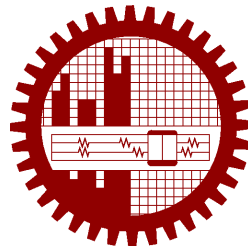


**A STUDY ON THE SUSTAINABILITY OF CBO-MANAGED WATER
AND SANITATION SERVICE IN SLUMS OF DHAKA CITY**

By
Foyzun Nahar

MASTER OF URBAN AND REGIONAL PLANNING



DEPARTMENT OF URBAN AND REGIONAL PLANNING
BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY

DHAKA, BANGLADESH

OCTOBER, 2009

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DEPARTMENT OF URBAN AND REGIONAL PLANNING
BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY,
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Thesis Acceptance Form

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Dedicated to

My Parents

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At first all praises belong to Almighty Allah, the most Merciful, and Benevolent to man and his action.

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Foyzun Nahar
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ABSTRACT

It is a big challenge for poor communities, local governments and implementing agencies worldwide to meet the Millennium Development Goal of having sustainable access to safe drinking water supply and sanitation for all by 2015. But adequate water supply and sanitation are vital for a healthy living. According to the Human Development Report 2006, 1.8 million child deaths are occurring each year as a result of diarrhea. Besides, there is loss of 443 million school days every year from water related illness, about half of population of developing countries suffering at any given time from water and sanitation related diseases and millions of women spending several hours a day fetching water. For a long time Dhaka city is suffering problems associated with the delivery of water and sanitation facilities in slum areas. The population of Dhaka city has been increasing rapidly in the last 25 years. About 22 percent of the urban inhabitants live in the slums. Less than one – third of that population have access to safe water supply and one-fifth have access to proper sanitation services, though more than 35 NGOs are working for providing safe water Sanitation (WATSAN) services to the poor people in this city for more than two decades. There is evidence that poor people are very willing to invest in safe water supply and sanitation services (though they may be more able to do so through organization/labor/materials than with cash), which is not surprising since their livelihoods are very dependent on these services. Community Based Participatory approaches in the WATSAN Sector were developed during the early 1990s, after realizing the problems associated with the top-down and supply driven approach in this sector implemented in earlier years. Community participation, management and empowerment may mean a substantial shift in the distribution of the cost burden of implementing WATSAN systems, and therefore it should increase the chances of their execution. Besides, WATSAN interventions have a higher chance to be sustainable if they involve local populations in the planning, designing and implementation stages of the project cycle.

The present research study has focused to analyze the sustainability of CBO –managed WATSAN services in slums of Dhaka City. To do so, the study has compared the hygiene practices of CBO and Non CBO-managed slums in case of providing WATSAN services in the studied slums of Dhaka City. It has also pointed out the changes brought in the community over the years. Finally, the study has tried to measure the sustainability of the intervention using CBO based approach, which has raised some recommendation. It is expected that the recommendation put forth in this study would be helpful in achieving sustainable WATSAN services in the slum areas of Dhaka city.

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ABBREVIATION

ADB	Asian Development Bank
ARBAN	Association for Realization of Basic Needs
CBO	Community Based Organization
CDC	Community Development Committee
CMG	Community Management Group
CUP	Coalition for Urban Poor
DCC	Dhaka City Corporation
DPHE	Department of Public Health Engineering
DSK	Dusthat Shastha Kendrea
DWASA	Dhaka Water Supply and Sewerage Authority
GO	Government Organization
GOB	Government of Bangladesh
HTW	Hand Tube well
IDWSSD	International Drinking Water Supply and Sanitation Decade
LGD	Local Government Department
LGED	Local Government and Engineering Department
NGO	Non-Government Organization
SMC	Sanitation Management Committee
UNDP	United Nations Development Fund
UNICEF	United Nations Children Education Fund
VERC	Village Education Research Center
WASA	Water Supply and Sewerage Authority
WATSAN	Water and Sanitation
WMC	Water Management Committee
WSC	Ward Sanitation Committee

GLOSSARY

Bazar	Market
Cluster Latrine	A number of sanitary latrines constructed in a row to meet the demand of latrine for more families in a crowded area, particularly in slums. Here there are separate rooms for women, children and men. But, there is no provision of Water Pipe line in the same structure. Water Connection may be adjacent to this structure.
Hanging Latrine	Elevated latrine structure with an open area and below allowing feces to fall a pond or lake or ditch or in ground or Canals
Kutchu	Temporary structure or vulnerable to very light disaster
Pucca	Brick Built and Permanent Structure
Sanitary Latrine	A latrine meeting the hygienic criteria, i.e having water seal, no odor, no feces on the pan, the outlet must be properly connected with the sewerage system or with a soak way, the outlet must not pollute air, water or environment, having proper water availability , privacy and not letting flies in.
Sanitation Block	A number of sanitary latrines constructed in a row to meet the demand of latrine for more families in a crowded area, particularly in slums. Here there are separate rooms for bathing and toilet women, children and men. Additionally, there is provision of Water Pipe line and water reservoir in the same structure.
Single Pit Latrine	A dug latrine with one ring or more ring and a slab
Slum	An area with over crowded illegal low income settlements. Slums are characterized by poor water supply and sanitation, poor schools, fire hazards and shops selling over priced goods
Twin Pit Latrine	A dug latrine with one ring or more rings and a slab but completely separating in twin pits.
Ward	Smallest Electoral (Administrative) Unit of City Corporation. For Operational convenience, Municipal areas are divided into several Wards. The ward Boundaries area are Specified by Government Gazette
Water Point	Legal Connection to DWASA water supply and water is distributed from holding tanks connected to the city supply using two no 6 suction pumps
Water Seal	When the Pit is below the latrine, a simple goose neck type water seal is used with a hemispherical bowl below a vertical outlet to the pan.

Chapter one: Introduction

1.1 Background and Present Status of the Problem

The general idea is that urbanization is a result of industrialization; however, in Bangladesh, urbanization is the result of migration in the rural areas (Eusuf Ahmatiz Zohra, 1996). Notwithstanding the positive contribution of urbanization to economic growth, rapid and haphazard growth has also led to an increase in urban poverty. The number of urban poor in Bangladesh is staggering and the rate of their growth has been very high.

Generally, most researchers agree that slums lack the most basic amenities such as sanitation, clean water, electricity and other city services (Faruque and Samad, 2008). The paradox of community water supply system in many developing countries is that everyone has a right to water supply, but in fact many people do not have access to safe water supply and sanitation. Water supply and sanitation have become the critical and important factors in public health and socio-economic development in most part of the world, particularly in developing countries. Half of the lives are lost in developing countries due to unsafe water and poor sanitary condition. Every year, million of the world's poorest people die from preventive diseases caused by inadequate and unsafe water supply and sanitation services. Hundreds of millions regularly suffer from regular bouts of diarrhoea or parasite worm infections that ruin their lives. The impact of inadequate water and sanitation services falls primarily on the poor. Unreached by public services, people in urban slum and squatter areas of developing countries make their own inadequate water arrangements or pay excessively high prices to the illegal supplies for water suppliers (Wood 1998). Although accurate data is not available, most of the existing water supply services are not capable of fulfilling demand requirements. It is estimated that in urban areas about 45% of the population have no access to reasonably safe water (Zafor, 2001).

On the contrary, the Government of Bangladesh (GOB) is committed to achieve 100% sanitation coverage by 2010 (Department of Public Health Engineering, 2005). To achieve these targets, the government has to emphasize on improving sanitation as a national priority. The government has already taken the initiatives to achieve this national sanitation target in collaboration with development partners and NGOs. According to the National Sanitation Strategy 2005, local government and

communities shall be the focus of all activities relating to sanitation. All other stakeholders including the private sector and NGOs shall provide inputs into the development of the sector within the preview of all government policy with Department of Public Health Engineering (DPHE) ensuring coordination. The government had conducted a national Baseline Survey in October 2003 to assess the extent of sanitation coverage. Out of a total number of 21,394,093 families in the country, only 7,108,362 families (33.23%) were using hygienic latrines. The country has been able to achieve 72% coverage at the end of March 2006, which is an increase of about 39 % from the baseline in October 2003 (LGD and UNICEF, 2004).

Traditional Government approaches to improve sanitation have focused on technocratic and financial patronage, rather than empowering people to understand the problem and benefits of sanitation. The majority of people in Bangladesh have a poor understanding of the link between poor hygiene and disease. For sustainability of sanitation program behavioral change is very important (Sabur 2006). At present there is no policy for public agencies to deliver water and sanitation services to the poor, who live in informal settlements, mainly in slums. Urban poor communities can and must be certainly involved in improving their own lives and the general condition of the city in which they live. Communities that have taken steps to change things, to transform their own lives and settlements in various ways, provide powerful example for other communities, and become the best catalyst for other larger transformer (Hancett, 2003). At present DWASA and CWASA are providing water connection in few slums of Dhaka and Chittagong city through local NGOs under an executive order (Sabur, 2006).

