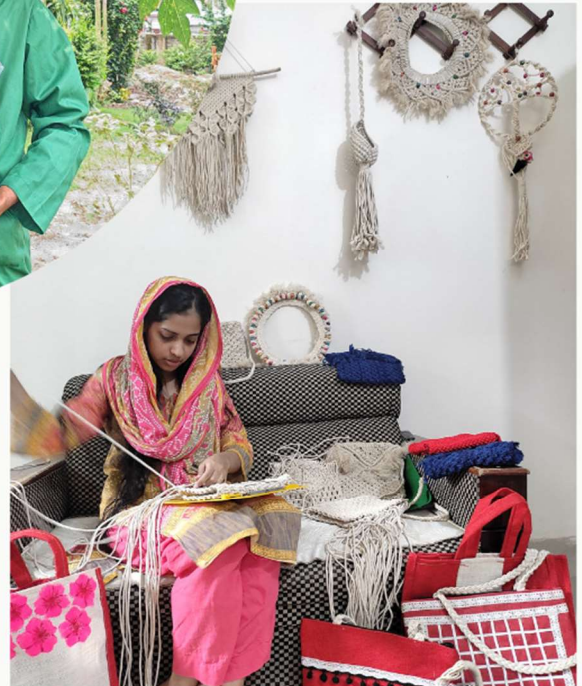


END EVALUATION PROJECT: RESILIENT, INCLUSIVE & INNOVATIVE CITIES IN BANGLADESH



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We are thankful to the evaluation team and NGO Forum officials who have provided support while visiting Mymensingh especially intervention areas as well as applied remote data collection tools, features, and methodologies, to interview community groups and key project stakeholders (key Government Officials, different committees i.e. WDMCs, DMCs, Community Members, Waste Collectors, youth groups, Sector Expert, FSM Network Members, and relevant stakeholders) for gathering information related project achievements and results. The project also has been concentrating on community awareness of the different issues i.e. DRR, WASH, and capacity development of the urban hygiene volunteers so that awareness raising, and hygiene promotion activities alongside youth activation and ensuring livelihood opportunities through capacity building (especially of women and youth) has been continued at the project areas, but capturing all those, without the help of the aforementioned groups and teams, would have remained incomplete.

Considering the inclusive action of relevant SDG targets, to reduce disaster risk, replicating the learning and best practices of the project's model for safely managed water and sanitation services, the project evaluation report would be a guidance note for capturing the journey of NGO Forum and all associated partners with the Resilient, Inclusive & Innovative Cities in Bangladesh for the past couple of years.

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Executive Summary

Bangladesh with a population of around 164 million, ranks number 8 in the world population charts. With an increasing urban population growth rate of 5% about 36% of the total population is living in urban areas. Urban population growth has a direct effect on creating several pressure points in the urban areas i.e. sanitation, livelihood generation, and agency of the youth along with increasing disaster risk. Mymensingh City Corporation (MCC) of Mymensingh district is the latest city corporation of the county. Like other urban hub, MCC struggles with inadequate infrastructure, limited social services (particularly health, sanitation, and waste management), and rapid environmental degradation and is also highly vulnerable to natural disasters. Considering the issues, the “Resilient, Inclusive and Innovative Cities” (2018-23) funded by the Australian NGO Cooperation Program (ANCP), was implemented to support vulnerable urban communities, particularly women, youth, and people with disabilities to become more resilient to social, economic, and climate shocks and stresses by 2023.

The end-of-project evaluation was conducted to review the outcomes of the project concentrating on specific criteria such as effectiveness, sustainability, equity, scalability, & cost-effectiveness of the project. A Baseline Survey Report on Faecal Sludge Management in Mymensingh Municipality was carried out in 2017 (Published in 2018), however, due to not carrying out an overall project baseline study the baseline data is limited.

The evaluation used both quantitative and qualitative methods and approaches to data collection and analysis. In the study, 620 household survey was conducted (300 male, 300 female, and 20 persons with disability). In each ward, 4 Focus Group Discussions were conducted with women, men, children, and persons with disabilities. The study also captured key experts' opinions from City Corporations, the Disaster Management Committee, SMC, and the NGO Forum for Public Health.

Outcome 1: Models for resilient urban WASH that include marginalized communities, are demonstrated in Mymensingh, and used to strengthen policy and practice (municipal, national).

A notable outcome was the establishment of a fecal sludge treatment plant (FSTP) in collaboration between the implementing partner NGO Forum, Mymensingh City Corporation (MCC), academia, and the private sector. The FSTP treats wastewater and sewage and utilizes dried waste to produce compost.

The end-line evaluation found that the project has strengthened the capacity of MCC to undertake ongoing operations and maintenance of the FSTP, including the scale-up of the FSM to cover the whole city in their annual development plan. MCC officials and communities have expressed a commitment to continue these plans but as indicated in the recommendations will need further technical support.

The endline survey conducted in the Mymensingh Municipality revealed a diverse range of practices concerning household solid waste management (SWM). Among the households surveyed, it was found that nearly one-third of the people utilize bins to trash their waste, which they later hand over to municipal solid waste collectors. 86% of households had increased knowledge about pit/septic tank operation and maintenance. Baseline data (2018) indicated that 35% of respondents, after emptying

the pit or septic tank, were disposing of waste in the drain. Throughout the project, that figure decreased to just 6% and now 47% of residents in the surveyed locations have access to a household waste collector van service. The end-line survey finds accessibility to WASH services increased to 98% for access to water, and 95% for access to improved sanitation. Findings from the endline data suggest that there is a small proportion of respondents (only 3%) that actively participate in composting activities. However, 50% expressed a high level of satisfaction, indicating their contentment with the services received compared with 39% reporting dissatisfaction and 34% moderately satisfied with the SWM services in the baseline.

The Project has been ensuring safely managed sanitation through 347 cubic meters of liquid faecal sludge was emptied, transported, and treated and approximately 99,000 people have benefitted. From the Shit Flow Diagram (SFD)¹ it can be observed that there has been incremental change in the proportion of fecal sludge contained and managed by the municipality through the fecal sludge treatment plant (FSTP). The initial SFD graphics of Mymensingh showed that 23% of the excreta was contained, leaving 77% of unsafely managed sanitation. The intermediate SFD collected during January 2023 showed that 38% of the excreta was contained and treated and 11% of FS was delivered to the newly built faecal sludge treatment plant (FSTP). This intervention also addresses the policy of the GoB which has an Institutional Regulatory Framework (IRF) on Faecal Sludge Management. 85% of respondents expressed a high level of satisfaction with the waste management services of MCC.

The project has demonstrated 4 public urban WASH facilities with inclusive features (for pregnant and lactating women and persons with disabilities) which is exemplary for the community and the MCC, offering further scale-up potential. From the Midterm Evaluation Report, it was found that 84% of the respondents thought that their toilets were accessible for women, children, the elderly, and people with disabilities. This increased to 95% in the endline evaluation.

Outcome 2: Urban disaster preparedness and response based on active citizenship, strategic alliances (government, private sector), and improved risk governance is demonstrated in Mymensingh and used to strengthen policy and practice (municipal, national).

The project was successful in strengthening capacity and activating 6 Disaster Management Committees at ward and city corporation levels and contributed to the capacity building of the MCC in line with the 2019 revised Standing Order on Disaster by helping reduce disaster risks with co-financed action plans based on the voluntary contribution from local govt and institutions including MCC and local level institutions. The endline evaluation found CBOs have acquired knowledge and awareness regarding the impacts of climate change and various environmental concerns and approximately 38% of the respondents reported as community leaders/CBOs working on campaigns to raise awareness on climate change and environmental issues. 38% of CBOs have access to the Emergency Response Cell formed under the leadership of MCC (quarterly or Ad hoc basis meeting) and 25% update the Risk Reduction Action Plan (RRAP) at the ward level. Overall, 61% of respondents were satisfied with the Project interventions relating to outcome 2.

Outcome 3: Urban youth (male and female) in marginalized communities in Mymensingh are empowered as change agents and increase their access to decent work.

¹ Shit Flow Diagram is a graphical presentation of safely managed as well as unsafely managed sanitation through visualization by green color and red color respectively.

The project has strengthened the capacity of 50 youth by linking them with service providers job opportunities and local capacity development initiatives, with a focus on entrepreneurship and livelihood opportunities. Endline survey found that 95% of respondents were satisfied with the knowledge-based training. 62% of respondents who received master training on decent work and 41% of respondents who received training on green jobs have reported that it had improved their earnings by BDT. 2041.18 taka per month. In terms of the assessment of the resilience status of urban communities in Bangladesh², respondents have shown a resilience score of 3.2 where the maximum is 5 in different physical, social, economic, environmental, and natural aspects.

Challenges and Gaps

Though the project has made a remarkable contribution to urban resilience, resilient livelihood generation, and sustainable WASH it has some gaps. The evaluation found the presence of parasites in treated fecal sludge compost. The evaluation recommends sustainable collaboration between Mymensingh City Corporation and Bangladesh Agriculture University for ongoing scientific research to improve the safety and acceptability of co-compost. The Integrated Municipal Information System (IMIS) (digital data management of FSTP) was initiated by the project, however further collective action and strategy involving all stakeholders, including the private sector, is required to popularize FSM and create market linkages with local buyers.

Recommendations:

Regular follow-up, monitoring, and provision of technical support to MCC: To ensure ongoing adequate functioning of the FSTP and digital data management, considering MCC is a newly established City Corporation with limited human resources and capacity for FSTP programming and solid waste management.

In-depth microbial research on the co-compost is needed for assurance of safety, efficiency, and market acceptability and the study recommends developing a realistic plan/strategy between MCC and Bangladesh Agriculture University to engage the private sector in operations and invest in quality testing of effluent and co-compost.

Private sector engagement and financing model: For sustainability of MCC, including external financial assistance or loans to develop the necessary infrastructure for the private sector to take the risk to invest. MCC should also encourage the users to pay an extra service charge for effectively managing the emptying, collection, and disposal system. Encourage private sector participation in fecal sludge management through tax incentives, financing, and public-private partnerships

Develop a plan for educating citizens through awareness-raising programs on stopping containment connections to drains and open environment and use of latrines: This might include educating the citizens and the local masons on the proper design of containments (e.g., septic tank design) and its benefits. Awareness raising on hygienic use of inclusive latrines and construction of further latrines.

² Resilience Status of Urban Communities in Bangladesh, First published on December 2022 ISBN: 978-984-35-3545-0.

Market network and connections: Based on statistics, efforts initiated by the project, and acceptance by the local community for green jobs, the study recommends strengthening the capacity of more youths for green employment, and providing support to set up green job opportunities and production centers involving youths. There is a need for strengthening market linkages and an opportunity for youth to influence government policies to scale up FSM in different parts of the country, including MCC.

Continue building capacities in Disaster Management: Build capacities and activate Disaster Management Committees and Emergency Response Coordination Groups to support WASH and FSM issues as a part of hazard and environmental protection mandates

Acronyms and Abbreviations:

CFRM	Complaint feedback & Response Mechanism
CIC	Camp in Charge
CPP	Cyclone Preparedness Program
CRA	Community Risk Assessment
DC	Deputy Commissioner
DDMC	District Disaster Management Committee
DMC	Disaster Management Committee
DMU	Disaster Management Unit
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DRRO	District Relief & Rehabilitation Office
EVI	Environmental Vulnerability Index
FSTP	Faecal Sludge Treatment Plant
GBV	Gender-Based Violence
INGO	International NGO
KII	Key Informant Interview
MCC	Mymensingh City Corporation
NGO	Non-government Organization
O&M	Operation and Maintenance
PIO	Project Implementation Officer
PWD	Person with Disabilities
SOD	Standing Orders on Disaster
SOP	Standard Operating Procedure
DMC	Disaster Management Committee
UN	United Nations
UNO	Upazila Nirbahi Officer
UP	Union Parishad
UzDMC	Upazila Disaster Management Committee
WASH	Water, Sanitation, and Hygiene

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1.1. Introduction

Mymensingh city is experiencing exceptional urban growth rates, coupled with rising inequality and poverty. It is struggling with inadequate infrastructure, limited social services (particularly health, sanitation, and waste management), and rapid environmental degradation. Moreover, it is highly vulnerable to natural disasters, especially earthquakes. Oxfam Australia in partnership with Oxfam Bangladesh and NGO Forum for Public Health jointly with Mymensingh City Corporation has implemented the project Resilient, Inclusive & Innovative Cities in Bangladesh. In addition, Bangladesh Agricultural University, ITN-BUET, and other academic institutes provided technical expertise.

1.2. Project details

The project is based on the OïBD ‘Urban Resilience Strategy’ (2018-2021) and is in line with the OïBD Country Strategy 2020-2026. The project focused to enable the MCC to be capacitated to take over the operation of the Faecal Sludge Treatment Plant constructed by the project in line with the GoB Institutional Regulatory Framework of FSM and for local Disaster Management Committees (DMCs) to fulfill their roles and responsibilities outlined in the 2019 revised Standing Order on Disasters (SoD). The “Resilient, Inclusive and Innovative Cities” Project aimed to support vulnerable urban communities, particularly women, youth, and people with disabilities in Mymensingh to become more resilient to social, economic, and climate shocks and stresses by 2023.

1.2.1. Background of the project

Urban population growth directly affects and creates several pressures in the urban areas i.e. sanitation, livelihood generation, and agency of the youth along with increasing disaster risk. Mymensingh city corporation (MCC) of Mymensingh district is the latest city corporation of the county. Like another urban hub, MCC struggles with inadequate infrastructure, limited social services (particularly health, sanitation, and waste management), and rapid environmental degradation. Both are highly vulnerable to natural disasters.

