

Baseline Study

Composite Actions for Climate Migrants in Urban Slums (CACMUS) Project



WaterAid Bangladesh
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Baseline Study of “Composite Actions for Climate Migrants in Urban Slums (CACMUS)” Project

Submitted to: WaterAid Bangladesh

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Thanks to all CACMUS team members, survey team who were engaged in this assignment and complete this report.

We hope that the study findings, insights and programming inputs, shall facilitate both WaterAid Bangladesh and government counterparts to plan, implement and track the Programme better. We wish successful implementation of CACMUS project and reaching out to those who need the assistance.

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List of acronyms

BBS	Bangladesh Bureau of Statistics
BDHS	Bangladesh Demographic and Health Survey
CACMUS	Composite Actions for Climate Migrants in Urban Slums
CBO	Community Based Organization
CCA	Climate Change Adaptation
CDC	Community Development Center.
CDF	Community Development Foundation
DHS	Demographic and Health Survey
NDC	Nationally Determined Contribution
FGDs	Focus Group Discussions
FYP	Five-year Plan
GoB	Government of Bangladesh
HH	Household
IGA	Income Generating Activity
JMP	Joint Monitoring Programme (JMP) by WHO/UNICEF for Water Supply and Sanitation
KIIs	Key Informant Interviews
MEL	Monitoring, Evaluation & Learning
MoHFW	Ministry of Health and Family Welfare
MHM	Menstrual Hygiene Management
NGO	Non-government Organization
O&M	Operation and Maintenance
RCC	Rajshahi City Corporation
RWASA	Rajshahi Water and Sewerage Authority
SDGs	Sustainable Development Goals
SPSS	Statistical Package for the Social Sciences
UNICEF	United Nations International Children's Emergency Fund
WAB	WaterAid Bangladesh
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization
VERC	Village Education Resource Center

Glossary of terms

Basic drinking water	Drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing
Basic hygiene	Availability of a handwashing facility on premises with soap and water
Basic sanitation	Use of improved facilities that are not shared with other households
Disability	Disabilities is an umbrella term, covering impairments, activity limitations, and participation restrictions
Household in slum areas	A household was defined as a person or group of related and unrelated persons who live together in the same dwelling, unit(s) or in connected premises, who acknowledge one adult member as the head of the household, and who have common arrangements for cooking and eating meals in RCC slum areas
Income generating activities (IGA)	Apart from primary occupation of the head of household, additional income may be possible to improve HH income through other secondary activities considered here as and IGA. IGA may be continual income intermittently by any of the family members. Income Generating Activities (IGAs) consist of small businesses managed by an individual or group of people to increase their household income through livelihood diversification.
Limited drinking water	Drinking water from an improved source for which collection time exceeds 30 minutes for a round trip, including queuing
Limited hygiene	Availability of a handwashing facility on premises without soap and water
Limited sanitation	Use of improved facilities shared between two or more households
No facility	No handwashing facility on premises
Open defecation	Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches or other open spaces, or with solid waste
Safe water	According to UNICEF Results Assessment Module (RAM) guidance, a safe drinking water source is a) a basic drinking water service (i.e., an improved water source within 30-minutes round trip including queuing) that is b) complying with national drinking water standards, as tested at the source after construction or rehabilitation; c) if national water standards are not in place, WHO guidelines can be followed; d) with a water safety plan in place
Safely managed drinking water	Drinking water from an improved water source that is located on premises, available when needed and free from faecal and priority chemical contamination
Safely managed sanitation	Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite
Surface water	Drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal
Unimproved	Use of pit latrines without a slab or platform, hanging latrines or bucket latrines
Unimproved drinking water	Drinking water from an unprotected dug well or unprotected spring
Water safe communities	A water safe community is an ODF community that has also implemented community-wide barriers to protect the safety of their drinking water through a community-wide water safety action plan. As with ODF communities, a water safe community should be independently verified

Executive summary

Since 2021, WaterAid Bangladesh has been undertaking Composite Actions for Climate Migrants in Urban Slums (CACMUS) project in the Rajshahi City Corporation. Village Education Resource Center (VERC) is a national NGO that assists in the field as a partner NGO. Climate resilience, microfinance, and WASH are all being combined in this initiative to create a reproducible inclusive approach.

The research team used a mixed-method approach to gather qualitative and quantitative data from primary and secondary sources. The quantitative data was acquired utilizing the "mWater App" and a structured questionnaire with 400 sample responses. Qualitative data was gathered through FGD, KII, and observations in slum areas in the RCC.

Among the 400 surveyed respondents, 81% were women and 19% were men, with 66% being middle-aged, 22% being old-aged, and 12% being young-aged. 41% of the household members read up-to class V. Rickshaw Puller was the most prevalent occupation, accounting for 27%, while small/petty business accounted for 20%, and day labor accounted for 18%. The average monthly household income is BDT 8210. According to the baseline study, the average monthly income of male family member is BDT 7404, while that of female family members is BDT805.

The average living period of respondents in this Rajshahi city is 24 months. The maximum living period discovered was 70 months, and the minimum was 1 month. According to the baseline study, that average living period of respondents in a specific slum area of Rajshahi city was 20 months. The maximum living period discovered was 68 months, and the minimum was 1 month. Participants in the focus groups also stated that they have been living in the same slums for the same amount of time.

A total of 86% of forcibly migrants migrated due to climatic vulnerabilities. Within this climatic reason, 56% are flood, 44% are long-term water seepage, 37% are river erosion, 19% are long-term rain fall, 18% are heavy rainfall, 11% are drought, and 1% are temperature. 69% of families lost their homes, 46% lost their livestock/ cattle/ chicken, 40% lost their crops, 25% lost their livelihood opportunities, 17% lost their land due to land erosion, and 7% lost their business, among other factors that made dwellers to migrate to slum areas.

Main findings of the baseline survey

Reasons for migration in the slum areas of RCC

Baseline survey revealed that 168 respondents migrated to the slums for various reasons in the RCC slum areas. Choosing multiple choice of reason for migration by the slum dwellers, it was found that 54% lost their home in a climatic disaster and 32% lost farmland due to climate change.

Types of climate disaster faced by Rajshahi slum dwellers

144 slum dwellers were found to be climate migrants. Within the climatic disaster reason, 56% are flood and 37% are river erosion.

Effects of climate disaster

Climate disaster causes effects on climate migrant slum dwellers such as 69% of village homes were destroyed, 46% lost livestock/cattle/chicken, 40% lost crops, 25% lost livelihood opportunities, 17% lost land due to land erosion, and 7% lost business due to climatic disaster.

Perception of slum dwellers on climatic event in last 5-10 Years in the slum areas observed

Slum dwellers observed various types of climate change ranked hazards over the last 5 to 10 years such as increased temperature, heat wave, cold wave, long term rainfall, water logging, flood, drought, river erosion etc. Water logging and heavy rainfall creates problem to collect drinking water, mixed bad water with supply water, mixed water logos with latrine water and scattered water surrounding the place of water collection, further defecation could not pass in latrine, water logos at the all place of surrounding house and latrine. Long term and heavy rainfall cause of absence from work that causes of decrease of income and livelihood become challenging.

Action taken to cope with the adverse impact

According to the baseline study, 27% of all respondents took measures or action to adapt to the adverse impact. Among this 27%, the majority (97%) took action related to life and livelihood, while only 3% took action related to others and none took action related to WASH improvement. To cope up with the climate disasters, they use saving and sometimes cut off their daily meal.

Household water supply & practices

25% of the slum dwellers have limited access to safe drinking water, 53% have basic access to drinking water, and 22% safely manage safe drinking water. None of the respondents drink unimproved drinking water or use surface water.

Sanitation

Prevalence of improved and unimproved sanitation

According to the study, about 81% of slum dwellers have access to latrines, while 55% have limited access to sanitations, 32% have basic sanitation facilities, and 13% use unimproved sanitations.

Hygiene and handwashing practices

In the HH, 66% of respondents have no access to hand washing facilities, 31% have limited access to hand washing facilities, and only 3% have basic access to hand washing facilities.

Menstrual hygiene

Almost half of the women (52%) use cloth as their primary source of menstrual materials, while 10% use single-use sanitary pads and 2% use toilet paper. Maintaining privacy while changing menstrual materials is a safe response. 91% of women say they used to change menstrual materials, but 9% say they do not have any privacy while doing so.

WASH facilities in Schools and educational institute

Many of the schools do not have adequate washing and sanitary facilities. Girls and boys have limited or no access to safe drinking water. There are no gender disaggregated facilities in the school areas.

Income Generating Activity (IGA) supported activity

Only 35 (9%) of the total surveyed respondents are involved in various types of Income Generating Activities (IGAs), with the highest 40% involved in small business, 23% (tailoring), and 14% (handicrafts). Handicraft items, small petty business-grocery items, homemade food processing, tailoring and homemade garments, embroidery and tapestry items, mobile phone mechanics/ repair shops, and small beauty parlor are among the interested IGAs. Only 34% of respondents received a loan, while 66% did not receive any loan for IGA, but 21% of climate-migrants received a loan for IGA. Only 5% of the total respondents have a bank account. Only 2% (6) of respondents had received training on WASH, while none had received any training on IGAs. Slum dwellers, on the other hand, are eager to begin IGA with relevant training.

Service provided by RCC and RWASA

80% of respondents had heard about Rajshahi City Corporation (RCC). Only 28% of respondents visited Rajshahi City Corporation (RCC), while 6 persons received services from RCC. 31% of respondent have heard the name of Rajshahi Water Supply and Sewerage Authority (RWASA). 11 (9%) of respondents visited RWASA. RWASA provided services to 5 people.

Recommendation

Conducting baseline study, the team discovered that in the slum areas of RCC, it is necessary to intervene methodically while considering climate change adaptation and WASH thematic areas. Followings are the snapshot of the study results as a recommendation or intervention guideline for the CAMCUS project:

- Water - Improve and ensure access to safe water for the slum dwellers
 - Awareness raising on safe drinking water of slum dwellers
 - Installed safe water supply infrastructure e.g., dig and install deep water pumps in slum area
 - Construct climate resilient water supply system through RWASA
- Sanitation -Improve and ensure access to sanitation facilities and practices by slum dwellers
 - Assessment of hygiene practice and rewarding households in slum areas of RCC
 - Awareness raising on improve sanitation practices of slum dwellers of RCC
 - Construct climate resilient community toilets n slum areas of RCC
- Hygiene - Awareness and increase hand washing and hygiene practices;
- WASH facilities at the schools - Improve access to WASH (toilets, hand washing);
- IGA -Skill development training should be provided to promote self-employment and income by climate migrant
 - Conduct scoping study for potential IGA opportunities in slum areas of RCC
 - Organize skill based IGA related skill training for climate migrants of slum areas of RCC

Baseline Study of “Composite Actions for Climate Migrants in Urban Slums (CACMUS)” Project

- Access to Finance – inclusion of financial supports - Strengthen access to finance for the slum dwellers
 - -Create MF fund for climate migrants by Partner NGO
- Service provision from RWASA and RCC -Strengthen service delivery mechanism
 - Linkage with RCC and RWASA to provide WASH related services to slum dwellers
 - Develop O&M guidelines for water and sanitation facilities for slum dwellers

The data is kept by the CACMUS, and it must be compared on a regular basis based on the log frame and indicators.

Baseline fact sheet

Objective	Indicator Name	Values	Verification sources																																								
Overall objective (impact): The resilience of vulnerable communities in urban areas towards the consequences of climate change is increased (predefined)																																											
Project objective (outcome): Outcome-1: WASH deprivation reduced among climate vulnerable people in low income communities through sustainable access to resilient facilities and services.	Number of people using improved and sustainably operated WASH facilities and services	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Water</th> <th>Sanitation</th> <th>Hygiene</th> </tr> </thead> <tbody> <tr> <td>Baseline</td> <td>86 (Safely managed)</td> <td>127 (Basic)</td> <td>13 (Basic)</td> </tr> <tr> <td>% (N=400)</td> <td>22%</td> <td>32%</td> <td>3%</td> </tr> <tr> <td colspan="4">Target value</td> </tr> <tr> <td>Yr. 1</td> <td>975</td> <td>410</td> <td>3,000</td> </tr> <tr> <td>Yr. 2</td> <td>1,375</td> <td>800</td> <td>4,000</td> </tr> <tr> <td>Yr. 3</td> <td>830</td> <td>380</td> <td>3,000</td> </tr> <tr> <td>Total</td> <td>3,180</td> <td>1590</td> <td>10,000</td> </tr> <tr> <td>Achievement</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>% of Achievement</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>		Water	Sanitation	Hygiene	Baseline	86 (Safely managed)	127 (Basic)	13 (Basic)	% (N=400)	22%	32%	3%	Target value				Yr. 1	975	410	3,000	Yr. 2	1,375	800	4,000	Yr. 3	830	380	3,000	Total	3,180	1590	10,000	Achievement	-	-	-	% of Achievement	-	-	-	<ul style="list-style-type: none"> Progress report Endline survey
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% of Achievement	-	-	-																																								
Outcome-2: Sustainable livelihood skill and opportunities increased for climate-migrants through access to microfinance services & marketable skill development	Average monthly income of the poor loanee households in last three months	Baseline value: Tk.8208 Target values: Yr. 1: 10% higher than baseline Yr. 2: 20% higher than baseline Yr. 3: 30% higher than baseline	<ul style="list-style-type: none"> Baseline and Endline survey 																																								
Outcome-3: Inclusive and pro-poor service delivery by the Rajshahi City Corporation and Rajshahi WASA strengthened	# of slum communities served by at least one visible service from RCC/RWASA.	Baseline value: 0 Target values: Year 1: 0 Year 2: 4 Year 3: 6	<ul style="list-style-type: none"> Progress report Endline survey 																																								
Output-1.1: Climate resilient and improved WASH facilities	# of water and sanitation facilities constructed/renovated	Baseline value: 0 Target values: Year 1: Water-18 Sanitation-10 Year 2: Water-19 Sanitation-11 Year 3: Water-15 Sanitation-08	<ul style="list-style-type: none"> Progress report Endline survey 																																								

