hygiene and reducing the risk of disease transmission. However, the toilets in this settlement lack water seals, allowing odors and pathogens to escape and increasing health risks.

Most households (96.49%) share these sanitation facilities, while only 3.51% have individual toilets. Shared use can cause delays in access and compromise privacy and safety, particularly for women, children, and the elderly. With an average waiting time of 8 minutes, these conditions contribute to recurring cases of diarrhoea, skin diseases, cholera, and other hygiene-related illnesses, while also increasing the risk of contamination of nearby water sources.

2.4.3 Solid Waste Management

Household waste storage and disposal

Solid waste management remains a critical concern. In Narikeltola Guccho Gram, 50.88% of households have no designated waste storage place, 47.37% store waste in plastic bags, 1.75% directly throw waste into nearby water bodies, and no households use garbage bins, drums, or stack waste in a specific place.

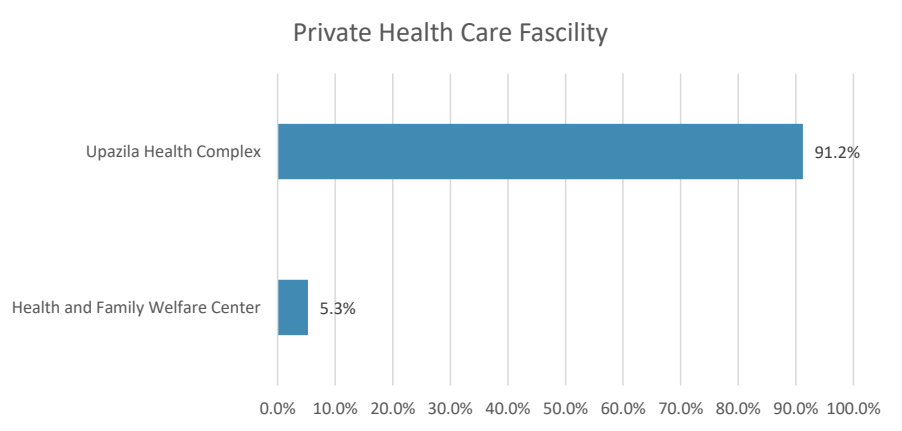
Household level solid waste storage facility	Percentage of households
No Storage Place	50.88%
Directly throw to nearby water bodies	1.75%
Plastic Bag	47.37%
Grand Total	100%

The absence of municipal waste collection services forces households to adopt unsafe disposal methods. Nearly half of households (52.63%) throw waste into nearby water bodies, 47.37% dispose of waste in open spaces or roads, and no households reported using drains, holes, or having waste collected by others. These practices contribute to clogged drains, flooding, foul odours, vector proliferation, and public health hazards.

Solid waste disposal method	Percentage of households
Open Space/Road	47.37%
Throwing in nearby waterbodies	52.63%
Grand Total	100%

2.4.4 Health

Health care data from Narikeltola Guccho Gram show that residents primarily depend on public facilities for treatment. The Upazila Health Complex is the main source of medical assistance, used by 91.2 percent of households. A smaller proportion, 5.3 percent, seek care from the Health and Family Welfare Center. The strong reliance on these two government facilities indicates limited availability of alternative services such as private clinics, pharmacies, or NGO-supported centers. This pattern reflects constraints in choice, affordability, and access, which can lead to long waiting times, overcrowding, and inconsistent quality of care. As a result, households often face challenges in receiving timely and adequate treatment, affecting overall community health.