NGOs have implemented many sanitation programs with direct support from donor agencies. Many NGOs have implemented successful sanitation initiatives by building community demand for improved sanitation. About 700 NGOs (international, national and local) are involved in Water and Sanitation activities (Sabur, 2006). Local NGOs, in many places run Village Sanitation Centers (VSCs), which produce, promote and sell latrines/accessories to the users. Local NGOs are also promoting growth of private production centers in un-served areas. Local entrepreneurs are identified and trained in production of latrine accessories at established NGO managed VSCs. Also, except the

efforts of a few NGOs there is no public system to manage latrine sludge (NGO Forum for Drinking Water Supply and Sanitation, 2006).

Sanitation is a complex sector. It needs hardware and software, appropriate technological options and change of behavior to adopt the technological options and hygiene. The technological option demands operation and maintenance, which may not be possible on individual basis therefore require community to mobilize and work together, which might demand expertise in community mobilization, formation and maintenance of the group, which will require to tackle the governance, transparency and accountability issues in both organizational and financial terms demanding expertise in those areas. Starting in early 2000, a number of NGOs started a completely new approach for sustainable development. Instead of individual households, they addressed a whole community as one unit. (PSTC, Water Aid and IRC 2004) The approach is new in Bangladesh but there are a lot of communities in India and Pakistan who has been successfully continuing their CBO- managed water sanitation programs in their respective communities. (Ahmed and Sohail, 2003).The community designed and managed toilet blocks and water tanks in Pune, Bangalore and Karachi are the examples of CBO managed sustainable water-sanitation provision in urban slums (Burra, 2003).

The present research study has focused to analyze the sustainability of CBO –managed WATSAN services in slums of Dhaka City. To do so, the study has compared the hygiene practices of CBO and Non CBO-managed slums in case of providing WATSAN services in the studied slums of Dhaka City. It has also found out the changes brought in the community over the years. Finally, the study has tried to measure the sustainability of the intervention using CBO based approach, which has raised some recommendation.

1.2 Rationale of the study:

Bangladesh is economically poor country. Due to rapid urbanization and higher population growth rate, the cities have been developing, though the basic facilities are not increasing at the same rate. The destitute and poor people live in the city in low level residential areas as a tenant or in different slums. The total physical environment and neighborhood facilities are very poor in this slums and squatters. Maximum dwellers of these urban poor areas do not have the access of urban facilities such as,

water supply, electricity, sewerage, sanitation etc. Water and sanitation are major basic needs of people to continue healthier life. In slum areas the water supply and sanitation facilities are inadequate, unsafe and unhygienic. The impetus that drives improvement in urban water supply and sanitation services usually does not benefit the poor with concern for the needs of the poor. This is a commonly held view that the provision of basic water and sanitation services is the job of the government, and that the population have the rights to access such services, irrespective of their ability to pay them. Whereas evidence mounts to indicate that the poor in fact often pay much more for all these. For example, the urban poor who have to rely on water from water vendors pay up to twenty times as much for the same amount of water as the better-off people who are connected to the city's piped water supply and sewerage system, on a per liter basis, than the rich subsidies for water mainly benefit those who are not poor, and the investment requirements for water are far too great for governments to afford. This sense of social obligation to serve the poor has persisted, and with it an idea existed that the government should be the direct provider (Serving Poor Consumers in Southern Asian Cities-and overview paper, 2001).

Experience with participatory infrastructure development demonstrates that Community Based Organizations and infrastructure users can make important contributions to the provision and operation and maintenance of infrastructure systems. User participation in urban infrastructure service management constitutes a form of public-private ownerships. Experiences in other countries shows that it is possible, with innovation and effective partnerships, to benefits the poor, and in fact the poor can benefit disproportionately (Galvis and Vissacher, 1998).

However, a lots of development projects have been implemented in the slums of Dhaka city following different approaches. There is no common approach followed by the NGOs to achieve sustainability of these interventions. A number of Tube wells and latrines have been installed in different slums without any community intervention or even not doing any proper base line survey under some development projects. Some where the hygiene messages have not also been included in those projects. On the contrary, some others preferred the inclusion of the community in the development process in their respective areas. The present study, so, focused to find out the sustainability of the Community Based Organizations' managed water and sanitation services in the slums of Dhaka city.

1.3 Objectives of the study:

The main objectives of this study are:

- To investigate hygiene practices in the slums of Dhaka City with NGO implemented CBO and Non CBO-managed water and sanitation projects.
- To compare the effectiveness of CBO and Non CBO managed WATSAN projects.
- To assess the sustainability of CBO-managed and Non CBO-managed WATSAN initiatives in the slums of Dhaka City.

1.4 Scope and Limitation of the study

The scope of this study is confined to water supply and sanitation facilities of the slum dwellers of some selected slums in Dhaka city. The main attention has been given to the sustainability of the provision of water supply and sanitation services in the households and hygienic practices of the slum dwellers. In this state of affairs, house ownership; occupation of the household heads; frequently occurring diseases; sources of water for drinking, cooking and bathing; water safety status of the water used for drinking and cooking; use of hygienic latrines; practice of keeping the latrines hygienic; hygienic practice in daily activities; role of Community Based Organizations and other groups associated with the CBOs and gender issues have been selected as variables.

Due to limitation of time and resources, the study has mainly confined only on the safe water and sanitation practices and the sustainability of the CBOs in these interventions in the selected slums of Dhaka city.

Chapter Two: Conceptualization and Literature Review

2. Introduction

Conceptualization of the operational terms and Literature Review is very essential for research works to have proper understanding about the style and nature of the study as well as to be acquainted with the similar types works already been conducted in the same arena in same or different perspectives. This chapter has discussed a lots of operational terms and approaches accumulated from different literary sources and which are related to this study. Additionally, it has also given several ideas about the practical experiences from different societies and countries about the implementation of the approaches, which this study is going to be analyzed in the slums of Dhaka city.

2.1 Conceptualization of the operational terms

2.1.1 Community-based approach

The most elementary case of participatory management focuses on community-based activities for developing and improving local sanitation services and conditions. The essential elements for development inputs and partnership is the social group, which is referred to as **Community Based Organization (CBO)**. Development objectives, in this case, aim to support community-based activities by providing needed inputs, enable them by improving relevant conditions in the legal, regulatory, economic and political context, and in various ways, enhance the capacity of user groups to manage local infrastructure services (Ahmed and Rahman , 2000, *ibid*).

2.1.2 CBO Managed Water and Sanitation Services in Bangladesh

Community Management of services backed by the measures to strengthen local institutions in implementing and sustaining water and sanitation programmes, was one of the guiding principals in international declarations such as the New Delhi Consultation in 1990 and reconfirmed in agenda 21 (Evans, 1993). Experiences from many developing countries shows that even very good water agencies cannot successfully operate and maintain a network of widely

dispersed water systems without the full involvement and commitment of the users (Lammerink, 1998). Community management does not imply that the communities must take care of everything or pay the full costs. Management is a concept that is very much in development and is changing to sharing responsibilities in new ways. Team learning develops the skill of group people to look beyond individual perspectives. It requires positive learning environment. This is not easy in a politicized environment such as the water and sanitation sector (Ahmed and Rahman , 2000, *ibid*).

Informed decision can change the attitudes of people. As it is clear for everyone what choices there are and what choices eventually has been made, the power of the decision maker changes from hidden agenda to public accountability. It also dramatically cuts opportunities for malpractice and corruption and may lead to easy acceptance of the consequences. In Bangladesh, some WATSAN Projects is being implemented through Community Based Organization (CBO) approach where Committees are formed from grass route level to local level. In the Community level, this committee is named as Community Development Committee (CDC), in the slum level, this committee is called CBO and in the ward level , it is termed as Ward WATSAN Committee. There is a link between each Committees. Additionally, the activities of each committees are different (Project Implementation Manual, ASEH, ARBAN, 2006). The figure 2.8.1 represents the activities done centering CBO in the rural areas of Chittagong region through Village Education Research Center (VERC), a national NGO funded by Water aid Bangladesh.