Objective	Indicator Name	Values	Verification sources
constructed and/or renovated in low income communities.			
Output-1.2: Effective O&M system established to sustain climate resilient and improved WASH facilities/ services	# of caretakers trained on O&M guidelines # of user committees oriented on their role and responsibilities	Baseline value: 0 Target values: Year 1: 36 Year 1: 28 UCs Year 2: 38 Year 2: 30 UCs Year 3: 30 Year 3: 23 UCs	<ul style="list-style-type: none"> • Progress report • Endline survey
Output-1.3: Awareness and hygiene practice promoted among city poor and climate migrants in low income communities.	# of hygiene rewards provided to best practicing households	Baseline value: 0 Target values: Year 1: 60 Year 2: 60 Year 3: 60	<ul style="list-style-type: none"> • Progress report • Endline survey
Output-2.1: A dedicated microfinance fund created for the climate migrants to support self-employment and income.	# of poor households in low income settlements received microfinance support for IGA	Baseline value: 0 Target values: Year 1: 300 Year 2: 400 Year 3: 300	<ul style="list-style-type: none"> • Microfinance monitoring report (disbursement register)
Output-2.2: Skill development training developed and delivered to promote self-employment and income by climate migrants.	# of climate migrants (loanees) received IGA related training/ orientation	Baseline value: 0 Target values: Year 1: 300 Year 2: 400 Year 3: 300	<ul style="list-style-type: none"> • Microfinance monitoring report • Training report

Objective	Indicator Name	Values	Verification sources						
<p>Output-3.1: Pro-poor unit within RCC and RWASA initiated to serve urban poor.</p>	<p># of meetings/ consultations organised with stakeholders for pro-poor service delivery</p> <p># of mobile toilets introduced to serve city commuters</p>	<p>Baseline value: 0</p> <p>Target values:</p> <table border="0"> <tr> <td>Year 1: 4</td> <td>Year 1: 0</td> </tr> <tr> <td>Year 2: 4</td> <td>Year 2: 2</td> </tr> <tr> <td>Year 3: 4</td> <td>Year 3: 0</td> </tr> </table>	Year 1: 4	Year 1: 0	Year 2: 4	Year 2: 2	Year 3: 4	Year 3: 0	<ul style="list-style-type: none"> • Progress report • Endline survey
Year 1: 4	Year 1: 0								
Year 2: 4	Year 2: 2								
Year 3: 4	Year 3: 0								

1. Chapter One: Introduction

1.1. Introduction

Composite Actions for Climate Migrants in Urban Slums (CACMUS) is a project of WaterAid being implemented in selected slum areas of Rajshahi City Corporation, Bangladesh. The Village Education Resource center (VERC) is a national NGO that serves as the projects implementing partner. The baseline study was conducted by Matrix from July 01, 2021 to August 19, 2021.

Composite Actions for Climate Migrants in Urban Slums (CACMUS) addresses the core issue of limited access to WASH and allied services for internally displaced people (climate migrants) living in urban slums in Rajshahi City Corporation areas. The project will help to secure improved WASH resources and infrastructure for low-income communities with limited livelihood opportunities and access to WASH services in selected slums of Rajshahi City Corporation (RCC).

The project is intended to improve (i) Infrastructural Functioning and Maintenance of WASH; (ii) Curbing internal migration and displacement due to induced climate change vulnerabilities by facilitating access to climate adaptive livelihood options; and services on water, sanitation, and hygiene parameter.

According to Bangladesh's Nationally Determined Contribution (NDC) and Bangladesh Delta Plan 2100, the project is aligned with the priority area of water security. Furthermore, the project is in line with a number of national WASH-related policies and frameworks, including the Bangladesh Water Act 2013, Sector Development Plan (2011-25), National Water Management Plan 2000, and the National Water Supply and Sanitation Strategy (pending approval), which provides guidance on achieving SDG 6 on clean water and sanitation.

1.2. Outcome and Outputs of the CACMUS Project

Outcome-1 WASH deprivation reduced among climate vulnerable people in low income communities through sustainable access to resilient facilities and services	Output 1.1: Climate resilient and improved WASH facilities constructed and/or renovated in low income communities
	Output-1.2: Effective O&M system established to sustain climate resilient and improved WASH facilities/ services
	Output 1.3: Awareness and hygiene practice promoted among city poor and climate migrants in low income communities.
Outcome-2 Sustainable livelihood skill and opportunities increased for climate migrants through access to microfinance services and marketable skill development	Output 2.1: A dedicated microfinance fund created for the climate migrants to support self-employment and income.
	Output 2.2: Skill development training developed and delivered to promote self- employment and income by climate migrants.
Outcome-3 Inclusive and pro-poor service delivery by the Rajshahi City Corporation (RCC) and Rajshahi WASA (RWASA) strengthened	Output 3.1: Pro-poor unit within RCC and RWASA initiated to serve urban poor

1.3. Geographical location of the project

The project is implemented in 10 (ten) slums in Bangladesh, those are Asrain slum, Baganpara, Baze Kazla, Chalk Kristan Para, Char Satbaria East, Char Satbaria West, Choto bonogram, Kazla, Hadirmore and Sreerampur of Rajshahi City Corporation in Rajshahi sadar upazila under Rajshahi district. *Annex-1* shows a map of the location.

1.4. Beneficiary portfolio of the CACMUS project

CACMUS will work 10,000 beneficiaries (without double-counting) and 19,770 (with double-counting). The beneficiaries are vulnerable people from poor and marginalized communities who migrated in slums to RCC from adjacent and remote villages. The anticipated beneficiaries are as follows:

Women: The project will lead to easier and safer access to WASH facilities by women who bear most of the physical burden, freeing up their time for productive and leisure activities, enhancing their dignity, and reducing the care burden from fewer illnesses within family.

Children: Access to child feces management on sanitation-related activity across all locations, protecting children and their surrounding communities from an oft-neglected health danger.

Adolescent girls: Adolescent girls will be oriented on proper menstrual hygiene management (MHM) and have access to resources within sanitation facilities in order to aid self-learning and practice.

School learners: The project will work in one school as a model to improve WASH facilities with provisions for MHM, helping girls stay in schools during menstruation, and cutting down the national absence rate of 2.5 days a month due to menstruation.

1.5. Objectives of the Baseline study

The objectives of the baseline study involve the following:

- Understanding the context, current situation of the designated slums and resident households in order to help measure outcome level progress during implementation of the project
- Collect indicator wise baseline value
- Identify required benchmarks of 10 slums and its dwellers (households) on their economic, social and WASH vulnerability and exposure, identify potential IGAs, understand knowledge practice and attitude on WASH, decision making at the community level and training related information
- Provide attribution methodology for CACMUS management team with recommendation

1.6. Parameters for data collection and analysis

The study was included the following parameters for data collection and analysis:

- Access to water, sanitation, and hygiene facilities in the slums.
- Operation and maintenance of the existing WASH facilities in the slums
- Level of hygiene awareness and hygiene practice across households.
- Access to and use of microfinance services by slum households
- Average income earning of the households as well as future earning potentials.
- Interest and scope for income earning skill development of the households.
- Availability of and access to pro-poor service delivery by RCC and RWASA.

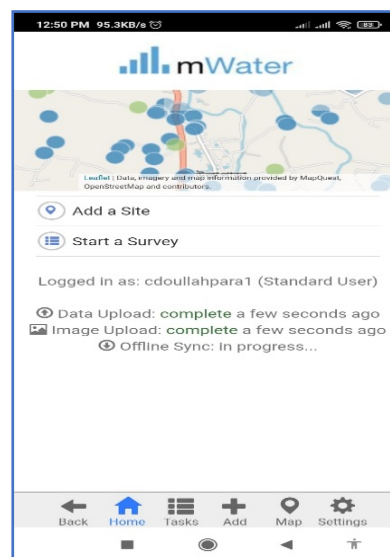
Furthermore, the study was also highlighted

- Climate change hazards and risks in the slums
- Existing gaps in climate change adaptation to minimize the risks
- Slum dwellers’ rights and obligations to services as per existing policies
- Institutional capacity gaps with RCC and RWASA to serve low-income settlements with WASH services
- Recommendations towards what would make WASH interventions “climate resilient” in the slums.

2. Chapter Two: Baseline study methodology

2.1. Study design

The baseline study used a mixed-method approach, combining qualitative and quantitative data from primary and secondary sources. Focus Group Discussions (FGDs), Key Informant Interviews (KIIs), and Observations were used to collect qualitative data. Quantitative information and data were collected using structured questionnaire with sample respondents by using the “mWater App” (Picture 1).



Picture 1: Quantitative data collection through mWater Apps

2.2. Activities and phases

Table 1 depicts the various phases and the activities completed in each of these phases.

Table 1: Activities and Phases of Baseline Study

Phase -1	Phase -2	Phase -3	Phase -4	Phase – 5
Inception and Design		Primary data collection	Analysis	Reporting
<ul style="list-style-type: none"> • Briefing meeting • Study design • Methodology design • Field design 	<ul style="list-style-type: none"> • Secondary review • Prepare data collection instruments • Two (2) day long training 	<ul style="list-style-type: none"> • HH sample survey through mWater apps • KII, FGDs • Observations • Case Study 	<ul style="list-style-type: none"> • Data cleaning • Data analysis • Tabulation • Pictorial analysis 	<ul style="list-style-type: none"> • Draft report • Feedback incorporation • Final report

2.2.1. Secondary review and design of the study

The baseline survey team reviewed relevant secondary documents to better understand the context, relevance of the project and its indicators, formation of the questionnaire, and the broader scenario of the target location. Annex-II contains a list of documents that have been reviewed

2.2.2. Tools, questionnaire and apps development

The team developed structured questionnaires for both quantitative and qualitative data based on the MEL framework, result indicators, outputs, and outcome indicators, as well as the thematic areas of CACMUS. This was finalized in consultation with the MEL team of CACMUS. Before finalizing the questionnaires and tools were tested. Annex-III contains details on the quantitative questionnaire, while Annex-IV contains qualitative guidelines.

The final questionnaire was written in English and translated into Bangla by Matrix before being inserted into the android-based mWater App, which was used to collect quantitative data. The customized app was tested and piloted before its final version was used for data collection.

2.2.3. Orientation and training of enumerators

The baseline survey team provided enumerators with two days of orientation and training to help them understand the baseline data collection methods, respondent criteria, and use of mWater. Orientation training facilitated at VERC conference room dated on August 31, 2021 to September 01, 2021. The first day was classroom-based training, followed by a field exercise, mock test, and field test of both the questionnaire and the apps the following day (Picture 2).



Picture 2: Training on mWater and data collection methods

2.2.4. Primary data collection

A structured questionnaire was used to collect quantitative data from 400 slum dwellers in the RCC area. Daily and in real-time, survey questionnaires were uploaded to the mWater server. The WAB team sends the uploaded data to the Matrix team on a regular basis. One statistician from the Matrix team was constantly checking data dynamics, quality, troubleshooting, and providing necessary guidance to field data enumerators. One field coordinator is always present to assist the survey team in ensuring field plans, accomplishments, and any field-level support. During the quantitative data collection period, one field supervisor supervised and monitored the quantitative data collection team. Four (4) local enumerators used mWater Apps to collect quantitative data (Picture 3).

Focused Group Discussions (FGD) and Key Informant Interview (KII) provided qualitative primary data and information from project stakeholders. To ensure quality data collection, the focus groups were organized by gender. To obtain gender sensitive information, one team consisted of one-woman interpreter/facilitator. The qualitative data was collected simultaneously by two teams (each consisting of two members). Slum Observation analysis is presented in Annex-VI, while the conducted two case studies and IGA selection tools are presented in Annex-VII.



Picture 3: Field data collection



2.2.5. Sampling for quantitative information

For sample size calculation, population-based stratified random sampling techniques were considered (Table 2). Based on WAB’s slum situation analysis, 10 slums were chosen for CACMUS project implementation, with a total population of 25,103. The following sample size calculation method was used:

The sample size is given as:

$$n = \frac{Z^2 \times p \times (1 - p)}{\epsilon^2}$$

Where:

N = Sample size

Z = 1.96, Z value at 5% level of significance

p = Population proportion = 0.5

q = 1 – p = 1- 0.5=0.5

$$n = \frac{1.96^2 \times 0.5 \times (1 - 0.5)}{0.05^2} \approx 384$$

So, the ultimate sample size would be-

$$n' = \frac{n}{1 + \frac{Z^2 \times p \times (1 - p)}{\epsilon^2 \times N}} = \frac{384}{1 + \frac{1.96^2 \times 0.5 \times (1 - 0.5)}{0.05^2 \times 25103}} \approx 380$$

Considering the Covid-19 and availability of the respondent let take 5% non-response rate which comes the total sample size to as follows:

$$n' = 380 \times 1.05 = 400$$

Table 2: Survey sample distribution of the baseline survey of CACMUS Project

SL No.	Slum Name	Sample Collected for baseline study (proportionately on the basis of slum population)
1	Asrain slum	35
2	Baganpara	32
3	Baze Kazla	35
4	Chalk Kristan Para	11
5	Char Satbaria East	67
6	Char Satbaria West	79
7	Choto bonogram	31
8	Kazla	58
9	Hadirmore	25
10	Sreerampur	27
Total		400

2.2.6. Data management and analysis

The consultant used the ‘mWater App’ for data management, as directed by WAB.

“mWater” (web-based) is a data collection, analysis, and visualization platform. The tools were scripted and synchronized in preparation for data uploading on ‘mWater’. After the fieldwork was completed, the data was transferred to MS Excel for cleaning and analysis. The raw datasets were rigorously examined and cleaned for things like response choice labeling, skip patterns and the resulting missing data, and specifying ‘others’ data when it was needed, among other things. For data analysis, Microsoft Excel and SPSS both were used.

The completeness, extreme values, out-layers, and data quality of all data were reviewed on a regular basis. All data (qualitative and quantitative) was collected and evaluated individually. For data administration and analysis, statistical applications such as SPSS and MS Excel were employed. Frequencies, means, and cross-tabulations were used to examine descriptive statistics. Each of CACMUS and WaterAid's thematic areas was examined using JMP Ladder and project indicators. The results of the analyses, as well as their interpretation, were given as tables, charts, graphs, and text disaggregated by age, gender, and handicap, if appropriate. The qualitative data was examined using a summary of the customized matrix in excel format, which was compared to the baseline's indicators and variables. The qualitative data and the findings from the secondary review were triangulated with the quantitative data.

