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Climate Change Impacts on Urban Poor: A Study on Slum People in Dhaka City

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Abstract: Dhaka, the capital and only megacity of Bangladesh, is exposed to multiple types of climate-induced hazards including variations in temperature, excessive and erratic rainfall, water logging, heat and cold waves. These hazards negatively affect on city life and livelihoods of the poor. This study is a quantitative study conducted at Dhaka to review climate change effects on the slum people. This study uses five slums in Dhaka-Karail slum at Mohakhali, Beltola slum at Banani, Molla Slum at Mirpur, Chairman Bari slum at Abdullahpur and Uttara slum, for climate change impacts of the poor livelihood. The study conducted on slum of Dhaka with purposive sample survey, face to face interview of slum people while purposive sample size of 50. The study uses semi-structured interview schedule to collect data from local people in five slums. The result shows that the poor slum dwellers livelihood are usually vulnerable to extreme temperature as well as water logging due to urban institutional inefficiencies. Climate change makes them more vulnerable. The study also shows the trend of gradual and extreme weather change is particularly negative for the livelihood of the urban poor in Dhaka. The major impacts of climate change are damaging of shelter and other household assets, unavailability and polluting of water, suffering from diseases like diarrhoea, scabies and fever etc. problem of sanitation and loss of work or income. To cope up with the climate impacts they use saving and sometimes cut off their daily meal. They somehow sustain with the situation as the extreme events are unstoppable and cannot be changed. The study suggests a harsh need to address these challenges institutional and policy perspective.

Key words: Climate change, climate impact, urban poor, slum dwellers, season.

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I. INTRODUCTION

Bangladesh has been considered as one of the most vulnerable countries to climate change impacts, because of its disadvantageous geographic location, low-lying topography, high population density and poverty and climate-dependent livelihoods (Huq, 2001; Rahman and Alam, 2003; Huq and Ayers, 2007). Climate change is already a reality and today it is widely agreed by scientific community. The Intergovernmental Panel on Climate Change (IPCC) has concluded that human activities are altering our climate system and will continue to do so. Over the past century, surface temperatures have increased and associated impacts on physical and biological systems are increasingly being observed. Climate change is very likely to increase the frequency and magnitude of extreme weather events such as, floods, storms, and droughts. While there is uncertainty in the projections with regard to the exact magnitude, rate and regional patterns of Climate change, its consequences will change the fate of many generations to come and particularly impact on the poor if no appropriate measures are taken (Khan, 2010).

Dhaka, the capital of Bangladesh, is the fastest growing megacity in the world, with an annual growth rate of 4.4 percent and population of 14 million, is one of the most unplanned urban centres in the world (UN-HABITAT, 2009). The expected impact of climate change to this city and its potential for disaster is frightening. The experts believe that the melting of glaciers and snow in the Himalayas, along with increasing rainfall attributable to climate change, will lead to more flooding in Bangladesh in general, especially in cities located near the coast and in the delta region, including Dhaka. Dhaka may also experience increased temperatures from riding levels of vehicle exhaust emissions, increased industrial activity and increased use of air conditioning. The urban poor are therefore especially vulnerable to the impacts of climate change, because of the fragility of the infrastructure of slums and squatters, lack of sanitation, and lack of employment security (Khan, 2010).

1.2 Objectives the Research

General Objectives
To assess the impact of Climate change on the livelihood of the urban poor slum dwellers.

Specific Objectives
1. To know the impact of climate change on shelter of the urban poor people.
2. To recognize the impact of climate change on the earnings of the urban poor people.
3. To identify the impact of climate change on the health of the urban poor people.
4. To demarcate the impact of climate change on water supply and sanitation of the urban poor people.

1.3 Rationale of the Study

Rapid urbanization of Dhaka City without considering the geological aspects has brought significant changes in the geo-environment of the Dhaka City. Land filling, water logging, pollution, and changes in the hydro-geological system, localized land subsidence and building collapse are the hazards associated with these change in the geo-environment. In the process of urbanization, Dhaka city has increased its population, different structure, transport services, industrialization etc. In the addition, removal of vegetation, construction of buildings, roads, pavement and other human transformations of the natural environment, together with direct heat generation from human activity, are known to cause the temperatures of urban areas to rise above those of surrounding rural areas (Roy et al, 2010).

According to the Bangladesh Meteorological Department in 2003, the maximum and minimum temperature of Dhaka City was 30 °C and 22 °C respectively but in 2004 it becomes 31°C and 22°C respectively. In 1995, the total annual rainfall was 1752 millimeters, which becomes 2351 millimeters in 2004. In 1993, annual average relative humidity was 77 percent, which in turn becomes 72 percent in 2004. In 1961-92, the annual average sunshine was 7.5 hours per day but in 1992-2004 it reduces to 6.2 hours per day (Ahmed, 2006). As a result of rapid and unplanned urbanization and population growth, the microclimatic factors are changing unevenly, which cause environmental degradation of the city. It also contributes to increase emission of hazardous gases like CFC, CO etc. Urbanization contributes to climate change because rich urbanites produce more greenhouse gases than poor rural people (Roy et al, 2010).

Due to widespread impact of climate migrant it is now a national concern of the developing countries such Bangladesh. Many studies related to situation of impact were done internationally. There are few researches do work on impact of climate change among poor people of Dhaka city in Bangladesh context. But no national and international research paper focused on the climate change relationship between socio economic condition and climate change impacts problems. This study represents the relationship between socio economic condition and climate change impact problems of Dhaka city in Bangladesh context. Furthermore, these are some rationales which cannot ignore:

- ✓ This study will be more useful for academic purpose in worldwide.
- ✓ This research will be helpful for taking preventive measurement against climate change impacts on urban poor slum people in Dhaka city.
- ✓ The policy makers of Bangladesh may be benefited from this study for developing policy against change impacts on urban poor slum people.
- ✓ This study on ageing will be tool for the societal progress, provided the Bangladeshi policy makers to come up with appropriate policy responses to activate the potential of change impacts on urban poor slum people.
- ✓ This study will further be intended to serve as a baseline for the development more specification from the policy perspective for the change impacts on urban poor slum people in Bangladesh.

1.4 Limitation of the Study

Researcher tried to best ensure conduct research accurately. But researcher are not far from limitation. During the field work time faced several problem to select respondent and to reach them. It was difficult to access to get information sometimes because of giving respondents own suitable place and time. The respondents of sampled were not found outspoken and failed to adequately reveal the fact lying at times. On the other hand, fifty respondents are not enough for representing the actual scenario of this study. It is expected that the result of this research would be more effective and widely applied if could access and implementing areas of the impact of climate change on the poor people of Dhaka city.

II. LITERATURE REVIEW

This literature review provides the reader with an overview of major academic works concerning impact of climate change on urban poor people in Dhaka city. In reviewing, the literatures are concerning climate change effect and problems of poor people in Dhaka city and socio- economic conditions separately for national and international aspect.

In the study "Urbanization and Microclimatic Change of Dhaka City" by Sohag Chandra Roy Md. Asaduzzaman Israt Jahan (2010) stated that Bangladesh is extremely vulnerable to climate change impacts because of its geographical location, high population density, high levels of poverty, and the reliance of many livelihoods on climate-sensitive sectors, particularly urban sectors (Roy et al, 2010).

Another study "Impact of Climate Change on the Livelihood of the Urban Poor: A Case of Dhaka City" by Abu Nayeem Md. Maruf Khan (2010) represent that urban poor are extremely vulnerable to this climate change impact and the impact is even stronger in the case of Dhaka city. The slum dwellers are very important for the Dhaka city since they are keeping the economy going through their hard toil and providing most of the necessary services to the city dwellers. Therefore, it is crucial to increase the understanding of the actual climate change dynamics on urban poor and on their livelihood especially in Dhaka as the capital city is carrying the highest number of urban poor people. This study uses four slums in Dhaka- Bhashantek and Baganbari at Mirpur, Karail at Mohakhali and Basila at Mohammadpur, for case study and examines Dhaka's climatic trends and its impacts on the livelihood of the poor (Khan, 2010).

In another study "Climate Change Implications for Dhaka City: A Need for Immedate Measures to Reduce Vulnerability" (2011) by Golam Rabbani, Atiq Rahman and Nazria Islam found that Dhaka, the capital and only megacity of Bangladesh, is exposed to multiple types of climate- induced hazards including variations in temperature, excessive and erratic rainfall, water logging, flooding, cyclones, and heat and cold waves. These hazards negatively affect city life and livelihoods nearly every year and may worsen as they become coupled with non-climatic factors such as population density, poverty, rural-urban migration, illiteracy, unplanned urbanization and lack of public utilities and services. Immediate measures addressing climate induced vulnerabilities are necessary to the long-term sustainability of Dhaka (Rabanni et al, 2011).

Manoj Roy with Simon Guy David Hulme, Ferdous Jahan reported in May 2011 declared in the "Poverty and Climate Change in Urban Bangladesh (CLIMURB): An Analytical Framework", around 40 percent of Bangladesh's population are poor people for whom a variable and unpredictable climate can critically restrict livelihood options. This is true in rural and urban areas alike, but this study focuses on the latter. Urban poverty continues to be neglected in research, policy and action for climate change adaptation in the country (Roy et al, 2011).

The researchers also represent the information of various aspects of climate change and urban life style and consider to improve respondent's livelihood and also consider how to prevent socio economic problems. This paper seeks to redress these gaps and represents climate change impacts on urban slum dwellers in Dhaka city.

III. METHODOLOGY OF THE STUDY

3.1 The Main Research Method

It was a quantitative study carried out from May to August 2018.

3.2 The Research Site

General information collected from five slums like Korail slum, Beltola slum, Uttara slum, Abdulahpur Chairman Bari slum and Mirpur Molla slum area of Dhaka where people migrated for climate change.

3.3 Main Data Collection Technique

A multi data collection method have implied such as face to face interview with the community people and documentation survey.

For the purpose of this study both secondary and primary data have been reviewed. But comparable data are rare. The sources of secondary data used in this study include:

- International studies, documents and reports from different international institutions
- National studies, documents, newspaper clippings, interviews and other reports

Primary data has been gathered by using field study methods like face to face interview and observations. The field study primarily offers a vulnerability survey of migrated people (20+ years) using a semi-structured interview Schedule. Interviews were conducted with families as well as key informants at certain points of the climate effect vulnerable people in slum areas.

3.4 Population of the Study
In this research all people who live in Dhaka city slum faced various climate change effect and problems has been selected as the population of the study.

3.5 Sampling of the Study
A purposive sampling used to select five slums in Dhaka city. A total of 50 participants were interviewed. The respondents belonged to the age 20 years and above.

3.6 Data Analysis
All respondents data outcome have been analyzed by applying statistical technique, frequency distribution.

A pre-tested, modified, semi structured, self-administrated interview schedule was designed based on living condition of the climate migrant in Dhaka City. Data were checked, cleaned and edited properly before entry and analysis.

3.7 Data Presentation
Data have been presented to use different data presentation such as multi variant table and figurers (pie chart, bar chart etc.).

IV. ANALYTICAL FRAMEWORK

The study of the impact of climate change on the livelihood of urban poor is increasingly forwarded as an urgent research need (Morton 2007). A multitude of approaches and methodologies are used for this purpose. There are three concepts that are continuously reoccurring in the methodological literature and also used in the analytical framework developed for the purpose of this study. These are:

1. Climate change impact
2. Livelihood
3. Coping strategy

Livelihood Approach Sustainable livelihoods methodologies provide a valuable opportunity for combining disaster reduction and development interventions in one unifying approach. Several agencies and donors are currently developing livelihoods-based approaches as bases for policy and practice formulation. These include DFID, the United Nations Development Program (UNDP), nongovernmental organizations (NGOs) including Oxfam and CARE, and research institutes including the Institute of Development Studies. A common understanding of livelihoods is given by Chambers and Conway: "A livelihood comprises the capabilities, assets (both natural and social) and activities required for a means of living; a livelihood is sustainable which can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, both now and in the future, while not undermining the natural resource base."(Chambers and Conway, 1992) DFID and CARE's approaches are widely recognized among all the approaches in the urban context and explicitly described here -

4.1 CARE's Livelihood Approach

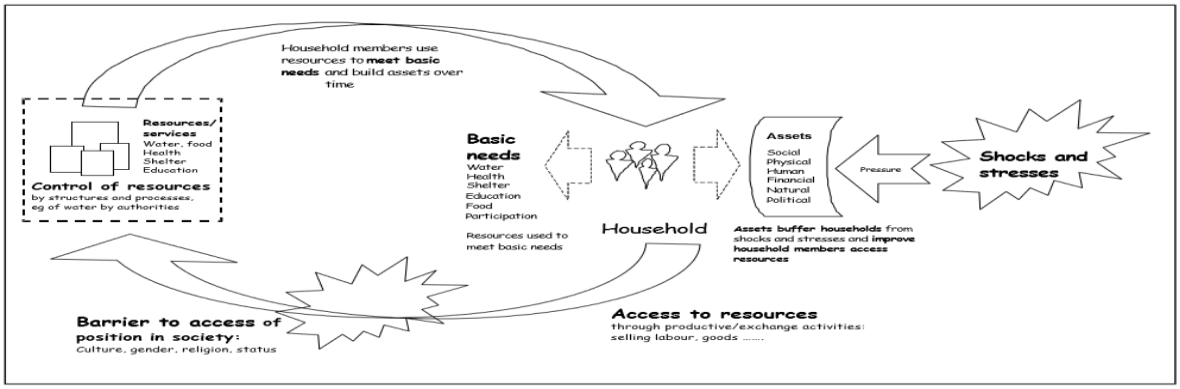


Figure: CARE Livelihood Approach (GLOPP, 1999).

4.2 DFID's Livelihood Framework

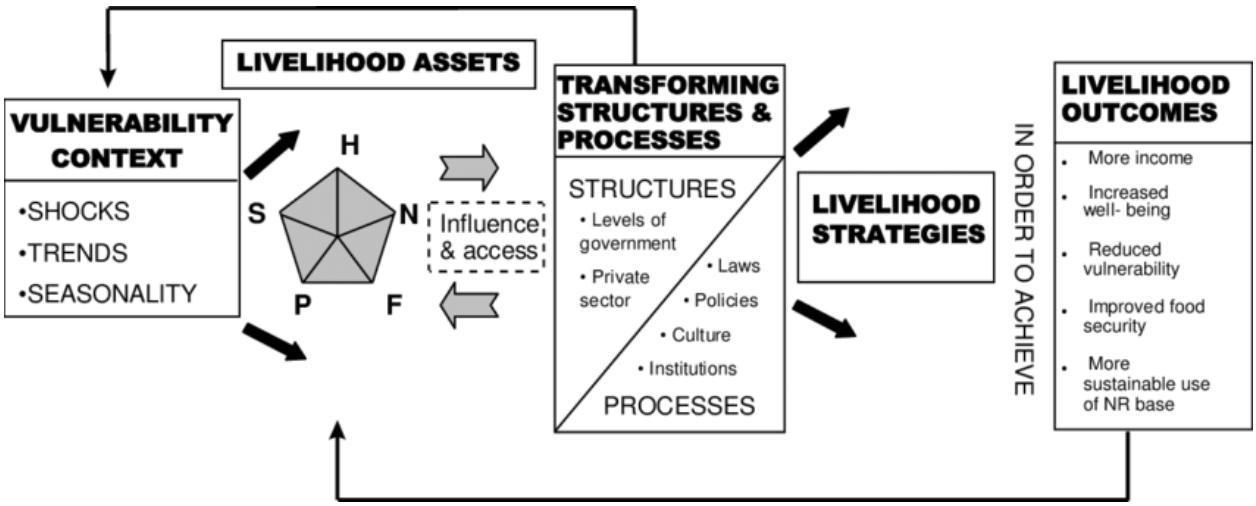


Figure: DFID Sustanable Livelihood frame work (GLOPP, 2000)

4.3 Analytical Framework of the Study

Based on the DFID and CARE's livelihood framework we have developed a model that assesses impact of climate change on the urban poor's livelihood and is shown in
Figure

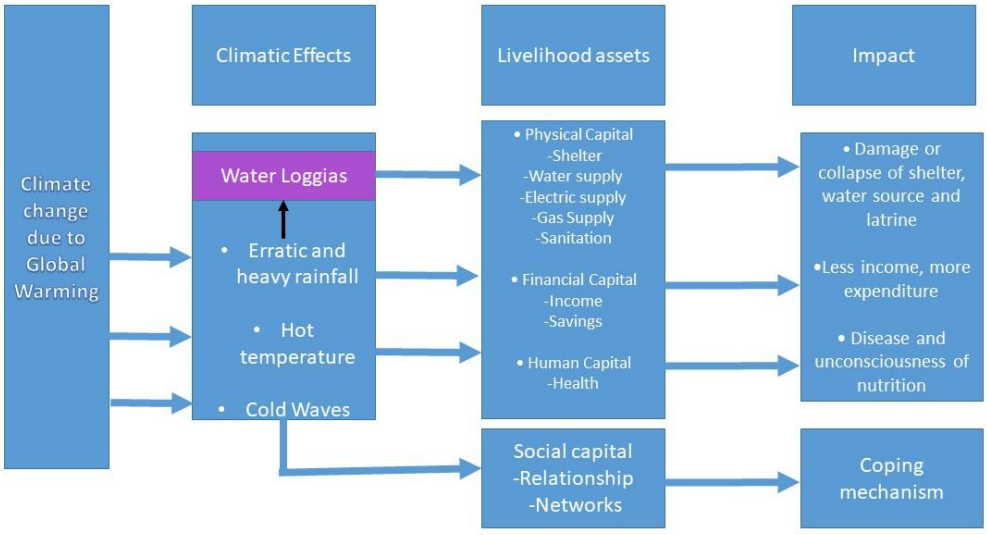


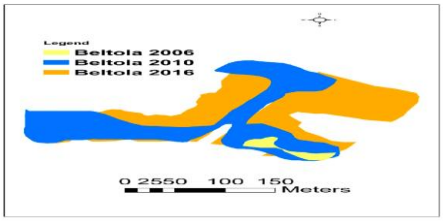
Figure: Analytical framework for climate change impact on livelihood of the urban poor

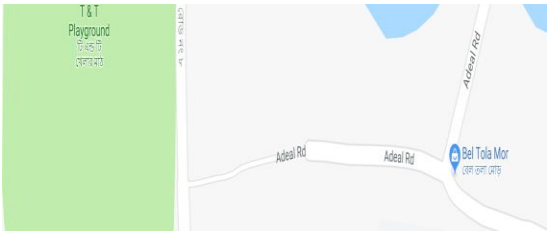
The trend of climate change due to global warming is collected from the secondary source. The impact of these climatic events on livelihood asset is collected from the slum dwellers. In the framework social capital is used as a positive impact as friends, relatives and neighbours are found first for immediate coping mechanism.

