

# **A Case Study on the Sanitation System in Corail and Bagan Bari Slum Area**

A project and Thesis submitted in partial fulfillment of the requirements  
For the award of Degree of  
**Bachelor of Science in Civil Engineering**

By

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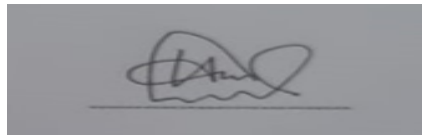
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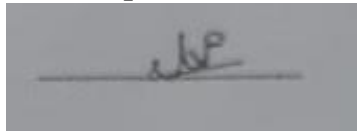
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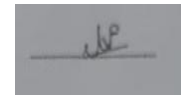
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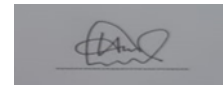
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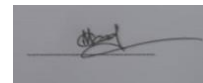
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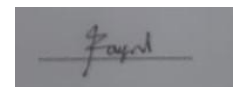
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## AUTHORS DECLARATION

This is hereby declared that this research work has been performed under the supervision and guidance of Engr. Ahad Ullah, Senior Lecturer in the Department of Civil Engineering at Daffodil International University, Daffodil Smart City, Ashulia, Dhaka Bangladesh. Any part of this work has not been submitted elsewhere for the award of any degree or diploma.

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## **ABSTRACT**

The analysis of the Slum area visits explored in this work. I visit the place and watched their lifestyle. I study about sanitization, did research, and collect previous data through NGO and internet research. For a healthy life, we all need safe drinking water, and an environment to breathe easily. We need to understand we are destroying the environment for our future generations. We need to maintain a healthy lifestyle through health organizations provided by the government. In slum areas, people carry most germs with their bodies and they meet with us in a public place. They are not wearing any masks. The present study was conducted on slum people's lifestyles from October 2021 to August 2022. Their previous condition and present condition have been clarified. The authority must take necessary steps to control their unhealthy lifestyles.

Keywords: Slum area, unhygienic latrine, sanitation

## ACKNOWLEDGEMENT

First of all, I would like to express our gratitude to the Almighty for giving me to compete for the practicum work and practicum report, leading to the Bachelor of Science in Civil Engineering degree.

The author is to express his sincere appreciation and gratitude to his supervisor, Mr. Ahad Ullah, Lecturer, Department of Civil Engineering, DIU, for his invaluable suggestions and support, continues inspiration, and continued encouragement throughout the process of the project.

I would like to pay our gratitude to our respected, **Dr. Miah M. Hussainuzzaman Associate Professor** of the **Department of Civil Engineering**, for his guidance, help, support, and constant encouragement.

Apart from that, I'd want to express my gratitude to **Mr. Ahad Ullah** Senior Lecturer Department of Civil Engineering and **MS. Bubby Khatun** Advocacy Officer **DSK Bangladesh** for contributing their experience, information, and help in making this project a success. Thank you also for helping me with previous data, knowledge, and guidance.

I want to express my heartfelt gratitude to my loving supportive family for their unwavering support and love, as well as their inspiration and encouragement throughout my time at this university.

**Dedicate to**

**Slum people of Bangladesh**

# Table of content

Chapter 1	
Introduction	Page
1.1 General -----	1
1.2 Background of the study-----	1
1.3 Scope of the study-----	2
1.4 Objective of this study-----	2
Chapter 2	
Literature Review	
2.1 Introduction-----	3
2.2 Overview-----	3
2.3 Literature review-----	3
2.4 Summary -----	4
Chapter 3	
Methodology	
3.1 Introduction-----	5
3.2 Bangladesh sanitation experience -----	5
3.3 Sanitation marketing -----	5
3.4 Some technology basics -----	6
3.5 Some health trends -----	7
3.6 Hygiene challenges-----	7
3.7 Fecal sludge management -----	8
Chapter 5	
Result and Analysis	
4.1 Introduction-----	9
4.2 Data Analysis and Figures-----	10
4.3 Corail Slum with NGO Services-----	14
4.4 Bagan Bari Slum without NGO Services-----	15
4.5 Some learning points from the Bangladesh case-----	18
4.6 Present challenges and opportunities -----	18
Chapter 5	
Conclusion and Recommendation	
5.1 Conclusion-----	19
5.2 Recommendation-----	19
Reference-----	20



## List of Abbreviation

DPHE	Department of Public Health Engineering
ADP	Annual Development Program
MHM	Menstrual Hygiene Management
DWASA	Dhaka Water and Sewerage Authority
EQS	Environment Quality Standard
GPS	Global Positioning System
USEPA	United States Environment Protection Agency
DOE	Department of Environment
SDG	Sustainable Development Goals
HRWS	Human Rights to Water and Sanitation
CLTS	Community Led Total Sanitation
WSP	Water and Sanitation Program
CBO	Community Based Organizations
NIPORT	National Institute of Population Research and Training
ICDDR, B	International Centre for Diarrheal Disease Research, Bangladesh
IRC	International Water and Sanitation Centre
NGO	Non-Governmental Organization
DSK	Dushtha Shasthya Kendra

# **Chapter 1**

## **Introduction**

### **1.1 General**

The sanitation harness is very important in civilization. At the beginning of civilization, people suffered epidemics because of a lack of sanitation knowledge. Maintaining sanitation keeps us safe from various diseases. In this modern world still, people have a careless mentality about sanitation. The most developing countries have this problem. Those people's educational backgrounds are poor and they have an unhealthy life. It's all about maintaining sanitation by practicing more and more. This analysis mainly deals with the study of the slum area in the past year of research and the present environment of their lifestyle.