2.3. Ethical considerations and quality management

All the WAB ethical and safety considerations were maintained throughout the study. During the baseline study, the survey team followed the WAB team's instructions, schedule, and protocol. Before data collection, the survey crew obtained verbal agreement from all respondents and read out a written format to all FGDs, KIIs, and interviews. This covers information confidentiality, information privacy, and non-disclosure of any information statement. Gender-related problems were rigorously adhered to. Matrix also followed the children and young people safeguarding policies of WAB.

Before the study, all members of the assessment team were briefed on ethical considerations.

- **Pretesting of tools:** All tools were pre-tested and modified appropriately, before full-scale application.
- **Extensive field training:** Field staff enumerators were trained, exercised before field deployment.
- **Experienced and gender balanced field staff:** Field data collection teams included trained and tested resources. These included adequate women enumerators, facilitators and research associates and supervisors.
- **Continued technical support:** Field teams were extended supportive supervision for timely and quality data collection.
- **Informed consent:** The respondents were given adequate information about the purpose and objectives of the survey and informed consent was sought and recorded.
- **Interview observations:** The enumeration teams were examined on a frequent basis by the quality assurance teams, especially in the early stages of the data collection process. This ensured that the phrasing of questions, recording of responses, and general interaction with respondents were all done correctly in accordance with the field rules and instructions provided during the training.

2.4. Cope with COVID -19 situation

- Data was collected through structured questionnaires with the research team following appropriate social distancing throughout the study;
- Consultants and enumerators strongly followed the WHO/ MoHFW guideline during field-level exercises (KII, FGD);
- Involved a smaller number of participants in FGDs (8-10);
- Some of KIIs were conducted ONLINE for those who had access to online platforms and reservations to meet physically;
- Used hand sanitizer by everyone without exception when entering and leaving the training room;
- Ensured everyone used mask including the respondents.

3. Chapter 3: CACMUS Baseline study findings

This chapter covers field survey data (both quantitative and qualitative), secondary review, and indicator-based conclusions. The baseline observations and analysis are presented in this chapter. The results and analyses are divided into a few areas i.e., i) Household characteristics and community information; ii) Water, sanitation and hygiene; iii) Socio-economic status of the slum dwellers, iv) Income generating activities, vii) access to finance, and viii) Service provided by RCC and RWASA. The CACMUS related findings (water, sanitation and hygiene-WASH, climate resilient and migration issues) have been grouped under relevant outcomes (including contributing factors) and outputs. The results have been disaggregated across a variety of cross-cutting characteristics, including gender, age, disability, and others, as needed. For a comparison study of baseline results, there is only a small amount of secondary data gathered from various sources.

3.1. Review of the related literature

Due to its location in flood valleys of major rivers and its large population exposure and vulnerability, Bangladesh is one of the world's most disaster-prone countries. Much of the country is affected by tropical storms, floods, and the annual monsoons. Hundreds of thousands of people are displaced each year as a result of these events, many of which are life-saving pre-emptive evacuations. In Bangladesh, disasters will result in 4.4 million new displacements by 2020

Climate change has accelerated old forces of devastation, resulting in new patterns of human displacement, worsening existing vulnerability, and driving a rapid and chaotic urbanization growth (McDonnell, 2019; Eriksen et al., 2015; Ali, 1999). Various studies have termed this type of migration as - climate-induced migration (Baldwin et al., 2014), climate-induced internal displacement (Siddiqui et al., 2015), climate-driven displacement (McDonnell, 2019), environmental migration (Priovashini and Mallick, 2021), or simply human displacement (Mallick and Vogt, 2013). Despite the diversity of terminologies and discourses, there was a shared desire to highlight the migratory and vulnerability repercussions of climate change. Many say that the ability of any impacted community or individual to adjust and cope with vulnerabilities determines the occurrence of climate change migration (Yaro et al., 2014; McLeman and Smit, 2006). Land ownership, social connectivity, and household economic strength are all linked to on-migration decisions, according to Mallick et al. (2021). Many studies have looked into the reasons and drivers of migration and non-migration decisions. (Black et al., 2011a). Khatun et al. (2021) discovered that the chars in the Padma, Jamuna, and Meghna floodplains in Bangladesh periodically migrate to nearby places on a regular basis as an adaptation strategy to lessen the danger and uncertainty of erosion. Every year, natural calamities in Bangladesh result in the influx of hundreds of thousands of climate migrants (Priovashini and Mallick, 2021; McDonnell, 2019). Natural calamities such as cyclones, floods, river erosion, and landslides are responsible for the bulk of them. Sea-level rise and salinization, for example, are slow-onset calamities that result in new displacements.

However, research reveals that Bangladesh is witnessing a huge number of human displacements due to a variety of factors, including natural catastrophes, and that many of them are relocating to metropolitan areas. The capital city of Dhaka, as well as Chattagram, Khulna, and Rajshahi, are their main priorities in terms of income-earning prospects and better livelihoods. As a result, the country's cities are clearly vulnerable to climate-related migration. Climate change or disaster-induced rural-to-urban migration has a significant environmental, socio-economic, and political impact on them. Disaster-induced human migration, for example, destroys people's normal livelihoods, increases food insecurity, disrupts children's education, and increases the risk of health problems such as water-borne and infectious diseases, according to IDMC (2021). The majority of the implications of

climate-induced migration on developing-country cities are negative (Khan and Kraemer, 2013; Jahan, 2012; Lu, 2010; Amin, 2005). It has a significant impact on urban sustainability and governance (Rana and Piracha, 2020; Rana and Piracha, 2018; Mohit, 2012; Rana, 2011), infrastructural shortages (Khan and Kraemer, 2013), and a lack of social and environmental services (Chen, 2011; Li et al., 2006).

The increasing influx of migrants has an impact on the city's infrastructure and services. Slums emerge unintentionally in the backyards of high-rise buildings, near rail lines, above water-logged floodplains, environmentally vulnerable places, and on the outskirts of construction sites (McDonnell, 2019). According to studies, slum dwellers have limited access to health and educational services. The majority of slum inhabitants still rely on unofficial water sources such as dug wells, hand tube wells (pump), ponds, lakes, and rivers (Rana and Piracha, 2018).

Understanding the origins, drivers, and dynamics of migration/displacement necessitates addressing the effects of climate change on migration. For example, spatial and temporal databases regarding the permanent migration, temporary displacements, and immobility outcomes following a disaster-event are a primary requirement for better understanding of the categories of migration (Vinke, 2019; Renaud et al., 2011) and urban policy strategies (Black et al., 2013). As is well known, a significant number of climate migrants temporarily or permanently relocate to cities for economic reasons (Priovashini and Mallick, 2021).

Climate change has increased the frequency and intensity of natural catastrophes in recent years, displacing people physically but also exposing them to increased poverty by endangering their livelihoods both temporarily and permanently. As more people flock to the city's slums, urban crises emerge, including WASH difficulties. People who have been displaced from their homes and are living in urban slums are looking for a better and more secure existence. However, in urban slums, restricted access to critical services, such as food, shelter, sanitation, and health care, makes living even more difficult. This baseline study highlights some of the WASH challenges as well as selected slum inhabitants' socioeconomic conditions (IGA).

3.2. Household characteristics

Gender of the respondents

During the survey, 400 individuals were questioned and a prepared questionnaire. From one HH sample, one member was chosen. A total of ten (10) slums in the Rajshahi City Corporation (RCC) region were surveyed. Among the 400 surveyed respondents, 81% were women and 19% were men, with 66% being middle (25 to 45 years) aged, 22% being old (45 years plus), and 12% being young (age range 18 to 24) (Figure-1). Persons with disabilities made up 8% of all households. (Figure1).

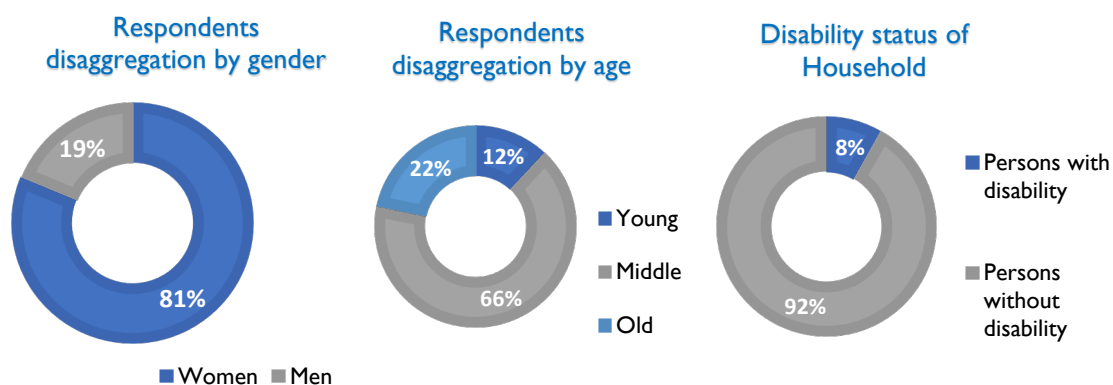


Figure 1: Demographic characteristics of the surveyed HHs

Marital status of respondents

Overall, 89% of the respondents were married, 6% were widow/er, 3% were divorced/separated, and 2% were unmarried (Figure 2).

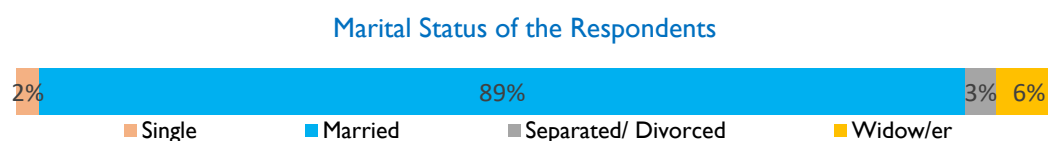


Figure 2: Marital Status of Household

Household member size

A total of 1,350 family members were discovered among the 400 HHs in the slum of RCC. The maximum number of HH members discovered was nine, while the minimum number of members discovered was one. One family has an average of 3.4 household members (Figure 3).



Figure 3: Status of Household size

This average HH size of the slum in RCC is lower than the national average HH. The national average household size of slum is 3.75 in slum census 2014 and that in Population Census 2011 is 4.35. The trend in household size of slum censuses is declining to household size of Population & Housing Censuses. The household size of slum households in Rajshahi city Corporation is 3.78 in slum census 2014 and that in Population Census 2011 is 4.03. Similarly, the household size of slum households in city corporation in Dhaka (north + south) is 3.67 in slum census 2014 and that in Population & Housing Census 2011 is 4.3. In each case, the household size in slum census is less than that of Population Census. The decline in fertility rate in recent years and the reduction in integration of joint family households may be the causes for lower household size. According to FGDs, this is a low number because many respondents left their family members in the village and only the income earners live in the slum.

HH population age distributions

Figure 4 depicts a diagram of the population of 1350, with ages grouped as 0- 5 years, 6-10 years, 11-15, etc. The population of each is group is represented by a bar extending from a central vertical line, with the length of each bar dependent on the total population for that particular group. The centerline separates the Females from the males. The distance from the centerline represents the female and male populations for each group, with females on the right and males on the left. It was found that 6 to 10 years of age in men category and 26-30 years in women group was higher. Details shown in Figure 4.

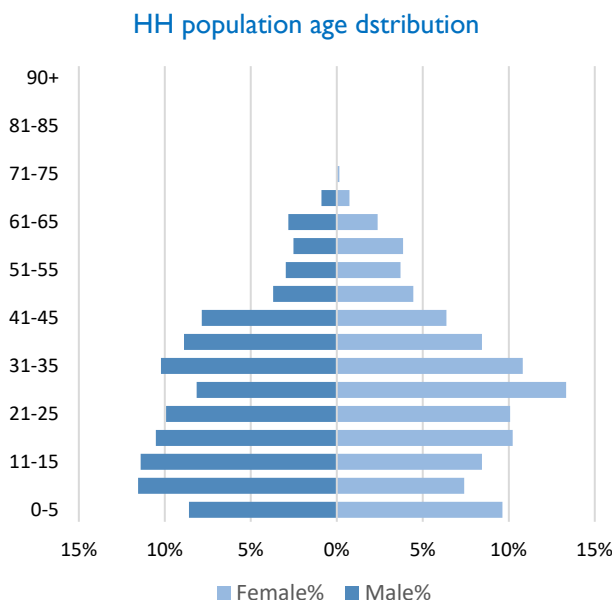


Figure 4: Household population age distribution

Household education status

According to the baseline study, 41% of the household members read up to class V. 26% of household members read up to class VIII, while 15% read up to SSC level, and 9% can only sign. Details shown in Figure 5.

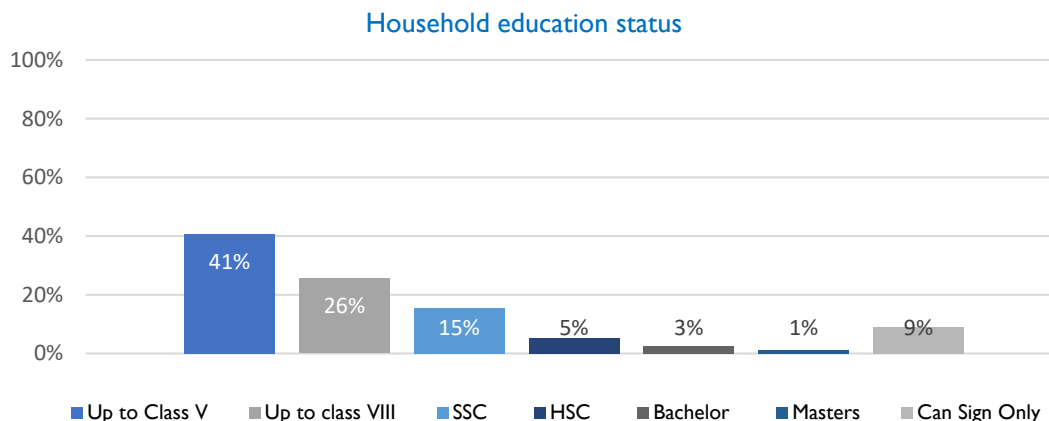


Figure 5: Household education status

Respondents living status in Rajshahi City Corporation

According to the baseline study, the average living period of respondents in this Rajshahi city is 24 months. The maximum living period discovered was 70 months, and the minimum was 1 month. According to the baseline study, the average living period of respondents in a specific slum area of Rajshahi city is 20 Months. The maximum living period discovered was 68 months, and the minimum was 1 month. Participants in the focus groups also stated that they have been living in the same slums for the same amount of time.