The emerging urban economy in Bangladesh mostly relies on the growing informal sector where conditions for workers are poor, exacerbating inequality and disproportionately impacting women, un-skilled youth, and ethnic minorities. The FSM Baseline, which was conducted in 2018, found that in the MCC area, about 97% of the total surveyed households had latrines. However, due to the lack of following the standard design of septic tanks and no treatment facilities, 100 percent of fecal sludge (FS) was discharged into the environment³. Furthermore, Mymensingh is in the seismic zone -1 which makes the city more vulnerable to earthquakes along with other unbar hazards i.e. fire, and waterlogging.

During the implementation of the project, significant achievement has been made in the set outcomes in all the components i.e. WASH, DRR, and Livelihood. Oxfam along with the partner-initiated number of innovations in terms of technology and community engagement (Joint Action Plan) in the whole value-chain though it was the first FSM by Oxfam in Bangladesh.

Project components were aligned with the 2009 Bangladesh Climate Change Strategy and Action Plan, the 2017 Institutional and Regulatory Framework for Faecal Sludge Management (IRF-FSM), and 2015

³ Baseline Survey Report on Faecal Sludge Management in Mymensingh Municipality

Bangladesh Standards and Guidelines for Sludge Management 2015. The project has also focused on the guidelines proposed by the “Environment Conservation Act, 1995” and Environment Conservation Rules, 1997 while testing the parameter of the wastewater from the FSTP and the quality of the FSM end product. In addition to that, this project aligns with the GoB VISION 2021 and 8th Five-Year Plan, which is a Government priority strategy for development efforts to reduce air and water pollution, strengthen forestry management, and implement sustainable growth.

The project also supported empowering young people to influence the National Action Plan for the implementation of the National Youth Policy 2017. Apart from that RIICB project is aligned with the Oxfam country strategy (2020-2026). The project has also supported vulnerable urban communities, particularly women, youth, and people with disabilities in Mymensingh and Dhaka (National level coordination) to become more resilient to social, economic, and climate shocks and stresses by 2023.

1.2.2 Purpose and Objectives of the Evaluation

The major objective of the evaluation is to review the value for money of the project concentrating on specific criteria such as effectiveness, sustainability, equity, scalability, & cost-effectiveness by:

- Gather evidence on the project performance by assessing the prescribed set of indicators compared to the Annual Development (AD) Plan and Mid Term Evaluation.
- Evaluate the impact of the Resilient, Inclusive, Innovative Cities Bangladesh (RIICB) Project following OECD-DAC criteria (relevance, coherence, efficiency, effectiveness, impact, and sustainability).
- Generate learning on best practices for improving the influencing/advocacy strategy of the project, considering the context and the external factors affecting the project environment.

The evaluation key questions should focus on the following but not limited to:

- How effective and efficient are the processes of the project’s efforts in achieving the project objectives and outcomes?
- How effectively and appropriately has the project team worked with others (alliances, private sector, policymakers, media, etc.) and involved them in relevant stages through the process?
- What were the gaps which affected service delivery or what were the gaps in service delivery?
- What was the progress toward the project outcomes (based on project indicators)?
- What is the value for money of the project interventions in the field and sector?
- What are the unintended positive and negative results of the Project? How have the external socio-economic and political factors affected this process, constraints, and contributing external factors?
- Relevance of the project to the priorities and policies of the Bangladesh Government to which it is relevant to both a) national governments in the countries, b) as well as the donor, and c) beneficiaries and alliance members, with specific reference to the experiences and opinions of women and other marginalized groups.

1.2.3. Project Outcome (s) and Output(s)

The proposed phase RIICB (2018-2023) goals to strengthen the resilience of marginalized communities in urban areas of Bangladesh through improved service to water, sanitation, and hygiene (WASH); disaster risk reduction (DRR); and livelihood opportunities for youth and women. The project focuses on building a multi-sector model for urban resilience, primarily focusing on the key vulnerabilities and

opportunities in an underserved area in Mymensingh. The Resilient, Innovative, and Inclusive Cities in Bangladesh project is working with the following three outcome statements in the Mymensingh city corporation.

The project has three (3) outcomes. These are described below:

Outcome 1: Models for resilient urban WASH that include marginalized communities, are demonstrated in Mymensingh and used to strengthen policy and practice (municipal, national).

Output(s):

- Mymensingh City Corporation undertakes the Operation and Maintenance of FSTP and ensures the safe use of FSTP end-products.
- A digital FSTP monitoring mechanism addressing the whole cycle from sludge collection to disposal is developed.
- A tariff system for FSM is drafted by the FSM wing and widely consulted for integration with the City Corporation tariff system.
- Enhanced Capacity for 50 FSM value chain personnel (i.e. sludge collectors, drivers, caretakers, masons, and community members) for safe and sustainable service of FSM
- One (01) National Learning Event was held to disseminate findings on compost and promote private-sector engagement.
- One (01) urban WASH block with inclusive and resilience features in Mymensingh.

Outcome 2: Urban disaster preparedness and response based on active citizenship, and strategic alliances.

(Government, private sector) and improved risk governance is demonstrated in Mymensingh and used to strengthen policy and practice (municipal, national).

Output(s):

- DMCs (Disaster Management Committee) (160 members) and 6 ERCGs (115 members) have an in-depth understanding of the 2019 revised SODs and are actively engaged in local risk reduction and response action planning.
- City Corporation response cells (Search and Rescue, Medical, Debris Management, Dead body Management, Utility Services) are formed and members are trained on their roles and responsibilities.
- DMCs develop Emergency response and preparedness plans (such as communication plans, evacuation routes, develop sites for Internally Displaced People).
- Ward DMCs and 5 Ward Volunteer Groups can facilitate household disaster preparedness and response plans in their communities.

Outcome 3: Urban youth (male and female) in marginalized communities in Mymensingh were empowered as change agents and increased their access to decent work.

Output(s):

- Update project market needs assessment to identify current opportunities for youth employment Partnership with 2 training institutions to provide skills training for 50 youth.

- Capacity building for 10 youths to develop resilient entrepreneurs (50% girls).
- 100 Youth receive life skill and leadership training on issues such as the National Youth Policy, CC action, Resilient building materials, Environmental actions, youth employment, and services.
- 20 youth master trainers receive refresher training on employment skills such as follow-up support and 1 youth group formed in Mymensingh to demonstrate leadership in youth issues.

1.3. Study details

The final evaluation used both quantitative and qualitative methods and approaches for data collection and analysis and a multi-disciplinary approach to data collection and analysis to deeply understand the adherence to fundamental principles and code of conduct of evaluation study as well as DAC criteria of project activities (relevance and appropriateness, efficiency, effectiveness, impact, coherence, sustainability, and connectedness), coverage of the project activities.

The project-related available and relevant documents included a project proposal, FSM baseline study report 2018, Annual Development Plan, and monitoring report. Detailed project Implementation Plans, Progress/ monitoring reports, strategic documents, and relevant other study reports, periodical program reports, photographs, publications, and other online & offline data sources, etc. been reviewed for secondary data sources. Focus Group Discussion (FGD), Key Informant Interview (KII), and In-depth Interview (IDI) and observation have been conducted for primary data collection. Besides, Data quality assurance has been followed strictly before data analysis and report generation. The evaluation used the need for a participatory approach to understanding the complex relationship and interface between project activities along with enhancing community resilience. The following two interactive steps have been undertaken in this regard.

- **Review of project documents and strategies** including Annual Development Plan, implementation plan, baseline study report, mid-term evaluation report, and other findings of monitoring activities, monitoring reports, event reports, bi-annual reports, annual reports, etc.
- **Participatory research to get actual data, perspectives, and experiential knowledge** on community resilience through reducing the vulnerability of highly exposed people by disaster risk reduction, water, sanitation and hygiene, and capacity enhancement of the people including women, children, elder people and people with disability as well as to substantiate people’s perspectives on participatory management including planning, implementation, and monitoring, etc. through Household Survey, Focus Group Discussion, Key Informant Interview, and In-depth Interview;
- **Community WASH resilience assessment using the WASH resilience assessment domain**

Domains of resilience for application to WASH		
Domain	Assessment method	Scale of assessment
Infrastructure	Assessment of water and sanitation integrity and protection, water quality, and quantity analysis	Individual water supply, and sanitation systems at the community level
Environmental setting	Geospatial analysis of remotely sensed images, community, and stakeholder	Municipality/slum scale

	perspectives analysis through Household Surveys, Focus Group Discussions, Key Informant Interviews, In-depth Interviews, and Case Studies	
Water and sanitation management	Focus group discussion and key informant interviews	Community water and sanitation user committees and associations
Community governance and engagement	Focus group discussion and key informant interviews	Community level
Institutional support	Key informant interviews and In-depth Interviews	NGO Forum for Public Health, OXFAM, government agencies, and Local government level

1.3.1. Study Approach and Methodology

1.3.1.1. Study Approach

The study objectives the methodology consist of different quantitative tools and methods. The methodology, however, has included the following steps/components.

- Initial discussion with NGO Forum for Public Health.
- Collection and review of literature and documents.
- Collection and analysis of secondary data.
- In designing the study tools and instruments (questionnaire, checklist).
- Enumerator’s training and pre-testing.
- Collection of primary data through field survey, FGD, and KII.
- Compilation and processing of data generation of statistical outputs using SPSS.
- Analysis and report preparation incorporating the findings and results of the study.
- Sharing study findings through the workshop.
- Finalization of the report incorporating all feedback.

1.3.1.1. Study methodology

Both qualitative and quantitative data from the study locations have been acquired through household questionnaire survey, Focus Group Discussion (FGD), Key Informants Interviews (KII), best practice documentation, and consultations with stakeholder actors, LGI, Disaster Management Committee, District Relief and Rehabilitation Officer (DRRO), Project DPHE, Councilor, Mayor, etc. at the study location.

1.3.1.1.1. Household survey

A questionnaire survey was conducted with community people to explore in-depth the community’s resilience in terms of disaster risk reduction, water, sanitation, etc. in line with the adherence to fundamental principles and code of conduct of evaluation study as well as DAC criteria, coverage of the project activities and to understand community needs and priority for resilience, institutional response issue. Four teams consisting of eight enumerators (four female and four male) carried out the HHS for six days. The household surveys were then anchored using the Kobo Toolbox. Data was collected using a pretested structured questionnaire through Kobo/QUALT/ODK by trained and

experienced data field researchers. The target population for the Household Survey (HHS) of this study was the project’s direct beneficiaries. The study made use of random sampling to select the respondents for the interview in the household survey. The sample size of the final evaluation study has been estimated within a 4% margin error with 96% confidence using Slovin’s Sample Determination Formula. Therefore, the sample size for the final evaluation study was determined by using the formula as follows:

$$n = N / (1+Ne^2)$$

The targeted population of the project is 650000.

Where n=Sample size

N=Total population

e= margin error=0.04

Using the above-mentioned equation, the Household survey sample size was 619 as well as 620. So, the Total household survey sample from direct beneficiaries was =620. According to the BBS, 2023, about 3% of the population in Bangladesh is persons with disabilities (PWD). In this regard, 3% of the total respondents were selected as people with disabilities. Sex, Age, and Disability segregated household sample is provided in the following Table 1.1

Table 1.1: Household sample

Ward	Male	Female	Persons with disability	Total
Ward 8	60	60	4	124
Ward 10	60	60	4	124
Ward 11	60	60	4	124
Ward 18	60	60	4	124
Ward 19	60	60	4	124
Total	300	300	20	620

1.3.1.1.2. Focus group discussion

Focus group discussions were conducted with community people including, men women, youth, and persons with disabilities who are WASH beneficiaries to explore the adherence to fundamental principles and code of conduct of evaluation study as well as DAC criteria, and coverage of the project activities. 20 FGDs (4 in each ward) will take place. Discussions were conducted by applying a checklist that provided general and specific information (Table 1.2). The duration of the FGDs was around 60 minutes to ensure the engagement of the participants and the qualitative data collection process took over 2 weeks timeline to ensure the quality of the qualitative data by providing appropriate time for arranging and recording the data.

Table 1.2: List of FGD

Ward	FGD participants	Number of FGD
Ward 8	Women, Men, children, persons with disabilities	4 (participants, 5x4=20)
Ward 10	Women, Men, children, persons with disabilities	4 (participants, 5x4=20)
Ward 11	Women, Men, children, persons with disabilities	4 (participants, 5x4=20)
Ward 18	Women, Men, children, persons with disabilities	4 (participants, 5x4=20)
Ward 19	Women, Men, children, persons with disabilities	4 (participants, 5x4=20)
Total	Women, Men, children, persons with disabilities	20 (participants, 5x20=100)

1.3.1.1.3. Key informant interview

Key informants' interviews were conducted with key stakeholders of the target institutions, Local Service Providers, the Chief Executive Officer of the Mymensingh City Corporations (MCC), the Disaster Management Committee, SMC, DPHE, the District Relief and Rehabilitation Officer, NGO Forum for Public Health, etc.). A total of 15 KIIs were conducted. Discussions were conducted applying a previously developed checklist.