### **1.2 Background of the study**

This report presents an overview of the processes leading up to dramatic changes in Bangladesh sanitation since the 1990s. Building on the momentum created by an ambitious national-scale sanitation campaign (2003-2006) alongside creative program approaches such as community-led total sanitation (CLTS), the nation has reduced open defecation to just three percent. Continuous government-NGO involvement, guidance from policy documents, the inclusion of sanitation and hygiene topics in the elementary school curriculum, and several large-scale sanitation projects all combined to change social norms and personal behaviors. Agreed-upon basic technological principles include provision for water, elevating latrine platforms, benefits of twin-pit latrines, and the value of lightweight latrine pans in water-scarce environments and during disasters. Challenges remain, however; and these were explored in interviews with many sectors. Extending programs to hard-to-reach areas and neglected populations, repairs, upgrading of existing latrines, and the need for more monitoring were among the challenges mentioned in the interviews.

### **1.3 Scope of the study**

Bangladesh's sanitation and opportunity have been done by research, fieldwork, previous data, NGO studies, previous act on sanitation, and the future possibility of sanitation.

### **1.4 Objective of Study**

The objective of the research study may be summarized as follows:

1. To investigate the sanitation facilities of the Corail Slum Area
2. To investigate the sanitation facilities of the Bagan Bari Slum Area

## **Chapter 2**

### **Literature review**

#### **2.1 Introduction**

A literature review highlight what certified academics and specialists have published on a certain issue. It's not rare to be asked to write one as a stand-alone piece of work, but it's more common in the context of an article, research report, or thesis. The writer's goal in writing a literary review is to express to their reader what knowledge and opinions have been established about a subject, as well as their strengths and faults. Literature reviews are used as a guide for a specific topic. Most research projects required a thorough understanding of the literature in the discipline.

#### **2.2 Overview**

The author should highlight what they have learned so far and what they aim to learn in the future through book evaluations. After reading this chapter, the reader should be convinced that the author's suggested study will make a significant contribution to that discipline.

#### **2.3 Literature review**

Bangladesh is known as a poor country. Most people are not educated and it's an agriculture base country. More than 60% of people are laborers. They do hard work to feed their family. In their life cycle, they don't care about sanitation. Most of them lead unhealthy life, using the open latrine and common latrine. Bangladesh is a developing country. But most people are not developing their sanitation. We faced pandemics like covid-19, but maximum people don't care about sanitizations. Government asked everyone to wear a mask, sanitize their hands, and keep their distance from every person. But maximum numbers of people don't maintain anything. The government forced them by taking action against the law. Many organizations working to improve sanitation in

Bangladesh. But it's a rear number. The population increasing day by day. Every villager thought they should come to Dhaka for work to make money. The problem begins when they couldn't find a job. When they managed a job but the salary is low and they involve in criminal activities. The majority do criminal activities for extra income. Some of them are involved with drug dealers. Because it's easy to earn money quickly. Some slum people are highly addicted to drugs and become the biggest suppliers in the city. It's a common case in slum areas.

When I visit the slum area, I saw some kids around 10-15 years old smoking openly together. Many old people were in that place but nobody cares about this. When I arrived at the slum suddenly a boy came to me. He seems like didn't have a bath for the year. He ask me "mama ki lagbe" .

I ignored the boy and ask a senior person to help me. The boy is trying to sell drugs. The old citizen Mr. Hasem Ali saved me and ask me why I'm there. After discussion, Mr. Hasem Ali told me it's a common day in the slum area. Many people visit this slum area for drugs. Those are students, employees, and welllooking gentlemen as well. The slum area is very dirty and smelly but people look very normal. Mr. Hasem Ali offered me to have tea with him. I only asked for mineral water. We talked about government and no government work in a slum. Mr. Hasem Ali living Bagan bari science 1980. He has some property in the slum but is not interested to discuss with me. He (Hashem Ali) they involved in political activities. They always support Government politics. I asked for a picture with Mr. Hasem Ali but he denied it. If the government focuses on this slum area problem, we have a chance to improve.

## **2.4 Summary**

Chapter and highlight what has been done in the past. This paper, analysis, and study about sanitation in Bangladesh. I have shown some practical data by visiting slum areas.

## **Chapter 3**

### **Methodology**

#### **3.1 Introduction**

This report reviews the history, achievements, and challenges of a crucial aspect of sanitation in Bangladesh, namely, shifting the population away from open defecation toward the use of hygienic latrines. Now that the newly declared sustainable development Goals (SDG). ensure availability and sustainable management of water and sanitation for all by the year 2030, the Bangladesh case takes on international significance. Since 2010, when the UN general assembly explicitly recognized the human right to water and sanitation, developing countries have been under increasing pressure from the public health community to ensure satisfactory arrangements for their populations. The UN's former Special rapporteur on the Human Rights to Water and Sanitation, Catarina de Albuquerque, has defined sanitation from a human rights perspective as a system for the collection, transport, treatment, and disposal or reuse of human excreta and associated hygiene. This should be done without discrimination and in ways that are safe, hygienic, secure, socially and culturally acceptable, and which provide privacy and ensure dignity.