4.4 Study Area
Korail Slum:

Home to around one lakh people, who include 28,000 voters, Korail Bosti is spread over 90 acres of government land in Mohakhali. People have been living there since 1990, according to government officials. Under the arrangements made by the syndicates, each gas connection costs at least Tk 500 for households and Tk 1,500 for hotels and other commercial users. A family has to pay Tk 170 per month for using a light bulb and Tk 170 for an electric fan, residents say. A shop owner pays Tk 900 a month for a light bulb and Tk 600 for a refrigerator (Hasan and Mollah, 2017).

Beltola Slum:



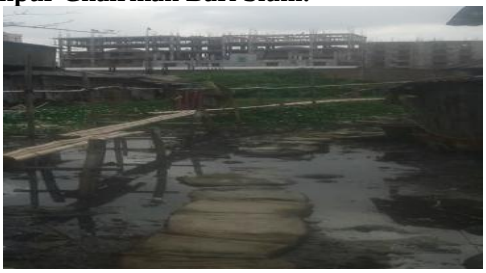


The area of Slum situated near TNT ground field and near Mohakhali Wireless Gate. People have been living there since 1990, according to government officials. There also have some house which they brought from broker long before. And some of house used as rental house owned of the broker.

Uttara Slum:

The area of Uttara Slum located at sector 8 near Adam Ali Market beside Train line. There have big Eidga field nearby the slum. They use clay made burner for cooking. They use deep tube well water for every house.

Abdulahpur Chairman Bari Slum:



People have been living there from last ten years. The area of this slum was the chairman of this area. The people of this area did not give rent for their house. Chairman make system for water supply and electricity also. The area of Slum located in Kamar para sector 10 at Uttara. They use clay made burner for cooking.

Mirpur Molla Slum:

Mirpur Molla slum is spread over 70 Bigha of Ilias Molla's land in Mirpur 12. The people of this area live by giving house rent. They use clay made burner for cooking. They used supply water of WASA and electricity of DEASA.

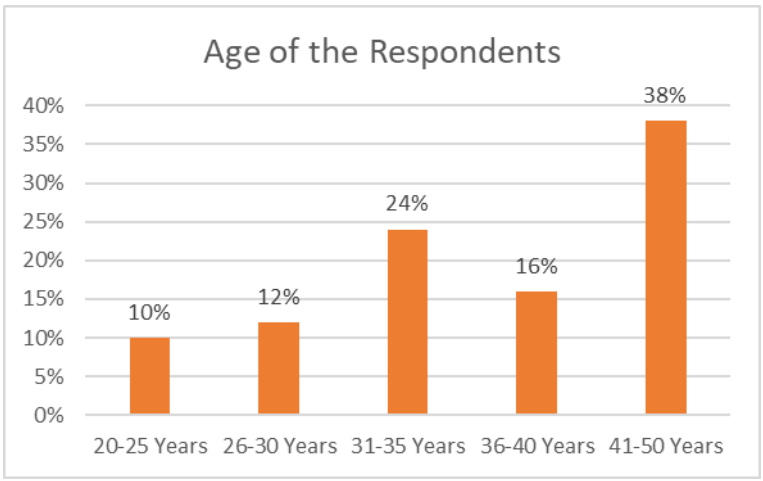
5.1 Analysis of the Study

The results description has been made with obtained data and presented that with tables, charts, diagrams and by other formats.

Table 5.1: Distribution of the respondents according to Age

Age of the Respondents	Frequency	Percentage
20-25 Years	**5**	**10%**
26-30 Years	**6**	**12%**
31-35 Years	**12**	**24%**
36-40 Years	**8**	**16%**
41-50 Years	**19**	**38%**
Total	**50**	**100%**

Source: field Survey, 2018



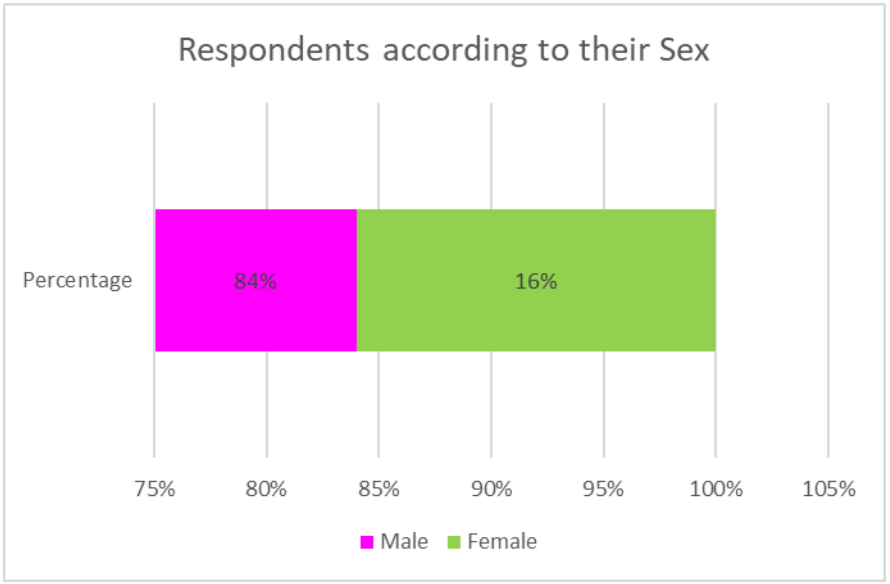
Source: field Survey, 2018

During the study it has been seen that the maximum (38%) respondents age between 41 to 50 years. In addition, 16% respondents age between 36 to 40 years. Besides 31 to 35 years of respondents were 24%. On the other hand, in the study we can see that the 20 to 25 years of respondents were only 10%.

Table 5.2: Distribution of the respondents according to their sex

Respondents according to their sex	Frequency	Percentage
Male	42	84%
Female	8	16%
Total	50	100%

Source: field survey, 2018



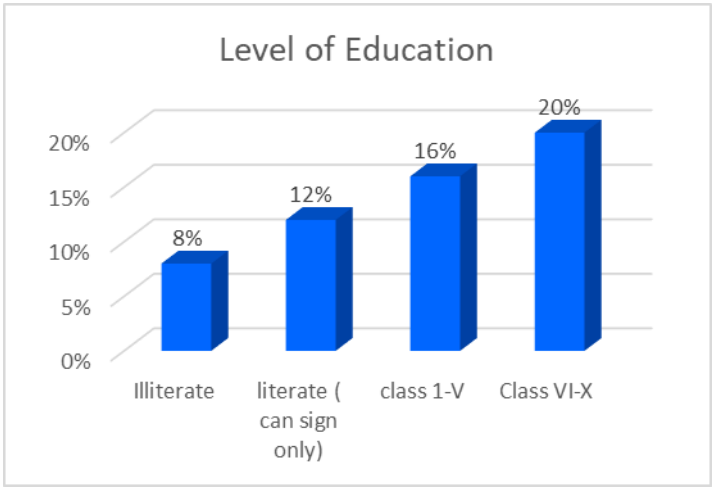
Source: field Survey, 2018

During the study it has been seen that the male respondendent were more than the number of female. On the study we can see that the male were 84.00% while the female were 16.00%.

Table 5.3: Distribution of the respondents according to Level of education

Level of Education	**Frequency**	**Percentage**
Illiterate	6	8%
literate (can sign only)	16	12%
class 1-V	18	16%
Class VI-X	10	20%
total	50	100%

Source: field Survey, 2018



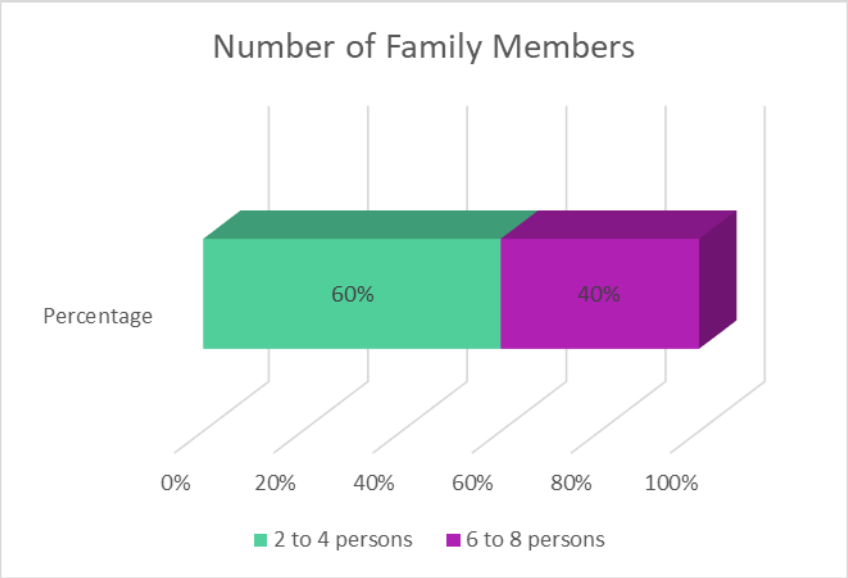
Source: field Survey, 2018

The table shows that the illiterate respondent's persentage was 6, while literate who can sign their name only was 16%, up to class one among the respondents were 18%, from class six to class ten 10%.
The study shows that the education facility or the willingness of education is expected line. Higher education can give a sign of various higher education facilities of Dhaka city.

Table 5.4: Frequency distribution of the respondents according to Number of Family Members

Number of Family Members	Frequency	Percentage
2 to 4 persons	30	60%
6 to 8 persons	20	40%
Total	50	100%

Source: field Survey, 2018



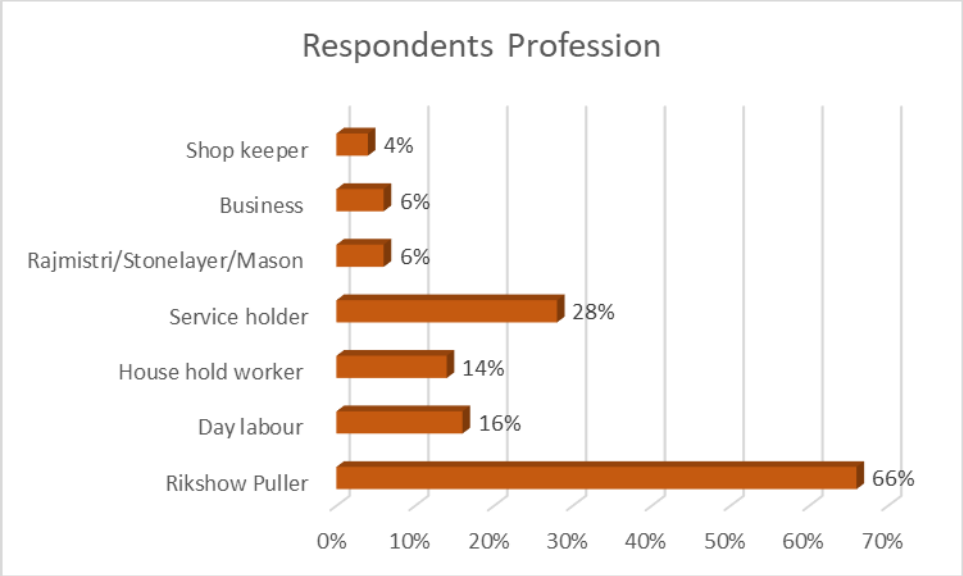
Source: field Survey, 2018

During the study it has been seen that 60% of respondents family member have to live with 2-4 persons. While only 40% family members have to live with 6- 8 persons. The main aspect of this research that all the family members stayed in one room in any rate.

Table 5.5: Distribution of the respondents according to their work/ profession

Respondents Profession	Frequency	Percentage
Rikshow Puller	**13**	**66%**
Day labour	**8**	**16%**
House hold worker	**7**	**14%**
Service holder	**14**	**28%**
Rajmistri/Stonelayer/Mason	**3**	**6%**
Business	**3**	**6%**
Shop keeper	**2**	**4%**
Total	**50**	**100%**

Source: field Survey, 2018



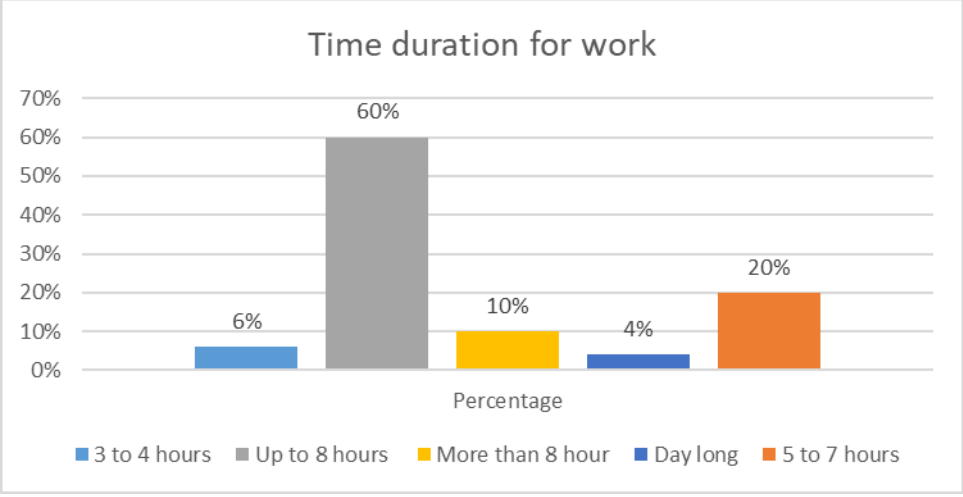
Source: field Survey, 2018

The table shows that maximum the respondent's work as rickshow puller was 66%, while day lobor was 16%, among the respondents were 14% as house hold worker, 6% respondents porfession as Mason where as 28% get job as service holder , some of them work as night gard, some of them do work as cleanner or grmnt worker and above this only 4% work as shop keeper like tea seler and tailor in profession.

Table 5.6: Distribution of the respondents according to their duration of daily work

Time duration for work	**Frequency**	**Percentage**
3 to 4 hours	3	6%
5 to 7 hours	10	20%
Up to 8 hours	30	60%
More than 8 hour	5	10%
Day long	2	4%
Total	50	100%

Source: field survey, 2018



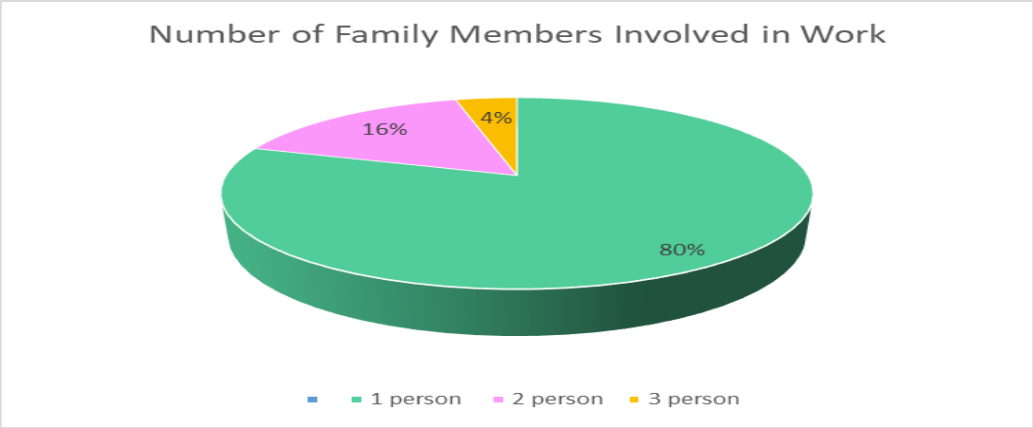
Source: field survey, 2018

60% of the respondents work for a long durration of up to 8 hours a day. Among the respondents only 10% have to work in duration more than 8 hours. 6% respondents have to work in and 3 to 4 hours and 20% respondents have to work in 5 to 7 hours. On the other hand only 4% respondents have to work day long.