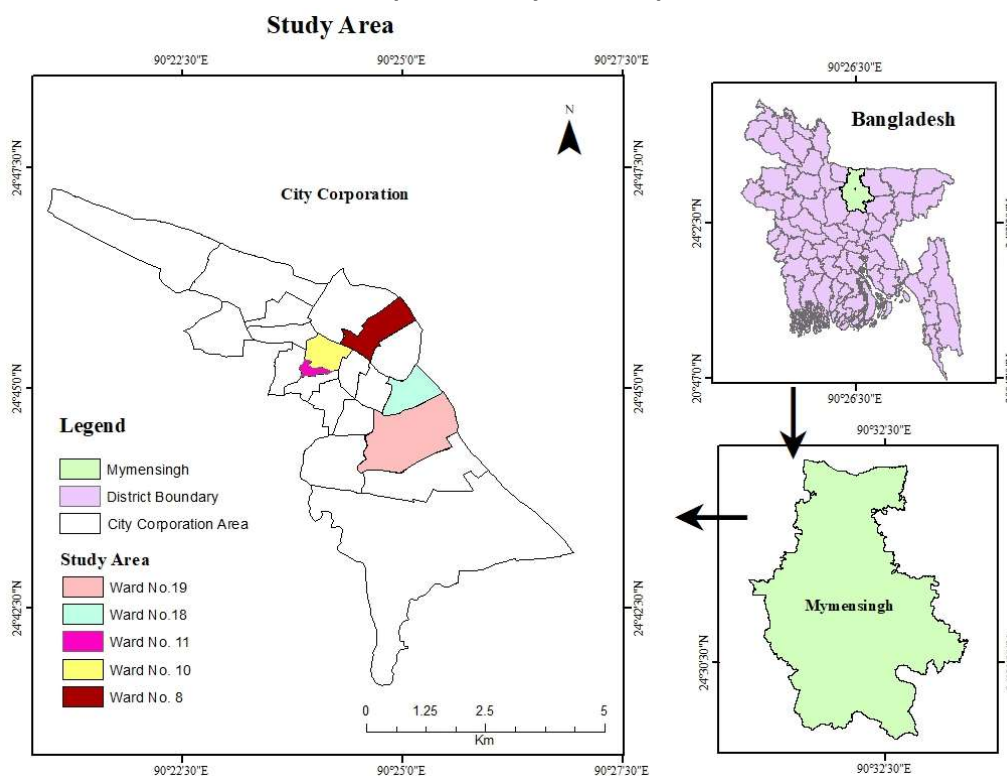
1.3.1.1.4. Case studies

Best practices were captured from communities regarding the contribution of Disaster Risk Reduction (DRR), and WASH. In each ward, two best practices were highlighted. In addition, documentation of the fecal sludge management system of Mymensingh City Corporation (MCC) would be ensured.

2.1. Geographic information

The city of Mymensingh, one of the four oldest municipalities of Bangladesh (established in 1787 during the British Colonial period), was conferred the title of the 8th divisional city in 2015 which can lead to unplanned development in the future. Mymensingh city is a newly divisional city and it is situated by the side of Brahmaputra River. Mymensingh City Corporation is the municipal government of the city of Mymensingh (Alam & Haque, 2022). In terms of latitude, it lies between 24°42' to 24°47' north and 90°22' to 90°27' east longitude. The area of MCC is 91.3315 square kilometers with 33 wards (MCC, 2023). The study was conducted in the slum area in Mymensingh city corporation in 19, 18, 11, 10, and 8 no wards. Map 2.1 represents the location of Mymensingh City Corporation in the Mymensingh district.

Map 2.1: Study Area Map



2.2. Demographic Information

The study covered a total of 606 Households where the total population stood at 2726 individuals. Among those 50% as well as 310 were female respondents and among the population, approximately more than 1% were reported as PWDs. The age of respondents ranges from 18 to 88 years. A majority of the respondent's age falls between 18 to 52 years. About 16% of the respondents belong to the age group of 18-22 years, approximately 15% belong to the age group of 28-32 years, and the lowest number of respondents, about 0.2%, belong to the age group of 83 to 88 years.

This study allowed us to look at the distribution of individual or household-level events by household age. In the study area, the number of unemployed respondents was higher than that of employed respondents, more than 51% of the respondents were unemployed. The major source of employment was small traders, private jobs, construction labor, daily wage labor, and transport labor. Amongst them, the highest income was seen to be in the case of, more than 34% are small traders. Around 23% of respondents were involved in the private sector, 12% were involved in day labor sectors, and 6% were in government jobs. The study also reveals that in slum areas women were involved in a variety of income-generating activities.

Most of the respondent's income ranges between Tk 3000, and 20000, and around 33% of people live below the poverty line. The highest number of respondents (53%) fell in the income group of Tk. 10001 to Tk. 20000, the second highest number of respondents (33%) fell in the income group 1 to 10000 TK, and about 10% of the families fell in the income group 20001 to 30000 TK which was the third highest and the lowest number of respondents (0.2%) of the studied population falls in the income group of Tk. 70001 to Tk. 80000.

3.1. Relevancy, efficiency, effectiveness, impact, and sustainability of project interventions

3.1.1. Relevance:

Mymensingh was one of the districts under the Dhaka Division till 2015. In September 2015, it was declared as the 8th Division of Bangladesh. Mymensingh city, which is situated on the bank of the Brahmaputra River is the district headquarters as well. Similarly, Mymensingh Municipality was upgraded to a City Corporation in April 2018. For both of these reasons, the city has become a destination for people from surrounding districts for many reasons which has caused the rapid expansion of the city in recent times. However, this also requires the capacity to respond to the rising needs of the people. However, Mymensingh City Corporation could not provide all kinds of services required by the inhabitants due to several reasons. Thus, support from development partners was felt to be necessary. Considering this context, the project was designed and implemented.

The relevance of the water, sanitation, and hygiene-related activities has been understood by looking at the need for the FSM plant and its services, primary sources of drinking water, disposal of waste management after emptying pit/septic tank, and type of awareness received by the sanitation worker. Improved WASH services are a priority development area for Australia and support our bilateral focus on livelihood improvements and poverty alleviation. Mymensingh, where the ANCP project RIICB is being implemented, is governed by a relatively new city corporation (equivalent to a municipality council) founded in 2018. There were no sanitation services (water, sewage) when the MCC was established. As per the Mymensingh City Corporation (MCC) website report, the coverage for water

supply in the city currently stands at 57 percent (or approximately 328,731 residents according to the 2022 census). MCC officials informed us people used to build houses and install drainage systems as they liked, which often led to direct dumping into the river nearby.

The project has been found highly relevant for its target population. There is a huge demand for expansion of its coverage. The evaluation has found that the rapid expansion of the city has created a huge demand for WASH-related services. The FSM Plant is a very needful and timely intervention. MCC being a new City Corporation cannot provide all required services. Therefore, it was appropriate to intervene. Similarly, engaging urban youth in community-led disaster risk reduction activities was right and appropriate.

3.1.2. Effectiveness:

It was found that there was significant progress made across the project's outcomes of building resilience, improving disaster preparedness, and strengthening the skills and knowledge of urban youth. Overall, the activities implemented under the project were found to be addressing the development gaps effectively in Mymensingh, particularly the waste management and public WASH facility components. Both Oxfam and NGO Forum had established a good connection with the target communities and local government and received their full support in building the resilience of people living in the emerging city. The project has effectively and appropriately worked with others (alliances, private sector, policymakers, media, etc.) and involved them in relevant stages through the process.

The effectiveness of the project in line with each outcome has been detailed below.

Outcome 1: *Models for resilient urban WASH that include marginalized communities, are demonstrated in Mymensingh, and used to strengthen policy and practice (municipal, national).*

A notable output under the first outcome was the establishment of a fecal sludge treatment plant (FSTP) in collaboration between the implementing partners (NGOs), MCC, academia, and the private sector. The FSTP treats wastewater and sewage and utilizes dried waste to produce compost. The project team conducted a baseline study and initial environmental examination to determine the needs of the community and commercial viability.

MCC donated the land for the establishment of the FSTP. MCC has established a dedicated section for the FSTP and they are planning to scale up the FSTP service across all MCCs. FSTP has been established and operated jointly with MCC which ensures safely managed fecal and solid waste through producing co-compost following the sanitation value chain approach.

The project has ensured access to improved safe water and sanitation facilities in selected public places, urban slums, community awareness on hygiene promotion, and the installation of resilient and inclusive WASH services. They have developed private-public partnerships to foster the FSTP initiative and signed an MoU with some private organizations to support the FSTP in terms of end-product market promotion, waste collection services, end-product brand promotion, etc.

The City Mayor reported that the RIICB project and the FSTP component contributed significantly towards improving waste management in the new city corporation and contributed to the overall resilience of the city's infrastructure. He also added that the treatment plant supported MCC in finding

a good way to solve waste management issues and gradually build resilience in the city and the communities with increasing awareness.

The Ward Councilor of WARD 18 said that to increase the resilience of marginalized communities, the project supported the installation of deep tube wells and the construction of drainage systems. The women FGD participants from slums reported access to safe drinking water and coverage over drains in their area had significantly reduced the rate of diseases like diarrhea, malaria, and cholera.

A key objective of climate-resilient WASH support under the project was to build community resilience to adapt to the impacts of climate change. The endline survey found that the project has introduced 4 WASH blocks to promote safe sanitation. There is still more work needed to advance WASH resilience by creating a safe distance between latrines and drinking water sources.

Evaluation findings:

- The End line evaluation found that the majority of respondents (86%) have increased knowledge about pit/septic tank operation and maintenance.
- The FGD participants cited that their monthly expenditure has decreased because of better water, sanitation, and hygiene management. They also reported that before the project interventions, water-borne diseases were common phenomena but now they have decreased and as a result, health-related costs have reduced.
- Accessibility to WASH services increased by 14% overall (98% for water, 95% for toilet).
- The project has initiated setting up an innovative FSM system that engages the Government, private sector, academia, and community. The private enterprises are currently connected to the project by purchasing co-compost from the FSTP. Plans for revenue sharing and public-private partnership for the operation of the FSTP beyond the project period are in place and will need to be operationalized in the long run.
- Scale-up of the FSM system to cover the whole city has already been included in the annual development plan of Mymensingh City Corporation to which the MCC officials and communities are committed to continue.
- The survey results also indicate that 43% of respondents know about waste management, specifically regarding separation, operation, maintenance, and landfill practices.
- While there is a small proportion of respondents (only about 4%) actively participating in composting activities, the majority have yet to adopt this practice. Among those who are involved in composting, the majority, accounting for 73% of respondents, indicated that vermin compost is preferred over other methods than the box method, etc.
- Regarding the sources of information about waste management, local-level community members and NGO workers were found as the primary source for 66% of respondents. 61% of the respondents identified MCC (Municipal Corporation) as a primary authority responsible for latrine waste management, followed by community members at 37% and NGOs (11%).
- The evaluation also found that significant percentages of respondents are satisfied (50%) and very satisfied (21%) with the city corporation's waste management services.
- 4 Community-led, public toilets with inclusive features (for pregnant and lactating women, and persons with disabilities) were demonstrated under the project, which is exemplary for the community and MCC, having further scale-up potential.

- Due to the project making facilities more inclusive, the perceived accessibility of public toilets for PwD, children, and elderly people has progressively increased: from 36% at baseline to 84% at mid-line and finally to 94% at endline evaluation indicating a significant increase in terms of accessibility.
- Household SWM practices in the municipality have shown significant improvement in recent years, largely attributed to the support and efforts of the NGO Forum for Public Health under this project. The increased utilization of bins for waste collection, the involvement of NGOs/CBOs in enhancing the door-to-door collection system, and the presence of ward waste management committees indicate positive strides toward effective waste management. However, the survey also highlights areas that require further attention. A considerable percentage of households still resort to improper waste disposal methods, emphasizing the need for awareness campaigns and education on proper waste management practices. Additionally, a significant portion of the population lacks access to waste collection services, which calls for expanding the reach and availability of such services.

Outcome 2: *Urban disaster preparedness and response based on active citizenship, strategic alliances (government, private sector), and improved risk governance is demonstrated in Mymensingh and used to strengthen policy and practice (municipal, national).*

The community had been equipped with a solid understanding of disaster risk reduction, demonstrated in their confidence and willingness to talk in-depth about their activities. The Ward Disaster Management Committees (DMCs) reported that the RIICB project provided training and awareness sessions about managing disaster risks including earthquakes and fires. The members also reported that the project provided support in terms of crowd management to the fire service team during a fire incident at a local bazaar last year.

The project has strengthened 6 DMCs and 6 DRCGs and their capacity to implement disaster risk reduction and response action plans through enhancing knowledge, skill, and mobilizing resources. Refresher orientation was also provided for five DMCs (Disaster Management Committees) and five ward-level Emergency Response Coordination Groups (ERCGs) were organized and discussed the 2019 revised SODs (Standing Orders on Disaster) at five targeted wards of MCC (Mymensingh City Corporation) with 150 participants.

Notably, DMCs develop Emergency response and preparedness plans (such as communication plans, evacuation routes, develop sites for Internally Displaced People). In total, 10,000 households are prepared to respond to emergencies through awareness-raising movements by ward volunteer groups and DMCs.

- The project has activated and supported 6 Disaster Management Committees and 6 Disaster Response Coordination Groups (DRCGs), at ward and city corporation levels, and built the capacity of the MCC in line with the 2019 revised Standing Order on Disaster.
- 5 communities have co-financed action plans to reduce disaster risks and now can respond to disasters and influence municipal policy and practices. These plans were created based on 5-10% voluntary contributions made by MCC and institutions at the local level.
- 68% of respondents can develop and implement DRR plans and 63% report being able to reduce (fully and partially) loss and damage related to climate change, indicating around a third of respondents feel their actions were not able to address loss and damage.

- The endline survey found that around 40% of community leaders/CBOs received training on climate change and environmental issues and more than 52% of CBO/community members are now able to develop and implement DRR plans.
- 40% of respondents mentioned that CBOs are actively making people aware of climate change and environmental issues through campaigns.

Outcome 3: *Urban youth (male and female) in marginalized communities in Mymensingh are empowered as change agents and increase their access to decent work.*

The project provided 70 young women and men with training to become entrepreneurs in ‘green’ materials (making bags with jute yarn, a locally produced natural fiber). 40 young women, who had never earned an income before, became entrepreneurs and they established two enterprise centers out of which they manufacture and sell the products. The women entrepreneurs said that the training has helped them not only learn a new skill but also ensure dignified income generation. The women received a sewing machine from the project which helped them to relieve capital costs associated with commencing a small business. The participants were also happy that their business of jute bags is environmentally friendly and believed it could be scaled up from the local to national level.