Respondents living status in the slum of RCC

Among the 400 respondents, 74% were living in the same slums from very beginning while came to town whereas 24% respondents respond they have been changed slums and living more than 10 years in the town.

Own house in village

Among the surveyed respondent 95% does not have any home in the village and only 5% that they have own house in their village.

Ownership of the household

According to the baseline study, the vast majority of respondents (74%) live in the Government/khash land. 19% of respondent said they have a self-owned household. Only 6% of respondents said that their household is rented, and only 1% of respondent has dual ownership (Figure 6).

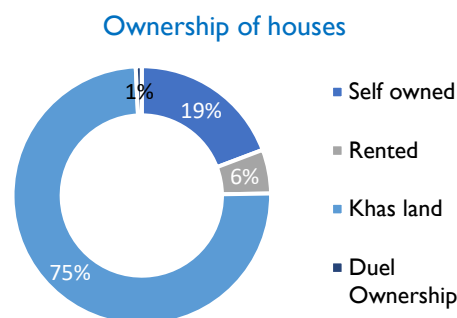


Figure 6: Ownership of houses

Household assets

During the baseline, it was discovered that the highest 95% of households have a bed, the second highest 92% of households have kitchen materials, while the third highest 91% of households have a fan (Figure 7). During observation, it was observed that most of the slum dwellers have a bed, kitchen materials, a fan, and most families owning a mobile phone and a television, but few have any other furniture such as chairs, tables, refrigerator, cycle, motorcycle etc.

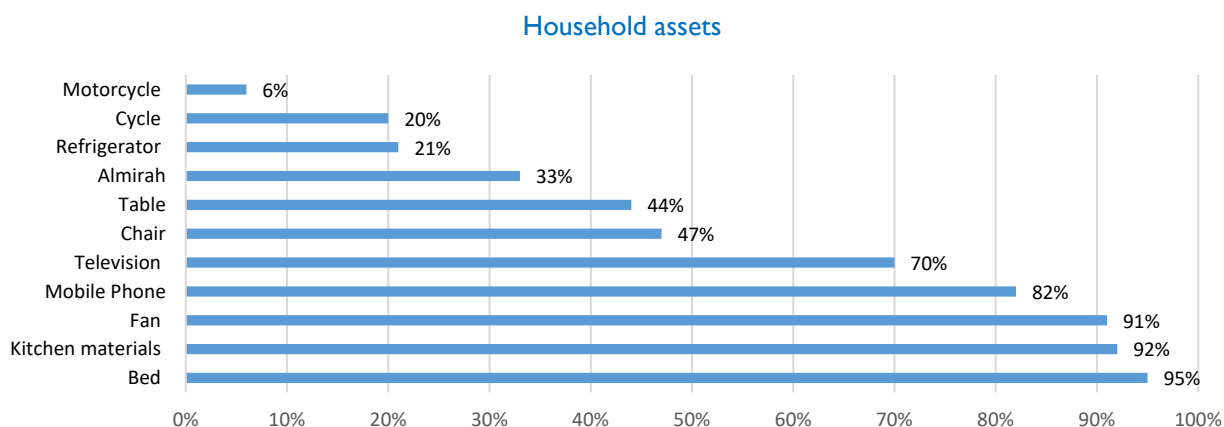


Figure 7: Household assets

Primary occupation of the households

Figure 8 depicted the highest occupation of the household as Rickshaw/Van Puller (27%), followed by Small/petty business (20%), day labour (19%), mobile vendor (5%), mason services (4%), service (5%), informal house worker (2%), tailoring (2%), factory worker (2%) and the rest (14%) (e.g., electrician, mechanics, barber, boat man, agriculture labour, construction worker, laundry, and few others). Based on FGD and slum observation, the team discovered that elderly women run tea stalls or small grocery shops in the slum areas.

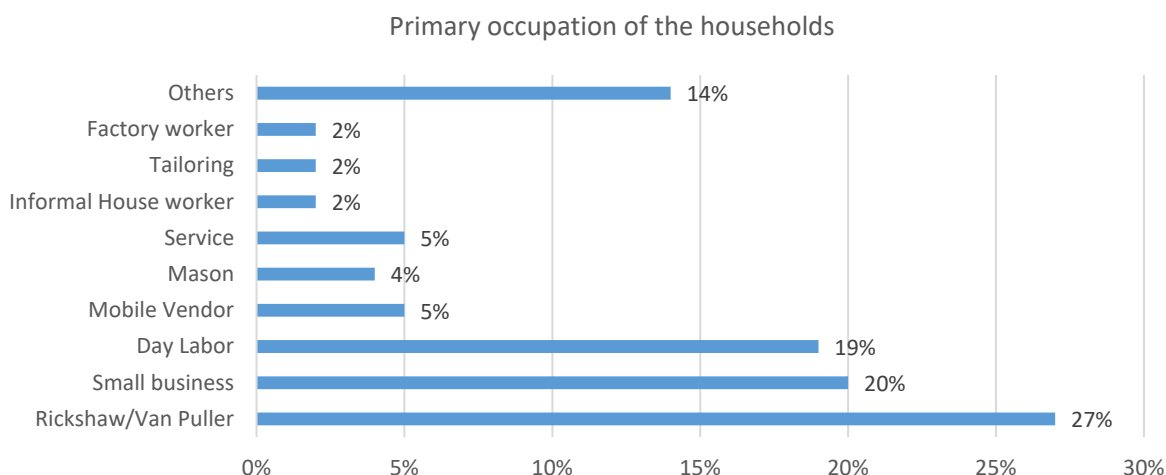


Figure 8: Primary occupation of the households

Household income

According to the baseline study, the average monthly household income is BDT 8210 (Figure 9). Women member contributed an average monthly income of BDT 805 and men members contributed BDT 7405. Average earning member in household was 1.26.

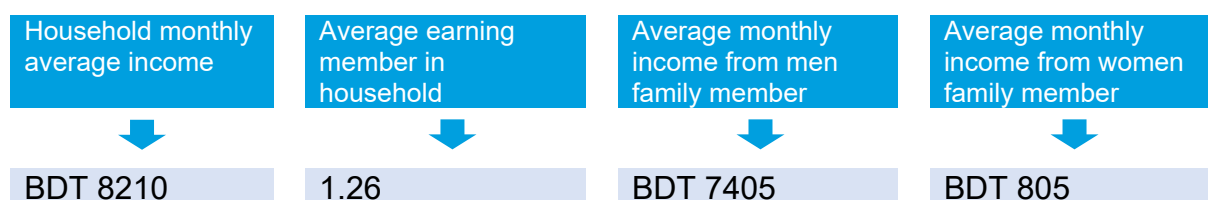


Figure 9: Household income

3.3. Climate resilience of the slum dwellers

Climate change has increased the frequency and severity of both extreme and slow onset events in recent years, not only physically displacing people but also exposing them to increased poverty by threatening their livelihoods both temporarily and permanently. As more people move to the city's slums, urban crises such as WASH and infrastructural issues arise. Urban slums have limited access to essential services, such as food, shelter, water, sanitation, and health care, making their lives even more difficult. This chapter depicts some aspects of climate resilience and discusses the causes of vulnerabilities.

Reason for migration in the slum areas of RCC

Slum dwellers were asked to mention the reason for migration in the slum areas of RCC with the choice of multiple answer. According to the survey, 168 respondents migrated to the slums for various reasons in the RCC slum areas. Responders gave the following multiple reasons: 54% lost their home in a climatic disaster, 32% lost farmland due to climate change, 25% looking for work, 20% accompanying family members, 12% livelihoods, 5% income change due to disaster effects, 4% due to lack of regular /permanent work, and 5% some other reasons such as passing of earning male person, disability due to an accident at work and more job information. During the FGD, it was discovered that the majority of the migrated respondents had lost their homes due to a climatic disaster, and river erosion was a major reason for them to migrate to slum areas. The majority of the migrant slum dwellers came from nearby districts. Figure 10 depicts some of the causes.

Reason for migration in the slum of RCC (n=168)

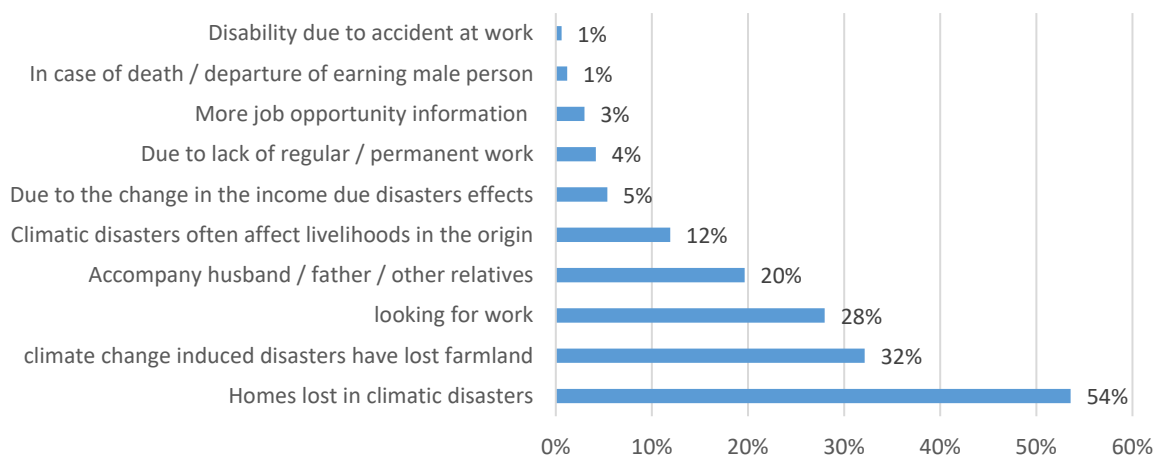


Figure 10: Reason for migrated to the slum of RCC

Types of climate disaster faced by RCC slum dwellers

Out of 168 respondents, 86% (144) were found to be climate migrants. Within this climatic reason, 56% are flood, 44% are long-term water sergeant, 37% are river erosion, 19% are long-term rain fall, 18% are heavy rainfall, 11% are drought, and 1% are temperature (Figure 11). According to observations and FGD, the local community has recently experienced heavy rainfall, water logging, house loss, and river erosion.

Types of climate disaster faced by RCC slum dwellers (n=144)

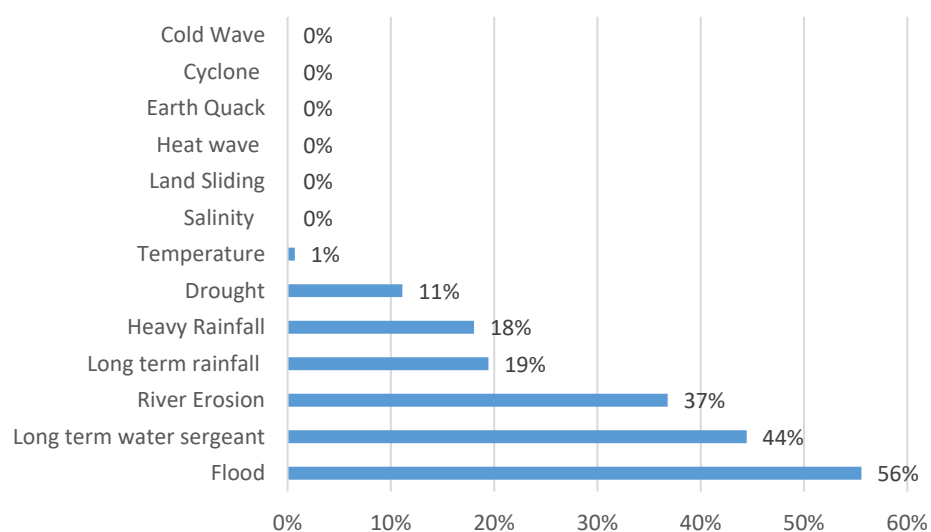


Figure 13: Types of climate disaster faced by Rajshahi slum dwellers

Effects of climate disaster

During the baseline survey, migrated respondents were asked about the effects of climate disaster before migrated to the slum in RCC. According to the study, 69% of village homes

were destroyed, 46% lost livestock/cattle/chicken, 40% lost crops, 25% lost livelihood opportunities, 17% lost land due to land erosion, and 7% lost business, among other things (Figure 12). During FGD with slum dwellers including climate migrants, they said that climate disaster created insecurities for food, water, life, property, settlement, livelihoods and others. Increased long term water sergeant, storm surges, floods, riverbank erosion destroyed and damage their properties including land, house, cattle, and other livelihood assets and living essentials.

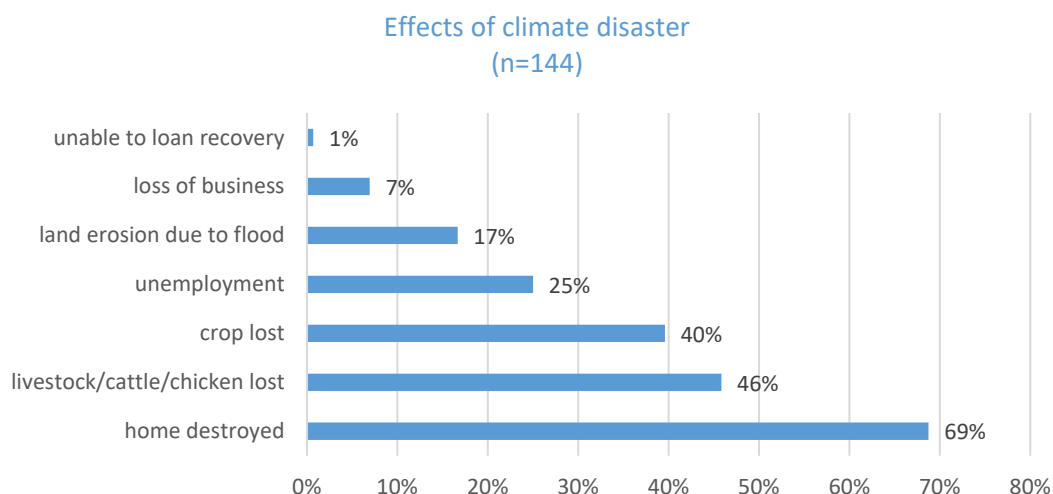


Figure 16: Effects of climate disaster

Perception of slum dwellers on climatic event in last 5-10 Years in the slum areas observed

According to the study, 392 (98%) of 400 slum dwellers stated that the climate has changed rapidly in the last 5 to 10 years. Temperatures rose by 96% in the summer, draughts rose by 91%, and cold waves rose by 91% in the winter, among other things. Table 3 shows how respondents observed various types of climate change ranked hazards over the last 5 to 10 years.