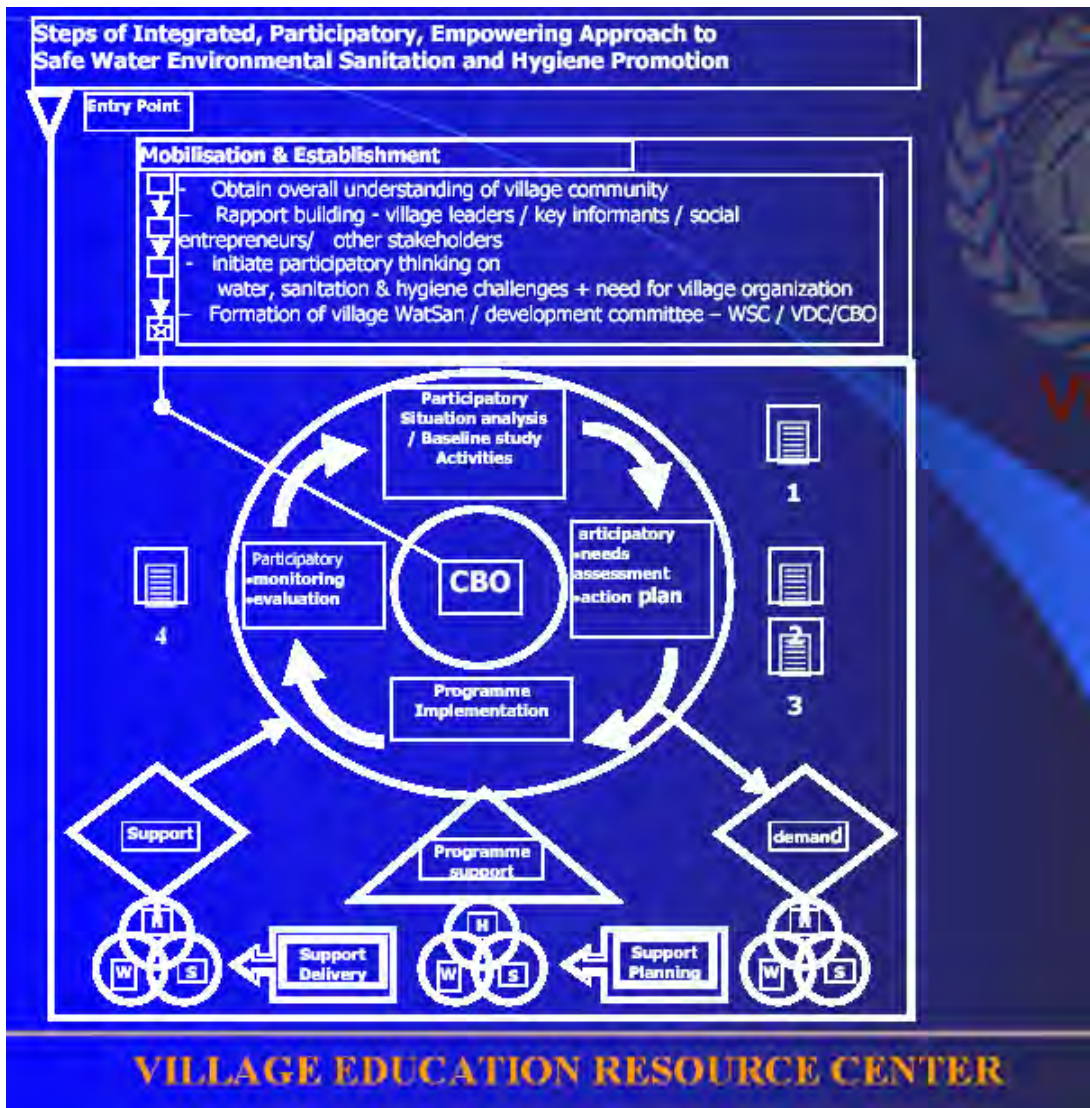


Figure 2.1.2: Activities done following CBO based approach in Rural areas of Chittagong Region.

2.1.3 Sustainability of Community Management

The essence of community management of water supply and sanitation system boils down to: who manages (decides) what, with what tools and with whose support so that the community as a whole benefits. The object of management is the water supply and sanitation system. This system needs not only to overcome the hygiene risk the community faces from the existing water supply and sanitation system, but also to provide the service the community wants, is financially willing to support and for which an adequate management system can be found (Visscher, 1997).

To sustain the performance of the system some organization have to be established to manage the task at hand. This can very well be a **Community Based Organization (CBO)** providing an enabling environment is available.

Basic requirements of this Management are:

- I. Enabling environment which guarantees the user groups and communities can legally establish 'water enterprise' to manage their water supply system.
- II. A technology with operation and management requirements that are within the capacity of the local level with possible back-up by private sector or government.
- III. A level of service that responds to a realistic demand to the community
- IV. Partnership attitude between agencies and communities or user groups in which perceptions of problems and solutions can be discussed on the basis of equity and respect, valuing both academic and community knowledge at the same way.
- V. Transparent decision making ensuring that informed choices can be made.
- VI. Proper management arrangements including practical management tools.
- VII. Impartial institutions that has the power of authority and the skills to mediate between the 'water enterprises' and the users in case of important differences of opinion.
- VIII. Adequate monitoring to enable to learn from the process.

(Ahmed and Rahman , 2000, *ibid*).

2.1.4 Water

A sufficient quantity of water of an acceptable standard is a prerequisite to life itself. Bringing supplies nearer to the home can save time for those, mainly women, who trek long distances to collect water. But water needs to be properly managed in order to provide the greatest benefit. Examples of water management tasks include: protection of sources and supplies, operation and maintenance of water and sanitation facilities, drainage and wastewater disposal. Increasing water quantity for people who have a good understanding of hygiene and put their knowledge into practice, will have a

greater impact on general health than an improvement in water quality on its own (Sarah House, 2006).

2.1.5 Sanitation

Sanitation is a measure that is undertaken to protect health. The three main categories of sanitation are: excreta disposal, refuse disposal and Vector control.

- **Excreta disposal:** The appropriate disposal of excreta is one of the most effective barriers to disease transmission. Faeces contain many pathogens (disease-causing organisms) and can also contain parasites (organisms that live in a host such as a human being). Both can cause illness, but this can be prevented if faeces are disposed of correctly. Methods of appropriate disposal of excreta include: pit latrines, septic tanks with soak away fields and sewerage and wastewater-treatment facilities. In many developing-country situations, the pit latrine is the most appropriate method of excreta disposal as it is simple, easy to build and operate and maintain. There are many different pit latrine arrangements, each of which is suited to different situations. Variations include: dry or wet pit (pour flush), simple or ventilated improved, single pit or double pit, individual or communal and pit or borehole, etc(Sarah House, 2006).
- **Refuse disposal:** Refuse that is not disposed of in a sanitary manner can become a breeding or feeding place for vectors, and can cause an increase in the spread of disease. Appropriate disposal includes: recycling of valuable materials, re-use of organic materials as fertilizers, burying in pits in the ground and incineration(Sarah House, 2006).
- **Vector control:** Vectors such as rats, fleas, flies and mosquitoes can all transmit disease. Methods to reduce vector numbers include: improving excreta-disposal methods, improving refuse-disposal facilities, improving drainage to remove standing water, chemical and biological methods of control (Sarah House, 2006).

2.1.6 Slum

Slums in Dhaka City mostly consist of densely constructed huts, usually arranged in rows often containing Multiple families. According to the ADB Poverty study

(1996), ninety percent of Dhaka's urban poor households have only one main room. Sixty-five per cent have less than 100 square feet. Approximately 40 per cent of the families live in kutchha houses. Inadequate or informal access to basic services also spells out the magnitude of poverty among slum and squatter dwellers in Dhaka city. The poor frequently pay rent for these crowded shelters, either to landlords and their intermediaries on private land or to *& facto* landlords and their Intermediaries of landlords. The absence of any open space for ventilation and air circulation within the slums make living condition extremely Unhealthy (ADB-GOB, 1996, "Urban Poverty Reduction Project", Final report prepared by IDSS, BCL and Proshika).

Most of the males earning members of the slum areas are beggars, rag pickers, rickshaw pullers, cart pushers, vendors, hawkers, day laborers etc. Almost all working women are engaged as house maids and servants and garment workers (ADB-GOB, 1996, *ibid*).

Slums and squatter communities have their own social systems, fractions and groupings. Often a strong leader dictates the terms and conditions under which residents of a particular slum will live. The leader's group may also collect rents and tolls, and might also arbitrate in the case of disputes and organize the inhabitants to resist eviction.

2.1.7 Hygiene practices related to water and sanitation services

Hygiene practices include both safe water sanitation and its proper handling in use. The following chart indicates the features and activities of different hygiene practices.