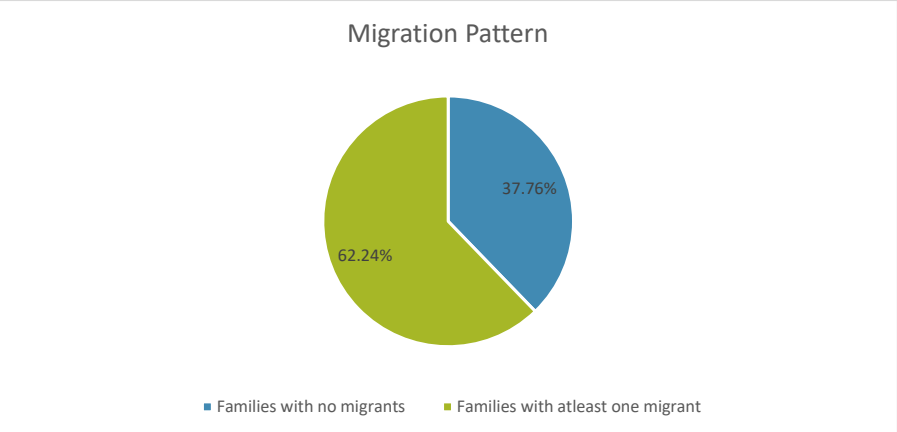


n terms of proximity, only 3.51 percent of residents live within 0–100 meters of a healthcare facility, and none are located within the 101–500 meter range. Another 15.79 percent live 501–1,000 meters away. The vast majority, 80.70 percent, are situated more than 1,000 meters from the nearest health service point. These long distances create significant barriers to timely care, particularly for vulnerable groups such as women, children, and the elderly. Poor road conditions, waterlogging, and clogged drains make travel even more difficult during heavy rainfall or emergencies. The absence of nearby, affordable, and well-equipped healthcare facilities intensifies existing health vulnerabilities and limits residents' ability to access essential medical support when needed.

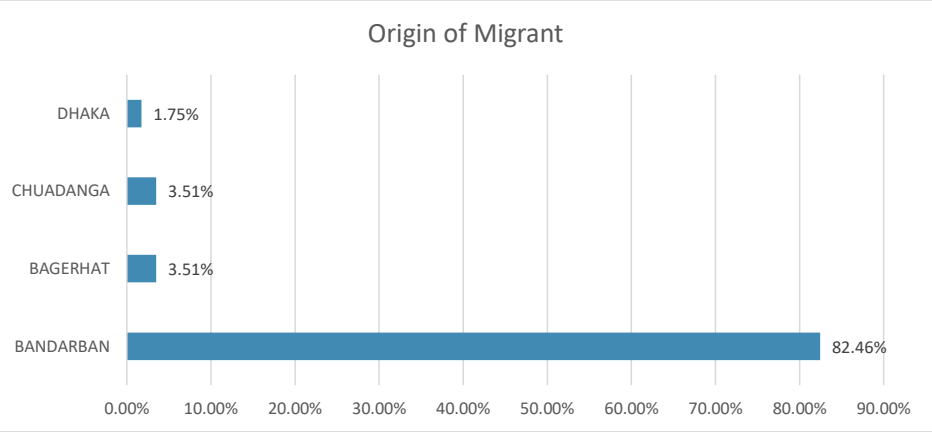
2.5 Migration

2.5.1 Patterns of Migration

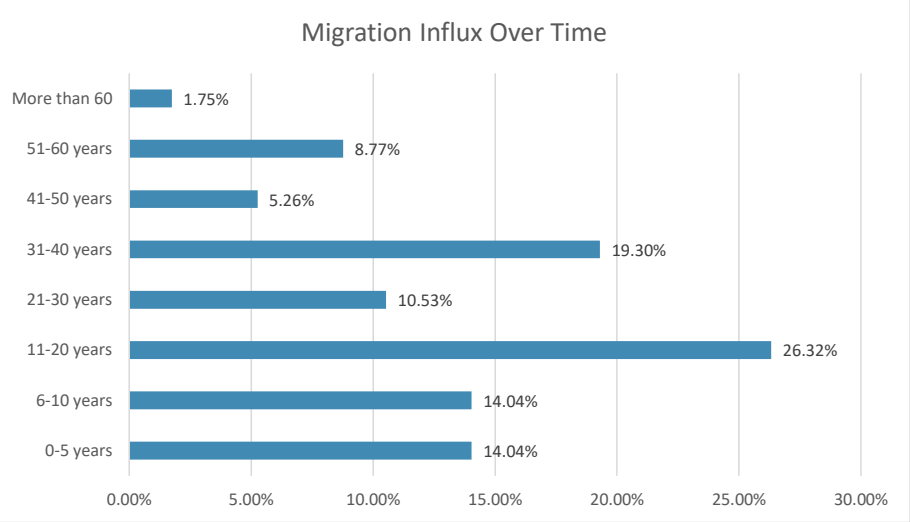
Analysis of 60 surveyed households indicates that 37.76% of families have no migrants, meaning all members were born and raised in Narikeltola Guccho Gram. The remaining 62.24% of households include at least one member who migrated to the area. This highlights a significant rate of migration, primarily driven by employment and livelihood opportunities.