#### **3.2 Bangladesh sanitation experience**

The first part of this report is dedicated to a review of the evolution of sanitation programming in Bangladesh since the 1960s. A shift toward social mobilization and other demand-led approaches occurred in both governmental and NGO programs during the 1990s. Bangladesh is a hub of sanitation experimentation and model-building. It is internationally recognized as the place where Community Led Total Sanitation (CLTS) first succeeded in eliminating open defecation from entire villages. Since that time latrine use has risen dramatically, but this achievement rests on a broad foundation. Intensive sanitation promotion in Bangladesh has a long and complicated history dating back to the 1960s.

#### **3.3 Sanitation marketing**

A new Sanitation Marketing program has been pilot-tested and is starting up with World Bank Water and Sanitation Program (WSP) funding in 2015-2016. Hoping to meet increased and varied consumer demand and offer appropriate choices, WSP has introduced four different types of toilet platforms in rural markets, along with three types of hand washing devices and multiple toilet housing designs.

### 3.4 Some technology basics

Many general pointers about latrine technology were mentioned by sector professionals. A few basic ones are these:

Water provision should be required whenever a new latrine is constructed. Considering the importance of weather and natural hazards in Bangladesh, elevating the latrine platform is recommended, especially in the lowlands. A twin-pit latrine postpones the pit-emptying chore, often by years, if the pit is deep enough.

After human waste decomposes for one or two years in an unused pit, it can be used as fertilizer for vegetables or other food crops. This is a culturally controversial practice, but some organizations and researchers have found farmers receptive to using such compost. (IRC and BRAC 2015, Jahan 2015) Lightweight, portable latrine pans, such as the Sato-pan, are very useful to populations that are displaced by emergencies, or who move frequently from one place to another.

In 172 Countries (World Life Expectancy, May 2014) Country	Rank Order in Diarrheal Disease Causation Rate (high-to-low, out of 172)	Diarrheal Disease Causation per 1000 Deaths
India	22nd	58.8
Pakistan	44th	36.2
Nepal	47th	28.8
Myanmar	51st	25.6
Bhutan	59th	16.8
Bangladesh	64th	12.4
Sri Lanka	72nd	7.8
Maldives	109th	2.2

### **3.5 Some health trends**

Child health has improved since the days of the Sanitation Campaign. Positive trends have several reasons, but improved sanitation is sure to be among them. Stunting, which is associated with diarrhea-related malnutrition and poor general health, has declined, although child stunting in Bangladesh still is at a high prevalence level, according to World Health Organization standards. Under-five mortality, frequently associated with water-borne diseases, shows a positive downward trend nationally, but the rate is still unacceptably high in urban slums, where sanitation is almost always poor. Diarrheal disease-related death rates now are relatively low in Bangladesh, compared to nearby South and Southeast Asian countries. This is surely due, at least in part, to sanitation achievements. Extensive use of oral rehydration therapies also is cited as a reason. Ranking of Eight South and Southeast Asian Countries in Terms of Age-adjusted Diarrheal Disease Causation Rates per 1000 Deaths: (From Data of UNICEF)

### **3.6 Hygiene challenges**

The hygiene issue includes a range of human behaviors that, alongside latrine use, prevent the spread of diarrheal diseases by breaking fecal-oral transmission chains. These are behaviors such as hand washing, covering stored water and food, and solid waste management. Sanitation professionals also have begun to emphasize menstrual hygiene management (MHM) as a new hygiene issue with implications for women's health and girls' education. The 2014 national hygiene survey, mentioned above, found that less than half of household latrines had soap and water available for hand washing. Considering that hand washing is even more likely than latrine use to reduce the risk of disease transmission, this issue deserves close attention in the new phase of sanitation programming. The international WASH community has given new attention to the subject of menstrual hygiene management during the past two or three years. This is a remarkable shift, considering that the phenomenon of menstruation is so frequently associated with shame and fear. Men and boys, women and girls, and local leaders are engaged in conversations about this matter, to change everyone's attitudes. Increasing attention is given to providing secure and appropriate facilities where school girls can change or dispose of pads, and so on so that they will feel comfortable attending school during their menstrual periods. NGOs and others are distributing new types of pads manufactured out of locally available supplies (old cloth, for example), to make sure that safe pads are affordable. The Bangladesh Government's June 2015 circular, mentioned earlier, states that schools must have girl-friendly latrine facilities.



### 3.7 Fecal sludge management

Fecal sludge management is an important piece of unfinished business in the Bangladesh sanitation sector. Considering the potentially dire health consequences of dumping sludge in water bodies and other inappropriate disposal methods, sector professionals are coming to the view that, Challenges in the operation and management of septic tanks and the disposal of septate give rise to severe challenges for the realization of human rights on-site sanitation solutions have been promoted as a way for people to quickly gain access to sanitation without giving due regard to what happens when pits fill the steps are very well known by now.

- 1) Confinement and separation of human feces is the first step.
- 2) A plan for clearing out the waste and transporting it, 3) treatment of the waste, and 4) final disposal.

Rural and urban sludge management methods differ. There may have been more progress in rural areas than in urban settlements, though there is no statistical data on sludge management in villages. I have seen sweepers carefully burying sludge that they draw up from pits, but we also have seen them dump it into canals and on fields. Some poor people are known to clean out their latrine pits. (They often do it secretly at night.)