Life skills and leadership development training was provided to 125 community youth volunteers which enhanced the engagement of youth to raise their voice and collective action on urban resilience. The issues included in the capacity building were the National Youth Policy, Climate Change action, Resilience building materials, Environmental actions, youth employment, and services. The youth successfully advocated to the Mymensingh City Corporation officials for the allocation of an office space inside the MCC premises. This space is used by the youth as a hub and one of the youth volunteers has received the National Youth Award on Sexual and Reproductive Health and Rights. A professional training institution (Onnorokom Vocational Training Institute Mymensingh & Hosto Shilpo) was hired for the master trainer refresher and 10 women participated in 15 days of training using green materials and tailoring. There is further potential to enhance product quality and connect these entrepreneurs to markets.

Evaluation findings include:

- 70 youths were linked trained on green jobs and life skills and linkage-building services with providers as identified by the market needs assessment. 20 youth master trainers are connected with formal training institutions and are engaged with local capacity development initiatives. This serves as a model to increase youth employment, through linkages with services and employers.
- The midline survey found that 57% of the respondents reported an increase in income. This increased slightly to 59% during the endline survey, with a mean growth of income of BDT 2041.18 per month.
- 100% of respondents reported that the on-the-job training for green jobs was of benefit to the community as a whole.
- Training on green jobs gave youth the skills to make jute bags, and handicrafts, recycle plastic, and do hand painting. The goods produced through green employment were mostly sold to NGOs, within their communities and in the local market. Respondents engaged in green employment reported increased income by BDT. 2041 per month.

Challenges Faced towards Effectiveness:

The project has contributed towards increasing the capacity of the faecal sludge treatment plant, which will cater to increased demand for the use of the plant by neighboring wards within Mymensingh. Some of the critical challenges and way forward are suggested as follows-

- Struggling to stop illegal connections of containments to drains and open environment.
- Training is needed on Operation and Maintenance(O&M), business model, sustainability of services, and proper design of containment systems.
- Engaging local entrepreneurs, incentivizing.
- Providing service to all (inaccessibility, affordability issues).
- Monitoring trips, adequacy, and vigilance over sludge discharge.
- Marketing of co-composting products, improving quality through research.
- Awareness of city sanitation and faecal sludge management (FSM).

3.1.3. Cross Cutting Considerations

Cross-cutting such as gender sensitivity, DRR, WASH, Health and hygiene, environment considering PWD, etc. have been addressed by RCIB. The economic impact is the major concern of the activities, and it is found that the green job beneficiaries are increasing their economic, and family well-being by undertaking economic activities. The project is designed as a very gender and PWD-focused activity, thus a very high-level impact on poverty alleviation of the ultra-poor women-headed households, and PWD and their mobilization and empowerment have been achieved. Under Outcome Area 1, community-led, public urban WASH facilities were constricted with inclusive features (for pregnant and lactating women, and persons with disabilities), and under Outcome area 2 and 3, both males and females were equally engaged in supporting disaster preparedness response and 50 marginalized youths from the communities in Mymensingh were empowered as change agents and increase their access to decent work.

3.1.4. Sustainability

Based on the findings from our meetings with different stakeholders of the project, it was obvious that the continuation of the initiatives is desired by everyone. For the establishment and maintenance of the fecal sludge treatment plant and WASH infrastructures, the project team's close collaboration and coordination with officials of the MCC helped to develop a sense of ownership among the latter. The CEO of MCC mentioned that the partners' performance in the RIICB project was satisfactory and the FSTP initiative is "environment and people friendly". They have full interest in scaling it up covering all areas under MCC governance. However, as MCC is relatively new, there is a shortage of human resources and a limitation of funds. The CEO expressed that the FSTP is handed over to the MCC. He said that MCC has developed co-management of the FSTP but they need another 2-3 years of support which would allow them to gain a strong organizational base for efficient management.

A Joint Action Plan (JAP) for the RIICB project and MCC was operationalized which helps to ensure sustainable management of the FSM system and smooth phaseout. A defined tariff system has been introduced and operational for the emptying service by the Project and MCC which needs to be reviewed and updated based on last year's experiences. The FSTP is under operation and production of biofertilizer as co-composting is running. MCC has developed partnerships with private organizations to promote co-compost and also developed a tariff system that will allow the sustainability of the FSTP.

Performance of Faecal Sludge Treatment Plant (FSTP):

There are 9 beds in the FSTP and each bed can treat 5000 liters of FS so in total, the FSTP can treat 45,000 liters of FS. Figure 6 shows that an average of 25,000 liters of FS arrives at the plant per month as revealed in the KII with the FSTP supervisor. This volume is much less than the capacity of the FSTP, suggesting that the plant is being underutilized. At present 35000 L/month FS are being treated and 3000kg/month SW segregated to produce approximately 1200kg/month co-compost which is worth 50 Taka per kg on average.

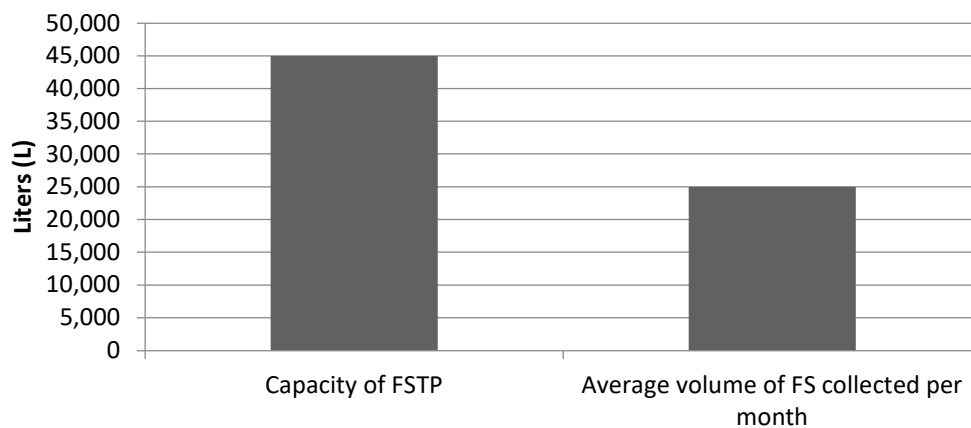


Figure 6. Average volume of FS collected per month

Under the business model that was developed during the project, the MCC already sold co-compost to the farmers, but they need support to promote it nationally. MCC has developed a dedicated team to maintain and operate the FSTP. The project also trained the team members with the support of the project. In terms of sustainable WASH, the project has provided public toilets in the strategic locations of slums which are co-managed by the private sector in collaboration with the MCC.

In terms of the sustainability of the interventions at the community level, the results were very positive. Members of the community have formed management committees in all five wards where the project operates for cleaning and maintaining WASH blocks and deep tube wells. They pay bills for electricity and fix the damage by collecting voluntary donations from all households. The project has also initiated youth engagement in decision-making and service delivery. Skill-developing training for additional youths in line with the updated market needs assessment sparked the initiative with 50 capacitated youths and linked them with job service providers.

The project also initiated bringing identity for the Youth group formed in Mymensingh to demonstrate youth leadership. The youth leaders and women entrepreneurs were utilizing the skills gained through training for individual growth as well as community advancement. Almost all the meeting participants shared that expanding the project activities with a special focus on youth to the remaining wards of Mymensingh would further enhance the goal of building community resilience in the face of a changing climate. Overall, the sustainability aspect of the project was found to be promising owing to the strong partner connection and community participation.

The project also supported the Disaster Management Committees (DMCs) at the City Corporation and ward level to respond to both climate change-induced and natural disasters to complement the

government initiatives for strengthening the institutional and local capacities in disaster management. The project also works directly with the youths from the project working wards of MCC to increase the agency and life skill capacity building along with ensuring livelihood options.

3.1.5. Value for Money

The project addressed major gaps in development and economic growth in a small area of MCC. The RIICB project contributed to the development of innovative and environmentally friendly WASH infrastructure, strengthened local government administration, and empowered youth with climate-compatible products and disaster risk reduction. The project does not duplicate other work adapts lessons learned and appears to use cost-effective options or think strategically about how it spends project funds. The financial project model⁴ predicts that the emptying service and co-composting will earn about BDT 2,79,720 per month from emptying, BDT 3,33,300 from co-composting, and a net profit of BDT 6,13,020. The MCC is also likely to earn one of the highest revenues from the FSM Service at BDT 473,400 per month.

Case for Fiscal Revenue Model	
Net Profit from Emptying Service	2,79,720.00
Net Profit from Co-Composting	3,33,300.00
Net Profit	6,13,020.00
Revenue for MCC (Emptying + Co-composting)	473400

This ability to replicate components of the project and scale up represents good value for money. This project has connected investment with climate, emission, treatment, public health benefits, environmental benefits, and surface water pollution for a total beneficiary of 67,000 people. If the private sector operates the emptying service and the FSTP plant effectively it is likely to generate sufficient revenue to continue operating and the MCC is also likely to benefit from the service.

3.1.6. Policy alignment, risk management, and innovation

To achieve citywide inclusive sanitation at the City Corporation level, the Local Government Division under MoLGRDC developed an Institutional and Regulatory Framework for FSM (IRF-FSM) for City Corporations in 2017. This has identified the ways and means of implementing FSM services in the City Corporation with specific roles and responsibilities. To support the implementation of IRF-FSM, a separate National Action Plan (NAP) for City Corporations implementing the IRF-FSM was published in 2021 by the Local Government Division that includes specific actions for both national and City Corporation level stakeholders. According to the NAP for City Corporations, there are a few milestones set for the City Corporations at different stages of implementing FSM through building its capacity, doing awareness campaigns, planning for citywide FSM implementation, ensuring mechanical desludging and completing land procurement for FSTP by the end of 2023.

The project is aligned with the 8th Five-Year Plan of Bangladesh (FYP) (2020-2025) which also emphasized the importance of appropriate operations and maintenance, including the maintenance of hygienic conditions. Under the 8th FYP, it is stated that urban slum dwellers are frequently deprived of essential facilities such as WASH services due to several factors, including the legal status of the

⁴ Operational Plan for FSM in Mymensingh City Corporation, conducted by CaST Network

land and gaps in development plans, as well as the urban slums' susceptibility to flooding. Due to the dense character of slums, community-based organizations will maintain community water points and sanitation blocks as appropriate solutions and such WASH initiatives must be preceded by a comprehensive analysis of the recipients' 'willingness to pay' for the service, which connects with the Project's objective 1 and 2.

Standing Order on Disaster (SOD), which is one of the important directives for Emergency- the project outputs are aligned to ensure safe and potable water supply and sanitation facilities should be provided at safe refuges/temporary shelters or crisis-affected communities. Oxfam Bangladesh emphasizes gender and disability inclusion, and it was well reflected in project activities.

In alignment with other policies and guidelines, the project activities focused on creating inclusive WASH infrastructures and behaviors and reducing environmental impacts. Since the start of the operation, the team with support from academics also continued to conduct testing of selected compounds (nutrients, physical quality) of the sludge used for co-composting to reduce risks related to health and the environment.

4.1 Conclusion and Recommendation:

The project is being implemented in the selected five wards in the Mymensingh City Corporation. City Corporation is highly pleased with our project interventions, quality of work, and cooperation with City Management. The demand for city dwellers has tremendously increased due to the movement of the mass population to the city. The City Corporation wants to expand the target area where the project could bring a significant change in community life. There is a scope to expand the working areas in the upcoming year considering both human sludge and solid waste management and climate change issues.

Mymensingh City Corporation can undertake the Operation and Maintenance of FSTP and ensure the safe use of FSTP end-product (compost), in line with government regulations by enhancing the FSM wing. Continued regular operation and maintenance of FSTP jointly with Mymensingh City Corporation and the end-product can be a model to scale up in other areas. While mechanical desludging has been introduced and land procurement for new FSTP is under process, Mymensingh City Corporation is yet to make significant progress regarding capacity building, awareness campaigning, and planning for citywide FSM implementation. Therefore, Mymensingh City Corporation should take immediate action to address these gaps and achieve the targets set in the NAP.

There is a concept among many that ensuring financial support is the only prerequisite to ensuring the sustainable operation of FSM services. Such a concept leads to a strategy where projects are designed only to provide emptying and vehicles, and the cost of treatment plant construction. But there are so many examples in Bangladesh where projects that do not look beyond one-time investment for vehicles and treatment plants fail within a very short period. Therefore, it is important to focus on the capacity building of the City Corporations and local stakeholders who will manage, operate, and maintain the FSM system.

NGO Forum sought technical support from SNV through an MOU for introducing the Integrated Municipal Information System (IMIS) to roll out/scale up the model in MCC introducing a web GIS-based information system integrating spatial data on buildings, roads, drains, and containments (septic tanks and pit latrines), which can integrate different layers. IMIS was developed by SNV's CWISE project to provide a more systematic method of data storage and collection with 1-year contract. The RIICB project was designed to address the challenges of inadequate infrastructure, limited health, sanitation, and waste management services as well as rapid environmental degradation in urban areas. The project is highly relevant and is a timely initiative with an effective approach in their close direct engagement with the MCC and local partner NGO Forum for Public Health. The targeted areas were slums with no proper access to water and sanitation services – the project is filling this gap while the MCC develops its capacity; NGO Forum has been working with the communities prioritizing social inclusion (women empowerment, youth leadership) since 2014

Recommendations:

Based on the study findings, recommendations for Mymensingh City Corporation include:

Regular follow-up, monitoring, and provision of technical support to MCC: To ensure ongoing adequate functioning of the FSTP and digital data management, considering MCC is a newly established City Corporation with limited human resources and capacity for FSTP programming and solid waste management. The following is recommended:

- Capacity building of City Corporation officials and stakeholders on FSM through training and exposure visits to other geographic locations and contexts like Barisal, Dhaka where the FSTP/similar models are being implemented.
- Strengthen the capacity of the municipality including adequate mechanical vehicle (Vacutug), manpower, and other support service. The project supplied one Vacutag for the project, repaired another vacutag, and ensured the operation and maintenance of both vantages over the project period.
- Support Mymensingh City Corporation to continue operating the FSM wing.
- Develop a marketing plan on how the FSM Service Center will do marketing in the next three to six months.
- Maintenance of the Integrated Municipal Information System - database and financial system for recording/monitoring trip numbers, site of sludge dumped, total income, total expenditure, etc.
- Continue development of innovative and appropriate approaches for the emptying, and collection disposal of faecal sludge in a safe and environmentally friendly manner.
- Update the tariff system for emptying and transportation services considering the affordability of users and develop a business model for service delivery.
- For better FS collection efficiency from households located along narrow road networks, purchase (or customize existing vehicles by increasing its collection capacity from remote containments) smaller vehicles for narrow roads.
- Policy level advocacy for developing necessary laws for regular emptying of septic tanks or pit latrines and preventing dumping sludge beside roads or into canals.
- Create linkage with the Department of Agriculture Extension for field-level uptake and demonstration of FSTP outputs.