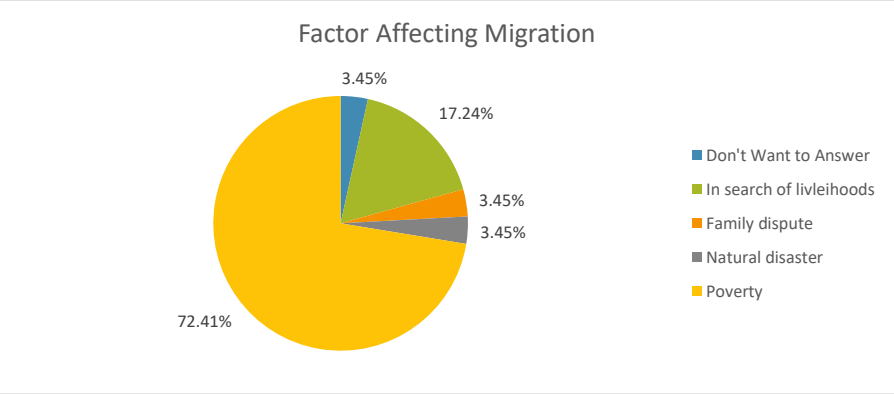
2.5.2 Trends of Migration



Data indicates that the majority of residents (90.20%) migrated to Narikeltola Guccho Gramin Mongla Municipality from other upazilas/thanas within Bandarban district. Additionally, a notable portion of residents (3.51%) migrated from Chuadanga and Bagerhat district. The highest influx occurred between 2005 and 2015, during which 26.32% of current residents relocated to Narikeltola Guccho Gram.



2.5.3 Factors affecting Migration



The primary push factor driving migration to Narikeltola Guccho Gram is poverty, which affects 72.41 percent of migrants. This is followed by the search for livelihoods, cited by 17.24 percent of respondents, indicating that most households are moving to escape economic hardship and pursue better income opportunities. Smaller proportions reported leaving due to family disputes (3.45%), natural disasters (3.45%), or other unspecified reasons. Another 3.45 percent preferred not to answer.

These patterns suggest that migration to Joy Bangla is overwhelmingly driven by economic distress, with Mongla Municipality serving as a destination where people hope to secure work and rebuild stability. The continued arrival of migrants increases pressure on housing, basic services, and local infrastructure, highlighting the need for stronger urban planning and targeted support systems. As migration persists, demand for affordable housing, essential services, and livelihood programs is expected to grow.

3. COMMUNITY CLIMATE RISK ASSESSMENT & VULNERABILITY ANALYSIS

3.1 Community perception about climate change

Using the methodology described in Chapter Three, Narikeltola Guccho Gram ranks 1st among all assessed informal settlements, making it the most climate-vulnerable community within Mongla Municipality. The settlement is exposed to multiple environmental and climatic stresses, including salinity intrusion, irregular rainfall, heatwaves, heavy precipitation, cyclones, and waste mismanagement. These stressors compound existing socioeconomic and infrastructural weaknesses, intensifying everyday risks for low-income households.

According to the primary household survey, 96.49% of households reported that they or their families had directly experienced the impacts of climate change, indicating a high level of awareness within the community. Water and soil salinity emerged as the most critical concern, with 96.49% observing a significant increase over the past 20–30 years. Rising salinity is damaging homes, contaminating drinking water sources, and disrupting small-scale food production, thereby deepening livelihood insecurity.