## **Chapter 4**

### **Result and Analysis**

#### **4.1 Introduction:**

I visit both place Corail and Bagan Bari individually. I collected some data over there. I spoke with over 50 people about slum sanitation. Took interviews for people and experts. I spoke with one of the officers of DSK. Her name is Ms.

Bubli Khatun. I share my data with her. She told me it's true no NGOs want to work on Bagan Bari because of most dirty place. But they are planning to work very soon. Right now, they also work in the Vasantek slum as well. She told me DSK worked really hard for slum sanitation. Because of DSK work slum people have a fresh water supply from WASHA. They expect more opportunities from the government. When I asked her about the government opportunity, she told me they work together in every project. Government joins the seminar but most of the fieldwork is done by DSK. Ms. Bubly told me NGOs do the major work in every project. The most important learning point ten years after the National Sanitation Campaign is that sanitation improvement is a continual process. It is never finished. New households are formed, new homes built. Floods and cyclones come. Concrete breaks. Pits fill up. Migrant laborers and nomads come and go. There always will be new problems to solve, and new leaders to educate. The Bangladesh experience has shown that declaring thousands of villages as "100 percent" or ODF is just the beginning of this success story. Bangladesh has created a strong foundation for its sanitation program, and future developments will offer many new action and learning opportunities.

## 4.2 Data analysis

SL.	Questions	People	Yes	No	No Idea	Yes %	No %	No Idea%
1	Do you satisfy with the slum sanitation system in Bangladesh?	50	11	22	17	22%	44%	34%
2	Do you think slum dwellers nowadays care about sanitation?	50	20	14	16	40%	28%	32%
3	Do you think slum dwellers have enough knowledge about sanitation?	50	12	28	10	24%	56%	20%
4	Do you think slum dwellers need more education about sanitation?	50	33	4	13	66%	8%	26%
5	Government doing well for slum sanitation?	50	6	36	8	12%	72%	16%
6	Do you think Government needs more determined about sanitation?	50	29	8	13	58%	16%	26%
7	Do you think sanitation is safe health for slum dwellers?	50	48	0	2	96%	0%	4%
8	Do you think NGOs can play an important role for slum dwellers?	50	43	4	3	86%	8%	6%
9	Do you think those slum dwellers need more support from the Government?	50	50	0	0	100%	0%	0%
10	Do you think slum dwellers have become more aware than before?	50	30	14	6	60%	28%	12%

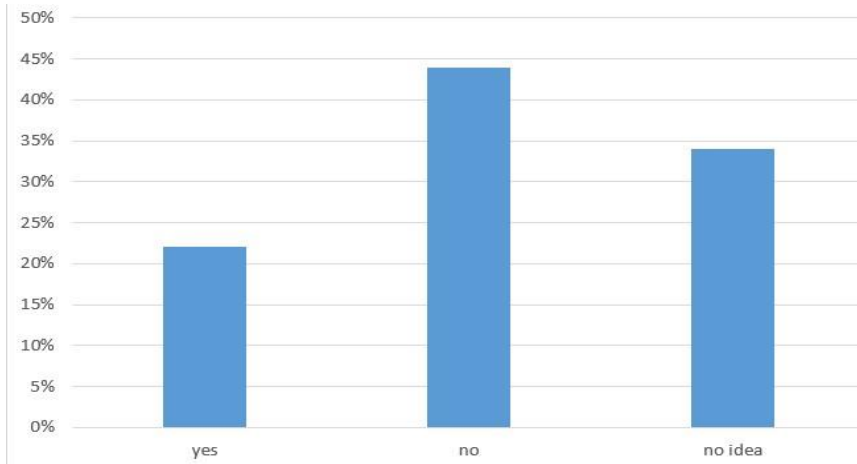


Figure 1: Satisfy with sanitation system in Bangladesh

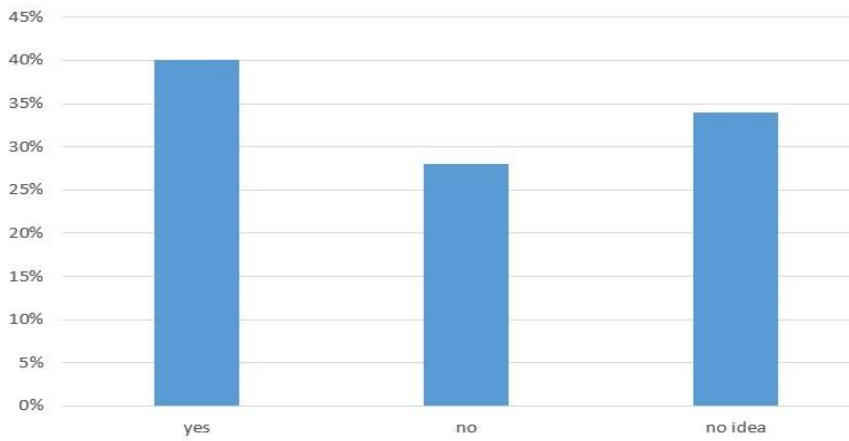


Figure 2: Slum dwellers nowadays care about sanitation.