In-depth microbial research on the co-compost is needed for assurance of safety, efficiency, and market acceptability and the study recommends developing a realistic plan/strategy between MCC and Bangladesh Agriculture University to engage the private sector in operations and invest in quality testing of effluent and co-compost. In addition, obtaining approval for selling the co-compost in the market from the government through advocacy, once the co-compost quality meets the government standard.

Private sector engagement and financing model: For sustainability of MCC, including external financial assistance or loans to develop the necessary infrastructure for the private sector to take the risk to invest. MCC should also encourage the users to pay an extra service charge for effectively managing the emptying, collection, and disposal system. Encourage private sector participation in fecal sludge management through tax incentives, financing, and public-private partnerships.

After evaluating the context and findings from the FSM Service at MCC, three different modalities have been developed in line with MCC. These models have been developed to simulate the FSM Service under these models.

The first model is the Self-Operating Model by the MCC where there is no private sector engagement and the MCC through its capacity runs the entire FSM value chain. The second proposed model is the Joint Revenue Sharing Model in this model, the MCC tenders a private sector to operate both the emptying service and FSTP plant. The third proposed model is the Fiscal Revenue Model where customers will pay for FSM through 1 or 2% premium of their holding tax. A private sector will be tendered to manage the emptying of the FSTP service.

The study recommends the second model - the Joint Revenue Sharing Model. A joint account will be established, where the revenue for the emptying service will be shared on a pro-rata basis based on the frequency of trips and the FSTP plant will be leased out to the private sector. If the private sector operates the emptying service and the FSTP plant effectively it is likely to generate sufficient revenue to continue operating and the MCC is also likely to benefit from the service.

During the whole process of implementing the recommendations and Joint Action Plan, it is highly recommended that a technically competent agency is chosen to support Mymensingh City Corporation by sharing their experience, providing technical assistance, organizing exposure visits for Mymensingh City Corporation officials who are currently involved in providing FSM service and connecting them with the FSM network that works in Bangladesh as well as in the South Asia region.

Develop a plan for educating citizens through awareness-raising programs on stopping containment connections to drains and open environment and use of latrines: This might include educating the citizens and the local masons on the proper design of containments (e.g., septic tank design) and its benefits. Awareness would also include preventing the discharge of FS and wastewater into open drains/environment by educating citizens and introducing by-laws and citywide awareness campaigning for demand creation among citizens. The advocacy and campaigns could be based on an

advocacy plan targeting the key stakeholders (e.g., DAE, nurseries, public representatives, etc.) to promote the FSM service (including its by-products). Awareness building on Faecal Sludge Management (FSM) concept and approaches for the citizens, municipal authority, other government departments, and stakeholders Advocacy initiative for increasing sanitation budget and arrange from external sources like donor agencies, INGOs, etc.

Awareness raising and encouragement on hygienic use of latrines and further installation of accessible and inclusive toilets.

Market network and connections: Based on statistics, efforts initiated by the project, and acceptance by the local community for green jobs, the study recommends strengthening the capacity of more youths for green employment, and providing support to set up green job opportunities and production centers involving youths. There is a need for strengthening market linkages and an opportunity for youth to influence government policies to scale up FSM in different parts of the country, including MCC.

Continue building capacities in Disaster Management: Build capacities and activate Disaster Management Committees and Emergency Response Coordination Groups to support WASH and FSM issues as a part of hazard and environmental protection mandates. Strengthen community volunteer groups on youth engagement and governance and roll out of SoD.

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Annex I: Case story

Case story: 1

Muskan Akter Disha

Age: 21

Location: Ward 10, Notun Bazar, Mymensingh

In Mymensingh, a busy city where hopes frequently conflicted with financial restraints. Muskan Koraisi is a resident of the Mymensingh City Corporation's 10th ward. Muskan is a first-year student at Anandomohon Govt Degree College, and she is 21 years old. She had financial restraints that made her studies and household expenses difficult. In the meantime, she managed to take some initial training on tailoring but that was not sufficient for a turning point in her life. Her life, however, took a positive turn when she became a member of a youth organization founded by a local NGO called NGO FORUM for Public Health.



Muskan and other young women participated in multiple NGO FORUM training sessions as part of the RIICB Project. The goal of all of these training sessions was to provide participants with the essential skills and knowledge to cope with disaster risk reduction (DRR) and rescue operations. Muskan was trained in green jobs as part of this project. She eagerly attended the training sessions, taking in each piece of information that came her way. Her skills in urban disaster risk assessment and response training were developed further, making her a valuable asset in situations of emergencies. Her confidence increased with each passing day, and she was more determined than ever to make a positive difference in her neighborhood. But the NGO didn't stop there; they also provided training in green jobs, recognizing the necessity of sustainable practices. During one of these training sessions, she was introduced to the craft of jute bag and thread weaving, both of which are eco-friendly alternatives to her sewing talents. She learned how to make jute bags and

thread weaves. Muskan's story not only inspired people who knew her, but it also piqued the interest of the Bangladesh Small and Cottage Industries Corporation (BSCIC). They provided her additional training and support after being impressed by her abilities and dedication, opening the door to even larger chances. She received training from the Bangladesh Small and Cottage Industries Corporation (BSCIC) to broaden her understanding. Muskan added, "I can use jute to make curtain jute bags, mother bags, table cloths, wall mats, and various holding bags." Muskan's path to success did not end there. She was able to survive and grow with the assistance of NGO FORUM, Oxfam, and Australian Aid. Muskan began working as a trainer in her community, sharing her knowledge and encouraging people to pursue green jobs based on her experience and expertise. Muskan is currently able to meet its demands. Her bags are extremely popular. Despite having perfected her skills in jute bag and thread weaving, she faced a shortage of raw materials in her community. Due to a lack of readily available

supplies, she had to seek materials from Dhaka or Mymensingh at excessive costs. This limited her ability to make her items at a low cost, threatening her ambitions of financial independence and long-term entrepreneurship. Muskan's life had taken a positive turn when she joined the youth club organized by the NGO FORUM for Public Health in her hometown of Mymensingh. The training and skills she received, particularly in green jobs and sustainable practices, enabled her to become self-sufficient.

However, a new problem - the challenge of forward and backward market linkages - now stood in her way. Muskan added, "I have to import the raw materials for my bags from other places, which raises the cost of production and the price of the product." Furthermore, Muskan's desire to sell her wares locally was hampered by the lack of a suitable marketplace. While she had attempted to use internet platforms, her lack of familiarity with them had proven to be a hindrance. Despite her belief in what she had learned, she struggled to negotiate the complexity of digital marketing and effectively reach her target audience.

"We can sell our handmade items, but our market linkage is not developed to sell more," she added. We are unable to create more as a result of this. If our raw material availability, market links, and an effective marketplace can be strengthened, we will all profit more from the NGO Forum's training."

Case story: 2

Name: Shapla Akter

Location: 8 No. ward, Thanaghat, Mymensingh.

Shapla Akter is the daughter of Shuruj Mia, a Mymensingh City Corporation resident from the 8th ward. Shapla Akter is a 25-year-old Master's student at Muminunnisa Govt. Mohila College in Mymensingh. Shapla is a fearless member of her community. She balances her studies with some introductory training in firefighter, livelihood, and tailoring. Her life took a positive turn when she became a member of NGO FORUM for Public Health, a young organization created by a local NGO. The NGO Forum started its program in 2014 with the help of our local councilors and other dignitaries. A volunteer team of approximately thirty boys and girls from the community was created there. As a general member of that team, Shapla received the opportunity to engage with the NGO Forum for Public Health. Following that, with the financial assistance of Australian Aid and Oxfam, as well as the assistance of NGO Forum, she and other volunteers in their areas gradually began engaging in various trainings. NGO Forum has provided them with training on disaster, hygiene, awareness programs, human waste, life skill training, youth hub, and other topics, allowing them to meet and work with volunteers from wards other than their own. Shapla stated that I've been able to encourage others, including a youth group in our 08 ward, and I am sensitized. Now I can call myself a skilled person. Gradually, as an ordinary member, I became more welcomed in the volunteer organization, and my opportunities to speak in any place expanded. The abilities I obtained as a volunteer in Ward No. 08 enabled me to engage with other non-governmental organizations. Currently, I have the opportunity to work as a project volunteer at the NGO Forum for Public Health. In that year 2014, I joined as an ordinary member and today I am serving as the organizing secretary of the volunteer group of ward no 8. Since 2014, I have received various trainings, one of which was the 2015 disaster training from Fire Service Civil Defence, where I learned how to deal with man-made and natural disasters. How can I protect myself during a fire and actively work as a fellow firefighter in disaster response?

After the training in 2017, there was a terrible fire in our Mymensingh area at various places like - Hawkers Market, Al-Masood Sooz, and Hera Market where I and other volunteers of my ward No. 08 quickly went to the fire site and worked hand in hand, shoulder to shoulder with the volunteers of other wards and firefighters of the fire service. As a result, rapid destruction succeeds in clearing the group and reducing damage. Like 2017, again in 2022, a terrible fire broke out in the populated hawker market of the Mymensingh area, where the firefighters of the fire service arrived within a few moments of the fire, and we quickly reached the place of fire and worked quickly communicating with the volunteers of our ward and other wards. After a few days of work, they selected a total of 5 volunteers from Ward No. 08 and Ward No. 18 who worked in the fire, out of which 4 boy volunteers and one girl volunteer were sent to Dhaka for the best firefighter volunteer medal. I was the only girl out of 5 people and I was selected for the medal out of 5 people from Dhaka. I was awarded as the best firefighter volunteer from Mymensingh Division on 5th December 2022 for my organizational skills and quick communication skills and for proactively reducing fire damage and clearing debris, with a certificate and cash prize of 5000 thousand takas. Shapla Akter also quoted that- *"The best achievement of my life was getting the medal from Mymensingh Division as the best firefighter volunteer. Today I have made myself competent and efficient with the help of the NGO Forum. Various trainings of NGO Forum have helped me to develop myself today. So many thanks to Australian Aid Oxfam donors and NGO Forum for Public Health"*.

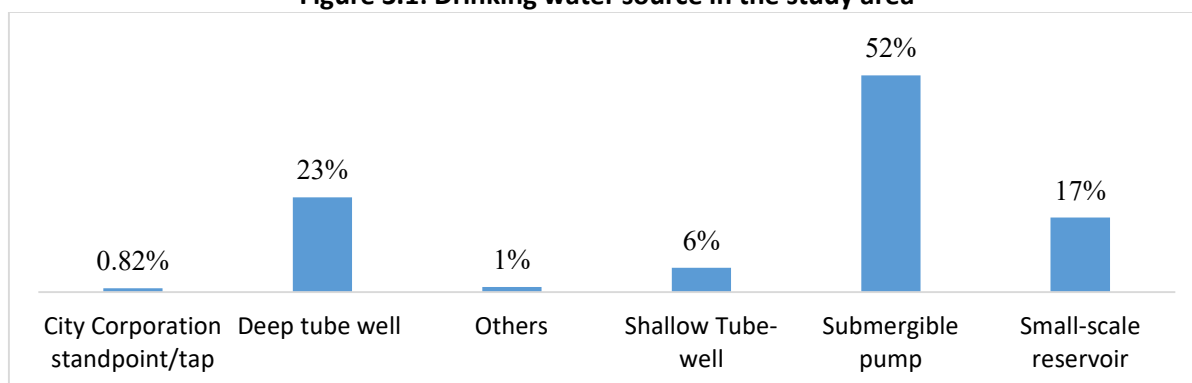


Annex II: Analysis Tables

1. Water, Sanitation, and Hygiene Situation

The assessment of drinking water sources within households revealed interesting insights. The majority of respondents relied on other sources, with the highest percentage (52%) depending on submersible pumps for their drinking water needs. Deep tube wells covered 23% and 17% of the houses received their water from small-scale reservoirs. Shallow tube wells and other sources constituted 6% and 1%, respectively (Figure 3.1). The FGD participants from each slum reported that they don't depend on City Corporation-supplied water for drinking purposes and no other water supply authority is working in the slum areas.