Table 5.7: Frequency distribution of the respondents according to Number of Family Members involved in Work

Number of Family Members involved in Work	Frequency	Percentage
1 person	**40**	**80%**
2 person	**8**	**16%**
3 person	**2**	**4%**
Total	**50**	**100%**

Source: field Survey, 2018



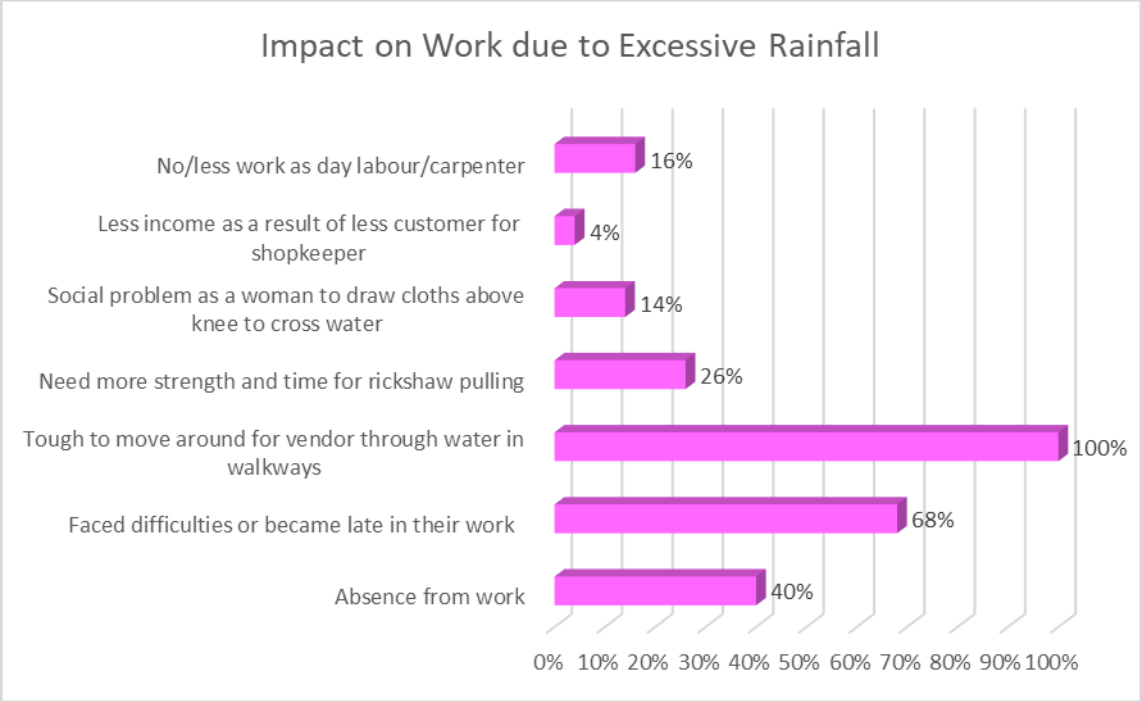
Source: field Survey, 2018

In this chart shows that 80% of the respondents only one family member involved in work where as 16% respondents two family members involved in work. In this case those respondents hansbend and wife involved in work together. Additionally some of the familys like as 4% family members have to involved in work.

Tabl 5.8: Frequency distribution of the respondents according to impact on work due to excessive rainfall

Impact on work due to Excessive rainfall	Frequency	Percentage
Absence from work	**20**	**40%**
Faced difficulties or become late in their work	**34**	**68%**
Tought to move around for vendore through water in walkwayes	**50**	**100%**
Need more strenath and time for reckshaw pulling	**13**	**26%**
Social problem as a women to drow cloths above knee to cross water	**7**	**14%**
Less income as a result of less customer for shopkeeper	**2**	**4%**
No/less work as day labour/ carpenter	**8**	**16%**

Source: field Survey, 2018



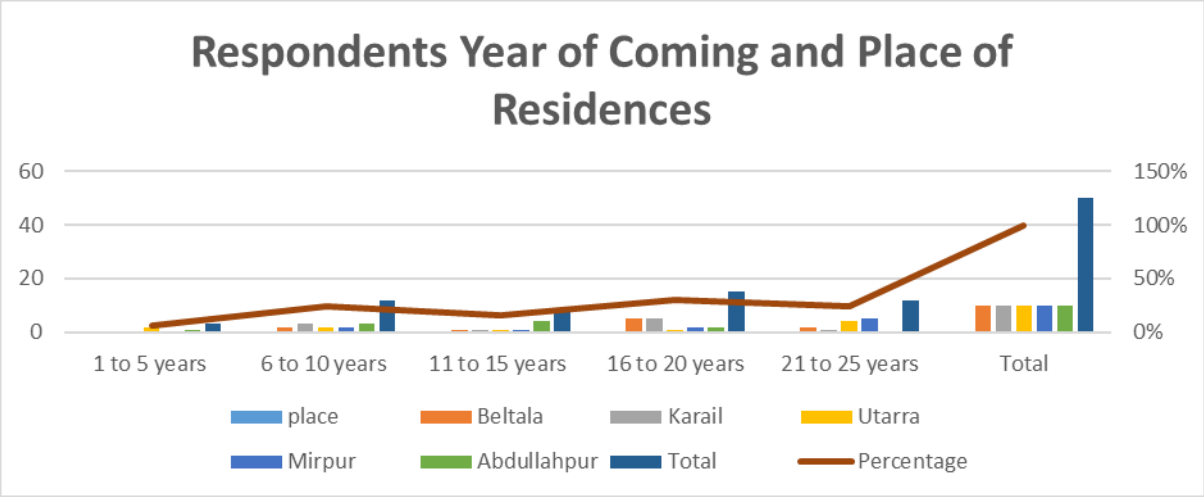
Source: field survey, 2018

According to the study, there have lots of impact on work due to excessive rainfall. 100% percent respondents agreed that tough to move around for vendor though water in walkways. 68% respondents mentioned that faced difficulties or became late in their work and 40% respondents stated that they absence from work because of exssisive rain fall. Need more strenth and time for rickshaw pulling assumed by completely 26% respondents face in problem due to excessive rainfall. Besides, 16% respondents have no work as day labour in exrtime rain fall. Moreover, only 4% respondents declared less income as a rsult of less customer for shopkeeper as a result of exessive rainfall.

Table 5.9: Frequency distribution of th respondents according to year of coming and place of residences

Year of coming place	1 to 5 years	6 to 10 years	11 to 15 years	16 to 20 years	21 to 25 years	Total
Beltala	**0**	**2**	**1**	**5**	**2**	**10**
Karail	**0**	**3**	**1**	**5**	**1**	**10**
Utarra	**2**	**2**	**1**	**1**	**4**	**10**
Mirpur	**0**	**2**	**1**	**2**	**5**	**10**
Abdullahpur	**1**	**3**	**4**	**2**	**0**	**10**
Total	**3**	**12**	**8**	**15**	**12**	**50**
Percentage	**6%**	**24%**	**16%**	**30%**	**24%**	**100%**

Source: field survey, 2018



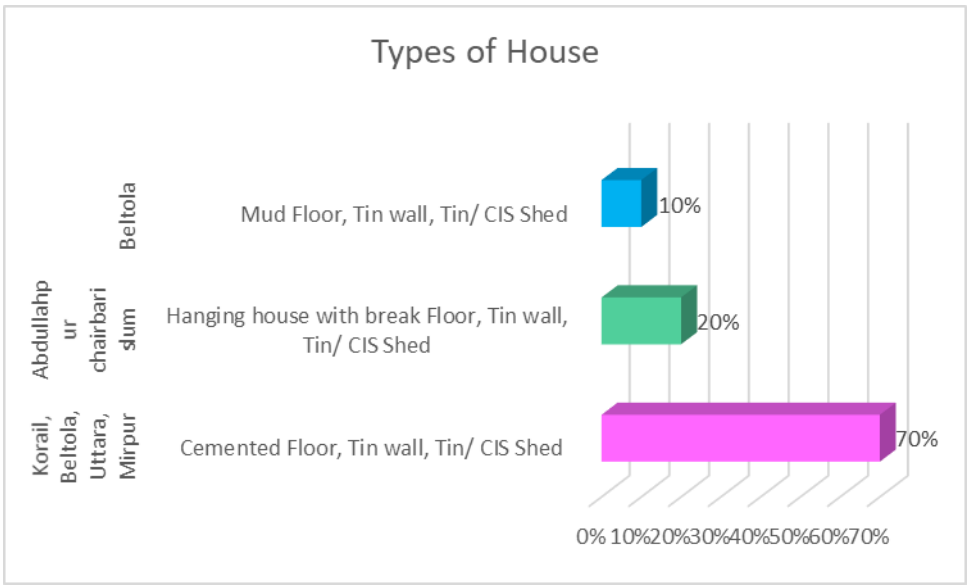
Source: field survey, 2018

In this table shows that 6% respondents came from their home land before 1to 5 years ago. 24% respondents came from their home districts before 6 to 10 years ago. 16% respondents came from their home districts before 11 to 15 years ago. 30% respondents came from their home districts before 21 to 25 years ago. However, 24% respondents came from their home land before 16to 20 years ago because of climate change.

Table 5.10: Frequency distribution of the respondents according to according to types of house

Types of House	**Frequency**	**Percentage**	**Area**
Cemented Floor, Tin wall, Tin/ CIS Shed	**25+10**	**70%**	**Korail, Beltola, Uttara, Mirpur**
Hanging house with break Floor, Tin wall, Tin/ CIS Shed	**10**	**20%**	**Abdullahpur chairbari slum**
Mud Floor, Tin wall, Tin/ CIS Shed	**5**	**10%**	**Beltola**
Total	**50**	**100%**	

Source: field survey, 2018



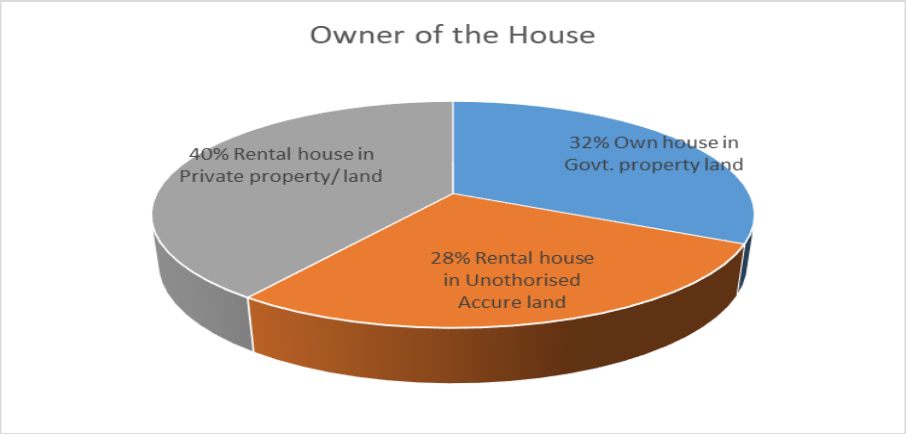
Source: field survey, 2018

According to survey data, 70% of respondent's house made by cemented floor, tin wall and tin/CIS Shed, instead 20% respondent's stayed at hanging house with break floor, tin wall and tin/ CIS shed. Rest of them live in bad condition of house with mud floor, tin wall and tin/ CIS shed.

Table 5.11: Frequency distribution of the respondents according to owner of the house

Owner of the House	**Friquency**	**Percentage**
Own house in Govt. property land	**10+6**	**32%**
Rental house in Unothorised Accure land	**10+4**	**28%**
Rental house in Private property/ land	**10+10**	**40%**
Total	**50**	**100%**

Source: field survey, 2018



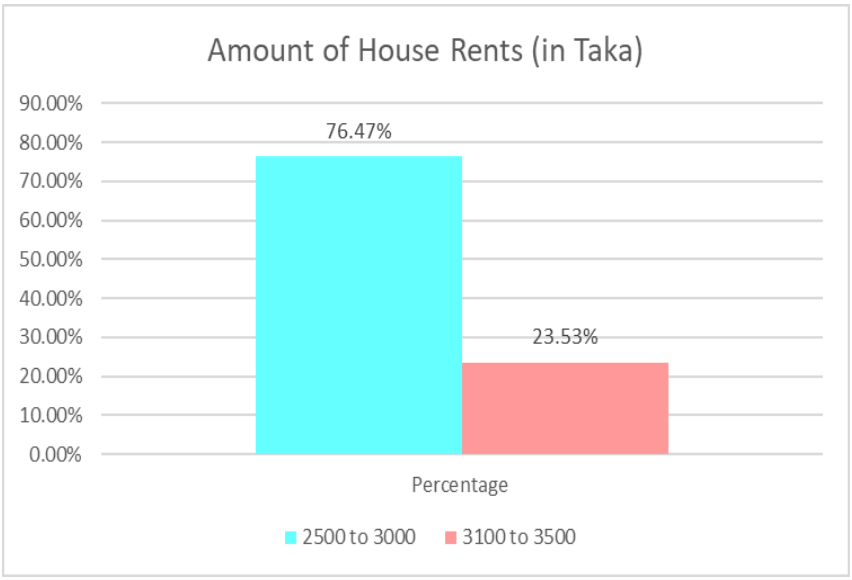
Source: field survey, 2018

According to inspection data, 32% of households live at own house in Government property/ land in Korail and Beltola Slum. Yet 40% respondent live in rental house in private property/ land at Uttara and Mirpur slum. On the other hand, 28% of households live in rental house in unauthorized acquire land/ broker land who acquire land from government property before long ago (Korail and Belpara slum). Funding of this survey rest of the households live in rental house in private property/ land.

Table 5.12: Frequency distribution of the respondents according to amount of house rents

Amount of House Rents (in Taka)	**Frequency**	**Percentage**
2500 to 3000	**26**	**76.47%**
3100 to 3500	**8**	**23.53%**
Total	**34**	**100%**

Source: field survey, 2018



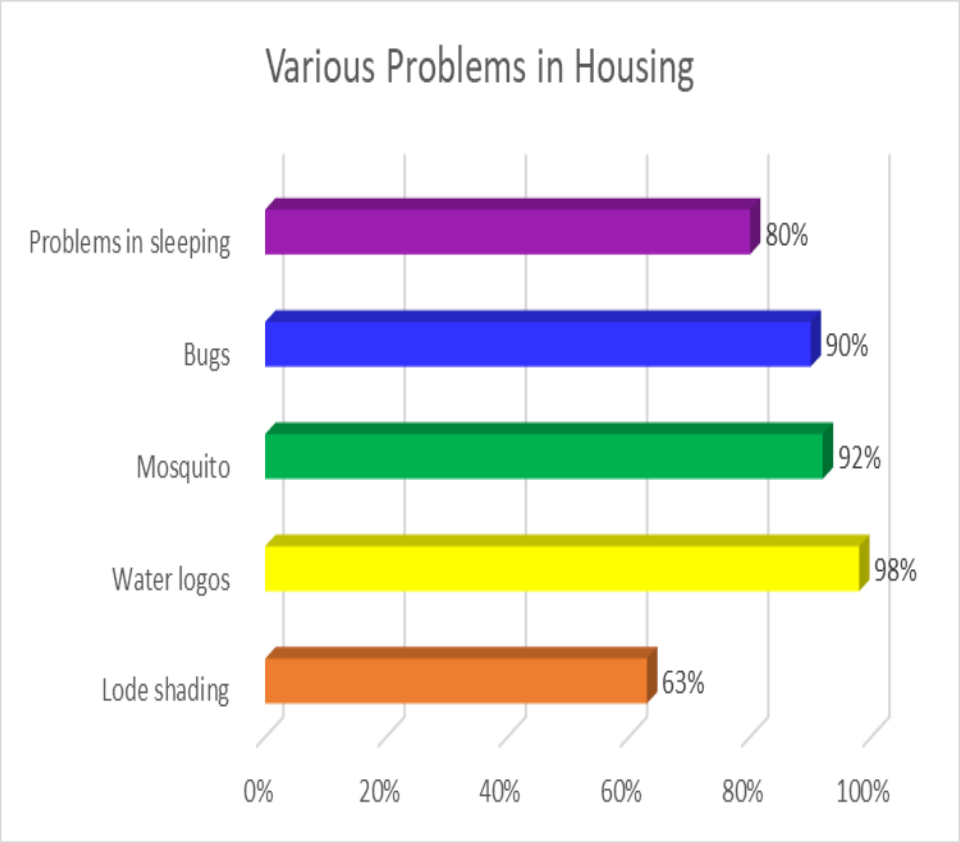
Source: field survey, 2018

Funding of this survey only 34 respondents live in rental house in Uttara, Korail, Mirpur and Belpara slum. Most of the households (76.47%) provided 2500 to 3000 taka for rent of their house. However, 23.53% of households provided 3100 to 3500 taka for rent of their house both at Korail, Belpara, Mirpur and Uttara slum.