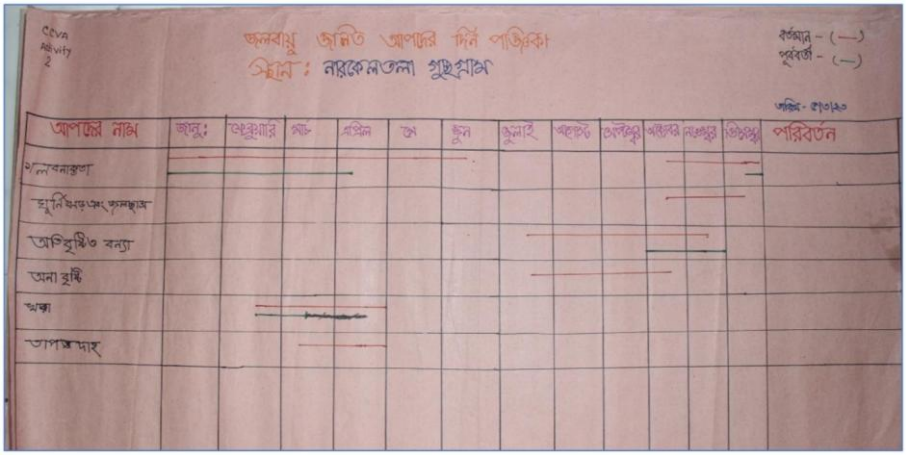
All respondents (96.49%) also stated that temperatures have risen, winter duration has shortened, and rainfall has become more frequent and intense compared to 20–30 years ago. These shifts contribute to recurring waterlogging and flooding in the low-lying settlement, affecting housing stability, sanitation systems, mobility, and overall resilience.

Perceptions of broader seasonal changes are similarly strong: 50.88% of respondents believe that Bangladesh no longer experiences six distinct seasons as before, suggesting a profound shift in traditional climate patterns.

Perception about climate change	Yes	No	Do not feel any change
Have you/your family ever faced impacts of climate change	96.49%	-	3.51%
Has water and soil salinity increased in the last 20-30 years?	96.49%	-	3.51%
Has the temperature risen in the last 20-30 years?	96.49%	-	3.51%
Has rainfall become more frequent and intense than what it was 20-30 years ago?	96.49%	-	3.51%
Do you feel six distinct seasons in Bangladesh like what it was 20-30 years ago?	49.12%	50.88%	-
Is winter getting shorter?	96.49%	-	3.51%

3.2 Changing hazard patterns

Community perceptions of changing patterns of hazards were further cross-checked during the community risk profiling exercise (detailed in chapter 3 section 4.3). The Community Adaptation Committee's (CAC) hazard calendar exercise identified changing patterns over the previous 20 years (see Table **).



Climate Hazard	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Changes
Salinity													Yes
Cyclone & high tide													Yes
Rising temperature													Yes
Heavy rainfall													Yes

Salinity

- In previous years, salinity intrusion was primarily observed from March to May, linked to low river flows and the dry season.
- Currently, salinity starts even earlier, beginning in February and lasting through May, signaling an extended period of risk due to less predictable rainfall and prolonged droughts.
- This continuing shift increasingly challenges community access to fresh water and further endangers agricultural and health outcomes.

Cyclone & High Tide

- Historically, cyclone and high tide hazards peaked in October and November, typically at the end of the monsoon.
- The present pattern shows risks emerging as early as March and April, then again from October to December, broadening the window of storm exposure by several months.
- Communities must now expand their disaster preparedness to cover both early and late periods of heightened risk, with greater focus on long-term resilience.

Rising Temperature

- Previously, extreme temperatures and heatwaves were concentrated from March to May, in the pre-monsoon period.
- The trend now shows heatwaves starting from February and extending through May, causing an even longer season of heat stress and health concerns.
- Sustained high temperatures raise the risk of illness, lower labor productivity, and put added pressure on water resources and cooling needs.

Heavy Rainfall

- In the past, heavy rainfall episodes were mainly limited to March through May, contributing to flash flooding in early monsoon.
- Now, rains persist into June and July, indicating a lengthening and shifting monsoon with greater potential for floods and waterlogging.
- Adaptation now requires improvements to drainage, flood defences, and reconsideration of farming schedules in response to more erratic and prolonged wet conditions.