Figure 3.1: Drinking water source in the study area

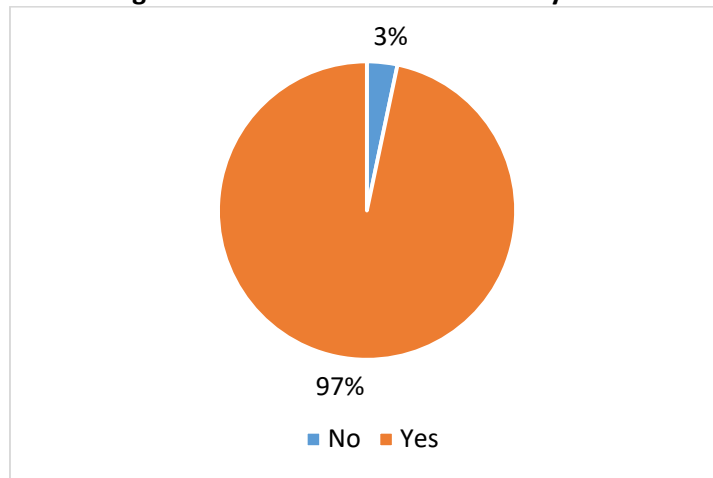


In terms of the taste and quality of the primary drinking water, the data showed that most respondents (88%) considered their water to be tasty. A small percentage reported issues such as iron odor (11%), muddy appearance (0.3%), and odd smell (0.5%). Also, regarding the time required to collect drinking water, 89% of respondents reported that they could obtain water within 0-5 minutes and 11% indicated a collection time of 6-10 minutes, while only 0.5% of respondents mentioned they required more than 10 minutes. When it came to the availability of water sources throughout the year, the highest 99% of respondents in the study area reported having water sources that served them around the year, with only 1% experiencing interruptions lasting less than three months. In terms of the condition of drinking water, a significant majority 91% mentioned they have access to hygienic water. However, a small part of the respondents, about 8%, considered their water source to be unhygienic, while only 0.2% categorized it as ineffective. According to the study, 84% of respondents are highly satisfied with their water supply, and respectively 3% and 13% are moderately and least satisfied with their water supply due to an inadequate number of water supply sources according to their community needs. For the determination of a healthy nation and community, one of the critical issues is access to sanitation facilities. According to the study, 97% of all slum households have access to a latrine. The remaining 3% of respondents' latrines are still shared or owned by an NGO, a community, or other parties. According to the respondents, insufficient space and financial incapability play a vital role in the latrine shortage in the study area.

The assessment of drinking water sources within households revealed that the majority of respondents relied on submersible pumps for their drinking water needs (52%) whereas during the midline survey, 56% of the respondents indicated that "mini pipe water supply" is the main source of their drinking water. Assessing the status of hand washing facilities, it was found that a significant majority, accounting for 86% of respondents, had access to hand washing facilities equipped with a running water supply and soap whereas the midterm survey revealed that before the project intervention, only 23% of the community had access to a hand washing facility and during midline this has been increased to 66%. This data demonstrates that it was a relevant intervention and there is

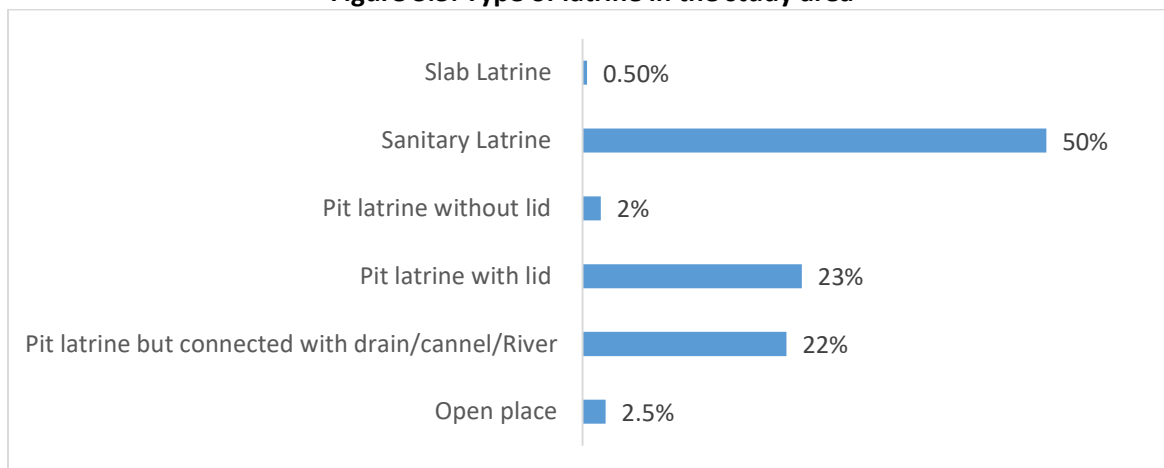
more to be done on this. This indicates a positive trend toward providing essential hygiene resources in households.

Figure 3.2: Latrine status in the study area



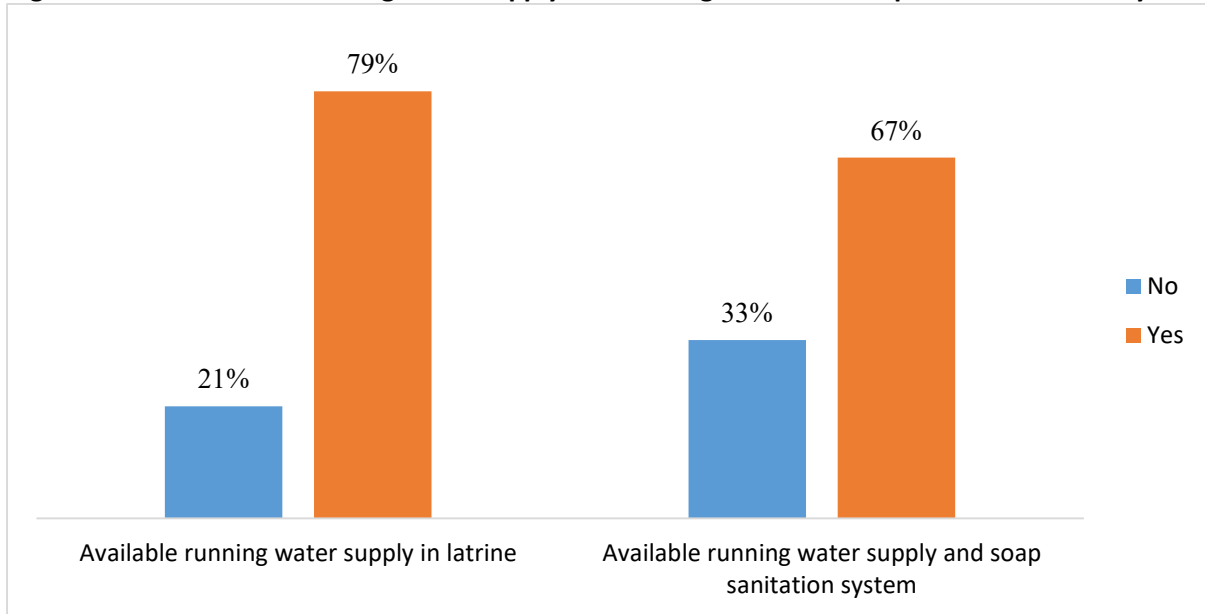
A total of 50% of respondents use sanitary latrines but still 3% defecate in an open place or hanging toilet. Whereas baseline findings also revealed that around 3% of those who do not have their latrines are mostly using community latrines (2%) followed by 1% using their household owner’s latrine. Most of the latrines are pit latrines and 24% of latrines are pit latrines with slab as the hygienic form of latrine. But also 22% are collected with channels, rivers, or drains, and 2% of pit latrines are without lids. Most of the latrines used here as of baseline were latrines with septic tanks provision (68%) followed by the pit latrine (32%). The endline therefore found progress in the reduction of using pit latrines and more inclines towards the use of latrines with septic tanks. According to the opinion of respondents during the endline, around 7% of latrines are hygienic and 25% are unhygienic but 0.66% of the latrines are ineffective (Figure 3.3).

Figure 3.3: Type of latrine in the study area



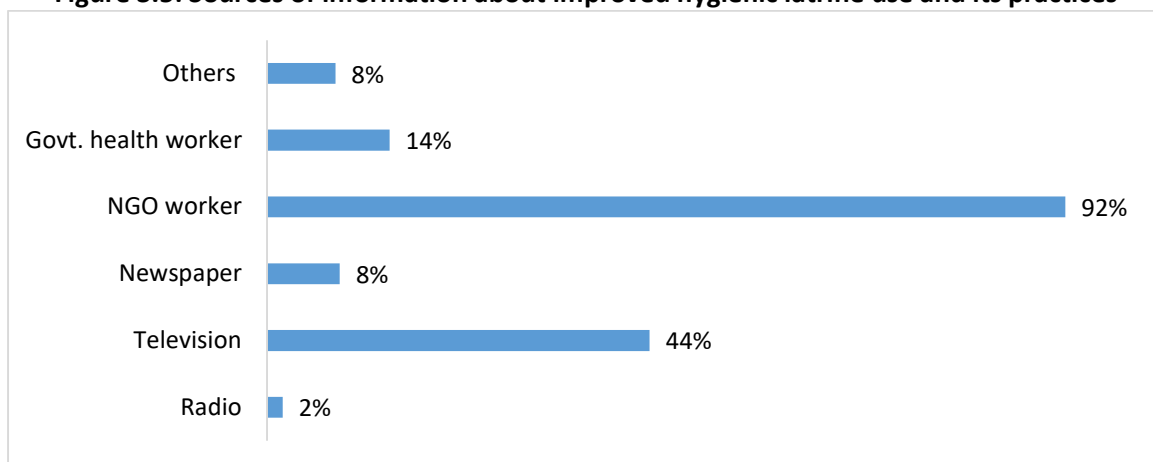
The study reveals that approximately 21% of the toilets do not have a running water supply. However, a significant majority, accounting for 79% of the cases, do have access to running water in their toilets. Furthermore, when considering the presence of both a running water supply and a soap sanitation system, the data shows that approximately 33% of the toilets lack these facilities. On the other hand, the majority of the study area, comprising 67%, has the benefits of not only running water but also a soap sanitation system in their toilets.

Figure 3.4: Condition of running water supply and running water and soap in the sanitation system



Most of the respondents of the study are well aware of hygienic latrines, and safe sanitation use and practices. About 94%, reported using improved hygienic latrine practices, while only 6% indicated they don't practice it. To further understand the sources of information regarding improved hygienic latrine use and its practices, respondents were asked about their source of knowledge acquisition. The data reveals that multiple sources played a role in disseminating information about improved hygiene latrine use and practices. These findings underscore the role of various sources, particularly NGO workers (92%), in promoting awareness and education regarding improved hygienic latrine practices. The utilization of multiple communication platforms such as television (44%), radio (2%), and newspapers (8%) also play a crucial role in disseminating essential information to a wide range of individuals. The involvement of government health workers (14%) further supports the implementation of effective hygiene practices in the context of latrine use.

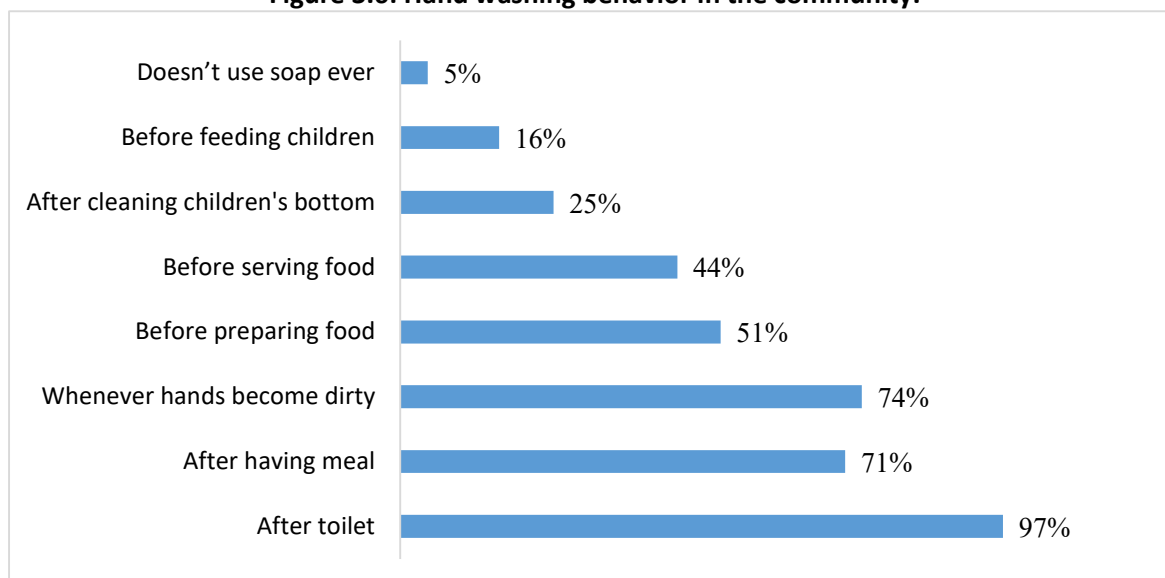
Figure 3.5: Sources of information about improved hygienic latrine use and its practices



Assessing the status of hand washing facilities, it was found that a significant majority, accounting for 86% of respondents, had access to hand washing facilities equipped with a running water supply and soap. This indicates a positive trend toward providing essential hygiene resources in households. However, a notable proportion, comprising 14% of respondents, indicated a lack of running water supply and soap in their hand washing facilities.

This indicates the importance of continued efforts to address knowledge gaps and ensure a comprehensive understanding of proper pit/septic tank management practices. The study reveals the hand-washing behavior within the community, showcasing the percentages of individuals who have practices in hand washing in specific situations. While 5% of the community members reported never using soap when washing their hands. Approximately 16% of individuals wash their hands before feeding children, emphasizing a moderate level of awareness. Moreover, 25% practice hand washing after cleaning children's bottoms, indicating a higher understanding of cleanliness and germ prevention. Before serving food, 44% of individuals wash their hands, while 51% do so before preparing food, demonstrating good hand hygiene practices in food-related situations. Furthermore, a significant majority of the community engages in hand washing whenever their hands become dirty (74%) and after having a meal (71%). The highest percentage, 97%, wash their hands after using the toilet, highlighting strong awareness and compliance with hygiene practices. Overall, while there is room for improvement, the study indicates a mix of hand-washing behaviors within the community, with some scenarios showing commendable adherence to hand hygiene practices.

Figure 3.6: Hand washing behavior in the community.