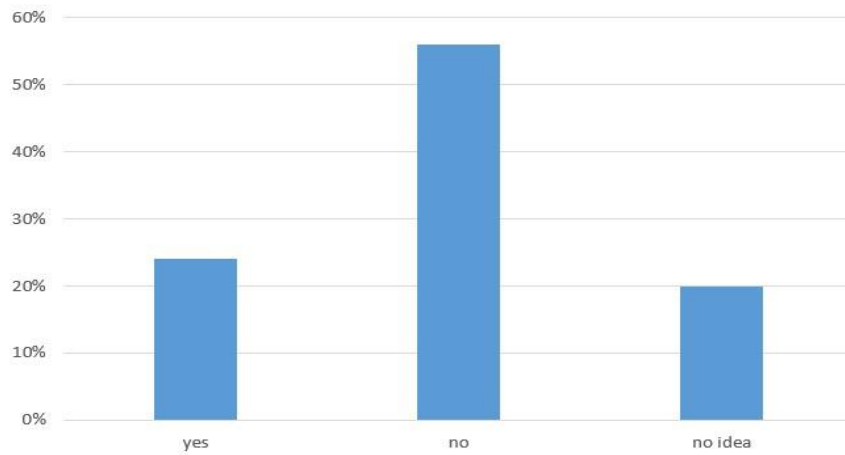


Figure 3: Slum dwellers knowledge about sanitation.