Implications for Community Adaptation

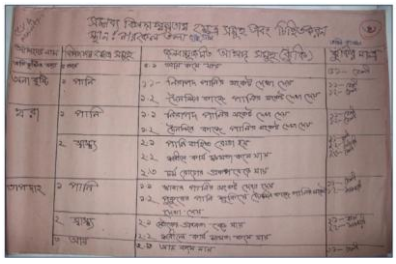
- All hazards show shifts in timing, duration, or intensity.
- Reliance on traditional seasonal calendars and coping methods is increasingly risky and insufficient.
- Adaptation plans must integrate updated hazard timing, focus on resilient infrastructure, water security, and proactive health and disaster systems

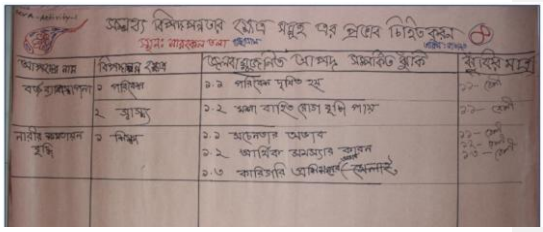
3.3 Climate vulnerability analysis by sector

Based on comprehensive hazard identification and trend analysis, the community's vulnerability to climate change impacts was assessed across key sectors. The frequency, intensity, and shifting patterns of climatic hazards—such as salinity, cyclones, high tides, rising temperatures, and heavy rainfall—were analyzed to determine their effects on water, health, housing, road networks, drainage, sanitation, livelihoods, and livestock. The level of impact on each sector was evaluated to prioritize adaptation needs. A social map is being created to understand the community profiling.

Through the community mapping and profiling exercises, the community members identified major infrastructure and sites. There is one central pond, a hospital run by Friendship NGO, a mosque and a few local shops. There are six toilets made of ring slabs, with or without water seals. The toilets are equipped with septic tanks because the settlement is not connected to the sewerage line. The access roads within the community are mostly either kutcha (earthen) roads or made of brick. The settlement is not connected to the central drainage network. Central waste disposal points or waste bins are also not provided, causing people to openly dispose of solid waste.

Climatic Hazards	Vulnerable Sector	Impacts	Level of Impact
Salinity	Water	Shortage of fresh drinking water as salinity increases in pond water during dry season	High
		Shortage of water for cooking and other household chores	High
	Health	Increase in the no. of water borne diseases, skin diseases and reproductive health related issues among women	High
	Agriculture	Decrease in vegetable production	High
Cyclone	Housing	Housing structures and assets get damaged	High
	Road network	Falling off of trees on roads and subsequent damage	Medium
	Livestock	Lack of space to keep livestock safe	Medium
High tide	Road network	Roads get submerged and communication gets disrupted	High
	Housing	Housing structures get submerged and damaged	High
	Drainage	Clogged drainage network cant drain out water	High
	Heath	Increase in the no. of water borne diseases	High
Rising temperature	Livelihoods	Loss of productivity during extreme hot days	Medium
	Health	Increase in no. of air borne and water borne diseases	High
Heavy rainfall	Sanitation	The toilets get destroyed and waste water gets mixed with nearby ponds	High
	Road network	Damage of existing road network and disruption in movement	High
	Drainage	Clogging of drainage network and prolonged water logging	High
	Housing	Housing structures get submerged	Medium





3.4 Salinity

- Water: During prolonged dry seasons, rising salinity in pond and surface water causes persistent shortages of safe drinking water, also affecting cooking and daily household needs. These effects are classified as high-risk for community water security.
- Health: Exposure to saline water leads to an increase in waterborne diseases, skin conditions, and reproductive health issues, especially among women. Overall, health risks from salinity are high.
- Agriculture: Elevated salinity reduces vegetable productivity, damages crops, and destabilizes local food security. These agricultural impacts are rated as high risk.

3.5 Cyclone

- Housing: Cyclones routinely cause high levels of damage to houses and personal property, leading to the loss of home assets and shelter insecurity. The risk to housing is high.
- Road Network: Strong winds and fallen trees from storms damage roads and disrupt movement and emergency access, classified as medium risk for local infrastructure.
- Livestock: The lack of secure shelter for livestock during cyclones raises their vulnerability, which presents a medium risk for livelihoods.

3.6 High Tide

- Road Network: High tides submerge roads and disrupt connections between communities, representing a high risk for communication and access.
- Housing: Flooding from high tides damages and submerges homes, driving a high risk of asset loss and displacement.
- Drainage: Clogged drainage systems worsen waterlogging problems, and the inability to drain water intensifies community risk to a high level.
- Health: Waterborne illnesses increase rapidly following high tide flooding, presenting a high risk for community health.