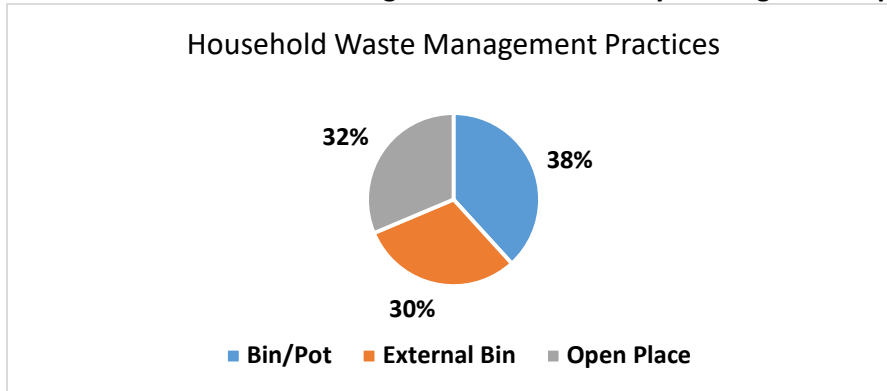


The data shows that 91% of respondents reported regularly cleaning their latrines, indicating a high level of maintenance. In terms of using sandals to access the latrine, 100% of respondents reported doing so, suggesting a common practice within the community for maintaining hygiene and preventing contamination, as learned from the project.

4. SWM (Solid Waste Management) Situation

The survey conducted in the Mymensingh Municipality area revealed a diverse range of practices concerning household solid waste management (SWM). Among the households surveyed, it was found that nearly one-third of people utilize bins to trash their waste, which they later hand over to municipal solid waste collectors. Additionally, a significant number of households dump their household waste into external bins. However, a concerning observation was made that the remaining one-third of households resorted to improper disposal methods such as throwing their waste in open areas which are not designated for waste collection or without any specific purpose like composting (see figure 4.1).

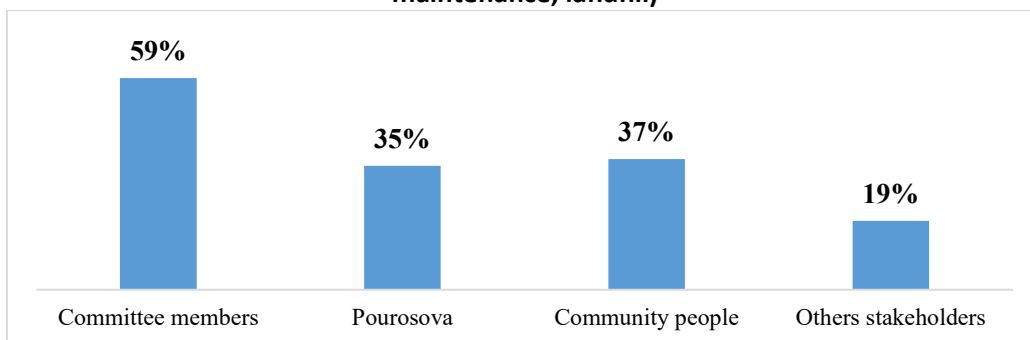
Figure 4.1: Household Waste Management Practices in Mymensingh Municipality.



Furthermore, the findings indicated that only 47% of the inhabitants in the surveyed locations had access to a household waste collector van service, leaving the remaining 53% without such a service. It is worth noting that the households receiving waste collection services within the Mymensingh Municipality area have been paying a monthly tariff for proper management of their waste while the others do not pay. According to the data collected, it appears that the door-to-door collection system has shown significant improvement due to the involvement of Non-Governmental Organizations (NGOs) or Community-Based Organizations (CBOs). A majority of 88% of respondents reported a positive impact on the door-to-door collection system as a result of their efforts.

These findings underscore the significance of NGO/CBO involvement in improving the door-to-door collection system and highlight the need for increased awareness and communication regarding the establishment and functions of ward waste management committees. When it comes to the existence of a ward waste management committee, the findings indicate that 29% of the respondents confirmed the presence of such a committee in their respective wards. However, 23% of respondents stated that they do not have a ward waste management committee, while a considerable percentage of 48% reported being unaware of the committee's existence. By strengthening these committees and ensuring their effective operation, it is possible to enhance waste management practices at the ward level, leading to improved overall waste management in the Mymensingh Municipality area.

Figure 4.2: Source of information about waste management (Separation, operation & maintenance, landfill)



The survey results also indicate that 57% of respondents do not know about waste management, specifically regarding separation, operation, maintenance, and landfill practices. On the other hand, 43% of respondents possess knowledge in these areas. Regarding the sources of information about waste management, committee members emerged as the primary source for 59% of respondents. Pourosova (Municipal Corporation) was identified as a source by 35% of respondents, followed by community people at 37%. Other stakeholders, such as organizations or individuals involved in waste management, were mentioned as a source by 19% of respondents.

These findings suggest that while there is a small proportion of respondents (only 3%) actively participating in composting activities, the majority (97%) have yet to adopt this practice. Among those who are involved in composting, the majority, accounting for 73% of respondents, indicated that they utilize vermicomposting as their preferred method. Vermicomposting involves the use of worms to break down organic waste and produce nutrient-rich compost. On the other hand, 9% of respondents reported using the box method composting technique. The remaining 18% mentioned utilizing other methods not specified in the survey.

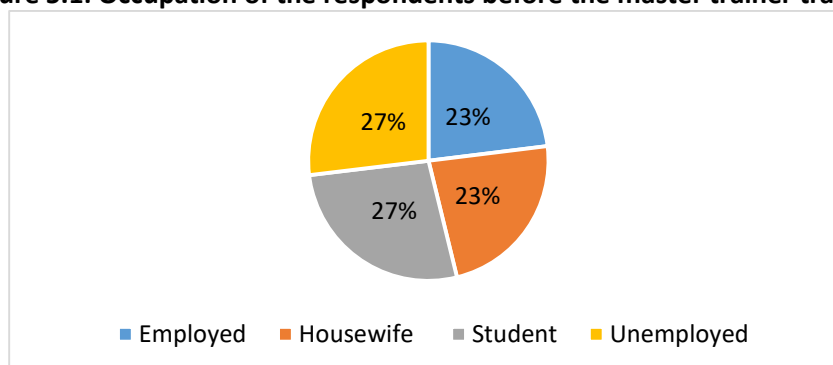
Among the respondents, 50% expressed a high level of satisfaction, indicating their contentment with the services received. In contrast, a small percentage, 4% reported being least satisfied with the SWM services. Furthermore, 6% of respondents expressed a moderate level of satisfaction. It is noteworthy that a significant proportion of 41% of respondents indicated the response "Not Applicable," suggesting that they may not have availed themselves of or had any direct experience with solid waste management services. This could be attributed to factors such as limited access to waste management facilities or the presence of alternative waste management practices in their respective areas. Therefore, consistent monitoring and improvement of SWM services is an important part of addressing the concerns and ensuring overall customer satisfaction while efforts should be made to expand the reach and accessibility of these services to maximize benefit to a larger portion of the population.

The increased utilization of bins for waste collection, the involvement of NGO Forum in enhancing the door-to-door collection system, and the presence of ward waste management committees indicate positive strides toward effective waste management. However, the survey also highlights areas that require further attention. However, the FGD participants of all slums emphasized the need for awareness campaigns and education on proper waste management practices. The slum dwellers also added that a significant portion of the population lacks access to waste collection services, which calls for expanding the reach and availability of such services. The involvement of various stakeholders is crucial in promoting sustainable SWM practices. Continued collaboration and coordination among the stakeholders, along with the support of the NGO Forum for Public Health, will be instrumental in further improving household solid waste management practices in the municipality, leading to a cleaner and healthier environment for all residents.

5. Resilient livelihoods

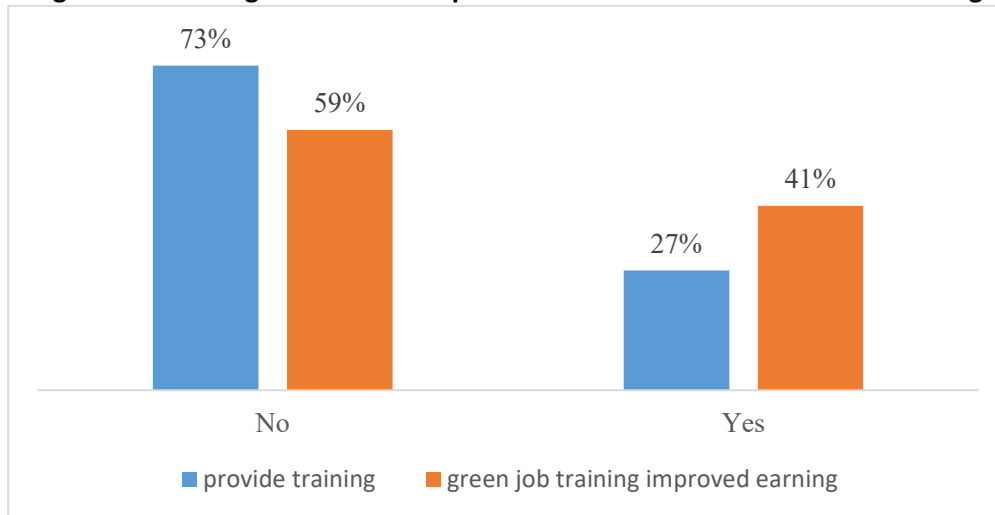
Before the master trainer program, the data shows that the proportion of respondents who are employed and those who are housewives, each accounting for 23% of the total, is equal. Students and unemployed respondents comprise almost the same amount of the sample (27% each), along with other respondents.

Figure 5.1: Occupation of the respondents before the master trainer training



While the midline survey, (figure 7) indicated that skills development for urban youth is a required intervention. In the midline survey, it was found that 50% of the respondents pointed out they have not received any skills development-related training yet. This demonstrated that there is still a need and demand for similar work with the same target group. According to the data in the endline, master training improved income by 62% for all respondents. On the other hand, only 27% of the participants trained others in sewing and cutting after receiving their master's training which indicates a positive progress achieved through the project.

Figure 5.2: Earnings condition and post outcome of the master trainer training

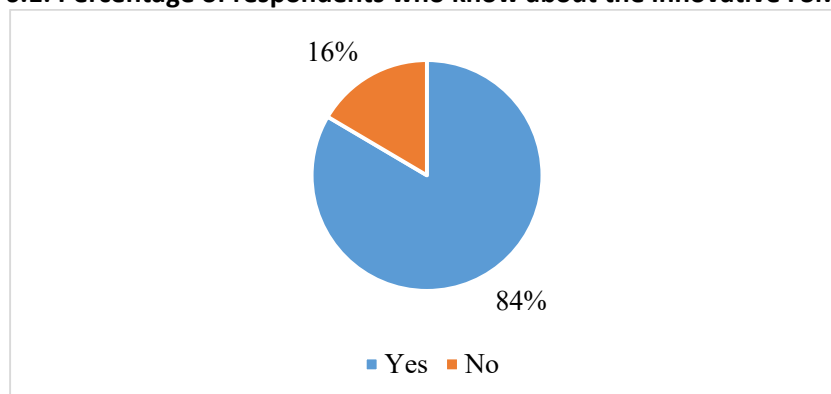


A significant percentage of respondents (41%) claimed that receiving green job training did increase their income. It can be seen that most respondents (59%) stated that receiving green jobs training did not increase their income. According to the data, the majority of respondents (88%) expressed a high level of satisfaction with the interventions, while 12% stated a moderate level of satisfaction. A training participant in green job reported that though she has built capacity in the production of jute bags she needs collaboration with the premium market. She also added not only buyers but also input sellers collaboration building initiatives should be taken to promote green products.

6. Fecal Sludge Management (FSM)

The majority of respondents (84%) stated that they don't know about the innovative FSM system's stakeholders' involvement or engagement including government, private sector, academia, and community. The reason for the lower response was due to the limited number of initiatives to reach out wider population with messaging on FSM.

Figure 6.1: Percentage of respondents who know about the innovative FSM system

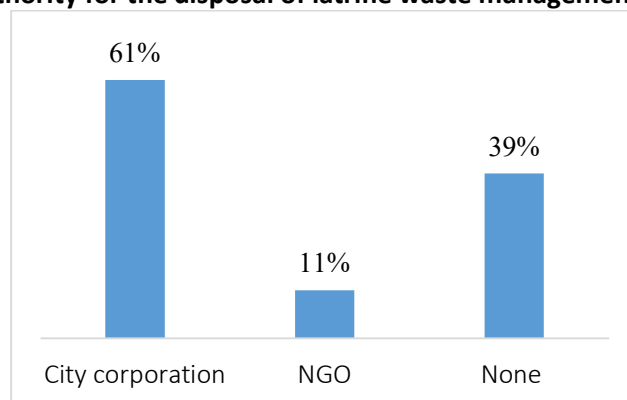


According to respondents, the City Corporation (61%) and NGO (11%) are responsible for the community's latrine waste management. A substantial proportion of respondents (39%) stated that no particular organization has taken responsibility for the disposal of toilet waste management in the area. The Sanitation Officer of Mymensingh City Corporation stated that the City Corporation is working to develop a solid waste management system and also FSM system in the metropolitan area. He also added that the City corporation has provided land to install the FSM plant. Now they are also working to enhance the capacity of the FSM plant.

In this respect, the City Mayor stated that though they are committed to developing solid waste and FSM systems in the metropolitan area due to congested roads, they are not able to activate waste collection systems from all over the city. He also added before COVID-19, the City Authority had started to develop a land use master plan for the metropolitan area. COVID lockdown has hampered to development of the plan. Now they are going to relaunch the master plan and the solid waste and FSM management system will be considered in the plan.