Hygiene Practices	Relevant Features and Activities
Sanitation, Excreta disposal	<ul style="list-style-type: none"> • Location of defecation sites • Latrine maintenance (structure and cleanliness) • Disposal of children's faeces • Hand-washing at <i>critical</i> times (after cleaning children's bottoms; after handling children's faeces; after defecation) • Use of cleansing materials
Water, Water Sources	<ul style="list-style-type: none"> • Protection of water source(s) • Location of latrines in relation to water source(s) • Maintenance of water source(s) • Water use at the source(s) • Other activities at water source(s) • Water collection methods and utensils

	<ul style="list-style-type: none"> • Water treatment at the source • Methods of transporting water
Water, Water Uses	<ul style="list-style-type: none"> • Water handling in the home • Water storage and treatment in the home • Water use (and reuse) in the home • Washing children's faeces • Hand-washing at <i>critical</i> times (before or after certain activities, including religious rituals) • Bathing (children and adults) • Washing clothes
Food, Food Hygiene	<ul style="list-style-type: none"> • Food handling/preparation • Utensils used for cooking, serving food, feeding young children, and storing leftover food • Hand-washing at <i>critical</i> times (before handling food, eating, feeding young children) • Reheating of stored food before serving • Washing utensils and use of a dish rack
Habits, cultural practices, societal norms, and school education	<ul style="list-style-type: none"> • Habit of spitting • Habit of brushing teeth • Habit of leaving cough • Practices are taught in the primary school like, cutting nails regularly, brushing teeth properly, using clean dresses, not spitting here and there, hand washing practices, using sandals,
Environment Domestic and Environmental Hygiene	<ul style="list-style-type: none"> • Sweeping of floors and courtyards • Household refuse disposal • Cleanliness of footpaths, play areas and roads • Management of domestic animals (cattle, dogs, pigs, chicken) • Drainage of surrounding areas (location of stagnant water and other mosquito breeding sites) • Condition of housing

(Astier M. Almedom, Ursula Blumenthal and Lenore Manderson, 1997)

2.1.8 Necessity of hygiene practices

Improved water supply and sanitation facilities reduce contamination of drinking water and of the environment, and reduce diarrhea disease transmission and worm infestations. Even so, World Health Organization and World Bank statistics show that as many as three million children still die from intestinal infections every year, and a third of the world's population is still infected with parasites. The main reason for this is not that too little has been invested in technological improvement of facilities, but that the facilities are often inappropriate, unaffordable, or unacceptable to the intended users. All of these result in no use, limited use, or inappropriate use of facilities.

For example, pit latrines are widely promoted in both urban and rural regions in many parts of the world, in order to prevent faeces from contaminating the environment. However, having the facility does not in itself guarantee the isolation of faecal contamination. Even where pit latrines are in use, faecal contamination can get into drinking water and food and thereby into the mouth, or directly from fingers into the mouth. Various routes of transmission, such as fingers, flies, soil, and water, may require different barriers if the spread of contamination is to be cropped (Astier M. Almedom, Ursula Blumenthal and Lenore Manderson, 1997).

Research shows that hygiene-related practices such as the safe disposal of faeces and hand-washing after contact with faecal material can reduce the rates of intestinal infection considerably.

- *Hand-washing* with soap and water can reduce diarrhea disease by 35% or more. Hand-washing can also help to reduce the prevalence of eye infections such as conjunctivitis and trachoma.

- *Safe disposal of faeces* serves as a primary barrier to prevent faeces from contaminating the environment. It is particularly important to isolate the faeces of people with diarrhea, most of whom are usually young children. Pit latrines, when used by adults and for the disposal of young children's stools, can reduce diarrhoea by 36% or more(Astier M. Almedom, Ursula Blumenthal and Lenore Manderson, 1997).

- *Protection of water* from faecal contamination can also reduce diarrhea, because some diarrhea infections are water-borne. Water quality in the home can be improved by using only a protected water source for drinking purposes; by keeping water storage vessels clean, covered, and out of the reach of young children and domestic animals; by boiling water where practical; or by putting water in clear plastic containers and exposing them to sunshine for several hours. In the special case of guinea worm, filtering with a cloth filter can provide complete protection. Improved water quality can be associated with up to a 20% reduction in diarrhoea. However, increased quantity of water used, which results from better access to water, can bring about still greater reductions.

However, much remains to be learned about the links between improved water supply and sanitation facilities, and well-designed and implemented health/hygiene promotion and health. What is clear is that good hygiene practices are necessary for maintaining good health (Astier M. Almedom, Ursula Blumenthal and Lenore Manderson, 1997).

2. 1.9 Who should be involved in Hygiene education?

Water, sanitation and health education programmes must involve the whole community – women, men, and children of all ages, classes and social status. Full involvement in the planning, design, implementation and evaluation stages of a project is vital if it is to have lasting benefits. It should also be culture- and gender-sensitive, and take account of the different responsibilities people have for promoting good hygiene practice within the community. Separate hygiene education sessions for people grouped together according to sex or age can sometimes help to ensure equal participation (Sarah House, 2006). The figure 2.1.6 shows an example of hygiene promotion steps in the community, which has been developed by ARBAN and WaterAid Bangladesh under the model CBO based Management.



Figure 2.1.9: Different stages of Hygiene Promotion in the Community

2.1.10 Water Supply and Sanitation services in the slum areas

Water supply and sanitation are two basic needs of human lives. Enabling the un-served and underserved to obtain access to a basic water Supply and safe sanitation should be the first priority of any country's National Water and Sanitation policy. Inadequate water supply and poor sanitation cause the transmission of fecally contaminated matter, which is the source of diarrhea and many other diseases (DFID 2000 "Guideline Manual of Water Supply and Sanitation Programmes" WEDC, London).

Inadequate or informal access to basic services also spells out the magnitude of poverty among the slum and squatter dwellers in Dhaka city. Compared to about 60% households of Dhaka city who are served by direct DWASA line and use sanitary toilets at home, few of the poor have such home base amenities. However about 55% slum dwellers do manage to get access to supply water, mainly through informal sources.

These include illegal connections from DWASA main, through small diameter pipes, underground pits from which the users collect water by buckets. Some people also depend on public water supply points outside the slum. It is a common sight to see slum dwellers, and primarily women queuing for collecting water. About 40 percent of Dhaka's urban poor use Tube wells, each of which caters 100 to 200 families (ADB-GOB, 1996 *ibid*).

2.1.11 Other approaches of Participation and Partnership with the community

Effective participation depends upon a clear division of responsibilities and task between stakeholders, a partnership must be formed which establishes who is responsible for what, how the activities will be coordinated and how the costs and benefits are distributed. Other approaches of participation and partnership with the community are :

1. **Area-based approach:** It aims to involve people in a government-managed development process.
2. **Functionally-based approach:** It aims at collaboration between actors, where each actor manages a particular functional domain.
3. **Process-based approach:** it aims decentralization of management functions

The strategic approaches are not mutually exclusive, of course. In practice they are applied quite flexibly and it is common that one approach evolve into the next (Schubeler, Peter, 1995).

2.1.11.2 Area-based approach

In most govt. sponsored programs of participatory development, it is not a social group but rather a particular residential area is the basic frame of reference for organizing and managing, sanitation development. Residents are commonly mobilized to participate in various phase of the development process – i.e.

planning, implementing, operation and maintenance etc., but the development agent normally initiates the plans and then development activities. The preliminary objective of beneficiary involvement in the development process is to improve the targeting measures, win beneficiary support and cooperation, mobilize financial and material inputs and promoter user support for the operation and maintenance of services.

2.1.11.3 Functionality-based approach

The functionality-based approach is somewhat more differentiated and at the same time, more balanced than the previous two. The essential frame of reference for participation is not the social group or geographic area, but particular functions of infrastructure management. This approach aims to establish clearly defined functional domains, so that each stakeholder may manage his own domain in a relatively interdependent manner. The functional domains must be structured so that each stakeholder brings his particular interest and capacities to bear. Most importantly channel of communication and procedures for collaboration must be established to ensure an efficient functional integration between the respective domains.

2.1.11.4 Process-based approach

Program which aim to decentralize infrastructure management and render service delivery more responsive to user needs take, as their frame of reference, the entire range of management processes. Management, in this context, includes such functions as the formulation of policies, goals, and strategies, long-term planning, investment programming implementation, operation and maintenance, monitoring and evaluation. While the form and intensity of citizen and user participation varies considerably, participation is relevant to every function. Decentralization implies a double movement in which the locus of management and decision making functions is shifted towards local bodies, while decision making functions themselves are opened to input from below (Schubeler, Peter, 1995).

2.1.12 Women's Participation in Community Development

Women normally manage the household's water sanitation requirements and waste disposal services, that is why they are more directly concerned with problems of infrastructure services than men. Further more, through their childcare functions women tend to be more aware of environmental conditions and the impact of these condition on health. As a result, women often initiate pressure for an improvement in service duality. Beyond the key role of women as service consumers, it is important to recognize that, with regard to infrastructure, women also play crucial roles as producers and managers of community affairs.

For example, in a community based housing upgrading project of San Judas, Managua, Nicaragua, women can make substantial contributions to the planning and actual construction of housing, including the production of basic infrastructure facilities. With local environmental quality, infrastructure and services, the role of women in the management of community affairs is more important rather than the production role. Also from a study of a spontaneous settlement in Guayaquil, Ecuador, it is found that women were generally found to be more effective than men as community mobilizers. Women were found to be more directly concerned with improving the living conditions of their family (DFID 2000 "Guideline Manual of Water Supply and Sanitation Programmes" WEDC, London)

2.1.13 Technological Options of Community Managed Water supply and Sanitation System

2.1.13.1 Community Managed Water Supply Systems

- **Hand Pump Tube well (HTW):** In Bangladesh the most common and populat technology used for abstraction of ground water is Hand Pump Tube we. It is maintained by users and HTW's caretakers, when this is installed in the shallow level (Ahmed and Rahman , 2000, ibid).
- **Group taps:** It may be used in areas where house connections are difficult to establish. Household jointly may take one private connection and share the bill as like as Central America, Indonesia,

and also India. This system requires good facilitation and over all management structure that can check when local conflicts arise.