Table 3: Observing type of Climate Change in last 5-10 Years

Perception of Climate event in last 5-10 Years (observed)	Yes	Changes in the last 5-10 Years	
		Increased	Decreased
Temperature	96%	98%	2%
Heat Wave	64%	97%	3%
Cold wave	91%	46%	51%
Long term rainfall	68%	40%	58%
Heavy Rainfall	62%	61%	36%
Flood	81%	58%	38%
Waterlogging	65%	87%	11%
Cyclone	73%	28%	68%
Drought	91%	76%	22%
River Erosion	61%	38%	56%

According to the FGD with slum dwellers including climate migrants, water logging creates problem to collect drinking water, mixed bad water with supply water, mixed water logos with latrine water and scattered water surrounding the place of water collection, create problem in cooking, disease acquire. Increased temperature, heat wave causes of lode shading, thirst

and sleep disturbances. Long term and heavy rainfall cause of absence from work, faced difficulties or become late in their work, need more strength and time for rickshaw pulling, less income as a result of less customer for shopkeeper, become sick because of different types of water borne diseases, and social problem as a woman to draw cloths above knee to cross water.

Action taken to cope with the adverse impact

According to the baseline study, 27% of all respondents took measures or action to adapt to the negative impact. According to the FGD, it was found that migrated slum dwellers were directly at the risk of natural disasters being enhanced by the impacts of Climate Change especially in the shortage of the necessary infrastructure as well as employment opportunity for them in the RCC area. Climate migrant women are especially vulnerable because of the gender inequalities in the socio- economic situation. The majority of slum dwellers, 73%, do not take any action during the adverse impact of living in slum areas. Among this 27%, the majority (97%) took action related to life and livelihood, while only 3% took action related to others and none took action related to WASH improvement (Figure 13). During FGD, climate migrant slum dwellers raised voice that to cope up with the climate impacts they use saving and sometimes cut off their daily meal.

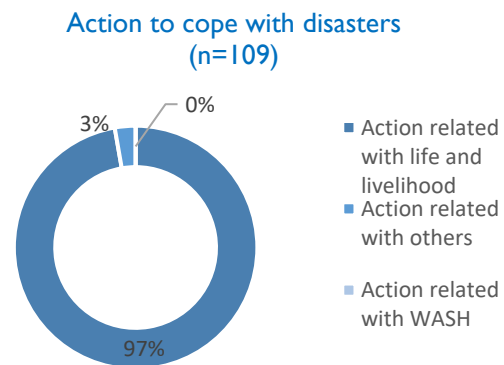


Figure 19: Action to cope with disasters

For those who have taken measures to adapt to the adverse impact, the majority (64%) learned measures or actions from the community people, 20% learned from own/family people, and 16% learned through different NGO Program (Figure 14). According to the findings of the focus group, there is little support provided by RCC or RWASA. For example, due to the embankment around the Padda River, river erosion has been comparatively low in recent years. Despite all efforts, the slum dwellers are in great distress as a result of the slum area's water logging problem.

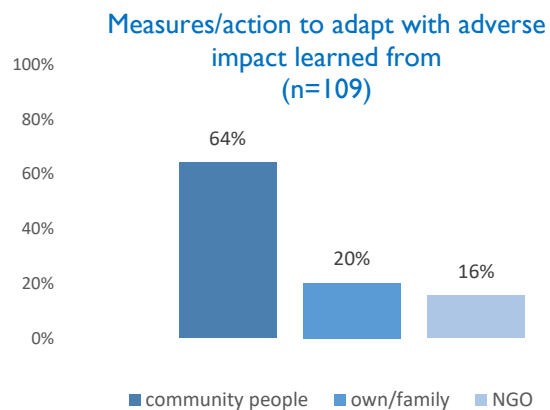


Figure 22: Measures/ action to adopt with adverse impact learned from

Some NGO have informed slum dwellers about how to take action with livelihood, but in the slum area they do not have basic knowledge about how to take action related to WASH. In terms of life and livelihood, the migrated slum dwellers are real life learners, having learned to adapt to the havoc of climate change over the years.

3.4. Household water supply & practices

Sources, access to and uses of safe water

The accessibility, availability, and quality of the primary source used by households for drinking, cooking, personal hygiene, and other domestic uses are referred to as drinking water services. According to a recent study, freshwater accounts for less than 3% of the world's water resources and is becoming increasingly scarce. Climate change has become a significant issue for migration in recent years, causing communities or entire populations to compete for diminishing water resources. Families of climate migrants may be forced to leave their homes in search of a reliable water source and employment opportunities, often relocating to cities and towns, putting even more strain on already overburdened services.

Respondents are asked about drinking water sources, availability, accessibility, and quality of water sources throughout the year, contaminations of water, ownership of the water source, sharing the water source, and other issues in the context of climate migration in the RCC slum area. Respondents were also asked what household items they used for drinking, cooking, personal hygiene, and other domestic purposes.

Findings of the study shows that none of the respondent use surface water or unimproved drinking water (Picture 4), however 25% have limited access to safe drinking water, 53% have basic access to drinking water, and 22% safely managed the safe drinking water (Figure 15). According to the FGD with slum dwellers including climate grants, they said that most of them usually use water from tube wells for drinking water, though for daily use, slum dwellers use tap water. the same information was shared, However, most of them were unaware of any contamination of the water. Household members can collect water in 30 min round trip, some tomes it required more than 30 minutes due to unavailability of water in summer season, heavy rainfall, water logging surrounding water collection point.

JMP service ladder for drinking water

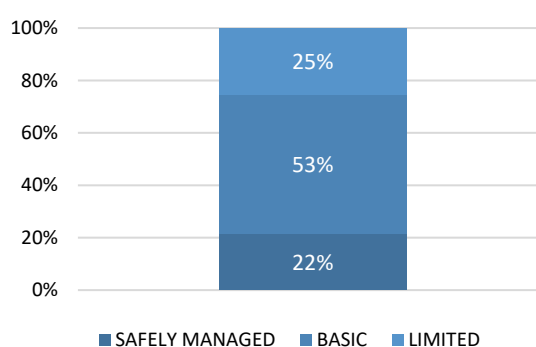


Figure 25: JMP service ladder for drinking water



Picture 5: Common water point in the slum area

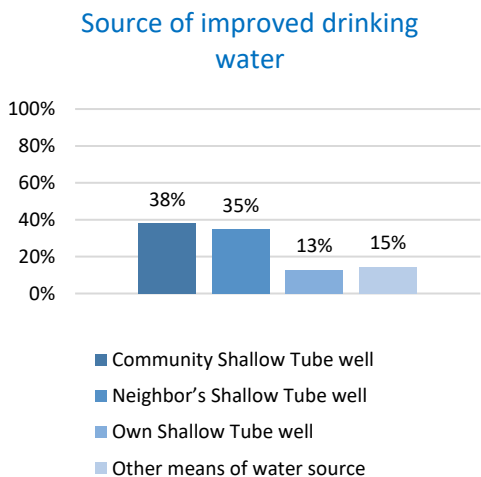


Figure 31: Source of Improved drinking Water

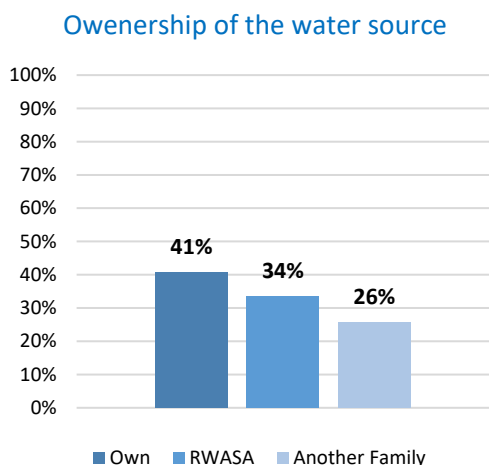
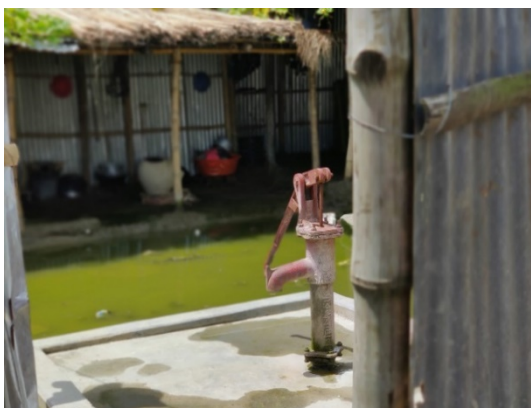


Figure 32: Ownership of the water source



Picture 8: Difficulty to access safe water due to water logging in the premises

Figure 33: Time need for drinking water collection
Picture 9: Difficulty to access safe water due to water logging in the premises

According to the study's findings, the community's residents have access to one or more drinking water sources. Around 75% reported having access to two or more water sources, which is significant and points to the availability of multiple drinking water sources in communities (Figure 16). 38% of the slum dwellers use community shallow tube well for drinking, 35% use the neighbor's shallow tube well, 13% have their own shallow tube well, and the remaining use the pipeline, public tap or supply water (RWASA), as well as the community deep tube well. The local community people mentioned the same information in the FGD, though the majority of the slum HH shared the shallow Tube well and sometimes collected rain water for HH use only.

Furthermore, 41% of respondents have their own source of drinking water (Figure 17), as observed during the FGDs and KIIs, most slum dwellers have lived in the slum for a long time and have their own source of drinking water, despite the fact that the majority of respondents (59%) use RWASA and another family water source. Moreover, during household observation it was found that the ownership of the safe drinking water largely depends on economic condition of the HH. The HH are more economically solvent, and they are more likely to have their own safe drinking water source, though this varies from slum to slum. Slums such as Asrain, Baganpara, Baze Kazla, Choto bonogram, Chalk Kristan Para, Kazla, Hadirmore, and Sreerampur have a lower percentage of ownership of own source of drinking water. The river near the slums, Char Satbaria East and Char Satbaria West, have higher percentages of shallow tube well ownership, though access to safe water can be difficult in heavy rain due to water logging, as respondents have mentioned. The (Picture 5) depicts a common problem in the chosen slum: due to rain or heavy rain, slum residents had difficulty accessing safe and contamination-free drinking water.

Water collection and availability of water

Only 1% of girls in the HH collect water, while women in the HH collect drinking water 99% of the time. The majority of HH use pitchers as their primary tool/container for collecting water, while 13% use buckets, 5% use Jags, and 1% use Jerry cans. During FGD, it was found that

maximum times, women collect water by using pitchers.

In 74.25% of cases, the time for water collection is less than/equal to 30 minutes; however, 25% of respondents report that it took more than 30 min to collect water in a round trip (Figure 18). FGDs findings reveal that, on average, each family requires 20 to 30 min for water collection; however, this varies by slum, additionally, most of the HH in the slums are densely populated, and each HH connects head-to-head.

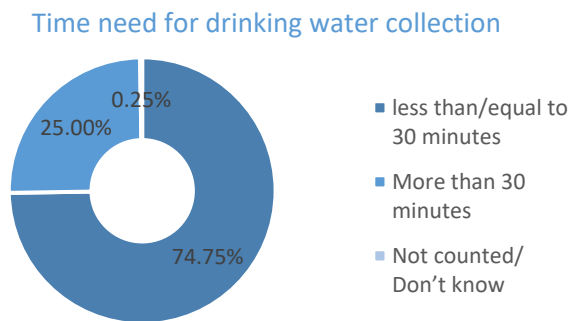


Figure 34: Time need for drinking water collection

Baseline study shows that the water shortage is constant during the dry season, primarily from January to February and May to July, but it does not appear to be as severe during the other months. The study found 10 HH who claimed there is a water shortage, and when asked how they meet their water requirements, about 80% meet them by using a neighbor's shallow tube well, and the remaining 20% use water from a nearby pond, river, or lake. According to the study's findings, 35% of water sources are located on the roadside, 27 % are located within the home, 23% are located in the neighbor's house, 14% are positioned near the house, and only 2% are located near the RCC.

Knowledge on contamination free Water

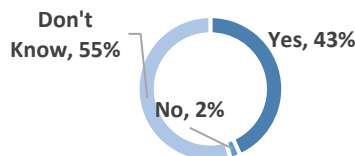


Figure 37: Knowledge on contamination free Water

According to the study, 43% of respondents are aware that the water source is free of pollution, while 2% are aware that the water source is contaminated. However, the majority of respondents (55%) are unaware that the water source is free of contamination (Figure 19). We discovered from the FGD that a significant number of people have limited knowledge about water contamination and water-borne disease. Furthermore, a sizable proportion of slum

dwellers (93%) share a water source with other HH, while only 7% of slum dwellers do not share a water source.

An average of 30 HH share single water source; however, the study discovered that minimum 2 HH share water source and maximum 150 HH share single water point with other HH; sharing water point is a key indicator that the slum dwellers are most likely reluctant to know whether the water source is safe or not as mentioned by the slum dwellers in the FGDs.

Maintenance of water source

The study discovered that only 2% of the HH pay for the pipe line water installed by RWASA, and they pay for the water on average by TK. 93.00 monthly. It was also discovered during the FGD discussion that people do not actually need to pay any money for water collection, but they pay a minimal rate of money for the maintenance of the respective water source according to RWASA's conditions. Each family with a RWASA water point must pay Tk.93.00 per month for water. 56% of respondents believe that RWASA is primarily responsible for installing water points in the community (Figure 20), despite the fact that RWASA works in collaboration with RCC and CDC. The KII with CDC representative mentioned that in collaboration with RWASA and RCC, CDC has installed water facilities in

the community, primarily shallow tube wells; from the FGD discussion, we found similar results in this regard.

Baseline study revealed that 95% of the time, the water point is maintained by community members or users, 3% of the time, the water point is maintained by the owner of the slum house, 2% of the time, the water point is maintained by the owner of the water point, and only 1% of the time, the water point is maintained by RWASA. In the study, 23% of the slum dwellers responded that there is availability of water service in the slum, while 78% responded that there is no water service in the community. During FGD and KII, it was discovered that there is a repair shop available for any kind of service for the water point, and sometimes community members use the CDC service to repair water point.