3.7 Rising Temperature

- Livelihoods: Extreme heat sharply reduces productivity for workers, particularly during peak hot days, creating a medium risk for incomes and local businesses.

- Health: Both waterborne and airborne diseases increase during high temperature periods, raising vulnerability and health risks to a high level.

3.8 Heavy Rainfall

- Sanitation: Destruction of sanitation infrastructure, such as toilets, causes wastewater to contaminate nearby ponds; this health danger is a high risk.
- Road Network: Flooded and damaged roads disrupt community movement and lead to communication problems, marked as a high impact.
- Drainage: Blocked drainage channels cause prolonged waterlogging and increase flood vulnerability, a high risk for daily life and health.
- Housing: Homes become submerged and water-damaged during severe rainfall, resulting in a medium risk to property and shelter security.

4. PEOPLE'S ADAPTATION PLAN OF NARIKELTOLA GUCCHO GRAM

Following the identification of climate vulnerabilities in the community, a locally led process then went on to identify the potential adaptation solutions available. Solutions were prioritized based on the urgency of the need, and the available resources of the Municipality.

The community prioritized quality of water supply as the most important issue to be addressed.

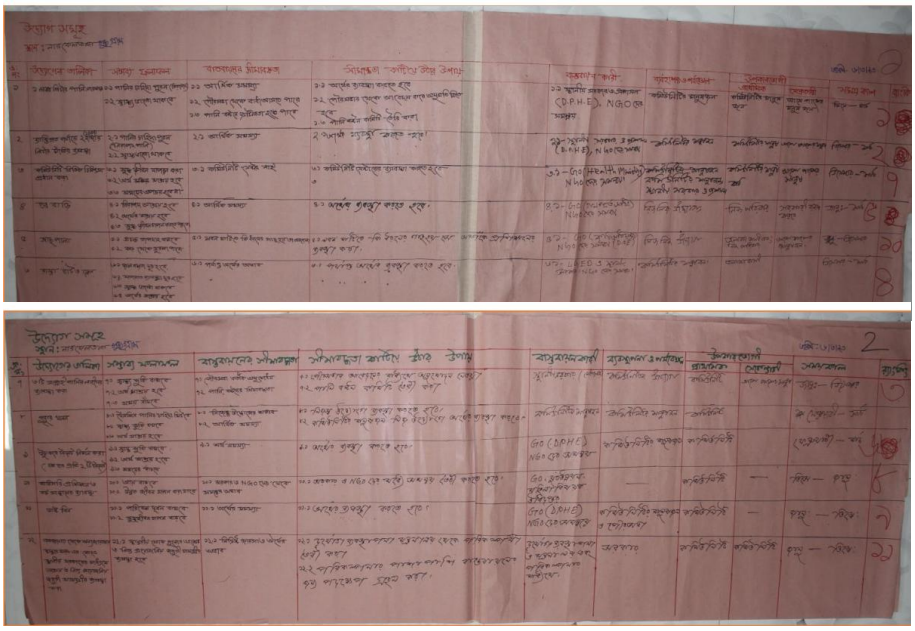
The top four priority adaptation solutions identified by the community are related to water scarcity:

- provision of a 100,000 liter water tank to serve the community;
- provision of 20 2,000 liter water tank for individual households;
- excavation of the existing pond; and
- provision of three additional water supply taps connected to the Municipality source.

As there is serious space scarcity within the community, locals have prioritized first the installation of a community-based water tank before household level tanks. In addition to this, communities feel that they can be completely water secure if the existing pond can be re-excavated to store water for household chores.

Other priority adaptation solutions included: repair and restoration of the existing housing structures; and building new hygienic and elevated toilets.