- **Community Water Points:** A community water point or a piped system often is used by 10 to 30 households' members. The connection consists of one or more tarps and other tools. It also contains the water meter and can be locked. There is a small tap committee, which oversees proper use and collect money from the users to pay the bill and maintenance of the points.
- **Community Managed Vending Kiosks:** Water is sold per bucket at every vending points or kiosks. Sometimes it is done by the utility , or the utility gives the vending rights to concession holders in the private sector. In Niger, all towns have elected water committees, which operates under the town council. The committees employ a number of kiosk holders, who sell the water at a fixed rate. The committee manages the fund and takes care of maintenance and repairs (Ahmed and Rahman , 2000, ibid).

2.1.13.2 Community managed Sanitation system:

- **On site Sanitation Systems:** This system is built in many places in the world and can be maintained by the users. In Bangladesh, there are three types of latrines in use: home made latrine, ventilated improved pit latrines and water seal latrines. A pit latrine May require communal collection system. For example, this type of system is being introduced in Nairobi where small vacuum pumps are being used by local contractors for pit emptying.
- **Shared Sanitary Facilities:** This system is used mainly where there is not enough space for individual household latrines. People living in a cluster and share one Sanitary latrine. This system is used among others in Indonesia Kampung where people share tile toilet have their individual key and pay on a monthly. A user committee with higher presence of' women manages the funds and employs a sweeper to keep the latrines clean. In Bangladesh, there are two types of shared sanitary facilities initiated by the NGOs; they are Cluster latrine and Sanitation Block. Both of the options is used by 30 to 40 families. Both Cluster

latrine and Sanitation Block includes five to six latrines, bathrooms, special latrines for adolescent girls, children and pregnant women. The main difference between a Cluster latrine and Sanitation Block is that, there is no water point in the former one but it is present in the later one. A Sanitation Management Committee (SMC) is formed for each option, who collect money from the users for employing caretaker and for the maintenance of the facility (ITN BUET, 2007)

- **Pay and Use latrines:** This type of latrines is USED in different countries. Maintenance and upkeep are ensured from revenues. The women and children are found to be less users, unless separate facilities are available for them. In Bangladesh, many Paurashavas have pay-use latrines, some are leased and managed by private sectors (Ahmed and Rahman , 2000, ibid).
- **The Condominial system:** It is first developed in Brazil. It is a shallow sewerage system. The sewer pipes mainly installed in the backyards of the people's house and from there connect to main sewer lines. The low depth reduces both capital and recurrent costs, with local households removing blockages. The system is used among others in Recife, Brazil (Ahmed and Rahman , 2000, ibid).

2.1.14 List of NGOs working for Water supply and sanitation sectors in Dhaka City

Table 2.1.14: List of NGOs working for Water supply and sanitation sectors in Dhaka City

Sl No	Name of the NGOs	Year of Commencement
1.	Action aid DA-2	1986
2.	Al- Falah Bangladesh	1991
3.	Association for realization of Basic Needs	1988
4.	Assistance for Slum Dwellers	1991
5.	Bangladesh Manobadhikar Sangbadik Forum	1993
6.	Bangladesh agricultural Working Peoples Association	1993
7.	BRAC	1992
8.	Bangladesh Nari Progoti Sangha	1986
9.	Bangladesh Association of Women for Self Empowerment	1996
10	Bastuhara Samaj Kalyan Samittee	1985
11	Concern for Environmental Development and Research	1994
12	Community Health Care Project	1976
13	Dhaka Ahsania Mission	1981
14	Dushtha Shastha Kendra	1989
15	Employment and Technology Development Agency	1990
16	Human Development Service Society	1983
17	Hetaishi Bangladesh	1996
18	Jagoroni Chakra Foundation	1991
19	Juba Jibon Advancement Committee	1985
20	Manobik Sahajja Sangtha	1974
21	Nari Maitree	1983
22	Organization for Mother and Infants	1992
23	Participatory Development Action Research program	1993
24	Plan International	1995
25	Population Services and Training Center	1993
26	PROSHIKA	1990
27	Promotion Research Advocacy Training Action Yard	1991
28	PRODIPAN	1993
29	Rural Health Development Socieites	1993
30	Surovi	1979
31	TMSS	1994
32	Village Integrated Development Association	1996
33	NGO Forum	1993
34	Terre Des Hommes Italy	1996
35	Aparajeyo Bangladesh	1996

Source: Directory of NGOs Working in Dhaka City 2000-2001, Coalition for Urban Poor (CUP)

2.2 Literature Review: Water Supply and Sanitation Facilities – experiences from different countries

The following section deals with the recent development Water Supply and Sanitation facilities for the poor in some cities of the world. This section also describe show the cities are trying to solve growing problems of the water supply and sanitation services in urban slum areas for better services.

2.2.1 Water supply Facilities to Urban marginal Areas of Tegucigalpa, Honduras

When the Ramirez's came to this marginal urban neighborhood on the edge of Tegucigalpa, they knew there were no basic services - no water, no electricity, no sanitation facilities. The residents can do without electricity, can get by Without sanitation disposal systems, but they can not live without water - they need it for drinking and cooking, bathing, cleaning house and washing clothes. To meet the needs of this population, a water vending business quickly sprang up. Vendors carting truckloads of water barrels or large tanks brought water to these neighborhoods and sold it door-to door at a price far higher than the municipal rate. With many households earning less than US\$150.00 a month, the price of water can swallow up 20 percent of the monthly household budget. Residents have to scrimp on their water use, which means they cut back on personal and households cleanliness, thus running the risk of inviting diseases that thrive in unsanitary conditions. In Honduras, the government looked for alternative methods of water supply, and came up with a revolutionary solution. The Govt. of Honduras introduced a project for the marginal groups through SANAA. SANAA designs the system, covers the initial cost of drilling the well, and provides technical assistance and the community forms a water association, then supplies the manpower to construct the facilities, and is responsible for the administration of the system upon completion. The parties involved agree upon terms and sign a contract spelling out specific roles and expectations. This heightens community awareness and demonstrate to community members the level of support they are entitled to form the government.

They started an integrated education program into the community targeting women and children. Providing water for a community is just the first step,

teaching them to use it well is sometimes the most difficult component in improving the sanitary practices of the populace. In addition, the project provides curriculum training in environmental education for teachers in the barrio marginal. A special effort to reach the women of each community is done through “Clubs de Amas de Casa” or Housewives Clubs. In the communities where there are water projects women are also trained as health volunteers, to be able to teach other women the community better health practices for themselves and their children. Community participation in the installation and maintenance of the independent water systems has to date been an unexpected success. In every one these systems, the potential for cost recovery has been proven and the cost of the self-contained system is less than that of paying water vendors (Zairis, 2007).

2.2.2 Low- Cost Water Supply in Manila

The private operator in the West Manila concession decided to provide individual connections to the poor through the Bayan Tubig (“water for the community”) project in various areas. The project aims to fulfill the service expansion contractual obligations by devising appropriate technological options, adapting solutions to the social context, developing strong cooperation with the communities, and using local partners such as community-based organizations and NGOs. It is designed to benefit 600,000 low-income households by the end of the concession period.

The private operator finances, constructs and maintains the infrastructure. The Barangays, which are the lowest level of local government, have to give their approval before implementation. The CBOs and the NGOs play a key role as they help to map the network, provide socio-economic data, and help motivate people to take part (Rosenthal, 2001).

In order to provide rapid expansion of services, a low-cost technical solution has been adopted to reach each individual house. The densely populated poor communities are provided with a buried mainline as far as possible, but where it is not possible to bury the pipe, the rest of the network is above ground, partially covered or attached to a wall. This line goes up to a battery of meters, usually at environment perimeter of the community. From the meters, each homeowner makes his own connection, above ground, usually

using low-cost plastic Pipe. The main advantages of the Bayan Tubig schemes are easy implementation, speed and low-cost. The average cost of a connection is estimated to US\$97(Rosenthal, 2001).

2.2.3 . Mvula Trust, South Africa

Following the first democratic elections in 1994, the new South African government formulated a Reconstruction and Development Programme with top priority given to basic needs e.g. water and sanitation. A survey carried out in 1995 (WRC, 1995), established that 60-65 per cent of households had pit latrines of some kind, most of which had been built at the owner's cost and initiative. This shows that there is demand for sanitation in both rural and peri-urban areas.