Table 5.13: Frequency distribution of the respondents according to various problems in housing

Various problems in Housing	Percentage
Lode shading	**63%**
Water logos	**98%**
Mosquito	**92%**
Bugs	**90%**
Problems in sleeping	**80%**

Source: field survey, 2018



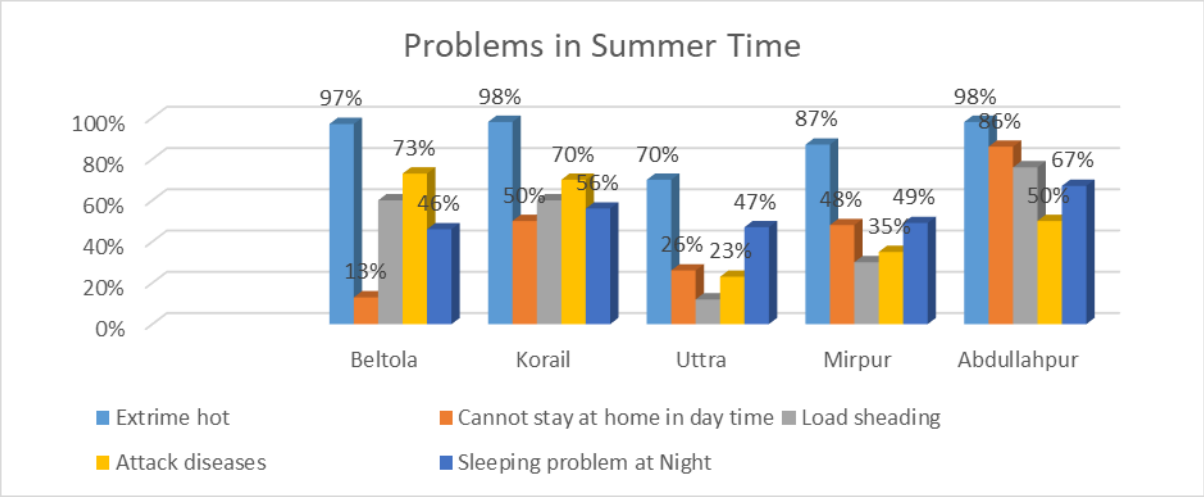
Source: field survey, 2018

In this study, the respondents who live in Uttara, Mirpur, karail, Belpara or Abdullahpur slum maximum respondents 98% face problem in water logos then face difficulties in mosquito (92%), Bugs (90%), lode shading (63%) and sleeping (80%).

Table 5.14: Frequency distribution of the respondents according to impact on summer time

Problems in Summer Time					
Place	**Extrime hot**	**Cannot stay at home in day time**	**Load sheading**	**Attack diseases**	**Sleeping problem at Night**
Beltola	**97%**	**13%**	**60%**	**73%**	**46%**
Korail	**98%**	**50%**	**60%**	**70%**	**56%**
Uttra	**70%**	**26%**	**12%**	**23%**	**47%**
Mirpur	**87%**	**48%**	**30%**	**35%**	**49%**
Abdullahpur	**98%**	**86%**	**76%**	**50%**	**67%**

Source: field survey, 2018



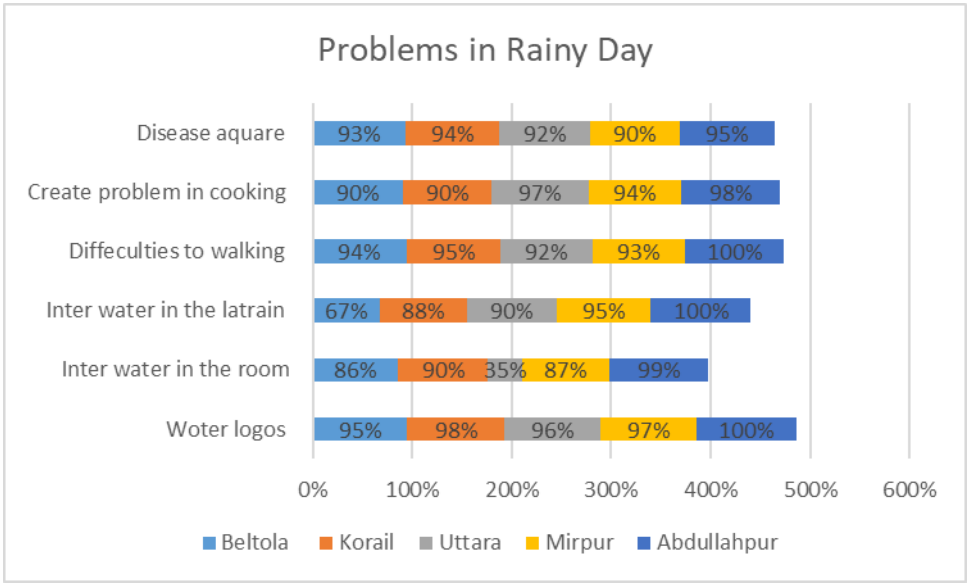
Source: field survey, 2018

In this study, the respondents who live in Uttara, Mirpur, Karail, Belpara or Abdullahpur slum maximum respondents face problem in Extreme hot and cannot stay at home in day time, as a result they face sleeping problems in at night then face difficulties in load sheading and attack different types diseases because of warm temperature in summer season.

Table 5.15: Frequency distribution of the respondents according to impact on rainny day

Problems in Rainy Day						
Place	**Woter logos**	**Inter water in the room**	**Inter water in the latrain**	**Diffeculties to walking**	**Create problem in cooking**	**Disease aquare**
Beltola	**95%**	**86%**	**67%**	**94%**	**90%**	**93%**
Korail	**98%**	**90%**	**88%**	**95%**	**90%**	**94%**
Uttara	**96%**	**35%**	**90%**	**92%**	**97%**	**92%**
Mirpur	**97%**	**87%**	**95%**	**93%**	**94%**	**90%**
Abdullahpur	**100%**	**99%**	**100%**	**100%**	**98%**	**95%**

Source: field survey, 2018



Source: field survey, 2018

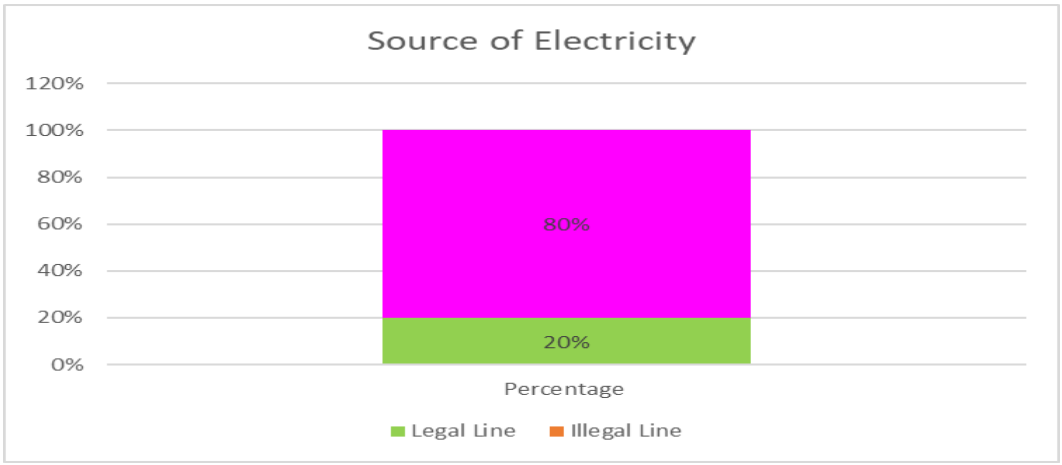
In this study, the respondents who live in Uttara, Mirpur, Karail, Belpara or Abdullahpur slum maximum respondents face problem water logos, inter water in the latrine and they all face difficulties to walking in rainy day time. Moreover, create problem in cooking because of extreme rainfall. Sometimes they

use clay made burner on the top of their bed. The respondent also agreed that they attack different type's diseases because of rainy season.

Table 5.16: Frequency distribution of the respondents according to source of Electricity

Source of Electricity	**Frequency**	**Percentage**
Legal Line	10	20%
Illegal Line	40	80%
Total	50	100%

Source: field survey, 2018



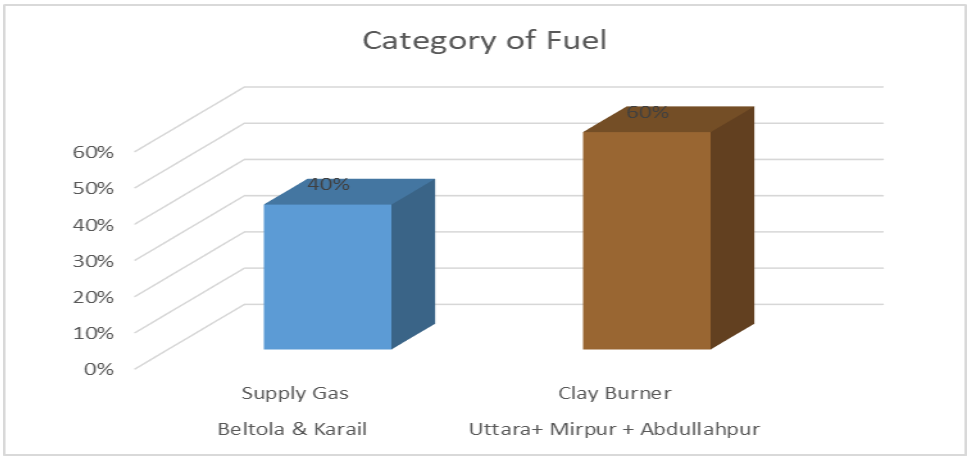
Source: field survey, 2018

We know all of our electric supply thought DESCO by our Government. The table shows that the respondent's used legal line of electricity percentage was 20%, while used illegal line who stayed at rental or won house in slum was 80%. A family has to pay 170 TK per month for using a light bulb and 170 TK for an electric fan, who stayed in won house in Govt. land.

Table 5.17: Frequency distribution of the respondents according to category of fuel

Category of Fuel	**Frequency**	**Percentage**	**Area**
Supply Gas	**20**	**40%**	**Beltola & Karail**
Clay Burner	**10+10+10**	**60%**	**Uttara+ Mirpur + Abdullahpur**
Total	**50**	**100%**	

Source: field survey, 2018



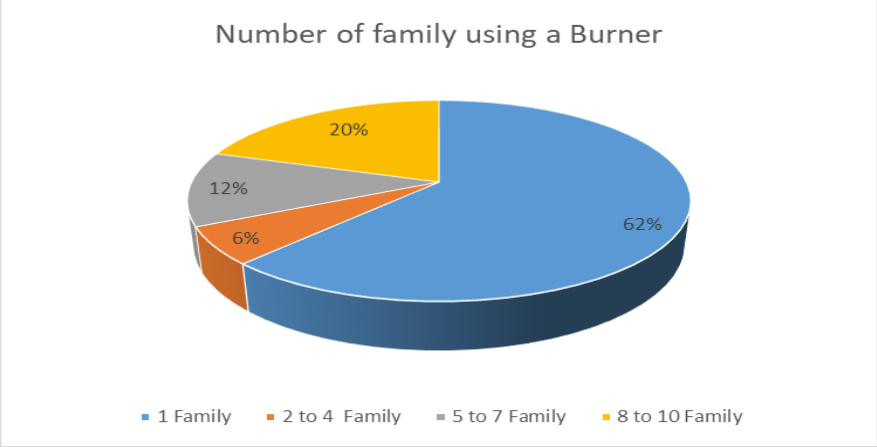
Source: field survey, 2018

We know all Gas supply transmitted and distributed by TITAS in the whole Dhaka city. The table shows that the respondent's used clay burner was 60% in Uttara, Mirpur and Abullahpur Chairman Bari slum, while used supply gas line who stayed at Beltola and Korail slum was 40%.

Table 5.18: Frequency distribution of the respondents according to the Number of family using a burner

Number of family using a burner	Frequency	Percentage
1 Family	31	62%
2 to 4 Family	3	6%
5 to 7 Family	6	12%
8 to 10 Family	10	20%
Total	50	100%

Source: field survey, 2018



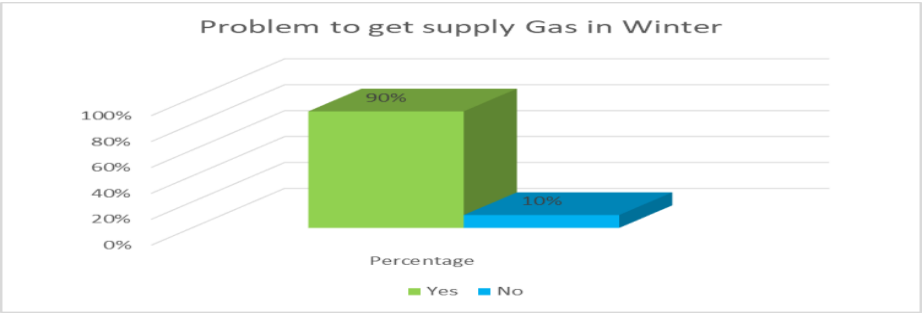
Source: field survey, 2018

According to survey data, those respondents (62%) live in Uttra, Mirpur and Abdullahpur Chairman Bari slum they used clay made burner so that they used one burner for their own family. However, 2 - 4 family (6%) used one burner, 5 -7 (12%) family used one burner and 8 -10 (20%) used one burner in Beltola and Korail slum. Each gas connection costs at least 500 TK for household.

Table 5.19: Frequency distribution of the respondents feel problem to get supply Gas in winter season

Problem to get supply Gas in Winter	**Frequency**	**Percentage**
Yes	**18**	**90%**
No	**2**	**10%**
Total	**20**	**100%**

Source: field survey, 2018



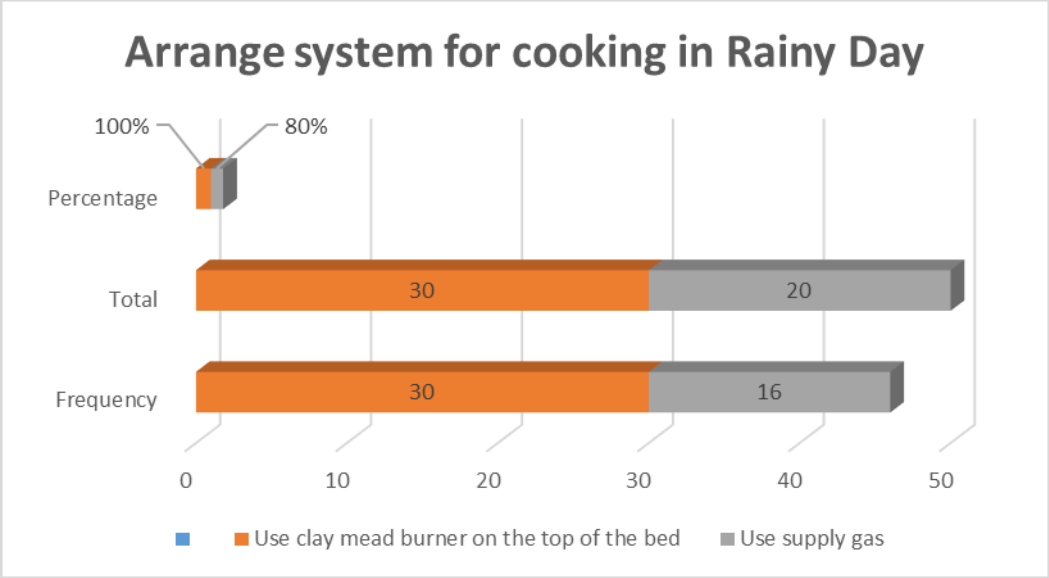
Source: field survey, 2018

We know all of our Gas supply transmitted and distributed by TITAS in the whole Dhaka city. According to the survey, we found that only 20 respondents use gas stove. The table shows that the respondent's face problem to get supply Gas in winter time who stayed at rental or won house in slum was 90%. . Each gas connection costs at least 500 TK for household in Beltola and Korail slum but they suffer problem in winter.