A detailed list of sector specific priority interventions, executing agencies, anticipated challenges of implementation, strategies for mitigating the challenges, and an approximate community perceived budget to implement priority solutions, is presented



Vulnerable Sector	Vulnerability	Solutions and Interventions	Priority	Implementation Challenges	Mitigation strategies	Implementers	Operation and Maintenance	Proposed timeframe for implementation	Approx. Budget (BDT)
Water	Lack of safe drinking water Lack of safe water for daily household chores	Provision of 100 thousand litre community-based water tank to store rainwater	1st	1. Finding space within communities 2. Convincing the Municipality 3. Lack of funds 4. Conflict over distribution of water from communal water tanks	1. Negotiate with HH heads and land owners 2. Place an application to the Municipality for a space 3. Formation of a committee to ensure equitable distribution of water	Department of Public Health Engineering, local NGOs	Community	Dry season (Dec-Mar)	2939370 (estimation for 1 water tank) Approx USD 15k
		Re-excavation of a pond with raised pavements							1074174 (for 1 pond) Approx. USD 9k
		Provision of 2000 litre household level water tank to store rainwater.	2nd	1. Insufficient no. of water taps in Municipality 2. Lack of space for the pipeline extension	1. Negotiate with Municipality about the need and secure permission in advance 2. Negotiate with land owners regarding the pipeline extension	Municipality	Community and Municipality	Dry season (Dec-Mar)	778720 (estimation for total 20 water tanks to cover all the households) Approx. USD 6.5k
		Provision of 3 supply water tap from municipality	3rd	1. Risk of salt water intrusion 2. Eviction of settlements from	1. Proper management of sluice gates to control saline water intrusion	Municipality	Community	Dry season (Dec-Mar)	360000 Approx. USD 3k

Vulnerable Sector	Vulnerability	Solutions and Interventions	Priority	Implementation Challenges	Mitigation strategies	Implementers	Operation and Maintenance	Proposed timeframe for implementation	Approx. Budget (BDT)
				the selected excavation site	2. Provision of compensation for affected community members				
Sanitation	The toilets get destroyed and waste water gets mixed with nearby ponds	Construction of hygienic toilets on raised plinths.	6th	1. Lack of fund 2. Often less prioritized by community members over other pressing issues	1. Encourage community members to save money. 2. Collective efforts from local NGOs to fund.	Individual families	Individual families	Dry season (Dec-Mar)	598410 (estimation for total 10 toilets for the identified households. Approx. USD 5k
Housing	Housing structures get submerged and damaged during cyclones and storm surges	Repair existing housing structures Develop new climate resilient housing structures	5th	1. Lack of technical knowledge; 2. Lack of durable construction materials in the locality	1. Arrange technical training for community members 2. Negotiate with Municipality in sourcing construction materials	Individual families with support from the Municipality	Individual families	Dry season (Dec-Mar)	185000 (approx. budget for building one structure) Approx. USD 1.5k
Drainage and road network	Clogging of drainage network due to poor waste management and prolonged water logging	Construction of drainage systems with slabs.	4th	1. Possible eviction of communities from the selected site for the road construction	1. Provide compensation to affected families 2. Negotiate with Municipality for Fund from their	Local Government Engineering Department, Municipality, Communities	Community, Municipality	Dry season (Dec-Mar)	611400 (for 100 meter drainage network) Approx. USD 5k

Vulnerable Sector	Vulnerability	Solutions and Interventions	Priority	Implementation Challenges	Mitigation strategies	Implementers	Operation and Maintenance	Proposed timeframe for implementation	Approx. Budget (BDT)
		Construction of elevated roads		2. Lack of Funds 3. No formal garbage collection service from the Municipality	development budget. 3. Municipality to engage with relevant govt. agencies/NGOs/development partners for fund 4. Municipality to engage community members for garbage collection	Water Development Board, Municipality		Dry season (Dec-Mar)	273400 (for 100 meter road) Approx. USD 2.5k
		Provision of area wise dustbins and garbage disposal system				Municipality, community		Throughout the year	90000(estimation for installation of 2 central dustbins) Approx. USD 1k
Agriculture	Decrease in vegetable crop production due to high soil salinity	Arrange training program about saline tolerant crop production	7th	1. Lack of coordination among the department of agriculture, fisheries and livestock. 2. Lack of opportunities 3. Mass training for the entire community isn't beneficial as capacity gaps are different	1. Municipality to play a central role to negotiate with the three agencies and arrange training 2. NGOs and govt. agencies to work together to increase number of training opportunities. 3. Arrange training in groups of people having similar capacity gaps.	Department of Agriculture	Department of Agriculture	Throughout the year	100000 Approx. USD 1k
Livestock	Increase in number of diseases among poultry	Arrange training program about climate resilient livestock rearing				Department of Livestock	Department of Livestock		100000 Approx. USD 1k
Livelihood	Lack of alternative livelihood	Introduce training for non-farm	8th	1. Lack of initiatives	1. Municipality to play a	Department of Youth	Department of Youth	Throughout the year	100000