The Mvula Trust was established to help meet that demand. The trust is an independent agency working with communities in South Africa to improve water and sanitation services. It applies the principle of community based lending by operating a social investment fund, which targets financial support, training, information and technical assistance to organized community water and sanitation committees. The trust was established in 1993 and by 1995 it had registered almost a thousand local applications for financing water and sanitation facilities. By the end of the year 192 projects had been approved filed by communities and implemented by properly constituted and representative water and sanitation committees.(Hartvelt et al, 1997)

Although the government led project to improve sanitation includes the sharing of costs as one of its aims it remains ready to subsidize a significant proportion of the overall capital investment. Communities contributed 8 per cent of the capital cost in cash or in kind by working for below local rate wages. They were also expected to pay for operation and maintenance and manage existing and new facilities (Saywell, 2006)

2.2.4 Orangi Pilot project(OPP), Karachi, Pakistan

The Orangi Pilot Project (OPP) model has followed a community –based approach towards *participation*, the social group with its internal dynamics of decision-making and self-managed development activities was the main frame of reference for project implementation. It has never used credit schemes to finance sanitation and sewerage. However, it offers an alternative approach to the problem of developing water and sanitation provision in peri-urban areas from which important lessons can

be drawn. The project facilitated a self-help approach by promoting community organization and political mobilization. Three principles were used:

- Sanitation infrastructure costs were lowered by using modified technology;
- Technical support was provided to help householders make suitable choices; and
- A clear distinction was made between the internal (household and community) responsibilities and external (municipal) responsibilities in terms of the sewerage network.

The approach reveals that when the product is attractive enough people will find a way to pay for it and hence credit becomes less important. It also recognises that development takes place over time and not at a rate that can be dictated by external assessments of needs and disbursal targets (Schubeler, 1995; Valey, 1995).

2.2.5 Self-help Family toilet Scheme, Yogyakarta

While the Self-Help Family Toilet Scheme in Yogyakarta does not fit very clearly into any of the types of participatory approaches, characteristics of the area-based approach predominate. A geographically-based analysis was conducted of sanitation conditions and related socioeconomic criteria through out the city, and this was employed to determine appropriate technical and organizational solution for each locality. Development activities were initiated by the development agent and implemented, for the most part, at the individual household level.

Project beneficiaries are mobilized to form borrower groups, at least in the NGO Operated "Type II" version. User groups do not manage development activities, however, as would be the case in a community-based approach. On the other hand, there is some degree of functionally-based division of tasks, particularly as regards the privately operated public toilet solution. However, collaboration linking to the municipal system—which would be a characteristics of functionally-based approach are not elaborated (Schübeler, 1995).

2.2.6 Water, Environmental Sanitation for the Urban Poor in Nepal

This is a joint initiative of Water Aid in Nepal and UN-HABITAT, Water for Asian Programme (WAC) Nepal, through a collaborative programme designed on the principle of Community Based Water Resource Management. This incorporated the major issues of source sustainability , pollution control and safe water quality. The

programme adopted a demand responsive approach to better manage demand and improve efficiency and equity of water supply whilst ensuring benefits for those who were currently deprived of water and sanitation. Similarly, the programme gave a high priority to the ability and willingness of the community and local people to contribute for the effective implementation of the programme and operation and maintenance. This programme has been implemented in a total number of 19 wards (only slums and squatter areas) in three urban areas of Baharatpur, Lubdhu and Nayan Tole. The major activities were construction of drainage systems, waste water management and pavements; construction of improves water supply system; advocacy, capacity building and skill development; environment, sanitation and hygiene education; and improvement of drinking water and sanitation. This is a successful programme of CBO based approach in Nepal (Water Aid, 2004).

2.2.7 Unsuccessful micro credit programme, Ghana

The Kumasi Strategic Sanitation Programme is well known for pioneering work on willingness to pay for sanitation in urban areas (Whittington et al, 1992).

The overall goal was to implement a strategy for urban sanitation programmes that could be replicated in other urban centers in Ghana. The guiding principle was the sharing of costs between the project and end users. Loans were made directly to tenant landlords for the installation of shared sets of latrine units. Repayment was to be made by the landlord over a 2-3 year period to recover their costs. The landlord would either add an amount to the rent or collect a separate fee.

Collection of loan payments in this way has proved problematic. It has lead to over billing of tenants and lapses to the regular payment schedule. Landlords sometimes retained funds until all tenants had paid up or used the money as working capital.

As of May 1993, over 40 per cent of the 224 loans disbursed in the 3 pilot areas were in arrears. Collection was further complicated by the fact that the responsibility for debt collection did not lie with a single financial institution but rather a combination of project staff and the community steering committee which added to overall loan administration costs (Fonseca, 2006).

Table 2.2: Summary of Water Supply and Sanitation Facilities – experiences from different countries

Project	Sanitation strategy used	Finance strategy used	Results	Key points
Water supply Facilities to Urban marginal Areas of Tegucigalpa, Honduras	Variety of sanitation options to suit customer. Community participation ensured	CHF provide funding to local NGO's for on-lending to low-income borrowers	US\$350,000 distributed in 1300 small loans, repayment rates of 95%	Flexible choice of sanitation options and loan terms Technical advice and help with contracts
Low-Cost Water Supply in Manila	low-cost technical solution has been adopted to reach each individual house CBO Based Approach	private operator provide funding to local NGO's for on-lending to low-income borrowers	Each homeowner made his own water pipe connection, above ground, usually using low-cost plastic Pipe. The main advantages of the schemes were easy implementation, speed and low-cost.	Devised appropriate technological options, adapted solutions to the social context, developed strong cooperation with the communities, and using local partners such as community-based organizations and NGOs and benefited 600,000 people
Mvula Trust, South Africa	Promotion of latrine construction and sanitation upgrading	Mvula Trust runs a social investment fund and provide technical support and training to community representatives	192 projects implemented by Dec. 1995	Mvula Trust, South Africa
Orangi Pilot project(OPP), Karachi, Pakistan	Marketing of small bore sewer networks that attach to municipal system	No planned credit element		Low cost technology Technical support Clear responsibilities

Table 2.2: Summary of Water Supply and Sanitation Facilities – experiences from different countries

Project	Sanitation strategy used	Finance strategy used	Results	Key points
Self-help Provision of Family Toilets, Yogyakarta, Indonesia	Construction of private toilets and privately managed public toilets	Type I administered by NGO YDD with direct government involvement; Type II administered by NGO YDD with no government involvement	Type I:123 loans since Dec. 1992, recovery rate of 65%; Type II:153 loans since Aug.. 1993; recovery rate of 100%	Government agencies are not effective at debt collection
Water, Environmental Sanitation for the Urban Poor in Nepal	Construction of drainage systems, waste water management and pavements; construction of improves water supply system; advocacy, capacity building and skill development; environment, sanitation and hygiene education; and improvement of drinking water and sanitation. It is a CBO based approach	This programme has been implemented in a total number of 19 wards	Successful programme of CBO based approach in Nepal	A high priority was given to the ability and willingness of the community and local people to contribute for the effective implementation of the programme and operation and maintenance
Unsuccessful micro credit programme, Ghana	Shared sets of latrines for tenanted households	World Bank funds disbursed to petty cash accounts at a commercial bank. Loan collection by project staff and community steering committee.	40% of 224 loans in arrears, May, 1993	Loan administration should be as simple as possible; Clear lines of responsibility are required; Difficult to run credit scheme in unstable financial environment

2.3 Conclusion

According to Islam (2000), there are 3007 slums and squatter settlements in Dhaka Metropolitan area, which are occupying 1038 acres of land area (1.62 sq. mile or 4.20 sq. km). the people living in these arena live without of with minimum urban facilities , where overall environmental condition is very poor. Though water supply and sanitation facilities not only for the urban poor but also for the total citizen in this city is a prime issue. Additionally, around 36 NGOS are working for the water and sanitation services for the urban poor in Dhaka city for more than two decades following different approaches (CUP, 2000-2001). However this study has made an effort to analyze the sustainability of CBO based approach in water sanitation services in slums of Dhaka city.

Chapter Three: Research Methodology

3. Introduction

Based on the purpose, a research can be exploratory or evaluation type or a combination of both (Afroz, 2001). This study has followed to be the third type of research. It has explored the existing socio-economic condition with a particular emphasis on existing water supply and sanitation condition and their practices of the slum areas, the problems and safety related to them. This is the fact-finding stage of the study.

The study has also evaluated the intervention of the CBOs and their performances in providing safe water supply and sanitation and hygiene practices in the slums.

Finally, the study has tried to find out the causal relationship between different indicators of sustainability in the CBO based approach in order to find out some suggestions for the proper practice of this approach to contribute more effectively in providing safe WATSAN practices in the slums.

Considering all these dimensions of this study, it can be said that the study has been conducted by following the basic way of knowledge, seeking and trying to answer the questions related with- *what, why and how*. The following figure 3.1 depicts the abovementioned ways of research, which has been conducted in this study.