Table 5.20: Frequency distribution of the respondents arrange system for cooking in rainy day

Arrange system for cooking in Rainy Day	**Frequency**	**Total**	**Percentage**
Use clay mead burner on the top of the bed	**30**	**30**	**100%**
Use supply gas	**16**	**20**	**80%**

Source: field survey, 2018



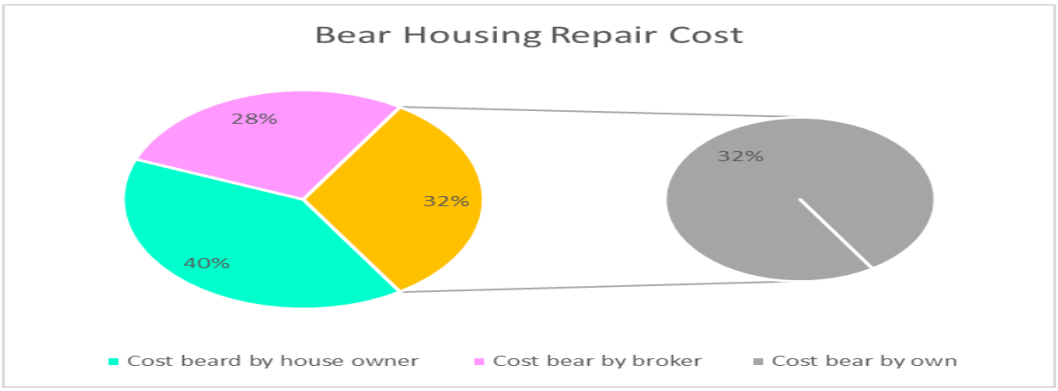
Source: field survey, 2018

Maximum respondents face problem for cooking in rainy day. Those who have clay made burner they all cooking on the top of the bed with clay made burner because of water logos. And they who used gas burner, 80% difficulties in water logos so they manage time schedule for cooking.

Table 5.21: Frequency distribution of the respondents according to the bear housing repair cost

Bear Housing Repair Cost	Frequency	Percentage
Cost beard by house owner	20	40%
Cost bear by broker	14	28%
Cost bear by own	16	32%
Total	50	100%

Source: field survey, 2018



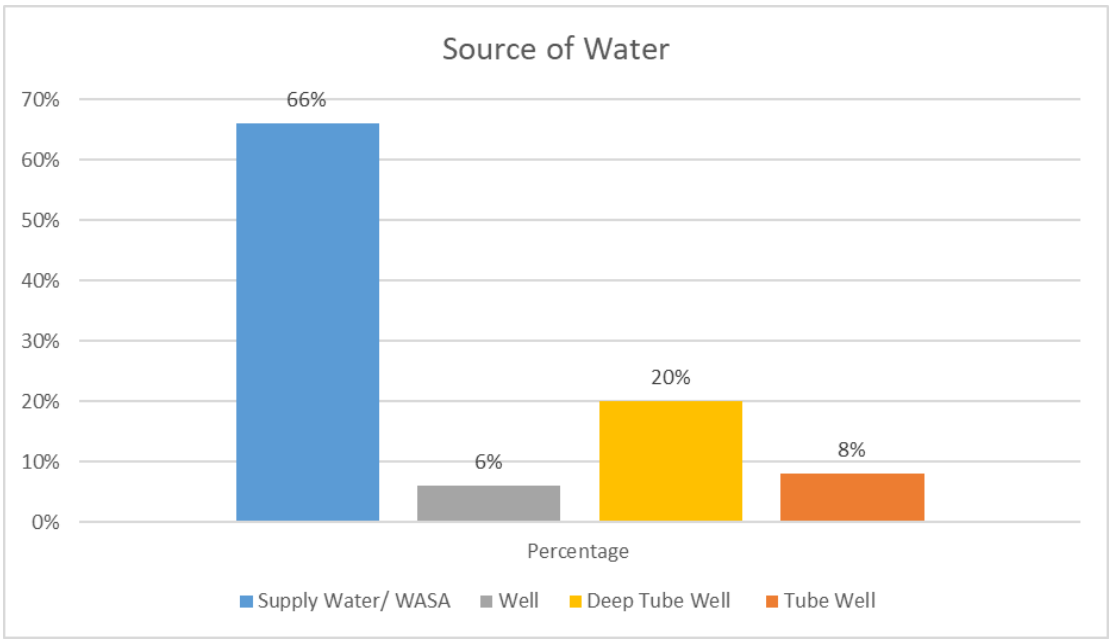
Source: field survey, 2018

In this study, the respondents who live in house of private property their house repair cost tolerated by house owner (40%). Those respondents have own house in the land of Government, the house repair cost have borne by themselves (32%). On the other hand, the respondents live in rental house whatever their owner is broker but their house repair cost have borne by their house owner (28%).

Table 5.22: Frequency distribution of the respondents according to source of water

Source of Water	Frequency	Percentage	Place
Supply Water/ WASA	**33**	**66%**	**Karail +Chairman Bari slum + Mirpur**
Tube Well	**4**	**8%**	**Beltola**
Well	**3**	**6%**	**Beltola**
Deep Tube Well	**10**	**20%**	**Uttara**
Total	**50**	**100%**	

Source: field survey, 2018



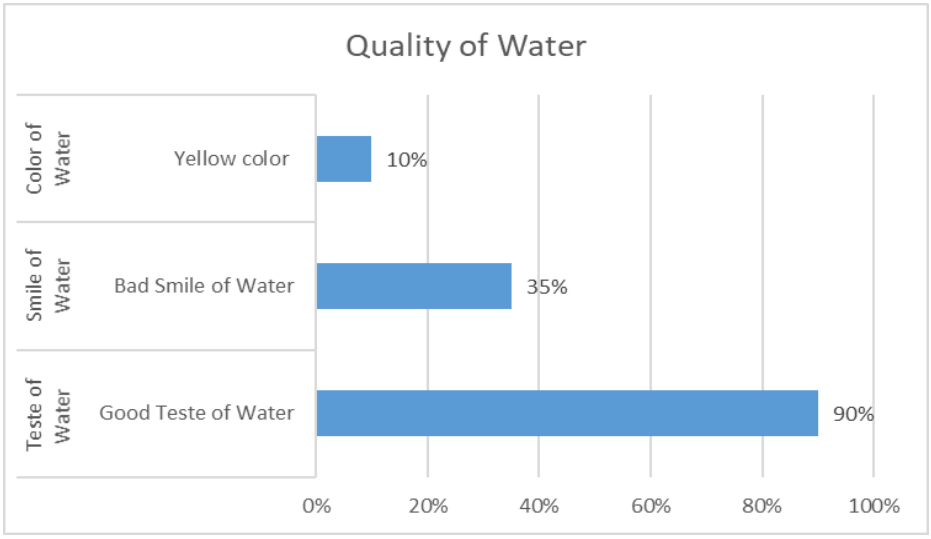
Source: field survey, 2018

We know all Water Supply distributed by WASA in the whole Dhaka city. The table shows that the respondent's get water from WASA was 66% in Korail, Belpara and Abullahpur Chairman Bari slum, while Some of respondents (6%) used Well and Some respondents (8%) used tube well who stayed at Beltola slum. However, rest of the respondents (20%) used Deep tube well who live in Uttara slum.

Table 5.23: Frequency distribution of the respondents according to quality of water

Quality of Water	Quality of Water	Percentage
Teste of Water	Good Teste of Water	90%
Smile of Water	Bad Smile of Water	35%
Color of Water	Yellow color	10%

Source: field survey, 2018



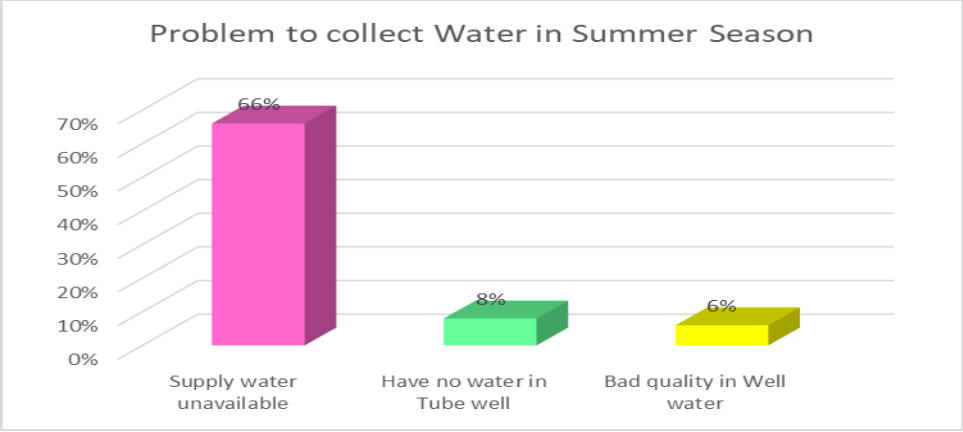
Source: field survey, 2018

Maximum (90%) respondents give good opinion about the teste of water. On the hand, only 35% respondents talk about the bad test and 10% respondents speak out the yellow color about the water who lived in Abdullahpure Chairman Bari slum.

Table 5.24: Frequency distribution of the respondents according to face problem to collect water in summer season

Problem to collect water in Summer Season	Frequency	Percentage
Supply water unavailable	33	66%
Have no water in Tube well	4	8%
Bad quality in Well water	3	6%
Total	40	100%

Source: field survey, 2018



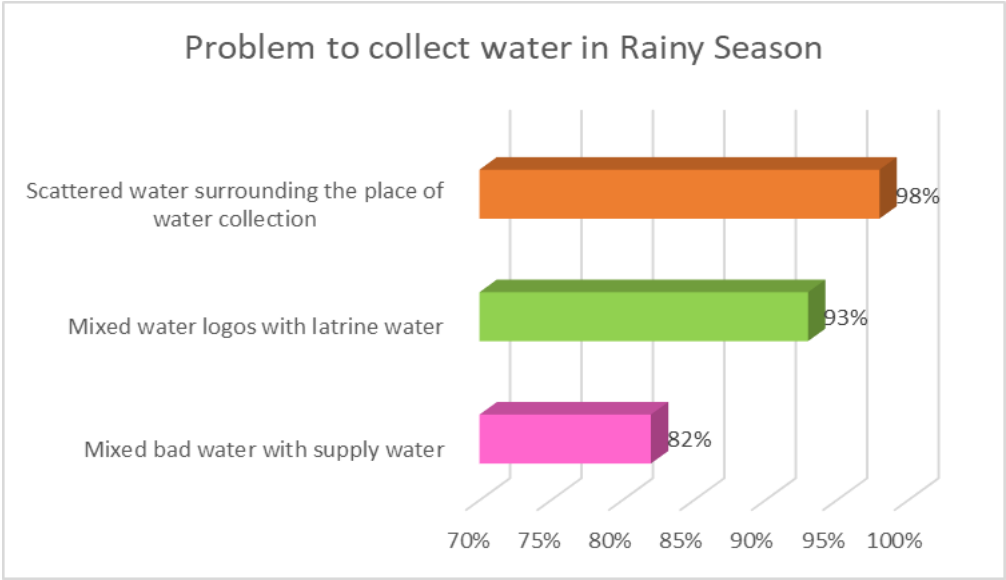
Source: field survey, 2018

The survey 40 respondents agreed that they struggle to collect water in summer season. 66% respondents mentioned that supply water unavailable, However, 8% respondents stated that have no water in tube well, besides 6% respondents speak out that bad quality in well water in summer time.

Table 5.25: Frequency distribution of the respondents according to face problem to collect water in rainy season

Problem to collect water in Rainy season	Percentage
Mixed bad water with supply water	82%
Mixed water logos with latrine water	93%
Scattered water surrounding the place of water collection	98%

Source: field survey, 2018



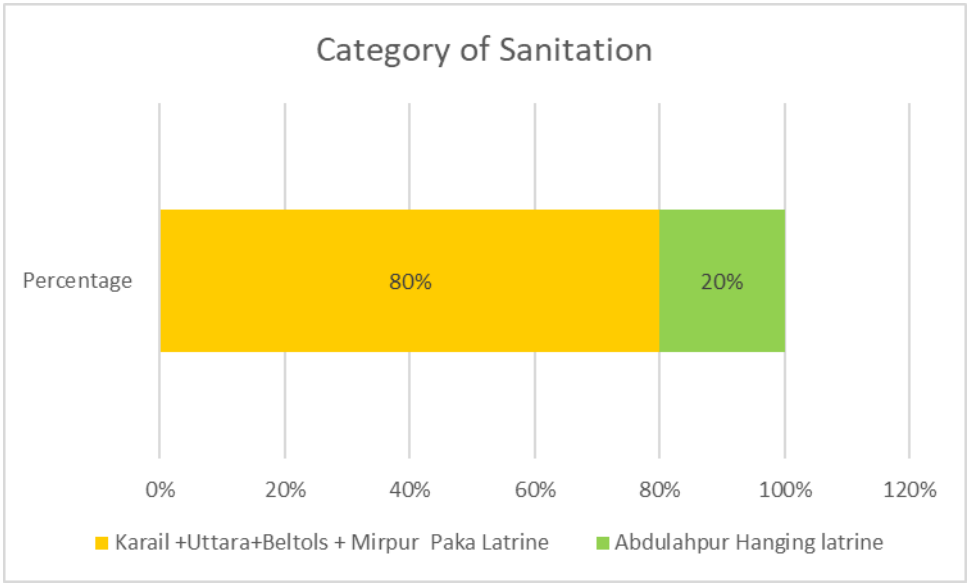
Source: field survey, 2018

In this table shows that 82% respondents specified mixed bad water with supply water. In addition, 93% respondents stated that mixed water logos with latrine water. Moreover, 98% respondents mentioned that scatted water surrounding the place of water collection.

Table 5.26: Frequency distribution of the respondents according to Category of Sanitation

Category of Sanitation	**Frequency**	**Percentage**	**Area**
Paka Latrine	**40**	**80%**	**Karail +Uttara+Beltols+ Mirpur**
Hanging latrine	**10**	**20%**	**Abdulahpur**
Total	**50**	**100%**	

Source: field survey, 2018



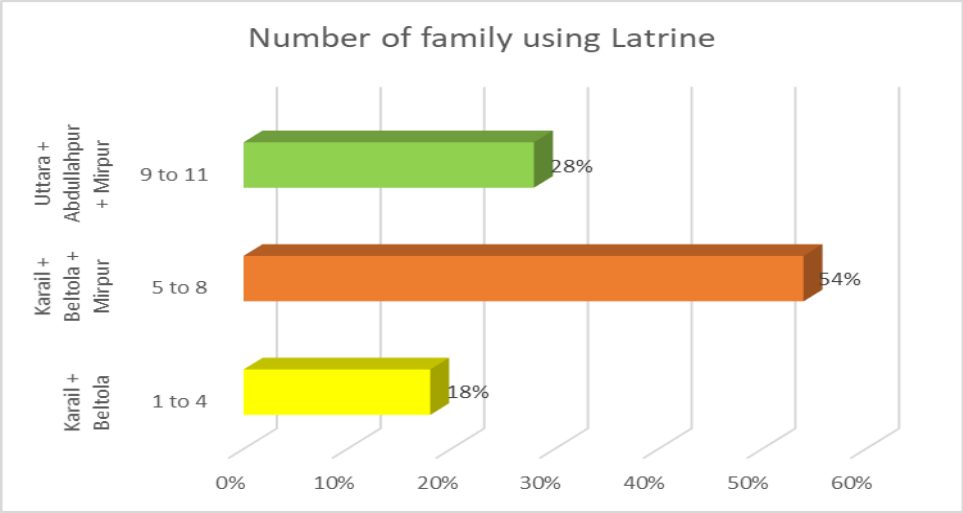
Source: field survey, 2018

According to survey data, those respondents (80%) live in Uttra, Korail and Beltola slum they used sanitary latrine for defection. However, rest of the respondent who live in Andillahpur chairman slum (20%) used hanging latrine for defection.