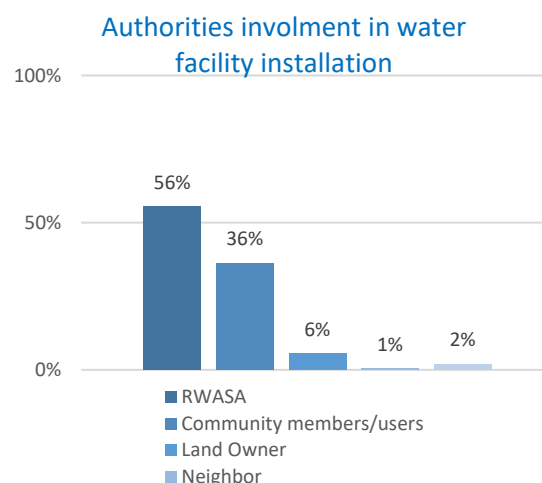


Figure 40: Responsible personnel for install water facility in community

3.5. Sanitation

Prevalence of improved and unimproved sanitation

The use of improved latrines is difficult to achieve in RCC slum areas. According to the study, approximately 81% (322) have latrine facilities, while 19% (78) do not. Among those with latrine facilities, 55% have limited access to sanitation, 32% have basic sanitation facilities, and 13% use unimproved sanitation (Figure 21). The study also discovered that the variability of using latrines varies by slum and is dependent on financial ability. Furthermore, climate change is causing additional problems in slum areas that staed by the slum dweelers during FGD. They said that latrine water mixed with extreme rainy water or water logos, further defection could not pass in latrine, and water logos at the all place of surrounding house and latrine..

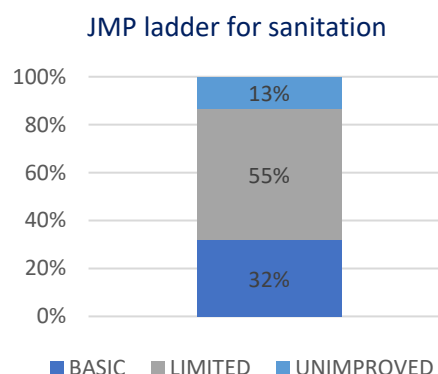


Figure 43: JMP ladder for sanitation

According to the study, a significant number of slum dwellers (84%) use improved toilet facilities, while only about 16% use unimproved toilet facilities. Although the slum dwellers use improved latrines, the community's sanitation facilities are severely limited.

About 43% of respondent (Table 4) use Flush/pour flush, 41% use Pit latrine with slab, 16% use Unimproved Pit latrine without slab, and only 1% use Hanging latrine.

Table 4: Overall distribution of latrine facility

Sanitation facility	Type of latrine	Respondents	%
Improved latrine	Flush/pour flush	138	43%
	Pit latrine with slab	131	41%
Unimproved latrine	Pit latrine without slab	50	16%

	Hanging latrine	3	1%
Total		322	100%

Sharing the latrine is a common practice among slum dwellers; 52% of slum dwellers shared their toilet with other HH, while 48% did not need to share the toilet facility. Among those who shared toilets with others, 76% of HH shared toilets with 2-3 families, 11% shared toilets with 5-7 families, and 11% shared toilets with 1 family (Figure 22). Based on gender, it was discovered that men (85%) shared the toilet more than women (74%). When HH with disabilities were considered, it was discovered that a significant number (75%) shared toilet facilities with other 2-4 families. According to the FGD, most slum dwellers want to share a latrine with 2-4 families; however, based on observations, the slum, i.e., Asrain, only has one latrine to use for 10 HH. There is a different and very extreme scenario found in the Chalk Kristan Para slum; based on our observations, there are only two improved latrines with proper WASH facilities available for about 30 HH, while the majority of the latrines are open and unimproved and directly connect to a nearby canal.

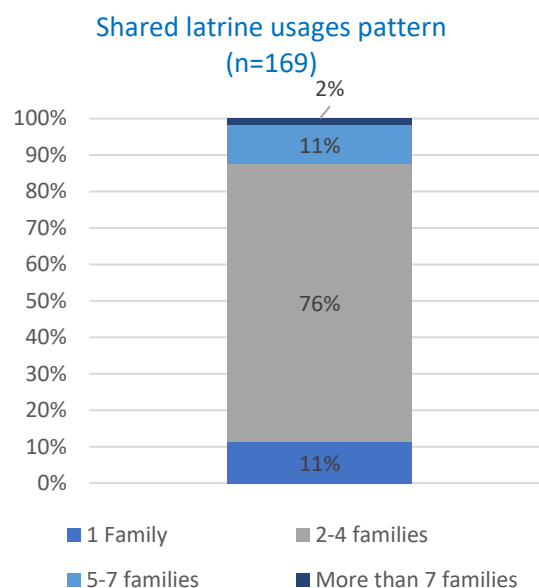


Figure 46: Household in slum sharing toilet facility

Figure 23 shows that 40% of the respondents HH toilets are Pacca hygienic, 30% of the respondents HH toilets are Pacca unhygienic, 29% of the respondents HH toilets are tin/bamboo made unhygienic. Only 19% of the respondents HH toilets are tin/bamboo made hygienic, whereas 1% of the respondents HH toilets are open latrine. Despite the fact that the majority of the latrine is pacca, the condition of these latrine is fragile and unsanitary. We discovered the same through the FGD.

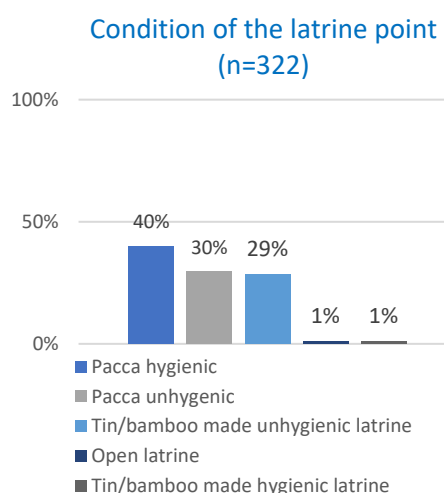


Figure 49: Condition of the latrine point

Households without sanitary latrines (19%, 78 respondents) cited a variety of reasons for not using sanitary latrines. The main reasons are financial constraints on the part of the hardworking poor to install a sanitary latrine (85% in a selected slum area), a lack of space for installation (15%), and the fact that these HH (78 respondents) mostly use the neighbor’s latrine (82%) and the rest use public toilets (15% of total).

About 44% of the toilet facility is located in own HH, 39% of the toilet facility is installed in own yard or plot, and 17% of the toilet facility is located outside of the HH (Figure 24), toilet facility that are located outside of the HH are mostly unimproved toilet facility (Picture 6), we found the same sanitation facility in FGD and slum observation.



Picture 11: Commonly used latrine in the slum

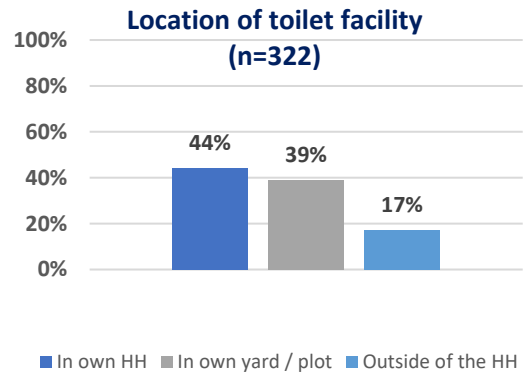


Figure 53: Location of toilet facility

Involvements of the Authorities in O&M of sanitation facilities

According to the baseline study, among those who have latrine facilities, 68% of the toilet facility is self-constructed and 27% is installed by RCC (Figure 25). Both the house owner and the NGO install 2% of the toilet facilities. The local government installs only 1% of the toilet facilities.

According to the study, 53% of latrine feces are temporarily stored and then emptied and treated off-site, 44% are treated and disposed of in situ, and only 3% are managed by being transported through a sewer with wastewater and then treated off-site.

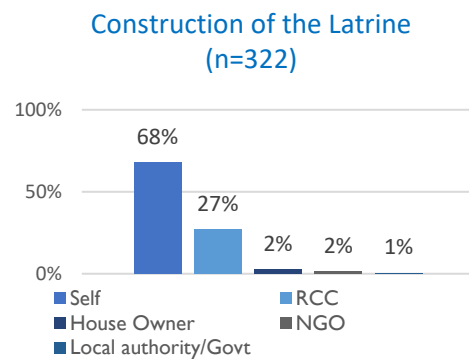


Figure 55: Construction of the Latrine

According to the baseline survey, 28% of respondents threw household waste into a river, 26% threw it anywhere, 20% threw it in a garbage pit, and 16% kept it in a public place. 7% of respondents threw their trash into the RCC-selected dumping station, while the remaining 3% threw their trash down the drain or into the pond (Figure 26). We discovered the same result through FGD and observation, even though RCC has installed disposal areas in some slums, the disposal areas are not well maintained, and lack of awareness among slum dwellers is one of the main reasons. Water logging and heavy rainfall are also issues in such situations (Picture 7).

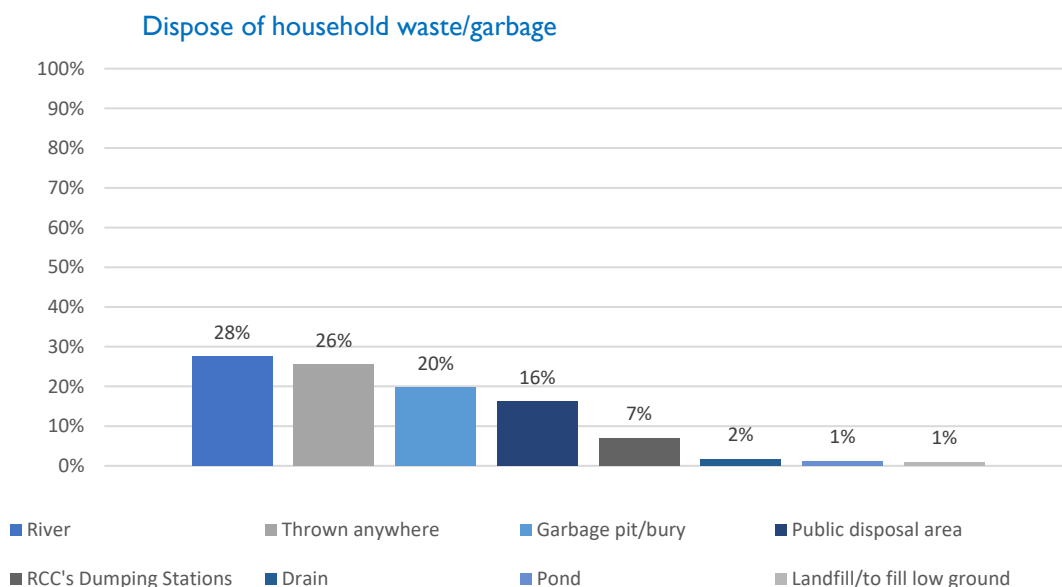


Figure 58: Dispose of household waste/garbage

In terms of providing improved latrines, the study discovered that 49% are provided by the CDC, 45% are provided by community members, 3% are provided by own management, and the remaining 2% are provided by non-governmental organizations. Among those with children, 16% said they usually throw child feces on the field or ground, 11% said they dump child feces in the bush, and 11% said they throw in the river, canal, or creek. 7% of respondents said they throw child feces into the toilet, while the remaining 4% said they throw it in the garbage pit. Respondents were asked where they disposed of household waste/garbage during the baseline survey.

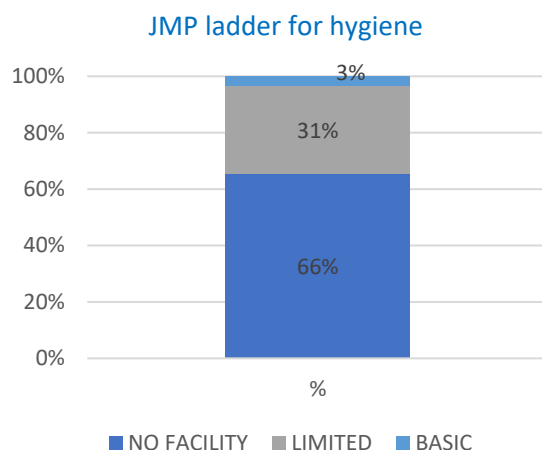
Among those who have latrine facilities, 60% of respondents said their latrine was properly maintained, while 40% said their latrine was not properly maintained. The latrine is managed by 60% of slum dwellers, while 40% do not maintain the latrine. About 64% of the latrine maintenance work is done by own management, 29% by community people, and the rest is done by RCC, NGO and RWASA. According to the study, 75% of the latrines are maintained by community members, 20% are maintained by the CDC, 3% are maintained by the RCC, and the remainder are maintained by the owner.



Picture 14: Waste disposal in RCC Slum areas

3.6. Hygiene and handwashing practices

Respondents were asked about their health-awareness and hygiene practices. According to the data, approximately 66% of respondents have no access to hand washing facilities in the HH, 31% have limited access to hand washing facilities, and only 3% have basic access to handwashing facilities in the HH (Figure 27). Based on the FGD and observations, we discovered that the majority of the HH do not have a proper handwashing facility.



However, the study discovered that 96% of respondents wash their hands after defecation. About 78% of the respondents said they wash their hand before eating. 46% of the respondents said they wash their

Figure 61: JMP ladder for hygiene

hands before feeding their child (Figure 28). According to the baseline study, 66% of slum dwellers do not have any handwashing facility on premises, and 31% of the slum dwellers do not have facilities but soap and water are available. Only 3% of slum dwellers said they have adequate hand washing facility with soap and water at home. Only 1% of slum dwellers reported having a handwashing facility but a lack of soap and water at home. The majority of respondents reported that their family members use soap and water (83% in the project area) and only water (16% in the project area) for hand washing after using the latrine.