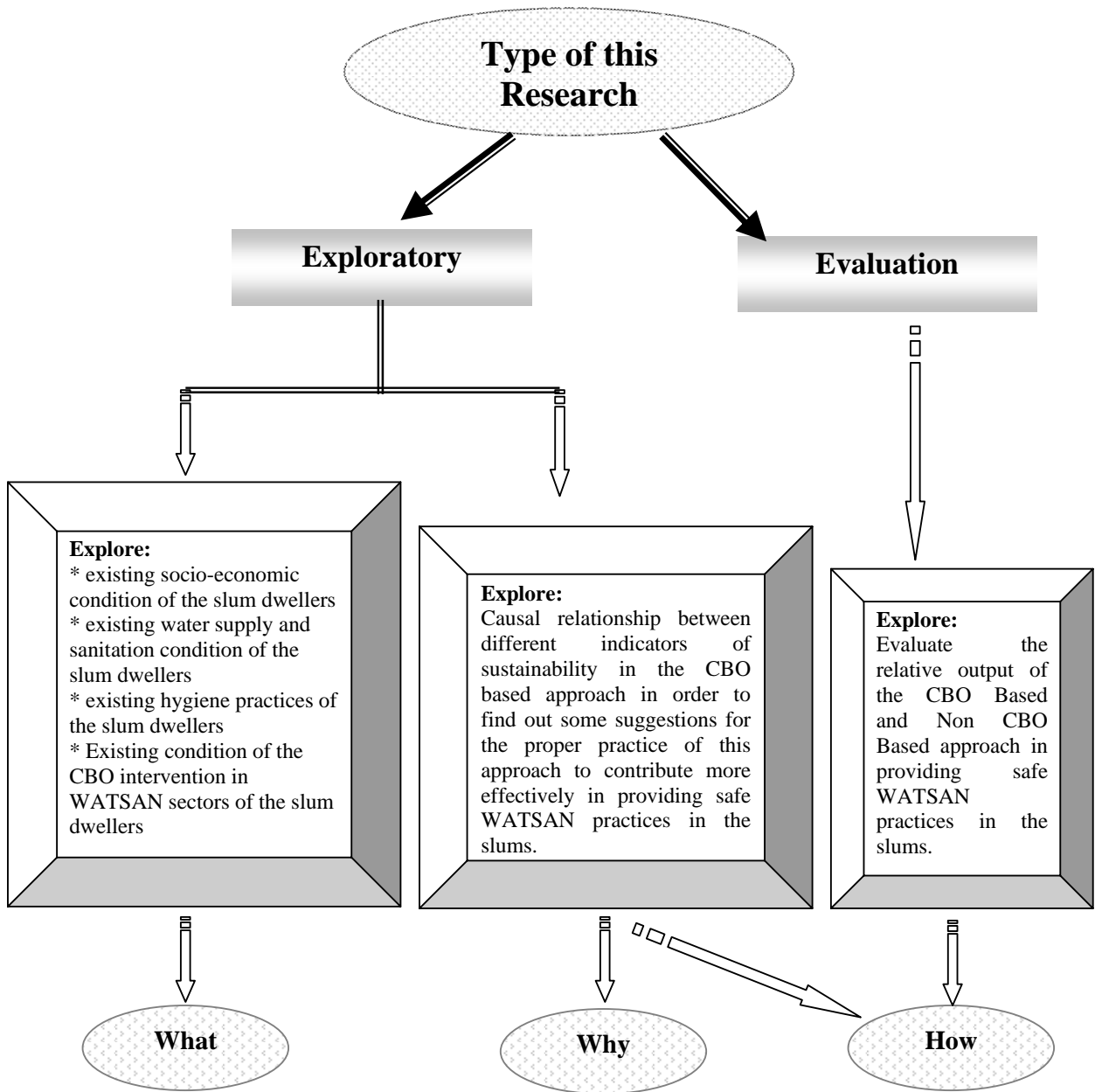


Figure 3.1: Types of this research

3.1 Selection of the Study:

Being inspired to investigate all the issues of CBO based approach in the arena of water and sanitation services, the study has been selected. Additionally, to reach the broader goal of the study, the specific objectives of this study have also been formulated.

3.2 Conceptualization and literature review

Conceptualization of the operational terms and Literature Review is very essential for research works to have proper understanding about the style and nature of the study as well as to be acquainted with the similar type of works already been conducted in the same arena in same or different perspectives. For this purpose, different books and publications on Community Based Approach abs WATSAN services in the slum areas; NGO publications particularly in these fields; ICC, BCC materials and publications of BUET, DPHE; and web publications have been studied to have adequate understanding on this issue to properly finalize the research.

3.3 Selection of the Study area

Four slums have been selected for the present study, two slums named Ta Block and Duaripara, where NGO intervened in water and sanitation service and hygiene message provision with CBO based approach and another two slums named Bauniabad D Block and Baubazar, where the abovementioned activities are done with Non CBO based approach. The descriptions of the slums are as follows:

Study area, where CBO based approach has been applied for provision of WATSAN services

- i. Ta Block:** The Slum TA Block is situated near the Islamia High School and behind the PWD wood workshop at DCC Ward No. 6 in Pallabi thana under DWASA Zone 4. Two sides of the slum are surrounded by polluted water. The population of the slum is approximately 2040 and the numbers of families are around 408 (Field Survey, 2008). This slum has been established more than around 30 years (Situation analysis report, ARBAN, 2005). As the area is an illegal settlement, there is no well planned road or drain in this area. The roads are very narrow and muddy, some places it is difficult to cross one

another. There are illegal electric connections but there is no gas connection in this area.

Before the intervention of ARBAN with CBO based approach in this slum, the slum dwellers were suffering from contaminated water, inadequate source for collecting safe water and using unhygienic sanitation latrines. ARBAN took the initiative to provide WATSAN services into the Ta Block slum under the 'Advancing Sustainable Environmental Health (ASEH)' programme launched by WaterAid Bangladesh from January 2005. Now the study area has 16 pit latrines, 5 cluster latrines, 2 sanitation blocks and 5 water points in the slum and people are directly benefited from that hardware setup (ITN, BUET, 2008).

- ii. **Duaripara:** The Slum Duaripara is situated near Duaripara Bazar and Duaripara College at DCC Ward No. 6 in Pallabi thana under DWASA Zone 4. Two sides of the slum are surrounded by polluted water. The population of the slum is approximately 3700 and the numbers of families are around 740 (Field Survey, 2008). This slum has been established more than around 150 years (Situation analysis report, ARBAN, 2005). As the area is a settlement on the private land, so, there is no well planned road or drain in this area. The roads are very narrow and muddy, some places it is difficult to cross one another. There are legal and illegal electric connections but there is no gas connection in this area. The positive side is that there is no fear of eviction of this slum as it is for Ta Block and Baubazar Slum.

As well as Ta Block Slum, ARBAN took the initiative to provide WATSAN services into this slum following the CBO based approach under the same project 'Advancing Sustainable Environmental Health (ASEH)' programme launched by WaterAid Bangladesh from January 2005. Now the study area has 25 pit latrines, 13 cluster latrines (both two rooms and 4 rooms), 1 sanitation block, 2 water points and 13 tube wells in the slum and people are directly benefited from that hardware setup (Field Survey, 2008)

Study area, where CBO based approach has not been applied for provision of WATSAN services

- i. **Bauniabandh D Block:** The Bauniabandh D Block under the ward no 5 of Dhaka City Corporation (DCC) is a low income resettlement project of government. The dweller of previous *Bhashantek* slum was resettled in the study area in 1989. Before resettlement project the Bauniabandh area was a slum where 234 households were living. The present inhabitants (land owners) of this area are living in this area for almost two decades. The area is well planned in gridiron pattern. Almost all allocated have access road of 3 to 12 feet width. A well planned connecting road is under construction from Mirpur Cantonment to Khilkhet through Dhaka Cantonment has passed very near through the North eastern side of this slum. The present population is approximately 4680 (field survey, ARBAN 2007) with 900 household. As the study area grew under a government development project, so some basic facilities were provided under the project. The project provided a plot of 0.75 *Katha* with nuclear housing consisting pit latrine and a tube-well (Tara pump) for each 12 households. Every plot has access road. Concern Universal, an international NGO was associated from the very early stage of the project. After the resettlement, different National and International NGO have implemented different projects for the community development, but none of them has followed the CBO based approach for provisioning water and sanitation services in this area. Now the study area has piped water supply to every plot, electricity supply, educational institutions (school & madrasha), drainage, Access road, healthcare facilities, religious establishment etc. Gas line has reached to the door of each household though every household can not afford it yet due to high connection charge.

- ii. **Baubazar:**

The history of Baubazar Slum is not very old. This slum originated after the devastating flood of 1988. The major portion of this slum lands belongs to the government. Part of this slum is situated on the marshy land and the other part is on high land (Slum Observatory Report, Aparajeyo Bangladesh, 2004). This slum is a part of ward no 48 under Hazaribag Police station. The western and southern part of the slum is demarcated by Dhaka Protection Embankment, in

the eastern boundary ward 34 or Charak Ghat. The population of the slum is approximately 4080 and the numbers of families are around 836. As, the tanneries of the Hazaribag are located very near to the slum, it creates high health hazards, foul odor for the slum dwellers and makes the environment polluted. Additionally, polluted smell due to water logging and congestion, solid and domestic waste dumps, besides open drains and sewers make the area subject to hazardous environment. Very few NGOs work here for the development of this community. None of them has followed the CBO based approach for provisioning water sanitation services in this area.