Vulnerable Sector	Vulnerability	Solutions and Interventions	Priority	Implementation Challenges	Mitigation strategies	Implementers	Operation and Maintenance	Proposed timeframe for implementation	Approx. Budget (BDT)
	opportunities	alternative livelihood opportunities		from concerned govt. agencies	central role to negotiate with the three agencies and arrange training 2. NGOs and govt. agencies to work together to increase number of training opportunities.	Development, Department of Women Affairs NGOs	Development, Department of Women Affairs NGOs		Approx. USD 1k
Total (BDT)									72,10,474
Total (USD)									51,500

5.IMPLEMENTATION OF PRIORITY ADAPTATION SOLUTIONS

Once the plan was developed, the CAC members negotiated with the Municipality, the ward councilors and the project facilitation team to immediately implement some of the top priority solutions. Considering the two important sectors- water and sanitation, the Mayor of Mongla requested the Global Center on Adaptation (GCA) and BRAC to support the installation of a 100,000-liter water tank at the community level and proposed to establish new toilets with the municipality development budget.

Considering the available budget, GCA and BRAC agreed to support the installation work. However, the main challenge was to identify a location in the community where a 100,000-liter water tank could be installed. Through consultations, it was agreed that the settlement did not have space for such a large tank. Instead, it was agreed that a 20,000-liter water tank, which would support the community during the four-month dry season, should be installed.

Accordingly, GCA and BRAC invested USD 6200 to install the water tank. Work was initiated in May 2023, under the supervision of a community implementation supervisory committee. Community members started using the water tank in June 2023, and they were able to use the stored water for almost the entirety of the dry season between December 2023 to March 2024 and will continue to do so in coming years.

A water distribution committee was formed consisting of five members of the community to ensure equitable distribution of water. The committee has also opened a bank account to save the money collected from all the households (BDT 500/ USD 4 per household) to ensure routine maintenance of the system.

GCA and BRAC also invested USD 8840 in excavating an existing pond between May to July 2023. The community members initially wanted to store rainwater in the pond to for household chores, considering that the water won't be potable. However, community later realized that if connected with a purification system, the rain water stored in the pond can meet the yearly drinking water needs of other nearby communities beyond Narikeltola. Upon community request, GCA and BRAC installed a solar powered Pond Sand Filter (PSF) between November 2024 to January 2025, investing USD 12,000 so that the purified pond water can be used by Narikeltola and nearby communities round the year. Once the pond got excavated, community women started growing vegetable along the pond which contributed to their food security. Considering the potential, the community women requested BRAC and GCA's support to organize training on urban agriculture. Accordingly, GCA and BRAC invested USD 1,000 and facilitated a training on November 2024 for the community members by Upazila Krishi Officer. The training focused on the techniques of growing saline tolerant varieties such as sack gardening, preparing seedbeds, planting seedlings, crop care and maintenance, use of organic pesticides etc. This resulted in more families practicing urban agriculture at their courtyards and contributing to their family food and nutrition security.

The Municipality also invested USD 8500 from its development budget 2023-24 to construct 10 hygienic and elevated toilets as per the community's requirement. The toilets were finished in April 2024.

Commented [TW1]: This does not really accord with the above narrative where water was away and above.

Commented [SS2R1]: The logic behind the municipality investing in sanitation skipping drainage and housing is that constructing toilets by the municipality is less bureaucratic and requires less approvals from other govt agencies.

Hence the municipality prioritized this over the 4th and 5th priority interventions

Annexes

- Maps (climate risk maps, infrastructure, land use)
- Workshop reports
- Stakeholder matrix
- Data tools used (e.g., GEE outputs, VRA matrix)
- Draft policies or bylaws proposed
- Gender and youth inclusion strategies