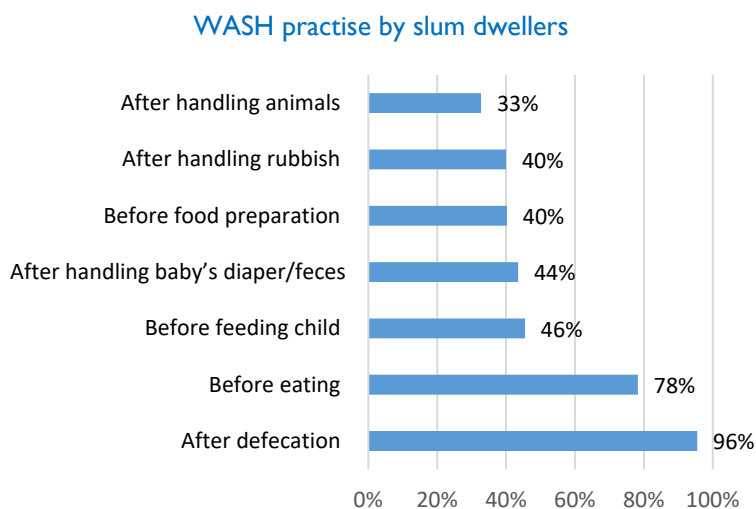


Figure 64: WASH practise by slum dwellers

According to household observation data, 60% of households in the project area have hand washing places beside their latrine, and 68% of households in the project and control areas have water for hand washing beside their latrine. Similarly, 75% of households in the project area keep soap for hand washing after using the restroom next to their latrine. However, data revealed that every household in the project area has a separate soap to use after using the toilet. On the other hand, data show that used

soap was found in 83% of households in the project area. Finally, the overall survey on sanitation and hygiene presented interesting insights into the awareness and practice of the study household. In the project area, there was a low level of hygiene awareness, as well as poor personal hygiene and sanitation practices.

3.7. Menstrual hygiene

Menstrual materials and practice in use

Menstrual health refers to ‘a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in relation to the menstrual cycle’. Menstrual health is central to achieving multiple Sustainable Development Goals (SDGs) and fulfilling basic human rights. According to national statistics, approximately 32% of women aged 15 to 49 have some awareness of menstrual health, and approximately 83% of women have a

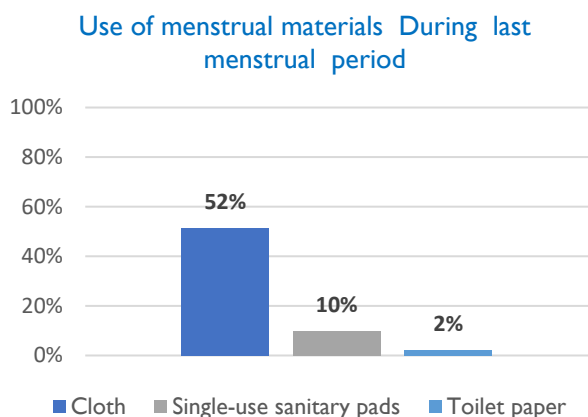


Figure 67: Use of menstrual materials during last menstrual

private place for changing menstrual materials; however, a significant number of women do not use pads or improved menstrual materials. According to the findings of the study, the majority of women in HHs with female members use cloth (52%) as their menstrual materials, while 10% use a single-use sanitary pad and 2% use toilet paper (Figure 29). From KII and FGD we discovered that most of the women do not use hygienic pads due to their poor economic condition; the community people are aware of safe use pads, but they cannot afford the sanitary pad due to poor economic condition.

In the response of safe and privacy maintained while changing menstrual materials, 91% of the women responded that they used to change menstrual materials, however, 9% do not have any privacy while changing. Among the (91%) women, 57% said the changing place was clean and supplied with soap during their last menstrual period, 38% said they changed in a private and safe manner, 23% said the changing area was clean, and 9% said the changing place was supplied with water (Figure 30).

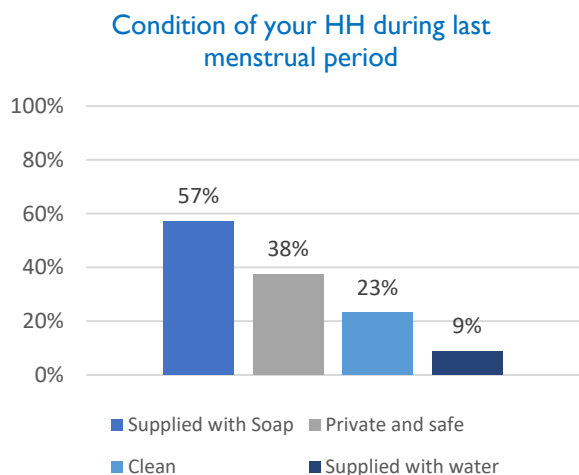


Figure 70: Condition of your HH during last menstrual period

A preliminary study discovered that, while changing the menstrual materials, 51% of the women changed menstrual materials in the HH toilet or latrine, 26% in the sleeping area or bedroom, and 18% shared latrine with other HH. 3% changed menstrual materials in the bathroom or washing space shared with other HH, 2% changed menstrual materials in the bathroom or washing space shared with other HH, which is separated from toilet/latrine. Only 1% changed menstrual materials outside the HH. About 46% of women HH member disposed their menstrual materials in the waste bin, 26% disposed the menstrual materials in the latrine, 18% disposed it in the bush or field, 7% disposed the menstrual materials in the pond or river, while 2% refused to answer, and only 1% dumped menstrual materials in the canal or drain. Among the women, 87% said they have menstrual materials available whenever they need them, while 13% said they don't. Getting hygiene sanitary pad is available in terms of financial capacity of the HH; we discovered during the FGD that even though all teenage girls are very aware of sanitary pad or napkin, one out of every ten girls uses sanitary pad in the slum HH (Picture 8). Women were asked if they washed and reused menstrual pads, cloths, or other menstrual materials.

which is separated from toilet/latrine. Only 1% changed menstrual materials outside the HH. About 46% of women HH member disposed their menstrual materials in the waste bin, 26% disposed the menstrual materials in the latrine, 18% disposed it in the bush or field, 7% disposed the menstrual materials in the pond or river, while 2% refused to answer, and only 1% dumped menstrual materials in the canal or drain. Among the women, 87% said they have menstrual materials available whenever they need them, while 13% said they don't. Getting hygiene sanitary pad is available in terms of financial capacity of the HH; we discovered during the FGD that even though all teenage girls are very aware of sanitary pad or napkin, one out of every ten girls uses sanitary pad in the slum HH (Picture 8). Women were asked if they washed and reused menstrual pads, cloths, or other menstrual materials.



Picture 17: FGD with slum dwellers collection data on Menstrual issues

79% of women said they wash their menstrual materials after using them, while 21% said they never use them again. Those who washed (203 respondents) menstrual materials were asked about reuse of menstrual materials after they were completely dry. Among them, 87% of women said they reuse menstrual materials after they are completely dry, while 13% said they do not completely dry the reused menstrual materials.

3.8. WASH facilities in schools and educational institute

There were no schools or educational institutes open during the data collection period, but the team did collect some qualitative information from school teachers, as well as KII and FGDs in the area. Information was based on before Covid-19 occurred as recall method. It was noted that children spend a significant portion of their day at school, where WASH facilities were found to be scarce, particularly for girls, despite the fact that the importance of WASH in schools has been recognized globally by its inclusion in the SDGs (targets 4.a, 6.1, 6.2) as key components of a 'safe, non-violent, inclusive and effective learning environment' and part of 'universal' WASH access.

Those schools have drinking water that has not been properly maintained, and many of the tube wells have stopped working, leaving girls and boys with limited or no access to drinking water.

The school may have toilets, but there is no gender-disaggregated facilities and/or no single sex is used. However, if the toilets are usable, schools without single-sex toilets are considered to have 'basic' sanitation service.

Prior to Covid-19, there is no soap or hand sanitizer available at the school for the students. There are no separate handwashing facilities for the students. without a source of water.

3.9. Income Generating Activity (IGA) supported activity

The survey team asked a series of questions about income-generating activities (IGA) for slum dwellers of all types and categories. Apart from the primary occupation of the head of household, additional income may be possible to improve HH income through other secondary activities considered here as an IGA. IGA can be earned on a continuous or intermittent basis by any family member. Income Generating Activities (IGAs) are small businesses run by an individual or group of people to supplement their household income through livelihood diversification. This section includes the following 7 relevant questions and sub questions, as well as the following findings:

Respondents involved in Income Generating Activity (IGA)

The baseline study revealed that only 35 (9%) of the total surveyed respondents are engaged in various types of IGAs, while the remaining 365 (91%) are not engaged in any type of IGAs.

Respondents engaged with various types of IGAs

Among the respondents involved in IGA, the highest 40% are involved in small business, while the second and third highest are 23% (Tailoring) and 14%, respectively (Handicrafts). Respondents were also involved in cattle rearing (11%), small food processing (9%), and book binding (6%), among other things.

Respondents interested to engage with various types of IGAs

All of the respondents were asked to express their interest in the IGA in which they wished to participate. According to the preliminary survey, the majority of respondents (38%) are interested in participating in poultry rearing (Figure 31). Cattle rearing is the second-highest IGA (36%), and Small Business is the third-highest IGA (30%). Handicrafts piqued the interest of 26% of respondents, while tailoring piqued the interest of 23% of respondents. Aside from these, they were also interested in other IGAs such as agriculture crops, fish drying, and tea stalls. During the focus group, it was discovered that slum dwellers near the river were more interested in cattle rearing, poultry rearing, duck rearing, agriculture (Crop), and fish drying. On the other hand, slum dwellers of main cities are interested in small business, tea stall, fresh cut, electrician, and mechanics. Most of the women showed interest in tailoring and handicrafts.

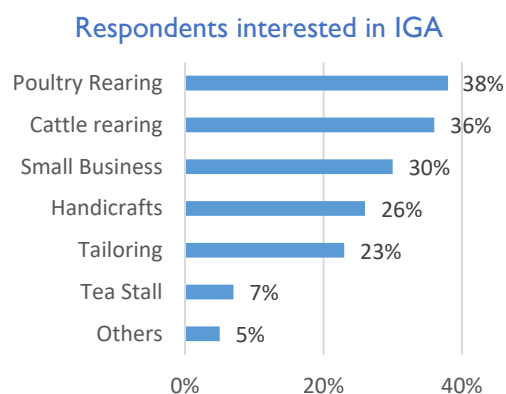


Figure 73: Respondents interested in IGA

Reason for interested in IGA

Respondents were asked if they were interested in participating in IGAs. According to a preliminary survey, the majority of respondents (72%) are eager to start a new source of income (Figure 32). According to 32% of respondents, participating in the new IGA will generate additional income and according to 29% of respondents, the new IGA will provide them with new employment opportunities. Some respondents stated that they have their own capital to start a new IGA, while others stated that there is market demand, that service and raw materials are available, and that they can sell their product in the local market.

Reason for interested in IGA

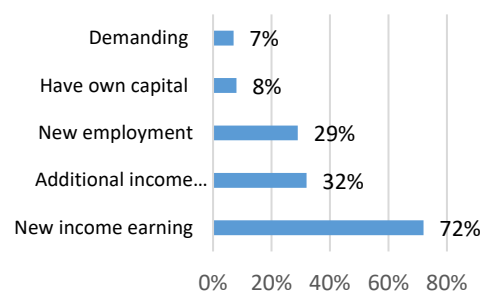


Figure 76: Reason for Interested in IGA

Availability of raw materials, services, and market of interested IGAs

During baseline study, it was found that 60% of all respondents stated that raw materials, services, and a market of interested IGAs are available.

Constraints to operate IGAs

During the baseline survey, all respondents were asked to express their constraints in operating IGAs. It was discovered that the majority of respondents (86%) stated that the main problem with operating IGAs is a lack of funds. 9% of respondents stated that a lack of land and rest was a problem (Figure 33). Lack of training was mentioned by 5% of respondents as a constraint to operating IGAs.

Constraints to operate IGAs

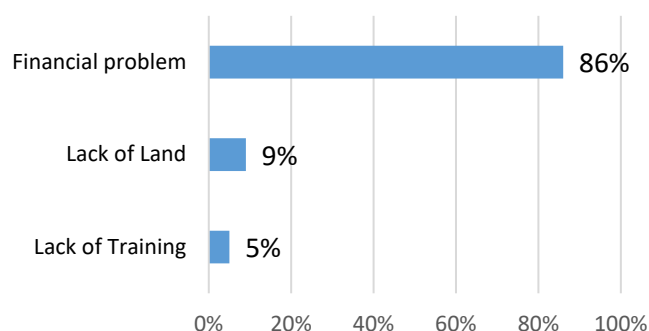


Figure 79: Constraints to operate IGA

According to the findings of the focus group, most of the respondents faced financial difficulties as a result of the climate disaster, primarily due to their migration to the slum. They lack the necessary training to select and launch new IGAs, as well as a sufficient amount of land. KII with NGO, produced the information indicating that, due to the uncertainty of the respondent’s migration, they are hesitant to support climate-migrants through microcredit activities.

Opportunities to operate IGAs

According to the preliminary findings, the majority of respondents (50%) believe that IGAs have a lot of potential. It was also discovered that 28% of respondents believe there is a market for handicrafts. During the FGDs, it was noted that the following IGAs have the potential to gain market opportunities by utilizing their own skills, resources and knowledge.

- Handicraft items;
- Small petty business – grocery items;
- Cow rearing for milk;
- Small scale poultry rearing;
- Roof top vegetable gardening;
- Homemade food processing e.g., pitha, puffed rice, pickles and others;
- Tailoring and homemade garments;
- Embroidery and Tapestry items;
- Mobile phone mechanics/ repair shops;

- Small beauty parlour.

The FGD participants also stated that they are eager to receive IGA and skill-based training with financial inclusion.

3.10. Access to finance

Received loan for IGA

Baseline study showed that among all 400 respondents, 136 (34%) of respondents received loan, while 264 (66%) respondents did not receive any loan for IGA. Only 85 (21%) of climate-migrants received loan for IGA.

Amount and frequency of loan taken by respondents

According to the baseline study, the average loan taken by respondents (136 respondents) is BDT 41610. The loan was taken four times. According to the baseline study, respondents who took loans (136 respondents) had an average loan taken amount of BDT 44,835. During the FGD, it was discovered that climate migrants are becoming increasingly indebted. According to the findings of the focus group, the majority of climate migrants use the loan for living expenses rather than IGAs due to a lack of IGA opportunities.