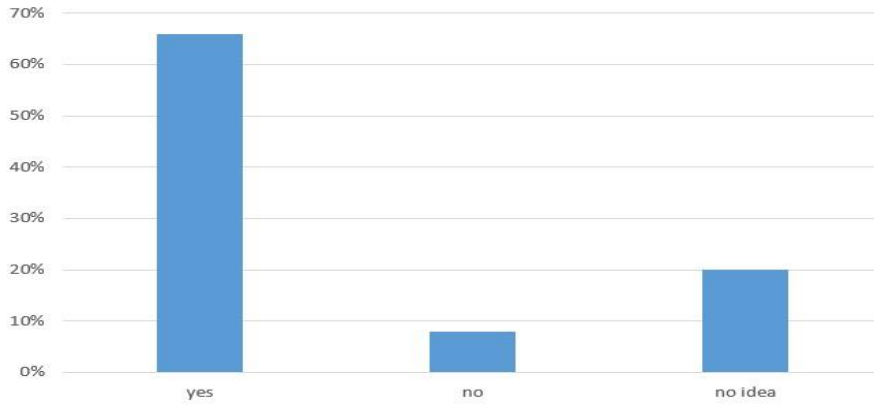


Figure 4: Slum dwellers need more education about sanitation

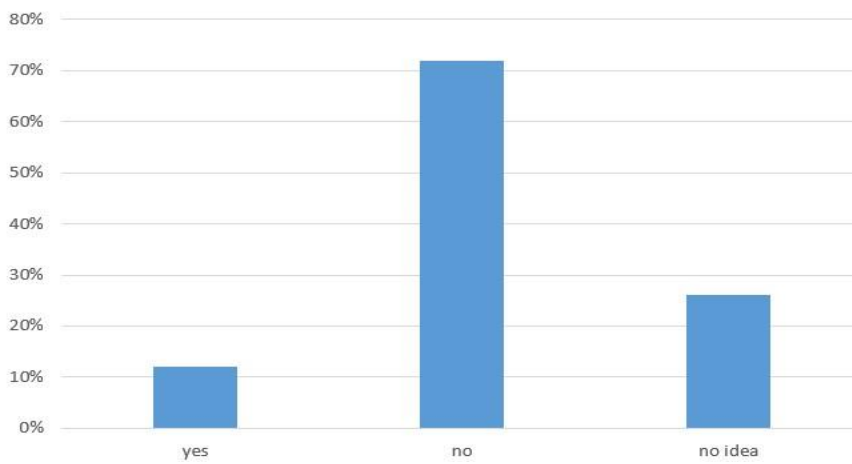


Figure 5: Government doing well for slum sanitation

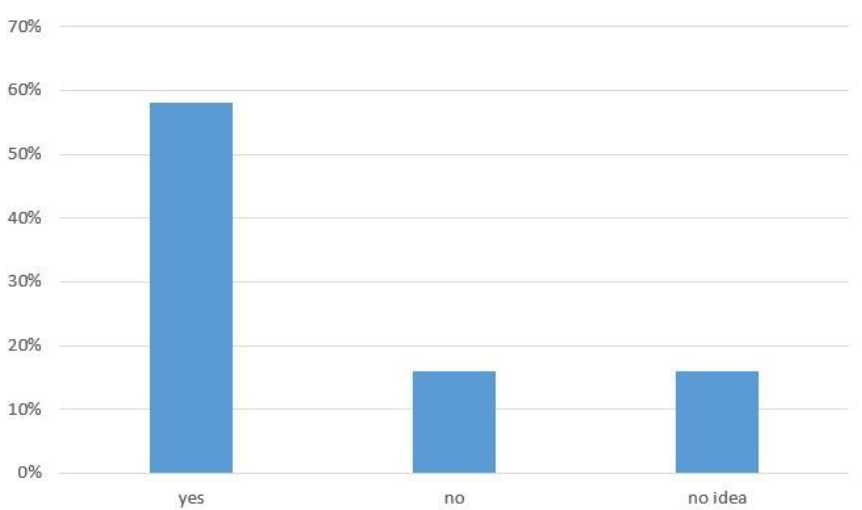


Figure 6: Government needs more determined about sanitation



Figure 7: Sanitation is safe health for slum dwellers

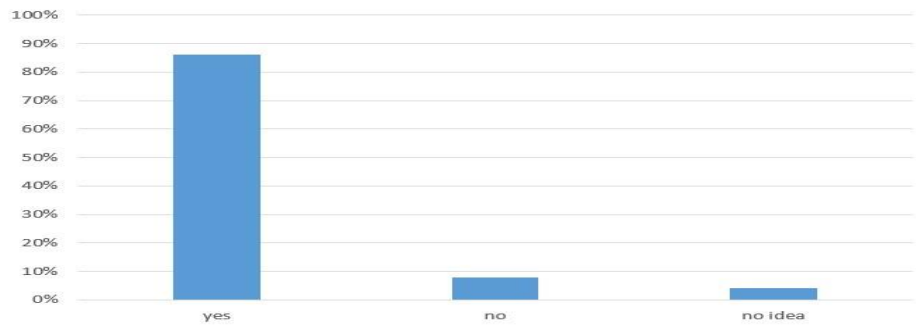


Figure 8: NGOs can play an important role for slum dwellers.

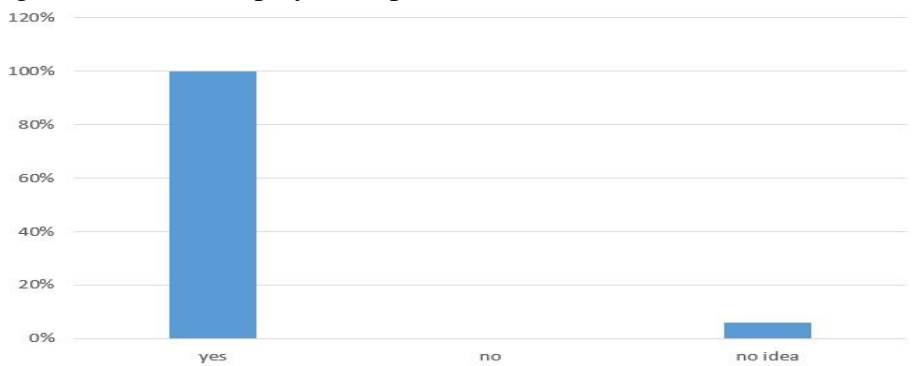


Figure 9: Slum dwellers need more support from the Government

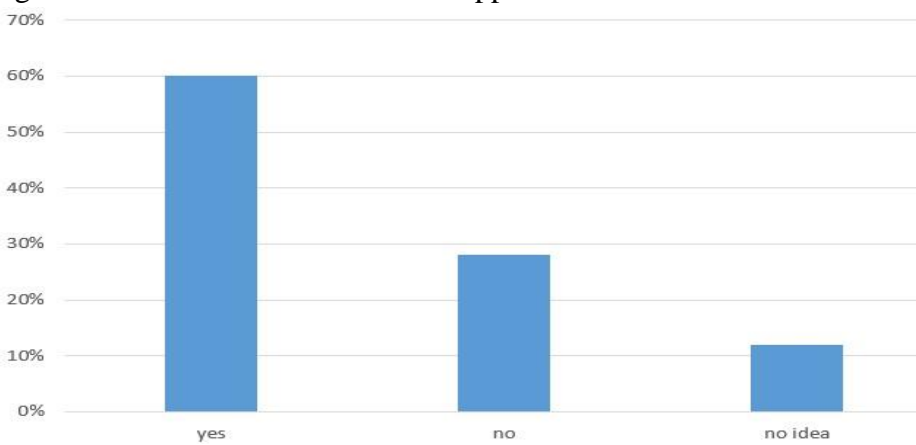


Figure 10: Slum dwellers have become more aware than before

### 4.3 Corail Slum with NGO Services

Location: Corail, Dhaka

Corail is one of the largest slums in Bangladesh. It is located in Dhaka City on the banks of Gulshan Lake. It is gradually expanding across the lake by dumping waste and soil into landfill. This 90-acre slum is subject to a land ownership dispute involving the Bangladesh Telecommunications Company Ltd. (BTCL), the Public Works Department, some former private land owners, some influential elites, and 'strong men who have captured some areas in the northern part of Corail. Those who control property rent dwellings to the residents. Some 'owners' live in the slum, and some live outside. House rent varies from Tk. 2500 to Tk. 4500. Most residents live in tiny houses with one or two rooms. There are on average four to five people sharing one room. The residents of Corail comprise a significant proportion of Dhaka's workforce: in garments, transportation, construction, domestic service, waste management, land development, small industry, and other parts of the informal economic sector. Despite their significant contribution to the economy, they are excluded from many basic services because the slum is defined as an 'illegal settlement'.