Table 5.27: Frequency distribution of the respondents according to Number of family using Latrine

Number of family using Latrine	Frequency	Percentage	Place
1 to 4	**9**	**18%**	**Karail + Beltola**
5 to 8	**27**	**54%**	**Karail + Beltola + Mirpur**
9 to 11	**14**	**28%**	**Uttara + Abdullahpur + Mirpur**
Total	**50**	**100%**	

Source: field survey, 2018



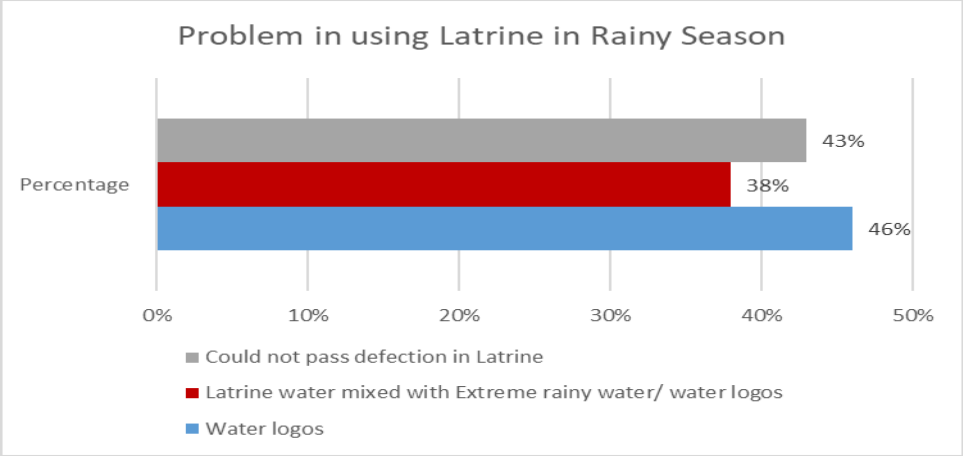
Source: field survey, 2018

According to survey data, (1 to 4) respondents family members (18%) used one latrine whereas (9 to 11) respondents family members (28%) use one latrine in Korail, Mirpur and Beltola Slum. Yet, (5 to 8) respondents family members (54%) used one latrine who live in Uttra, Mirpur and Abdullahpur Chairman Bari slum. But all the latrine quality too poor and unhygienic.

Table 5.28: Frequency distribution of the respondents according to face problem in using Latrine in rainy season

Problem in using Latrine in Rainy season	Percentage
Water logos	**46%**
Latrine water mixed with Extreme rainy water/ water logos	**38%**
Could not pass defection in Latrine	**43%**

Source: field survey, 2018



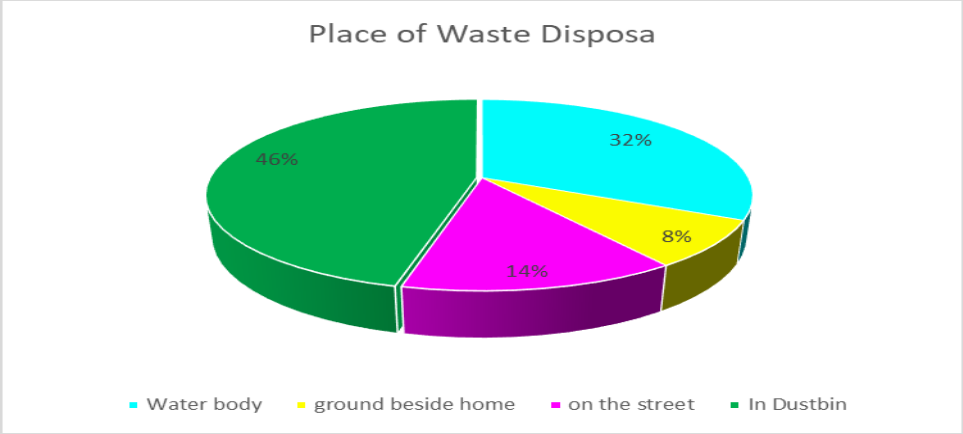
Source: field survey, 2018

We found in survey time respondents face varies problems in using latrine in rainy season. It's a grim problematic for all the respondents that 38% respondents stated about latrine water mixed with extreme rainy water or water logos. Further defection could not pass in latrine. In addition, rest of the respondents 46% mentioned that water logos at the all place of surrounding house and latrine.

Table 5.29: Frequency distribution of the respondent's according to waste disposal

Place of Waste Disposal	Frequency	Percentage
Water body	16	32%
ground beside home	4	8%
on the street	7	14%
In Dustbin	23	46%
Total	50	100%

Source: field survey, 2018



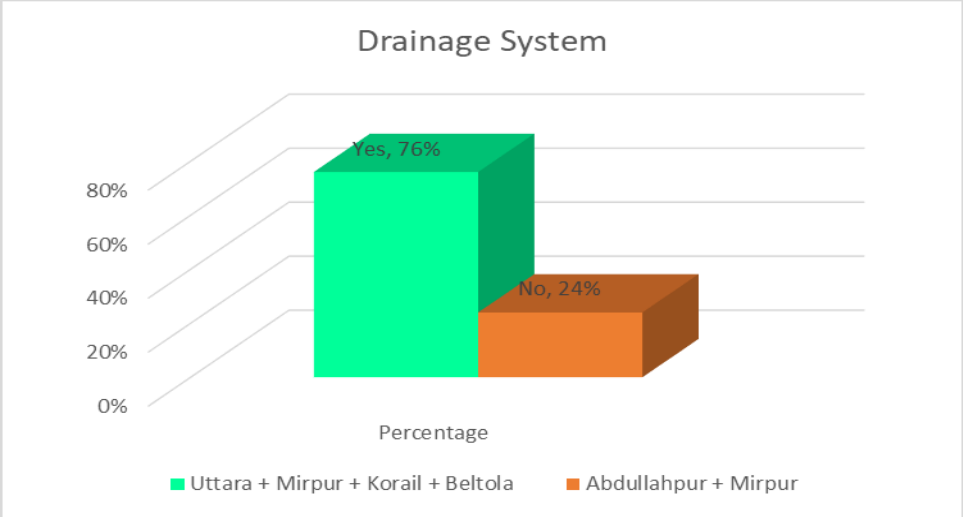
Source: field survey, 2018

According to the households in study area, Beltola slum have fixed waste taking system by waste collector who did the work according to get money in every month from all household and Korail slum people used big dustmen made by DCC. On the other hand, there is no fixed place for waste disposal in Uttara and Abdullahpur. Generally wastes are disposed wherever they live like on the ground or on the street or above the water body. Therefore, scattered wastes are found visible in open place. It indicates that enough facilities of waste disposal ar almost non-existent in slum area. From the sample data, it has been found that a few number of households (16%) dispose into wastes into water body who live in Uttar basically, while 4% of households dispose on the ground and 7% on the street. Though, other 23% of households have been found to dispose wastes in dustbin. Exposure to such dirty environment is very risky for children as they spend most of their time playing outside.

Table 5.30: Frequency distribution of the respondents according to drainage system

Drainage System	**Frequency**	**Percentage**	**Area**
Yes	**38**	**76%**	**Uttara + Mirpur + Korail + Beltola**
No	**12**	**24%**	**Abdullahpur + Mirpur**
Total	**50**	**100%**	

Source: field survey, 2018



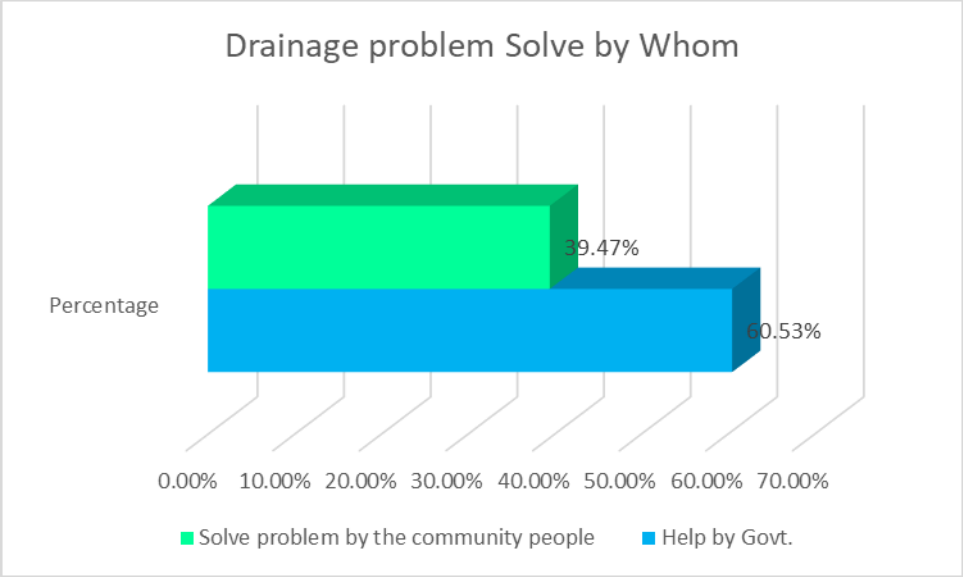
Source: field survey, 2018

According to the survey, we can see that 76% respondents where they live have drainage facility in Beltola, Korail, Mirpur and Uttara slum. But 24% respondents live in Abdullahpur chairman bari and Mirpur Molla slum have no drainage facility.

Table 5.31: Frequency distribution of the respondents according to help for drainage problem

Drainage problem Solve by Whom	Frequency	Percentage
Help by Govt.	23	60.53%
Solve problem by the community people	15	39.47%
Total	38	100%

Source: field survey, 2018



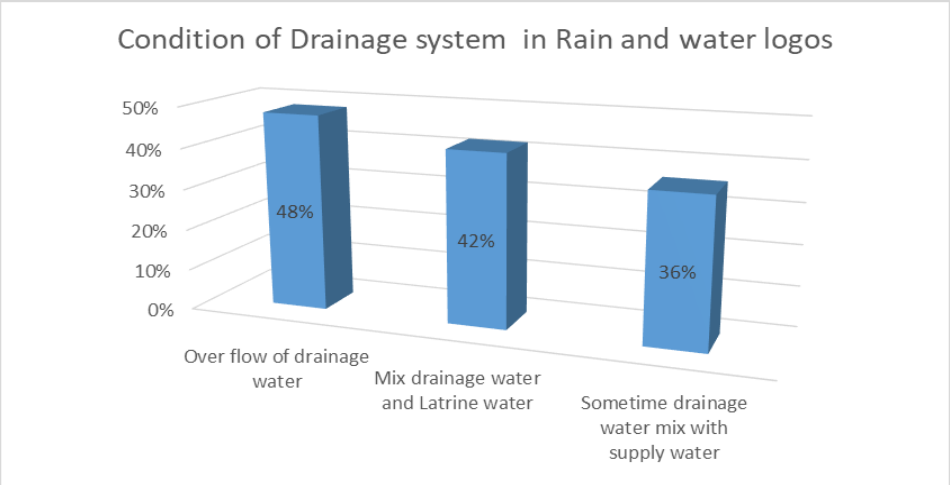
Source: field survey, 2018

Funding of this survey only 38 respondents have Drainage facilities who lived in Korail, Beltola, Mirpur and Uttara slum. According to them 60.53% respondents answered that drainage problem Solve by Government. On the other hand, 39. 47% respondents answered that drainage problem Solve by community people.

Table 5.32: Frequency distribution of the respondents according to the condition of Drainage system in rain and water logos

Condition of Drainage system in rain and water logos	**Percentage**
Over flow of drainage water	**48%**
Mix drainage water and Latrine water	**42%**
Sometime drainage water mix with supply water	**36%**
Total	**100%**

Source: field survey, 2018



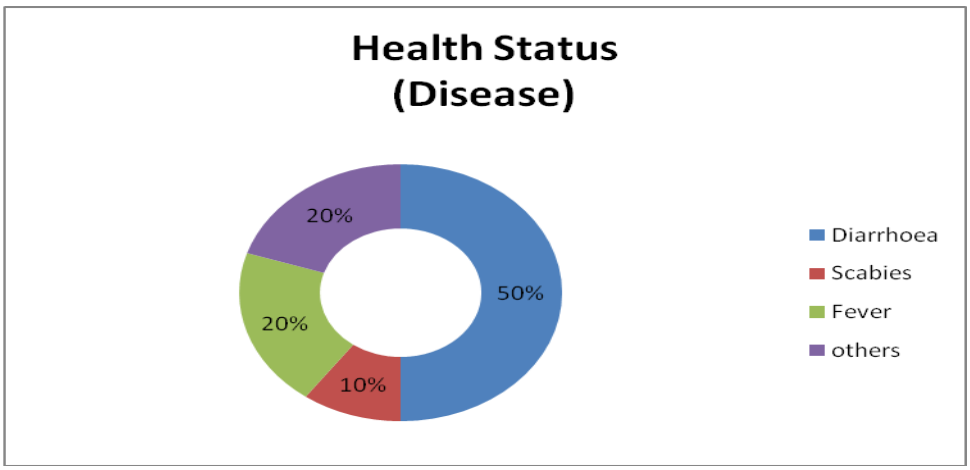
Source: field survey, 2018

We found in inspection that condition of drainage system in rain and water logos was very unhealthy. 48% respondents said that over flow of drainage water, while 42% respondents declared that mix drainage water and latrine water. Rest of the respondent's response about sometime drainage water mix with supply water.

Table 5.33: Frequency distribution of the respondent's family member's health status according to attack disease

Health Status (Dissease)	Percentage
Diarrhoea	50%
Scabies	10%
Fever	20%
others	20%
Total	100%

Source: field survey, 2018



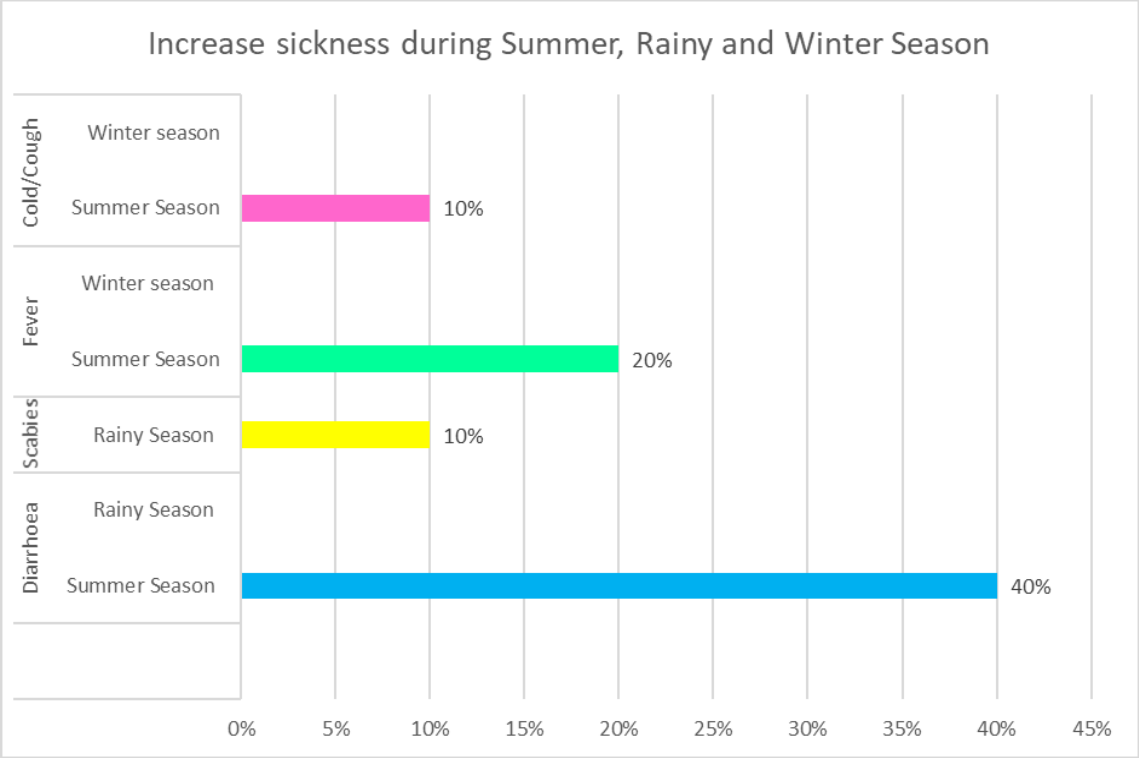
Source: field survey, 2018

Diarrhoea and vector-borne diseases are very much related with the sanitation, water and cleanliness. Almost half of respondents are reported sick are reported sick because of different types of water borne diseases. 50% of affected respondents have been reported as suffering from diarrhoea and very few respondents suffered from malaria and dengue. 10% of children of this area affected various types of Scabies. The highest occurrence of disease among not only children but also adults reveals inadequate education or lack of consciousness among respondents. Unhealthy environment and lack of affordability to consume healthy food indicated poor dietary practice among respondents living in slums.