Sources of loan taken by respondents

According to the baseline study, respondents received loans from a variety of sources, including microfinance institutes (NGO), banks, cooperatives, and relatives (Figure 34). During the study, it was discovered that respondents who had taken out loans (136 respondents) stated that 99% of them had done so through cooperatives. One percent said they got a loan from an NGO, and one percent said they got a loan from a bank. Sometimes they (1% of respondents) took loan from relatives also. During the FGD, it was discovered that the majority of respondents stated that it is very easy to obtain a loan from various types of cooperatives. Because of the migration into these slums, NGOs and banks are unwilling to give loans.

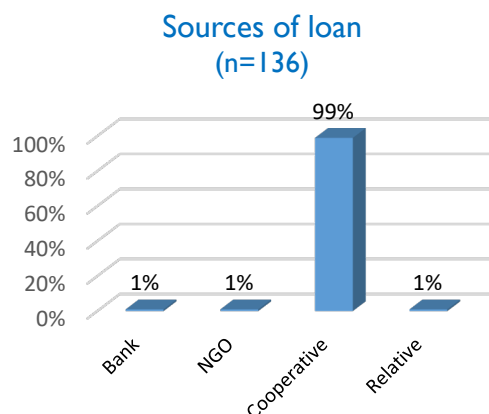


Figure 82: Sources of loan to operate IGAs

Have bank account

According to the preliminary findings, the vast majority of respondents (95%) do not have a bank account. Only 5% of total respondents have a bank account. During the FGD, respondents stated that obtaining a loan from NGOs and banks required significantly more documentation, group formation, mortgage, and information.

Family member having savings

Baseline study showed that majority of the family members of the respondents (97%) do not have any savings. Only 3% of the family members have savings.

Respondents having own savings

Baseline study showed that only 10 (2%) of respondents have their own savings, while most of the respondents 390 (98%) do not have their own savings. During FGD conduction, respondents, including climate-migrants, said that it is very difficult to meet their basic needs with the money they earn.

Where do respondents save money

According to the baseline study, all of the respondents (10) who have their own savings save their money in a bank.

Use of savings

According to the baseline study, respondents (10) who have their own savings use their savings during their lean period of income shortage, child education, and for business and wedding purposes

3.11. Training received

Training received on WASH

According to the baseline study, only 6 (2%) of the 400 respondents received WASH training. All of the respondents who received WASH training are female; no male respondents received WASH training.

Received IGA related training/ orientation

According to the baseline study, all but one of the 400 respondents received no IGA-related training. An NGO provided IGA-related tailoring training to one male respondent.

3.12. Service provided by RCC and RWASA

Knowing about Rajshahi City Corporation (RCC)

According to the baseline study, 319 (80%) of 400 respondents heard the name Rajshahi City Corporation (RCC). The remaining 20% had never heard of Rajshahi City Corporation (RCC).

Visit to Rajshahi City Corporation (RCC)

According to the baseline study, only 90 (28%) of respondents who heard the name RCC (319) visited Rajshahi City Corporation (RCC). The remaining 72% (229) of respondents had never been to Rajshahi City Corporation (RCC).

Reason not to visit RCC

Respondents who had heard of RCC but had never visited it (229 respondents) were asked to explain why they had never visited RCC. Among them, 70% of the respondents said that they did not require any services to visit RCC (Figure 35). 28% of the respondent said that they have no linkage to visit RCC, while the remaining 2% of the respondents mentioned that they are afraid to visit RCC because of hassle.

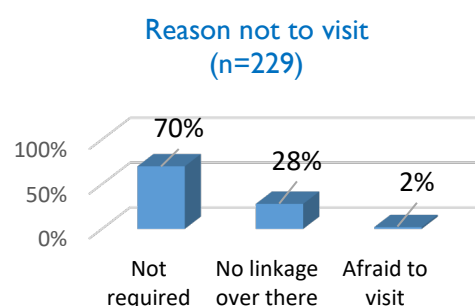


Figure 85: Reason not to visit RCC

Service received form RCC

According to the baseline study, of the 90 respondents who visited RCC, 72 (80%) received services from RCC and 18 (20%) did not receive any services from RCC.

Types of services received from RCC

According to the baseline study, respondents (72) who received services from RCC, the highest 39 (54%) received birth certificate related services, and the second highest is to take VGA card for relief to 14% of the respondents. RCC provided training to 7% of respondents. Figure 36 depicts the specifics.

Types of services received from RCC (n=72)

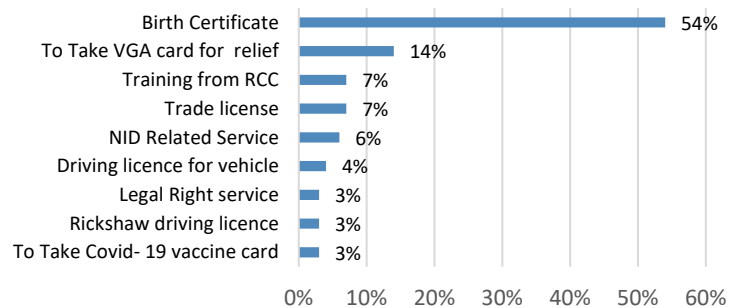


Figure 88: Types of services received from RCC

During our KII with RCC representatives, we learned that RCC is working to improve WASH conditions for slum dwellers while also changing their livelihood (Picture 9). RCC established Community Development Centers (CDC) in each ward from which slum dwellers, including climate migrants, will receive WASH services. RCC will provide tailoring, handicrafts, mobile repair, poultry and cow rearing, and WASH awareness training to slum dwellers, including climate migrants..



Picture 20: KII with RCC representative

Knowing about Rajshahi Water Supply and Sewerage Authority (RWASA)

According to the preliminary findings, 125 (31%) of 400 respondents had heard of the Rajshahi Water Supply and Sewerage Authority (RWASA). The remaining 275 respondents (69%) had never heard of RWASA.

Visit to Rajshahi Water Supply and Sewerage Authority (RWASA)

According to the baseline study, only 11 (9%) of those who heard the name RWASA (125) visited RWASA. The remaining 91% (114) of respondents had never visited RWASA.

Reason not to visit RWASA

Respondents who had heard of RWASA but had never visited it (114), were asked to explain why they had never visited RWASA. Among them, 87% stated that they did not require any services in order to visit RWASA. The remaining 13% of respondents stated that they have no reason to visit RWASA.

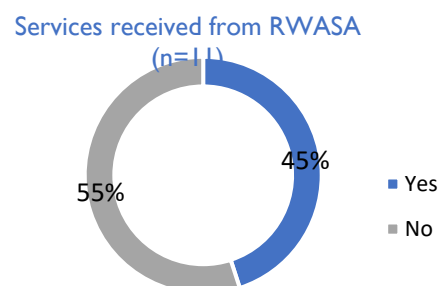


Figure 91: Services Received from RWASA

Service received form RWASA

Baseline study showed that of the respondents who visited RWASA (11), 5 (45%) received services from RWASA and 6 (55%) did not receive any services from RWASA (Figure 37). During the KII with the RWASA representative, it was revealed that RWASA is a for-profit organization. No

service will be provided to any citizens in the RWASA area without the payment of government fees. If a citizen wishes to receive services, he must be the owner of a household/ land and possess a National Identity Card (NID) (Picture 10).



Picture 23: Key Informant Interview with RWASA representative

Types of services received from RWASA

Baseline study revealed that only 5 (45%) of those who visited RWASA (only 11 member) received services from RWASA for water line installation.

Respondents’ satisfaction on services of RCC

Respondents received various services from RCC. During Baseline study, respondents were asked to express their satisfaction on the services of RCC (Figure 38). Baseline study showed that of the respondents who received services from RCC, 40% said that they are fully satisfied, 40% said that they are somewhat satisfied, whereas 19% said that they are poorly satisfied.

Respondents satisfaction on services of RCC (n=72)

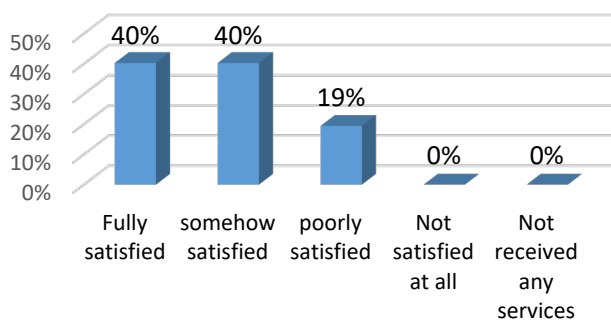


Figure 94: Respondents satisfaction on services of RCC

Respondents’ satisfaction on services of RWASA

During Baseline study respondents were asked to express their satisfaction on the services of RWASA. Baseline study showed that of the respondents who received services from RWASA, 80% said that they are fully satisfied and 20% said that they are somewhat satisfied (Figure 39).

Respondents satisfaction on services of RWASA (n=5)

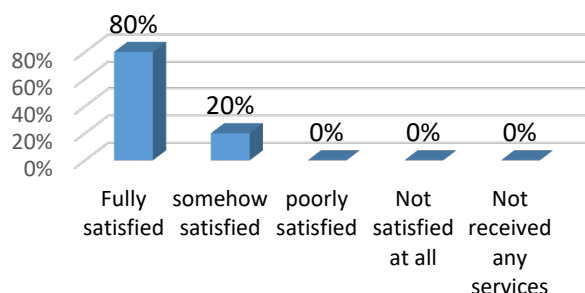


Figure 97: Respondents satisfaction on services of RWASA

4. Chapter 4: Recommendation and conclusion

According to the survey, the team discovered that in slum areas, it is necessary to intervene methodically while considering climate change adaptation and WASH thematic areas. In this context, good planning on theory of change based on WaterAid core aim and objectives is required. The majority of respondents and interviewed stakeholders are eager to change and adopt WASH-related issues and income-generating activities. If given the opportunity, the community is eager to put their skills to use. Table 5 provide a snapshot of the survey results as a recommendation or intervention guideline for the CAMCUS project:

Table 5: Climate change adaptation and WASH thematic areas

Thematic areas	Problem / Context	Intervention strategy	Activities
Water	Limited access to safe drinking water only 25% have limited access to safe drinking water, 53% have basic access to drinking water and 22 per cent safely managed the safe drinking water	Improve and ensure access to safe water for the slum dwellers	<ul style="list-style-type: none"> - Awareness raising on safe drinking water - Installed safe water supply infrastructure e.g., dig and install deep water pumps - Construct climate resilient water supply system - Link with RWASA network lines - Improve HH water facilities - Installed elevated water tank and link with HHs - Improve access to water testing facilities - Formation of community-based water management system integrating local communities, RCC and RWASA - Prepare and ensure operation and management of the water points in slum areas - Strengthen RCC and RWASA to provide WASH related services

Thematic areas	Problem / Context	Intervention strategy	Activities
Sanitation	81% have somehow latrine facility and 19% (78) did not have any latrine facility. Those have latrine facilities among them 13% unimproved, 55% have limited access to sanitations, and 32% use basic access to toilet and sanitation facilities	Improve and ensure access to sanitation facilities and practices by slum dwellers	<ul style="list-style-type: none"> - Assessment of hygiene practice and rewarding households - Awareness raising on improve sanitation practices - Construct climate resilient community toilets - introduce climate resilient Mobile toilets - Day observations on improve sanitation and hygiene issue - linkage with private sectors on sanitation, hygiene and water issues e.g., lifebuoy, lux, meril and other companies for awareness, day observation and business linkage with slum dwellers - Strengthen RCC and RWASA to provide WASH related services
Hygiene	3% have basic hygiene practice, 31% limited access, and 66% no hand washing and hygiene practices.	Awareness and increase hand washing and hygiene practices	<ul style="list-style-type: none"> - increase availability of hand washing and hygiene in the locality - Assessment of hygiene practice and rewarding households - Day observation by slum dwellers (climate migrants) - Increase awareness by Develop awareness materials on hygiene and climate change - Engage private sectors on providing hygiene and hand washing services - Awareness raising on menstrual issues for the adolescent girls and women - Strengthen RCC and RWASA to provide WASH related services
WASH facilities at the schools	no adequate facilities for students specially for girls	Improve access to WASH (toilets, hand washing)	<ul style="list-style-type: none"> - Renovate school WASH facilities - Engage school committees on WASH and climate change issues
IGA	Slum dwellers have limited access to additional income generating activities to enhance their livelihoods	Skill development training developed and delivered to promote self-employment and income by climate migrant	<ul style="list-style-type: none"> - Conduct scoping study for potential IGA opportunities - Organize skill based IGA related skill training for climate migrants - Provide follow up support to participants of skill training - Linkage building with the supply/ business actors in the slum areas

Thematic areas	Problem / Context	Intervention strategy	Activities
Access to Finance – inclusion of financial supports	Absence of MFIs in the slum areas due to makeshift settlement	Strengthen access to finance for the slum dwellers	<ul style="list-style-type: none"> - Create MF fund for climate migrants by Partner NGO - Organize coordination meeting with PNGO on MF activities - A dedicated microfinance fund created for the climate migrants to support self-employment and income
Service provision from RWASA and RCC	Slum dwellers seldom visit RCC and RWASA Inadequate linkage and knowledge on support services by the climate migrant slum dwellers	Strengthen service delivery mechanism and	<ul style="list-style-type: none"> - Strengthen RCC and RWASA to provide WASH related services - Develop O&M guidelines for water and sanitation facilities - Establishment Pro-poor unit within RCC and RWASA initiated to serve urban poor

Conclusion

The baseline data would help to implement the CACMUS project by integrating climate resilience, microfinance, and WASH to create a replicable inclusive model of WASH services, improve economic opportunities for climate migrants through capacity building, connect them with pro-poor microfinance (MF) services and income generating activities (IGA), and ensure wider access to pro-poor WASH services provided by city authorities. Because the team was unable to interview all of the targeted beneficiaries using the information and data obtained from the sample survey, analyses and interpretation were limited to a small number of respondents. Again, the data is retained by the CACMUS, and it is necessary to compare it on a regular basis based on the log frame and indicators. The set of interventions appears to be demand-driven; if implemented in the field, it will achieve project goals and outcomes. The outcomes of interventions must be tracked throughout the implementation period. With this CACMUS intervention, the targeted beneficiaries' WASH and income will be improved. The outcomes of interventions must be tracked throughout the implementation period. With this CACMUS intervention, the targeted beneficiaries' WASH and income will be improved.

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