Water sources. Since 2013 DWASA (Dhaka Water and Sewerage Authority) has provided water points to Corail under its Low-Income Community program. These were installed by the NGO, PSTC. All caretakers are females. User households pay monthly water bills. DSK formed a 'pocket committee' to collect payments from users and submit these to DWASA. DSK, with support from Oxfam, has distributed 162 water filters among the poorest Corail residents. Multiple families share each cooking stove. I observed some stoves made of mud and using gas fuel. They were each shared by 25 to 30 families. The cooking areas are close to smelly community latrines. Latrines and their management. During the visit, I observed five latrines (three are two-chamber latrines, and two are three-chamber latrines) in the Corail slum. DSK calls them CMT 2 (Community Managed toilet 2-chambers) and CMT 3 (Community Management Toilet 3chambers). For the CMT 3 type, the users are assumed to be men, women, and children, but women are the main users of the CMT 3 facilities. CMT 2 is for men and women. The design of the latrine pan is the same for all. On average, 25 to 30 families share a community latrine. The NGO, DSK (Dushtha Shasthya Kendra), with financial assistance from Water Aid, has built several community latrines in the southern and eastern areas of Corail. The NGO formed community based organizations (CBO) first and raised 10% of the total cost for the community latrines before constructing them. The NGO categorizes beneficiaries as per their income capacity before raising funds from them. For example, the land owner is in the 'A' category. 'B'

category people are those who have little good income, and 'C' category people are from the lowest income group.

There is a latrine management committee with six to seven members for each community latrine. Most of them are women. They clean their latrines every day by rotation. Women said that they use Harpic and bleaching powder to clean latrines. But during latrine observation, I did not see any materials inside the latrine. All the NGO-provided latrines have septic tanks. When the tanks become full, a sweeper is called to clean them. The sweeper pumps the fecal sludge and pours it into the drain-cum-road made by the UPPR project in Corail. And finally, it is discharged into drains and from the drains out to the open water of the Gulshan-Banani Lake. The sweeper charges Tk. 1000 to 1500 for this service. It has been reported by the Corail project manager of DSK that there are about 150 shared hang latrines located in the north and west parts of Corail. About 9000 people are using these hang latrines and all the feces go directly into the lake. DSK constructed eight community latrines over there. The manager told me that they are committed to building more community latrines in those areas, but before doing so they want to arrange a proper water supply there. The work is seriously hampered due to the local powerful syndicate and 'strong men'. A huge crisis of water exists in that part of Corail.

#### **4.4 Bagan Bari Slum without NGO Services**

Location: Bagan Bari, Mirpur 14, Dhaka

The Bagan Bari slum is located in Ward No. 4 under Mirpur 14, in Dhaka North City Corporation. It was established in 1980. The area of the slum is about one acre. This slum was previously known as Karim Mia's Slum. The actual owners of this land are the Ministry of Housing and Public Works and DWASA. People from Bhola, Faridpur, Barisal, Dinajpur, Rangpur, Noakhali, Sylhet, and Habigonj districts are now living in this slum. But the majority of people are from Kishoregonj District.

The houses of Bagan Bari are set in two different ways:

- 1) on raised soil and
- 2) on platforms set on bamboo poles over low, swampy land (locally this type of house is called tong Ghor).

Most of the people live in one tiny room. There are four to five persons living in one room, on average. Most of the houses are tin roofs and walls are made of tin. Total population: 5000 No. of households: 1500 (1100 illegally settled, and 400 renters) Males: 3000, Females: 5000



The number of females is higher than males. The reasons mentioned by the community people are as follows:

- 1) Females can afford the low house rents in this slum, and
- 2) many female members are living alone and work in garment factories or as maids in nearby areas.

People are informed that the house rent in this slum is low because the area is very dirty. The maximum house rent is Tk. 1600 including water and electricity. The water and sanitation facilities are in terrible condition.

Main occupation types. Males: Rickshaw and van pulling, CNG and bus driver, bus conductor, earthwork, construction work, garments work, vegetable vendor, small business, and others. Females: Garments and part-time domestic service. The average income per month for females is Tk. 2500 to 3000.

Cooking places. During the visit, two types of cooking places were observed. Some families live in individual houses and cook in earthen ovens with firewood. They mostly live-in bamboo-raised-platform houses. Some others use gas ovens. The gas ovens are used in the common kitchen by 15 to 20 families. But they complained about insufficient gas supply.

Water facilities. People of this slum use both piped waters supplied by DWASA and shallow tube well water. An NGO, DSK, arranged the pipe water supply with DWASA. The DWASA supplied water through pipe and pipes brought through the drainage canal. Earlier the numbers of water pipes were 13, but now the number is 30. People complained that most of the pipes have leaks, and drain water frequently leaks into pipes. People use dirty water. They do not have any alternative option. People said that they requested them to install good quality water pipes, and not to run the pipes through the drainage canal.

NGOs formerly working in Bagan Bari. **During the interviews, no residents could say anything about NGOs now working in Bagan Bari.** The only information available was provided by the DSK worker, **Ms. Bubby Khatun**. She said that DSK presently has no work in this slum. But sometimes workers from DSK make informal visits. One NGO, called Andibus, did work in the slum for about two years. But they did not do any work there. Why is no NGO presently working here? When I asked Ms. Bubby Khatun, she told me that the whole environment of this slum is so dirty, that no one is willing to work there. I saw only one clean latrine. Most of the latrines are in unhygienic and unhealthy conditions. People informed that about 90% of latrines are 'unhygienic'. Seventy percent of latrines reportedly are hanged latrines. People said that many cases of

diarrhea and skin diseases occur, especially during the rainy season. It is children who are most affected by these diseases.