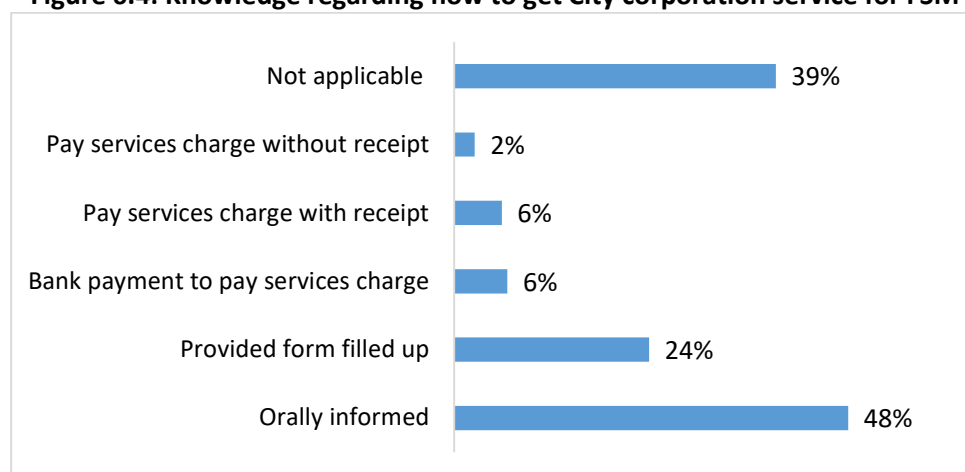
The project has ensured access to improved safe water and sanitation facilities in selected public places, urban slums, community awareness on hygiene promotion, and the installation of resilient and inclusive WASH services.

Figure 6.3: Responsible authority for the disposal of latrine waste management in your community



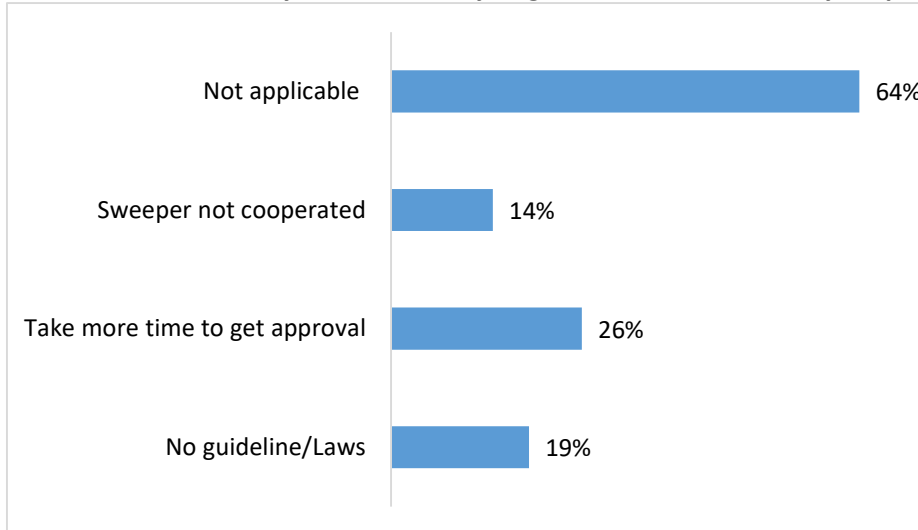
The highest 48% of respondents are orally informed about City corporation service for FSM. The second highest portion was provided from filling up (24%). There are remarkable percentages who don't know (39%) how to get city corporation service for FSM.

Figure 6.4: Knowledge regarding how to get City corporation service for FSM



According to the graph, 64% of respondents don't know where the problem of getting FSM service from City Corporation is. However, 26% of respondents stated that taking more time to get approval is a problem in getting FSM services. 14% and 19% of respondents claimed that 'Sweepers not cooperated' and 'No guideline/Laws' are other problems in getting FSM services from city corporations.

Figure 6.5: Problem faced by the community to get FSM service from City Corporation

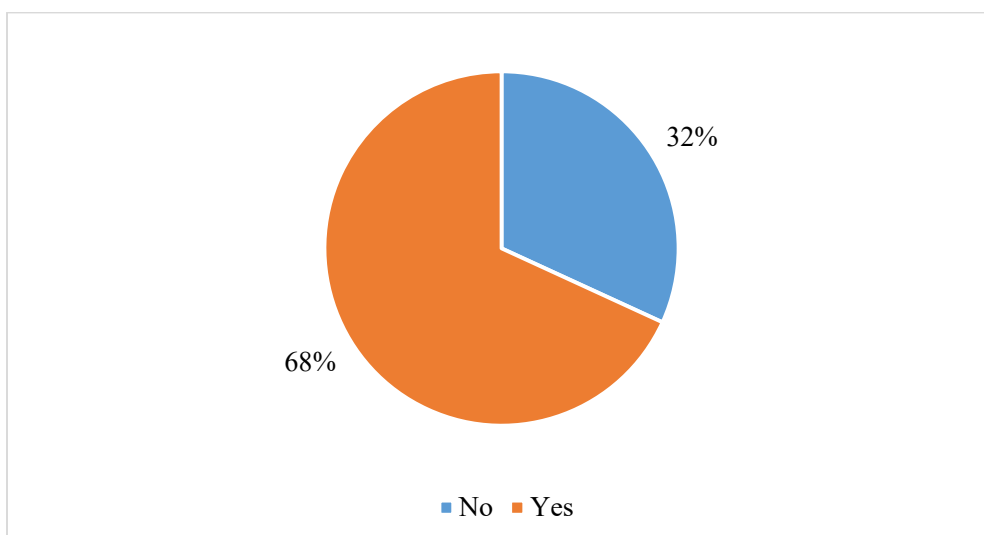


The study found that significant percentages of respondents are satisfied (50%) and very satisfied (21%) with the city corporation's waste management services.

Economic Feasibility of FSM

The highest number (68%) of respondents are aware and willing to pay an extra service charge for the management of the emptying, collection, and disposal system. Conversely, a smaller percentage of respondents (32%) indicated that they are not willing to pay an extra service charge. FGD participants in all five wards reported that they would pay for the FSM. Some of the participants also added that they had already applied for FSM service with the required service charge but due to road congestion, the city authority could not provide the fecal sludge collection service for their slums.

Figure 6.6: Awareness and willingness to pay an extra service charge for managing the emptying, collection, and disposal system.



People agreed to raise awareness about paying an additional service charge, totaling about 76% in three sections, for managing the emptying, collection, and disposal system. However, 24% disagree with that statement.

Figure 6.7: Increased awareness to pay an extra service charge for managing the emptying, collection, and disposal system

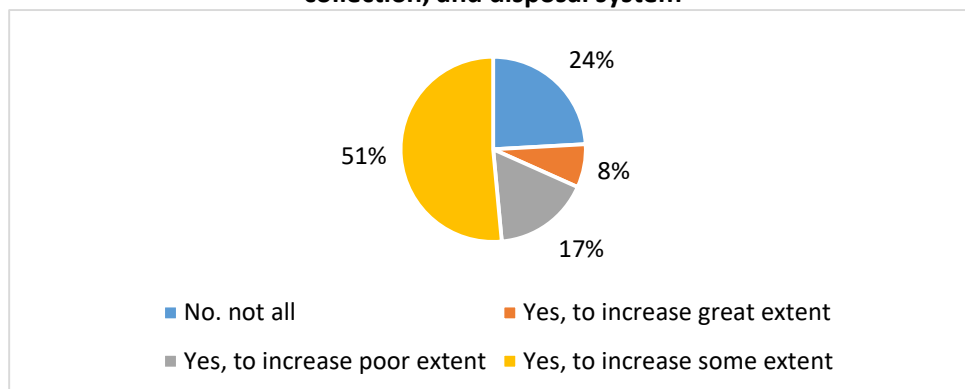


Table 7.1: Name of the Low-Income Settlement

Name of slum	Resilience Score
Bolashpur abashon	8.8
Duldul camp	8.1
Namapara	7.2
Islamabad	7.9
Rally more	8.5
Kistopur	9.1
Bihari camp	9.2
Project Field	9.2
Horijon polli	7.3
Thanaghat	7.5
Jublighat	7.2

Figure 8.1: Toilet accessibility for women, children, the elderly, and people with disabilities

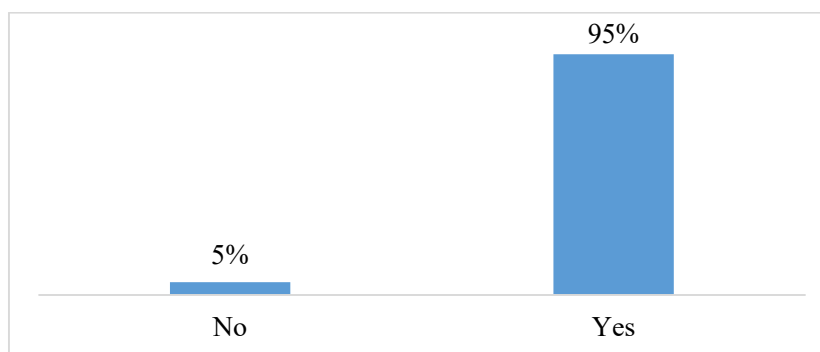


Figure 9.1: Adoption of actions after getting awareness/orientation about Climate change mitigation, adaptation, preparedness/resilience, and early warning

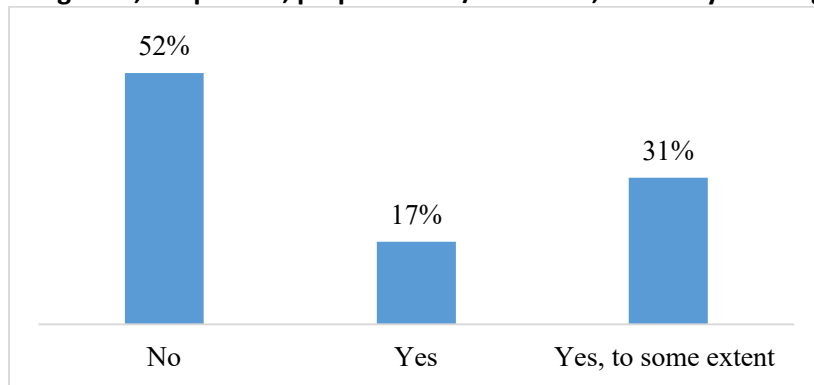


Figure 9.2: Result of adopted action in terms of reducing loss and damage

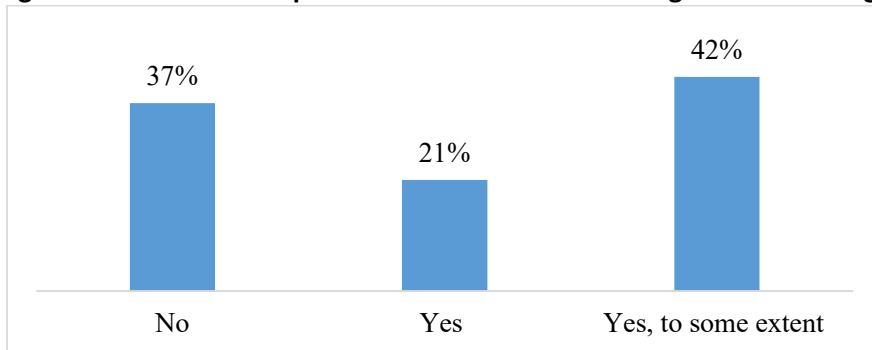
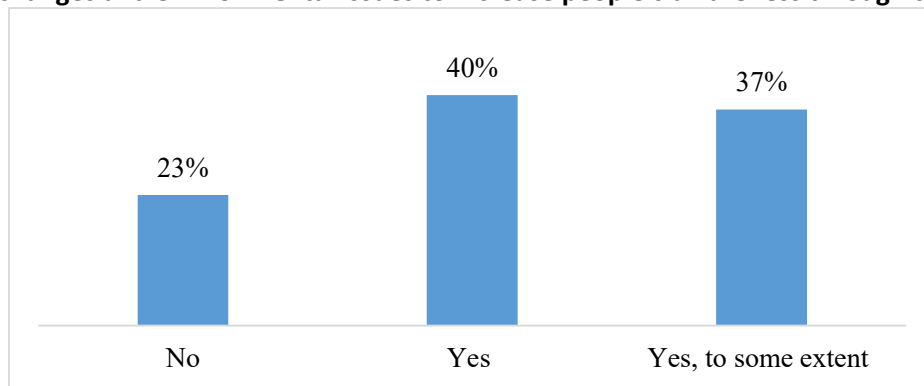


Figure 9.3: Current contribution of the community leaders/CBOs regarding the active participation in climate changes and environmental issues to increase people's awareness through campaign



The study covered 620 households, with 50% or 310 of them being female respondents. The respondents' ages ranged from 18 to 88 years, mostly falling between 18 to 52 years. The distribution of age groups included 16% aged 18-22 years, 15% aged 28-32 years, and a small percentage (0.2%) aged 83 to 88 years. Respondents' age participation was based on availability and willingness. The population was categorized into three groups: 38% youth, 33% adults, and 29% children, with 1% being persons with disabilities (PWD). The study illuminated various aspects of household demographics, employment, income, and expenditure patterns in the surveyed area. Among the respondents 51% were unemployed and the rest 49% employed. The primary employment sources were small traders (34%), followed by private jobs (23%), day labor (12%), and government jobs (6%). Women in slum areas engaged in various income-generating activities. In terms of income, most

respondents fell within the Tk 3000 to 20000 range. Approximately 33% lived below the poverty line. The income groups were distributed as follows: 53% in Tk. 10001 to Tk. 20000, 33% in 1 to 10000 TK, 10% in 20001 to 30000 TK, and a small percentage (0.2%) in 70001 to 80000 TK. Regarding expenditure, 53% of families spent between 10001 to 20000 TK, 39% spent 1 to 10000 TK, and 6% spent 20001 to 30000 TK.

Table Is the toilet accessible for women, children, the elderly, and people with disabilities?

Value	Frequency	Percentage
Yes	602	95
No	31	5

Are they actively working with climate change and environmental issues to make awareness people through campaigns?

Value	Frequency	Percentage
Yes	257	40
Yes, to some extent	237	37
No	144	23