Table 5.34: Frequency distribution of the respondents according to increase sickness during summer, rainy and winter season

Increase sickness during Summer, Rainy and Winter Season	**Frequency**	**Percentage**
Diarrhoea	**Summer Season Rainy Season**	40%
Scabies	**Rainy Season**	10%
Fever	**Summer Season Winter season**	20%
Cold/Cough	**Summer Season Winter season**	10%

Source: field survey, 2018



Source: field survey, 2018

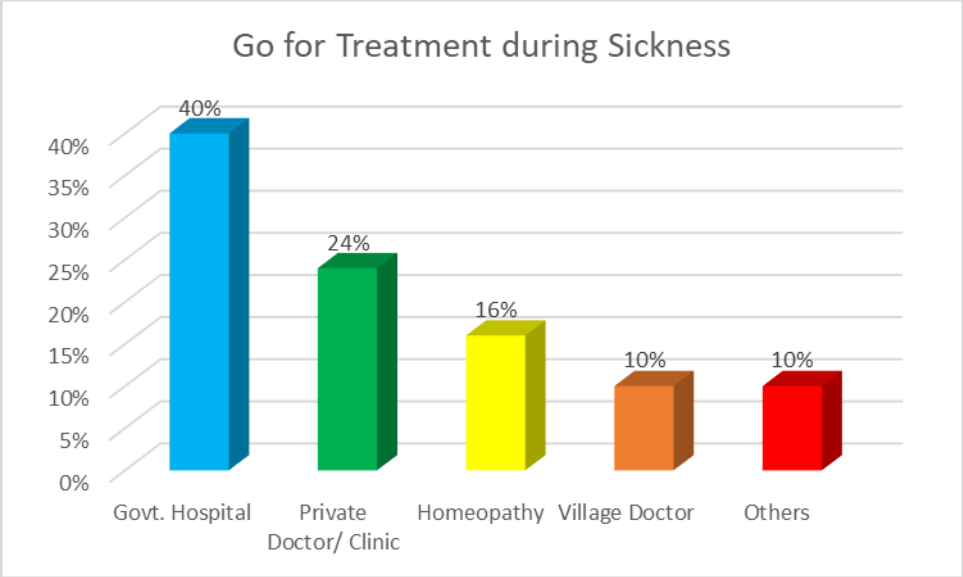
All re respondents declared Increase sickness during summer, rainy and winter season. 40% respondents agreed that Diarrhoea increase in rainy and summer seasons. Besides, scabies increases in rainy days. On the other hand, 20% respondents and 10% respondents mentioned that fever increased in winter and summer seasons.

Table 5.35: Frequency distribution of the respondents according to go for treatment during sickness

Go for treatment during sickness	**Frequency**	**Percentage**
Govt. Hospital	20	40%
Private Doctor/ Clinic	12	24%
Homeopathy	8	16%

Village Doctor	5	10%
Others	5	10%
Total	50	100%

Source: field survey, 2018



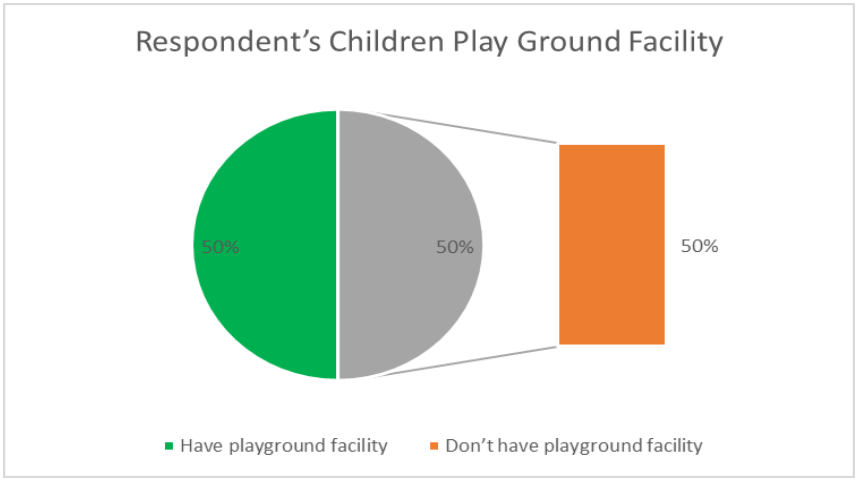
Source: field survey, 2018

According to the study, respondents go to different places for treatment during sick time but it depends on their believes and values. Maximum (40%) respondents go to govt. hospital for treatment during sickness because they get some assistance form govt. hospitals. Some of them 24% respondents went to private Doctor or clinic because they give logic to go for treatment during sickness that sometime their lots of rash in govt. hospital and that is far from their house. 16% respondents believe in Homeopath so they go for treatment during sick time. Rest of 10% respondents went to village doctor at their home District because of the have strong believed on them. Besides, other 10% respondents depend on jarpuk, dorbes, kobiraj or others service for treatment during sickness.

Table 5.36: Frequency distribution of the respondent's children play ground facility

respondent's children play ground facility	Frequency	Percentage	Area
Have playground facility	15+10	50%	Uttara + beltola
Don't have playground facility	15+10	50%	Karail + abdullahpur
Total	50	100%	

Source: field survey, 2018



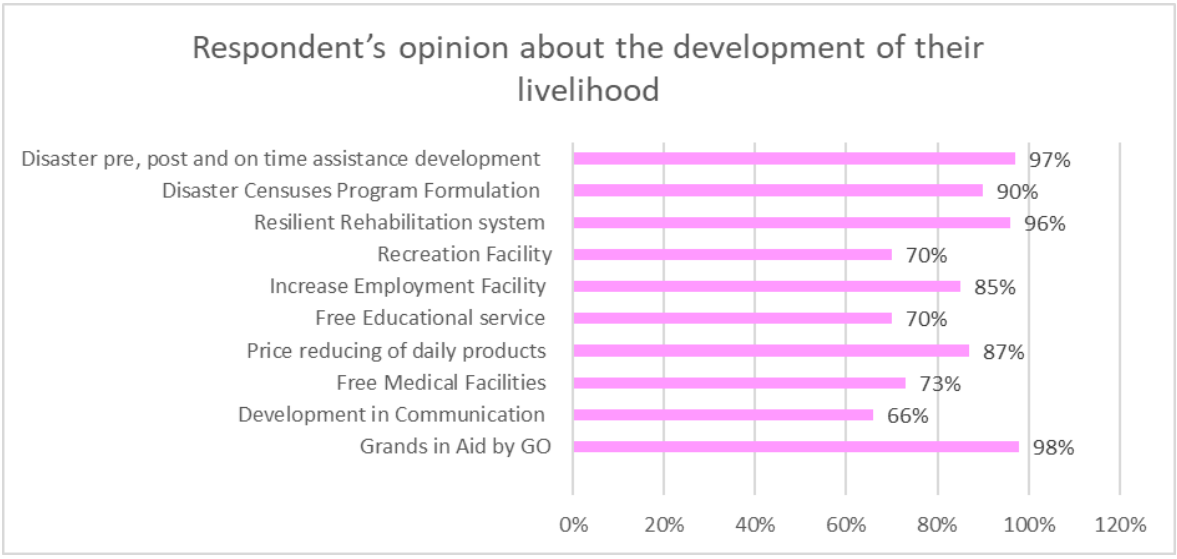
Source: field survey, 2018

In this study, the respondents who live in Beltola slum their children can use TnT field for their playground and those who stayed at Uttara slum, their children used Eidga land for their outdoor play area. However, the respondents who live in Korail and Abdullahpur slum their children play on the road, actually they have no playground facility.

Table 5.37: Frequency distribution of the respondent's opinion about the development of their livelihood

Respondent's opinion about the development of their livelihood	**Percentage**
Grands in And by GO	**98%**
Development in Communication	**66%**
Free Medical Facilities	**73%**
Price reducing of daily products	**87%**
Free Educational service	**70%**
Increase Employment Facility	**85%**
Recreation Facility	**70%**
Resilient Rehabilitation system	**96%**
Disaster Censuses Program Formulation	**90%**
Disaster pre, post and on time assistance development	**97%**

Source: field survey, 2018



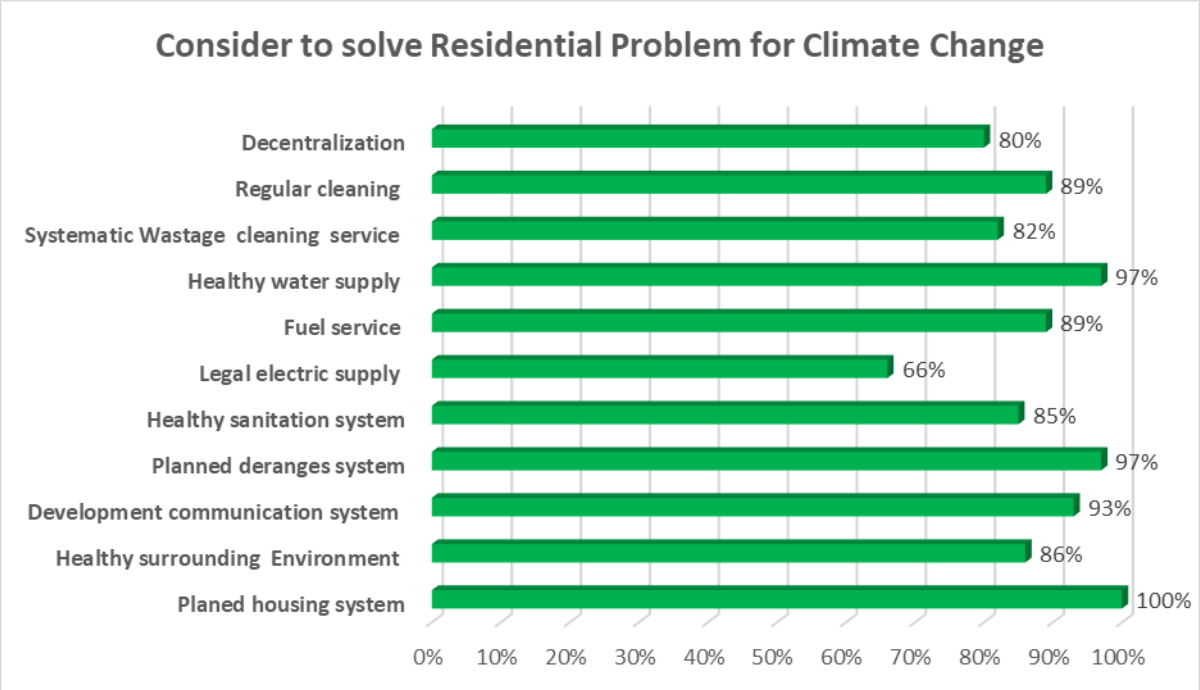
Source: field survey, 2018

Most of respondents think that grands in Aid by GO; disaster pre, post and on time assistance development and disaster censuses program formulation is the basic requirement for their standard of leaving and development their livelihood. Besides, some of the respondents give priority to give resilient rehabilitation system, price redusing of daily products, increase emplyment faacility, free medical facility, free education facility, recreation facility and development in communication also need to development of their livelihood.

Table 5.38: Frequency distribution of the respondent's opinion about consider to solve residential problem for climate change

Consider to solve Residential Problem for Climate Change	Percentage
Planed housing system	**100%**
Healthy surrounding Environment	**86%**
Development communication system	**93%**
Planned deranges system	**97%**
Healthy sanitation system	**85%**
Legal electric supply	**66%**
Fuel service	**89%**
Healthy water supply	**97%**
Systematic Wastage cleaning service	**82%**
Regular cleaning	**89%**
Decentralization	**80%**

Source: field survey, 2018



Source: field survey, 2018

Among the predefined recommendation highest support need toPlaned housing system, then planned deranges system and Healthy water supply. Actually need to upgrade healthy sanitation system and healthy surrounding environment and fuel service. They also give empathize on Development communication system, legal electric supply and systematic wastage cleaning service.

5.2 Discussions of the Study

The respondents who live in Uttara, Mirpur, Karail, Belpara or Abdullahpur slum maximum respondents face problem in Extreme hot and cannot stay at home in day time, as a result they face sleeping problems in at night then face difficulties in load sheading and attack different types diseases because of warm temperature in summer season. Besides, they face problem in water logos, inter water in the latrine and they all face difficulties to walking in rainy day time. Moreover, create problem in cooking because of extreme rainfall. In addition, they face difficulties in mosquito and Bugs.

According to the study, there have lots of impacts on work due to excessive rainfall. 100% percent respondents agreed that tough to move around for vendor through water in walkways. Maximum respondents mentioned that faced difficulties or became late in their work and sometimes absence from work because of exssisive rain fall. Need more strenth and time for rickshaw pulling assumed by completely all respondents face in problem due to excessive rainfall. Besides, the majority respondents have no work as day labour in exrtime rain fall. Moreover, only mainstream respondents declared less income as a result of less customer for shopkeeper as a result of excessive rainfall.

Diarrhoea is very much related with the sanitation, water and cleanliness and vector-borne diseases are related with cleanliness. Almost half of respondents are reported sick due to different types of water-borne diseases. half of affected respondents have been reported as suffering from diarrhea and very few respondents suffered from malaria and dengue. Some of children of this area affected various types of Scabies. The higher prevalence of disease among children reveals inadequate education or lack of consciousness among parents to give proper care to the children. Most of the time mothers are busy with household works; therefore children are not given enough care by them. Also unhealthy environment and mother's lack of knowledge about hygiene and dietary practice make children more vulnerable. Even though parents have some kind of primary education but lack of affordability to consume healthy food indicates poor dietary practice among children living in slums. It is said that nutritious food prevents chronic disease as it helps children to recover disease quickly like diarrhea. But majority of households cannot afford healthy food items like protein food, not even in weekly basis. All respondents declared Increase sickness during summer, rainy and winter season. Several respondents agreed that Diarrhoea increase in rainy and summer seasons. Besides, scabies increases in rainy days. On the other hand, a number of mentioned that fever increased in winter and summer seasons.

V. RECOMMENDATION

- Destruction of squatter settlements should be limited to necessary actions of redevelopment or infrastructure building and should be accompanied by relocation plans for evicted squatters.
- To decentralize the poor people of slum settlement to nearby cities can be considered.
- Those moving from a rural to urban setting require a different set of skills to find employment, while more capital is required for urban living costs.
- To develop the urban institutions in a set of specific policies and strategic actions to address the challenges of climate change for low income urban dweller
- Need to observe on national housing strategy and focus on a policy and regulatory roles rather than implementing housing project.
- Coordination and co-operation between DWASA and DCC should be ensured regarding operation and management of drainage system for minimizing water logging.
- To start immediately awareness program for the poor slum dwellers regarding diseases connected to flood and extreme events.
- To begin immediate adaptation govt. financial institutions especially for the poor should be set up for disbursing necessary loans regarding housing, treatment, small business, latrine etc.
- Effective adaptation strategies should build upon, and sustain, existing livelihoods and thus take into account existing knowledge and coping strategies of the poor.
- To solve the disorganized living condition in Dhaka city, policymakers have huge responsibility to develop a legal framework and strategic planning for reducing shortage of housing and for providing secure healthy urban living environment in the Dhaka megacity.
- Role of urban governments or institutions are playing and need to be played as risk reducer for climate change impacts.
- Further climate change impact research can consider the above factors.

VI. CONCLUSION

The poor's livelihood is usually vulnerable to extreme temperature as well as water logging due to urban institutional inefficiencies. Climate change makes them more vulnerable. The study also shows the trend of gradual and extreme weather change is particularly negative for the livelihood of the urban poor in Dhaka. The major impacts are damaging of shelter and other household assets, unavailability and polluting of water, suffering from diseases like diarrhoea, scabies and fever etc., problem of sanitation and loss of work or income. To cope up with the impacts the poor take shelter on the road or to school, take loan from relatives or neighbours, use saving and sometimes cut off their daily meal. They somehow sustain with the situation as the extreme events are unstoppable and cannot be altered. The livelihood assets of the poor are very limited and distressful.

REFERENCES

[1]. Ahmed, A. U. (2006). Bangladesh: Climate Change Impacts and Vulnerability. Dhaka: Climate Change Cell, Department of Environment (DoE).

[2]. Chambers, R and Conway G., (1992). Sustainable rural livelihoods: practical concepts for the 21st century, IDS Discussion Paper 296, Brighton, page 7. Change, Cambridge University Press.

[3]. *GLOPP*. (1999). Operationalising CARE's Livelihoods Approach. Retrieved June 25, 2017, from http://www.glopp.ch/B7/en/html/unit_1_guide_2.html

[4]. *GLOPP*. (2000). DFID's Sustainable Livelihoods Approach and its Framework. Retrieved June 26, 2017, from http://www.glopp.ch/B7/en/multimedia/B7_1_pdf2.pdf

[5]. Huq, S. (2001). Climate Change and Bangladesh, Science 294 (5547), 1617.

[6]. Huq, S. and Ayers, J. M. (2007). Critical list: the 100 nations most vulnerable to climate change, in IIED Sustainable Development Opinion, International Institute of Environment and Development (IIED): London.

[7]. Huq, S., & Alam, M. (2003). Flood management and vulnerability of Dhaka. In Alcira Kreimer, Margaret Arnold, & Anne Carlin (Eds), Building safer cities: The future of disaster risk (pp. 121–136), Part II: Environment, Climate Variablity, and Adaptation. Washington: The World Bank.

[8]. Khan. M. (2010). Impact of Climate Change on the Livelihood of the Urban Poor: A Case of Dhaka City. Master in Public Policy and Governance Program Department of General and Continuing Education North South University, Bangladesh.