I (Shakirul) could not take food for two days after visiting this slum, because the conditions there are so disgusting. People are living there in inhuman conditions regarding sanitation, water for bathing, water for cooking, water for drinking, water for washing, scarcity of places for cooking, having meals, and even sitting or sleeping. General observations. I visited 10 families in this slum, those using either individual or community latrines. In most cases, I found that cooking places were near toilets. Chickens were moving inside the hanging latrine places and also in the living rooms, tracking dirt all around. All water pipes come into the slum through the water of the surrounding drainage canal. This piped water is used for all purposes. Women and children were observed bathing in this water near the drain-cum-canal. Women were washing utensils and washing rice and pulses with piped water very close to the canal. They also bathed their young children there. All the tube well platforms (concrete and others) that I visited were submerged under very dirty water. The people of Bagan Bari are living in extremely unhealthy and unhygienic conditions. Drain water accumulates close to living and cooking places. There is much waterlogging. In none of the toilets (both inside and outside) did I see any soap, brushes, or any other cleaning materials.

### **Challenges:**

There is a lack of any NGO support, even temporarily, for water and sanitation services in this slum. Water stands, water pipes, and sanitary latrines are constructed in illegal locations. There is a lack of service during the rainy season for sanitary latrines (septic systems). Environmentally hazardous drainage and the open canal with dirt from the whole town flows through the area to the sewer system. There are no functioning community-based committees. Soil erosion was mentioned by the slum people. Every dry season people raise their homestead grounds with soil and hard types of garbage collected from the canal. During the rainy season, the whole slum becomes so flooded, even after 15 minutes of heavy rain, that people cannot go out of their houses. With rain and floods soil erosion occurs.

Eviction risk is high. They are illegally living here. They expressed a need for help from an NGO, but no NGO is working in Bagan Bari. Lack of Government initiative to invest in development work in this slum.

#### **4.5 Some learning points from the Bangladesh case**

The Bangladesh case can help us to understand what long-term sanitation success means. The results so far are positive, but it would be unwise to ignore the remaining challenges. Some important learning points emerge from the experience thus far. A broad sanitation concept. "Sanitation" is much more than "Latinization." It is a change in mindset, resulting from the public understanding of the public health benefits of hygienic management of fecal waste. It requires total-community behavior change to be fully effective. The new sanitation concept has been communicated in many ways to the Bangladesh public for some 20-30 years now. Social mobilization and institutional coordination. Top-down and bottom-up approaches make a powerful combination. The Bangladesh sanitation history shows an unusually high degree of government-NGO collaboration. Different combinations of governmental and NGO efforts are found in different places. Involving women and children in the change process has been essential to success. Women and children have had genuine leadership roles in turning things around. Technology. In this challenging physical environment – multiple types of challenging environments – latrine technology must adapt to hazards such as flooding and cyclones. Social environments vary too. Different ethnic groups, and even different types of families, prefer different arrangements. A flexible approach to technology supports increased latrine-use rates. The quality issue deserves priority attention. High levels of breakage and leaking show that attention to the quality of materials is very important. Money It is not expensive to stop open defecation in rural areas, but maintaining and upgrading latrines eventually do cost money

#### **4.6 Present challenges and opportunities**

I spoke with and emphasized some sanitation challenges still confronting Bangladesh. These types of challenges are not limited to Bangladesh. They will occur in any country that is serious about sustainable sanitation. Suiting latrine technology to different environmental, geological, and social conditions is one widely recognized challenge. River islands, such as chars, for example, are prone to erosion, which can suddenly displace whole villages. Geological depressions, known as haors, are deeply flooded for half of every year. There is a continuing need to devise new ways to sustain effective sanitation practices during natural disasters, such as cyclones, tornadoes, flash floods, and unusually deep floods, in several regions. Seasonally deeply flooded areas and river islands pose physical challenges. Socially or politically marginalized communities, such as settlers without full citizenship rights or indigenous groups, may or may not be included in sanitation programs.

## **Chapter 5**

### **Conclusion and Recommendation**

#### **5.1 Conclusion**

When looking at the future of sanitation in Bangladesh, it is important to consider the newly agreed-upon SDG targets. All countries' performance will be studied by the international public health community in years to come. Now that Bangladesh is almost "open defecation free," the ways that the public climbs further up the so-called "sanitation ladder" will be of special interest to a large audience. Sector professionals have been specially enlightened in devising new ways to engage and encourage various stakeholders in this process: policymakers, local government officials, program developers, the private sector, and development partners. Health and education professionals need to become more involved. Tough challenges remain. Reaching hitherto neglected populations, such as slum-dwellers or those in remote areas, is one particularly difficult challenge, technically, socially, and politically. The social equity aspects of all this work need to be recognized and dealt with, especially in the SDG era. And the newly ambitious goals absolutely demand good monitoring, if the sector is to remain on track. The ultimate purpose of improving sanitation is to improve public health. While Bangladesh's achievements are truly remarkable, the expected health outcomes are yet to be fully realized. This can happen if Bangladesh adopts an expanded, holistic program integrating educational, health, nutrition, and technical approaches.

#### **5.2 Recommendation**

- ✓ Need serious steps from the government
- ✓ Need more Sanitation seminar
- ✓ Need more awareness about sanitation
- ✓ Need more research and teach them properly
- ✓ The research should continue as I couldn't collect data without NGO
- ✓ With continued studies, I can publish journals and it will increase the attention regarding this subject.

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