[9]. Morton, J.F., (2007). The impact of climate change on smallholder and subsistence agriculture. Proceedings of the Dational Academy of Sciences, 104(50).

[10]. *NASA*. (2017). Poverty and Climate Change in Urban Bangladesh (CLIMURB): An Analytical Framework. Retrieved June 26, 2017, from http://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-climate-change-58.html

[11]. Rabbani, G. Rahman, A. and Islam, N. (2011). Climate change Implications for Dhaka City: A Need for Immediate Measures to reduce Vulnerability. BCAS. Bangladesh.

[12]. Roy, S. C., Asaduzzaman, M. and Jahan, I. (2010). Urbanization and Microclimatic Change of Dhaka City. Dhaka.

[13]. Roy, M., Guy, S., Hulme, D. and Jahan, F. (2011). Poverty and Climate Change in Urban Bangladesh (CLIMURB): An Analytical Framework. Retrieved June 26, 2017, from https://assets.publishing.service.gov.uk/media/57a08ac3ed915d622c0008c9/60723_bwpi-wp-14811.pdf

[14]. UN-HABITAT. (2009). State of the World Cities 2008/2009: Harmonious Cities.

Annex 1: Photo of Filed Visit

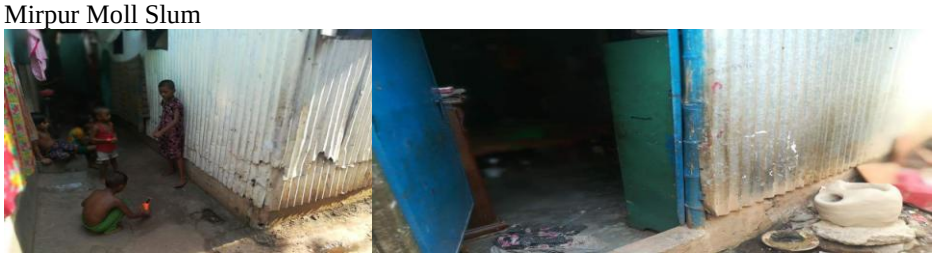
Beltola Slum

Korail Slum

Uttara Slum

Abdullapur Slum

Mirpur Moll Slum



Annex 2: Interview schedule/ সাক্ষাতকার অনুসূচী

Group B

Research Title: Climate Change Impacts on Urban Poor: A Study on Slum People in Dhaka City

SL No:

A. Personal Information/ ব্যক্তিগত তথ্য

1. Name/নামঃ .....
2. Age/বয়সঃ .....
3. Sex/লিঙ্গ .....
4. Occupation/পেশাঃ .....
5. Religion/ধর্মঃ .....
6. Marital Status/বৈবাহিক অবস্থাঃ .....
7. Position in family/ পরিবারে উত্তর দাতার অবস্থানঃ □বাবা □মা □ছেলে □মেয়ে □বউ
8. Amount of Family members/পরিবারের সদস্য সংখ্যাঃ.....
9. Home District/ নিজ জেলার নামঃ.....গ্রামঃ.....
   থানাঃ..... ইউনিয়নঃ.....জেলাঃ.....
10. Education Qualification/ শিক্ষাগত যোগত্যাঃ □অশিক্ষিত □সাক্ষার জ্ঞান সম্পন্ন
□১ম -৫ম শ্রেনী □৬ষ্ঠ -৮ম □এস এস সি পাশ □এইচ এস সি পাশ □উচ্চ শিক্ষা সম্পন্ন
11. Reason for migration/ স্থান্তরের কারনঃ .....
12. Year of coming Dhaka/ঢাকা শহরে আগমনের সালঃ .....

B. Income/ আয়

13. এখন কোন কাজের সাথে জড়িত কি না? □হ্যাঁ □না
14. উত্তর হ্যাঁ হলে, কি কাজ করে .....
15. বর্তমানে মূল পেশা ক? □চাকুরী □ব্যবস্যা □শিক্ষকতা □গৃহ পরিচালিকা □দিন মুজুর
□রিকশা চালক □গ্রার্মেটে কর্মী □কারখানা কর্মী □হকার □গৃহীনী □অনন্যা
16. দিনে কত ঘন্টা কাজ করে? □১-২ ঘন্টা □৩-৪ ঘন্টা □৫-৭ঘন্টা

□৮ঘন্টা □৮ঘন্টার অধিক □সারা দিন

17. অতিরিক্ত গরম বা ঠান্ডায় কতঘন্টা কাজ করেন? .....

18. মাসিক আয়ঃ □1000-2000 টাকা □2000-5000 টাকা □5000-10,000 টাকা □10,000-15,000 টাকা □15,000-20,000 টাকা □20,000 টাকার এর অধিক

19. পরিবারের সদস্যদের মধ্যে কতজন কাজের সাথে জড়িত? □১জন □২জন □৩জন □৪জন □৫জন □ সবাই

20. পরিবারের মাসিক গড় আয় ও ব্যয় .....

21. ব্যয়ের মূল ক্ষেত্র কী? .....

22. কতজন বাচ্চা স্কুলে যায় □১-২জন □৩-৪জন □৫-৬জন □৭-৮জন □৯-১০জন

23. মাস শেষে কোন সঞ্চয় থাকে কি? .....

24. কখেনা কি লোন নিয়েছেন? □হ্যাঁ □না

হ্যাঁ হলে কত টাকা.....

25. লোন কি পরিশোন হয়েছে না এখনও আছে? .....

26. গত বর্ষায় কাজের কি অবস্থা হয়েছিল? .....

27. যখন অসুস্থ হয়ে যান কি করে পরিবারের বন্দোবস্ত করেন? .....

28. কখনো কি কাজ/চাকুরী হীন হয়েছেন? □হ্যাঁ □না

হ্যাঁ হলে, কখন ও কি সমস্যা হয়েছিল .....

29. কখনো কি কাজের ক্ষেত্র/ চাকুরী পরিবর্ত্ত করেহেন? .....

হ্যাঁ হলে, কেন? .....

C. Settlement/ বন্দোবস্ত

30. ঢাকার কোন এলাকায় বসবাস করে? □করাইল □উত্তরা

31. ঢাকায় আসার পূর্বে নিজস্ব বাড়ী ছিল কি না? □হ্যাঁ □না

32. বর্তমানে বাড়ী/ঘরের অবস্থানঃ □বিল/ঝিলের উপর □বিল/ঝিলের পাড়ে □খাস জমির উপর □অন্যান্য

33. বসবাসরত বাড়ীর ধরনঃ

□টিনের দেয়াল টিনের ছাউনি ইটের মেঝে □টিনের দেয়াল টিনের ছাউনি সিমেট মেঝে □টিনের দেয়াল টিনের ছাউনি মাটির মেঝে □ইটের দেয়াল টিনের ছাউনি সিমেট মেঝে

34. বর্তমানে বসবাসরত বাড়ির মালিকানার ধরনঃ

□নিজস্ব জমিতে নিজেস্ব বাড়ী □নিজের জমিতে অনেকের বাড়ি বসবাস □ভাড়া বাসা

35. ভাড়া বাসা হলে, মাসিক ভাড়া কত টাকাঃ .....

36. বসবাসরত বাড়ীর রুম বা কক্ষের সংখ্যা কত □১টা □২ টা □৩টা □ ৩ এর অধিক

37. বর্তমানে কতজন এক বাড়ীতে বসবাস করে?□২-৪জন ৫-৭জন □৮-১০জন □১০এর অধিক

38. একরুমে কতজন ব্যবহার করে ঘুমানোর জন্যে? □২-৪জন ৫-৭জন □৮-১০জন □১০এর অধিক

39. শীত গ্রীষ্ম বর্ষায় ঘরে বসবাস করতে কোন সমস্যা হয় কি না? □হ্যাঁ □না

হ্যাঁ হলে, কি সমস্যা হয়.....

40. এছাড়া বাড়ীতে বসবাস করতে কোন সমস্যা হয় কি না?□হ্যাঁ □না

হ্যাঁ হলে কি সমস্যা.....

41. সাধারন বৃষ্টীতেই কি ঘরে পানি ঢুকে যায়? □হ্যাঁ □না

হ্যা হলে, তখন কি করেন .....

42. অতিরিক্ত বৃষ্টিপাতে কি ধরনের সমস্যার সমক্ষীন হতে হয় .....

43. বৈদতিক ব্যবস্থার ধরন কেমন

□বৈধ সরকারি সরবরাহ □অবৈধ বিদ্যুত সরবরাহ

44. গৃষ্মকালে বৈদতিক ব্যবস্থা কেমন থাকে? .....

45. অতিরিক গরমে ঘরে বসবাস করেতে সমস্যা হয় কি? □হ্যাঁ □না

হ্যাঁ হলে। কি ধরনের সমস্যা .....

46. জালানি ব্যবস্থার ধরন কেমন

□সাপ্লাই গ্যাস সরবরাহ □গ্যস সিলিন্ডার □খড়ি চুলা □অন্যান্য.....

47. একটি চুলা কতটি পরিবারের রান্না কাজে ব্যবহার করা হয় □২-৪ টা ৫-৭ টা □৮-১০ টা □১০ টার অধিক পরিবার

48. শীত কালে গ্যাস সাপলাই কোন সমস্যা হয় কি? □হ্যাঁ □না

হ্যাঁ হলে। কি ধরনের সমস্যা .....

49. বর্ষা কালে রান্নার জন্যে জালানীর কি ধরনের ব্যবস্থা থাকে .....

50. বসবাসরত ঘর কখন মেরামত করা হয়েছে কি না?

51. বাড়ী মেরামত করতে কোন সরকারি/ বেসরকারি সংস্থা সহায্য করেছে কি না? □হ্যাঁ □না

হ্যাঁ হলে কি ধরনের.....

52. বসবাস ঘর ব্যবহারে সমস্যা সমাধানে কী করনীয় বলে মনে করেন? .....

D. **Water and Sanitation/ পানি ও স্যানিটেশন**

53. নিরাপদ পানি সম্পর্কে জানে কি না?□হ্যাঁ □না

54. খাবার পানির উৎস কি?

□টিউবওয়েল □বিল/ঝিল □সরবরাহকৃত পানি □ওয়াসা □অন্যান্য.....

55. খাবার পানি ফুটিয়ে খায় কি না? □হ্যাঁ □না

56. অনান্য কাজে ব্যবহৃত পানির উৎস কি

□টিউবওয়েল □বিল/ঝিল □সরবরাহকৃত পানি □ওয়াসা □অন্যান্য.....

57. খাবার পানির মান কেমন (স্বাদ, গন্ধ ও বর্ন).....

58. পানি সংগ্রহ করতে সমস্যা হয় কি না? □হ্যাঁ □না

হ্যাঁ হলে কি সমস্যা.....

59. স্যানিটেশন ব্যবস্থা কেমন

□পাকা ল্যাটট্রিন □কাচা ল্যাটট্রিন □ঝলন্ত ল্যাটট্রিন □কোন নির্দিষ্ট স্থান নেই □অন্যান্য

60. কতজন একটি ল্যাটট্রিন ব্যবহার করে □২-৪ জন □৫-৮ জন □৯-১৫ জন □১৬ -২০ জন □২০ জন এর উর্দ্ধে

61. পানি সংগ্রহে বর্ষাকালে কোন সমস্যা হয় কি? □হ্যাঁ □না

হ্যাঁ হলে। কি ধরনের সমস্যা .....

62. পানি সংগ্রহে গ্রীষ্মকালে কোন সমস্যা হয় কি? □হ্যাঁ □না

হ্যাঁ হলে। কি ধরনের সমস্যা .....

63. ল্যাটট্রিন ব্যবহারে বর্ষাকালে কোন সমস্যা হয় কি? □হ্যাঁ □না

হ্যাঁ হলে। কি ধরনের সমস্যা .....

64. বৃষ্টিতে এলাকায় জলাবদ্ধতা হয় কি? □হ্যাঁ □না

জলাবদ্ধতায় কী ধরনের সমস্যা হয় .....

65. জল্বদ্ধতায় ল্যাটট্রিন ব্যবহারে কোন সমস্যা হয় কি? □হ্যাঁ □না

হ্যাঁ হলে। কি ধরনের সমস্যা .....

66. বসবাসরত এলাকায় ড্রেনেজ ব্যবস্থা কেমন.....

67. বৃষ্টি ও জলাবদ্ধতায় ড্রেনেজ ব্যবস্থার কি অবস্থা হয় .....

68. গৃহের নিত্য দিনের ময়লা আর্বজনা কোথায় ফেলা হয়?

□পানির মধ্যে □বাড়ীর পাশে ফাঁকা জায়গায় □রাস্তায় □ডাস্টবিন □অন্যান্য

69. ময়লা নিষ্কাশন ও ড্রেনেজ ব্যবস্থায় সমস্যা হয় কি না? □হ্যাঁ □না

হ্যা হলে, কি ধরনের সমস্যা.....

70. এই বিষয়ে সরকারি ও বেসরকারি কোন সহায়তা পাওয়া যায় কি না? □হ্যাঁ □না

হ্যা হলে, কি ধরনের.....

71. স্যানিটেশন ও ড্রেনেজ ব্যবস্থায় সমস্যা নিরসনে কী ব্যবস্থা নিয়ে উচিত বলে মনে করেন?

.....

E. Health/স্বাস্থ্য

72. কখনো কী আপনি বা আপনার পরিবারের কেউ ডায়রিয়া/ কলেরা/মেলেরিয়া/ডেঙ্গু আক্রান্ত হয়েছে □হ্যাঁ □না

হ্যা হলে, কি কারনে.....

73. কখনো কী আপনি বা আপনার পরিবারের কেউ উক্ত কারনে হাসপাতালে ভর্তি হয়েছে □হ্যাঁ □না

হ্যা হলে, কি কেন.....

74. গ্রীষ্মকালে অতিরিক্ত গরমে এবং শীতকালে অরিরিক্ত ঠান্ডায় আপনি বা আপনার পরিবারে কেউ সমস্যায় পড়েছেন কি? □হ্যাঁ □না

হ্যা হলে, কি ধরনের সমস্যা.....

75. সাধারনত চিকিৎসা গ্রহনের জন্যে কোথায় যাওয়া হয়

□সরকারি হাসপাতাল □বেসরকারি হাসপাতাল/ক্লিনিক □এনজিও ক্লিনিক □হমিও □অনান্য

76. কি ধরনের সহায়তা আপনারা সরকারি হাসপাতাল থেকে পেয়ে থাকেন

77. স্বাস্থ্য সচেতনা মূলক কোন ব্যবস্থা সরকারি/ বেসকারি ভাবে করা হয় □হ্যাঁ □না

হ্যাঁ হলে, কি ধরনের.....

78. অসুস্থ্যতায় চিকিৎসা সেবার খরচ বহন করায় সক্ষম কি? □হ্যাঁ □না

না হলে, সে ক্ষেত্রে কি ভাবে ব্যবস্থা করে.....

F. Opinion about problem solving on impact of climate change of the urban poor/
দ্ররিদ্র শহর জীবনে জলবায়ু পরিবর্তনের প্রভাবে সৃষ্ট সমস্যা সমাধানে মতামত

79. নিজের জীবন যাপন উন্নয়নে বিবেচ্য বিষয়

□সরকারি অনুদান সহায়তা □যাতায়াত ব্যবস্থার উন্নয়ন □বিনামূল্যে স্বাস্থ্যসেবা প্রদান

□নিত্য খাদ্য সামগ্রীর মূল্য হ্রাস □অবৈতনিক শিক্ষা/প্রশিক্ষন সহায়তা

□স্বাস্থ্য সম্মত আবাসন ব্যবস্থা □সুযোগ সুবিধা বিকেন্দ্রিকরন □কর্মসংস্থানের সুযোগ বৃদ্ধি

□ বিনদন ব্যবস্থা করন □পুর্বাসন ব্যবস্থা জোরদার করন □দূর্যোগ সচেতনতা মূলক কর্মসূচী প্রনয়ন □ দূর্যোগ পূরব, দূর্যোগ কালীন ও দূর্যোগ পরবর্তী সহায়তা ব্যবস্থার উন্নয়ন

80. জলবায়ু পরিবর্তনে পরিবারের আবাসস্থলের সমস্যা নিরসনে বিবেচ্য বিষয়

□পরিকল্পিত আবাসন ব্যবস্থা □স্বাস্থ্য সম্মত পারিপার্শিক পরিবেশের □যাতায়াত ব্যবস্থার উন্নয়ন

□পরিকল্পিত ড্রেনেজ ব্যবস্থা □স্বাস্থ্য সম্মত ল্যাটিন □সঠিক বৈদ্যুত সরবরাহ □জালানি ব্যবস্থা

□স্বাস্থ্য সম্মত পানি সরবরাহ □সঠিক ময়লা আবর্জনা নিষ্কাশন ব্যবস্থা

Date: **Name of interviewer:**