Slum Name and Location	Status of CBO based intervention in WATSAN service provision	Total Households	Total Population
TA Block¹ DCC Ward No. 6 Under Pallabi thana DWASA Zone 4.	YES	408	2040
Duaripara² DCC Ward No. 6 Under Pallabi thana	YES	740	3700
Bauniabandh D Block³ DCC ward no 5	NO	900	4680
Baubazar⁴ DCC ward no 48 Under Hazaribag Police station	NO	836	4080

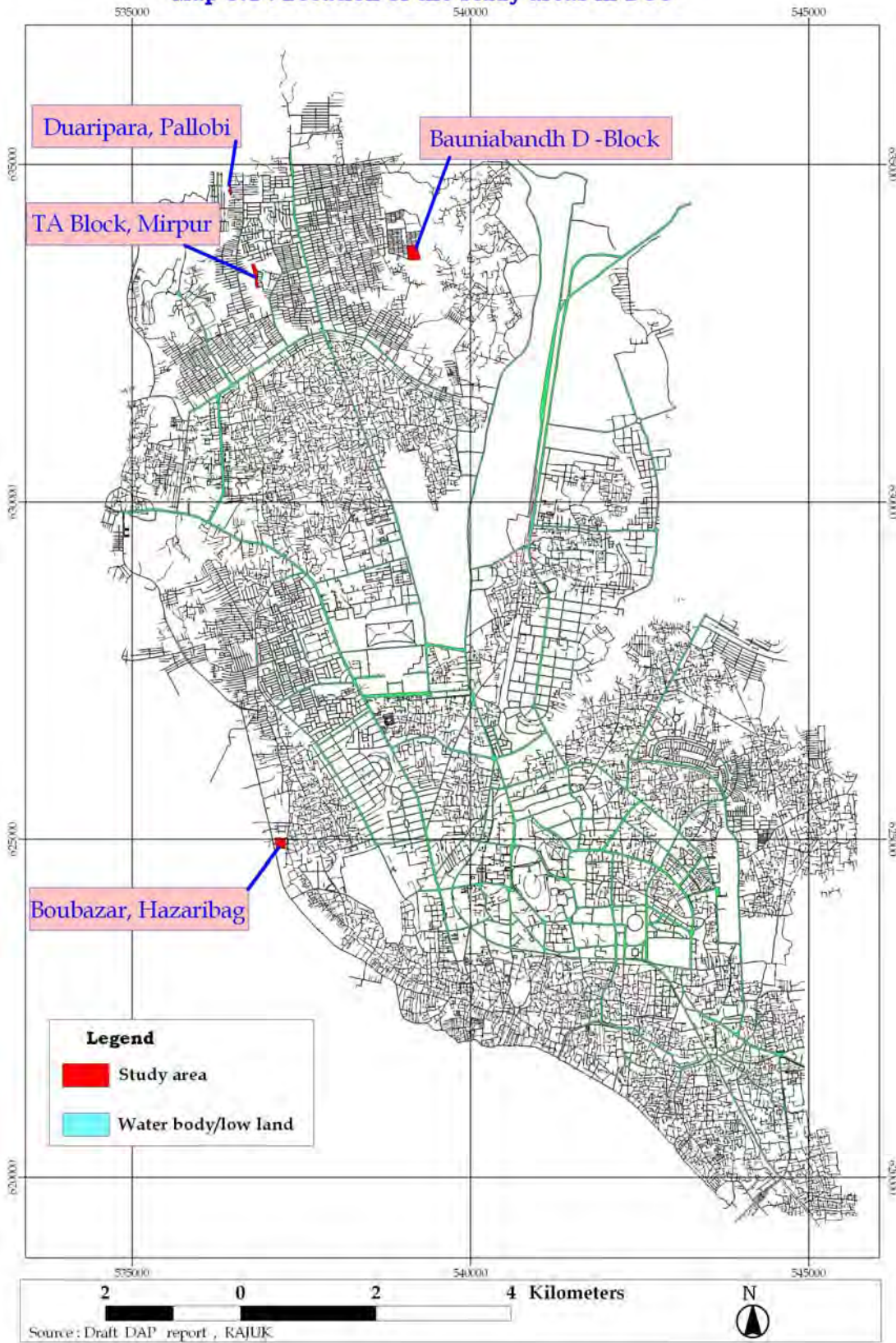
¹ Situation analysis report, ARBAN, 2005

² Situation analysis report, ARBAN, 2005

³ Field survey, ARBAN 2007

⁴ Slum Observatory Report, Aparajeyo Bangladesh, 2004

Map 3.1 : Location of the study areas in DCC



3.4 Sample Size Determination:

For the present study 100 households from each of the four slums has been taken as for data collection regarding hygiene practice among slum dwellers. The total size of all the samples is 400.

The Systematic random sampling procedure has been followed. The sample size (n) was calculated using the following standard formula as the total population size of the four study area N is greater than 10,000.

$$n = Z^2 PQ/d^2$$

Where,

Z is the normal variate and which is 1.645 for 90% level of confidence

P is the target portion. In this case *P* is assumed 0.9.

P+*Q*=1, therefore *Q*= 0.1 and

d is the desired error, which is 0.05 for 90% level of confidence.

Therefore the sample size is, $n = 97.416$

From the above calculation it is found that, the sample size should not be less than 97 (Schmidt, 1974). Considering this, from each slum, a round figure 100 samples have been surveyed.

3.5 Data Collection Techniques and Tools

The data collection technique was interview, specifically structured interview, observation and Focus Group Discussion while the tools used to collect data in this study were questionnaire and checklists. The final data collection tool, structured close ended questionnaire and checklists, were developed phase by phase. Firstly, a primary questionnaire and checklists were developed based on literature, understanding of the researcher and in consultation with the thesis supervisor. Secondly, researcher with two assistants pre-tested the primary questionnaire and checklists on 12 households in the selected areas. This procedure is undertaken due to ascertain the flow of sequence of the questions, the suitability of the language, and the comprehensiveness of the issues to address the objectives of the study. Finally, on the basis of the discussion with the pre-tested respondents and final consultation with thesis supervisor, the

questionnaire and checklists were modified and finalized for data collection. The questionnaires and checklists have been given as annex I and annex II.

3.6 Sampling Technique

In this study, 'simple random sampling' technique was applied to reach the target sample population.

3.7 Data Collection

Data collections were done only one perspective i.e. from respondents. Structured questionnaire has been used in this regard. Before collecting the data several preparatory tasks such as recruitment and training of the data collectors or interviewers, building up 2 field research teams were undertaken to collect data from the field. Each team included 4 interviewers and 1 person for monitoring data collection. Both data collectors and interviewers were aged 20- 30 with minimum schooling of HSC to maximum schooling of Degree.

The data was collected using the face-to-face interview and observation technique from the slums with the interview schedule.

Besides, information has also been collected about the CBO based and non CBO based approach existed on the study area.

Interviewers used to collect 5-7 data each day while each team leader (field supervisor) used to supervise the overall data collection ranging from household identification to the collection of those collected data from interviewers. As the required sample size was 400, so it took 8 days to collect the necessary number of data. The main fieldwork for data collection was conducted in August 2008.

Information has also been collected from secondary sources, such as NGOs reports, BBS publications, various books, journals, publications of different organizations and different web sites etc.

3.8 Data Editing and Coding

The interviewed questionnaire was edited at each night after data collection at the field level to check the accuracy of the data. If any inaccuracy found, the interviewers were instructed accordingly in the next morning to accurately collect

the data. Note that, data were again edited by the researcher after the collection of all the data. Furthermore, data were recoded where the question was open-ended.

3.9 Data Entry and Preparation for Analysis

After the completion of the data collection and editing, the collected data were doubly entered into computer using SPSS for Windows 13 version to minimize the processing errors. The rearrangement of data, collapsing of data, creating new variables and scaling of variables where necessary were also conducted to prepare data for the final analysis.

3.10 Data analysis

After completing data collection, the data has analyzed and compiled. Statistical comparisons have made at between the indicator values from the study slums to evaluate any possible impact of water and sanitation related intervention. Results of the analysis will lead to identification of the strengths and weaknesses of the CBO-based WATSAN approach and helped to formulate recommendations.

3.11 Draft Thesis Preparation & Presentation

After data analysis the draft thesis report has prepared and submitted for presentation. For presentation MS-PowerPoint has been used.

3.12 Submission of Final Thesis

After the presentation on the draft thesis necessary corrections has taken form the board members and finalized as per. And then the final thesis has submitted for approval.

3.13 Operational Definition of Variables and their Indicators

The major portion of this study is based on Primary data. Additionally, secondary data was also quiet important to supplement the primary data. Before data collection, some indicators have been identified from the activities conducted in the CBO based approach in different sectors. These indicators are illustrated in the table 3.4.

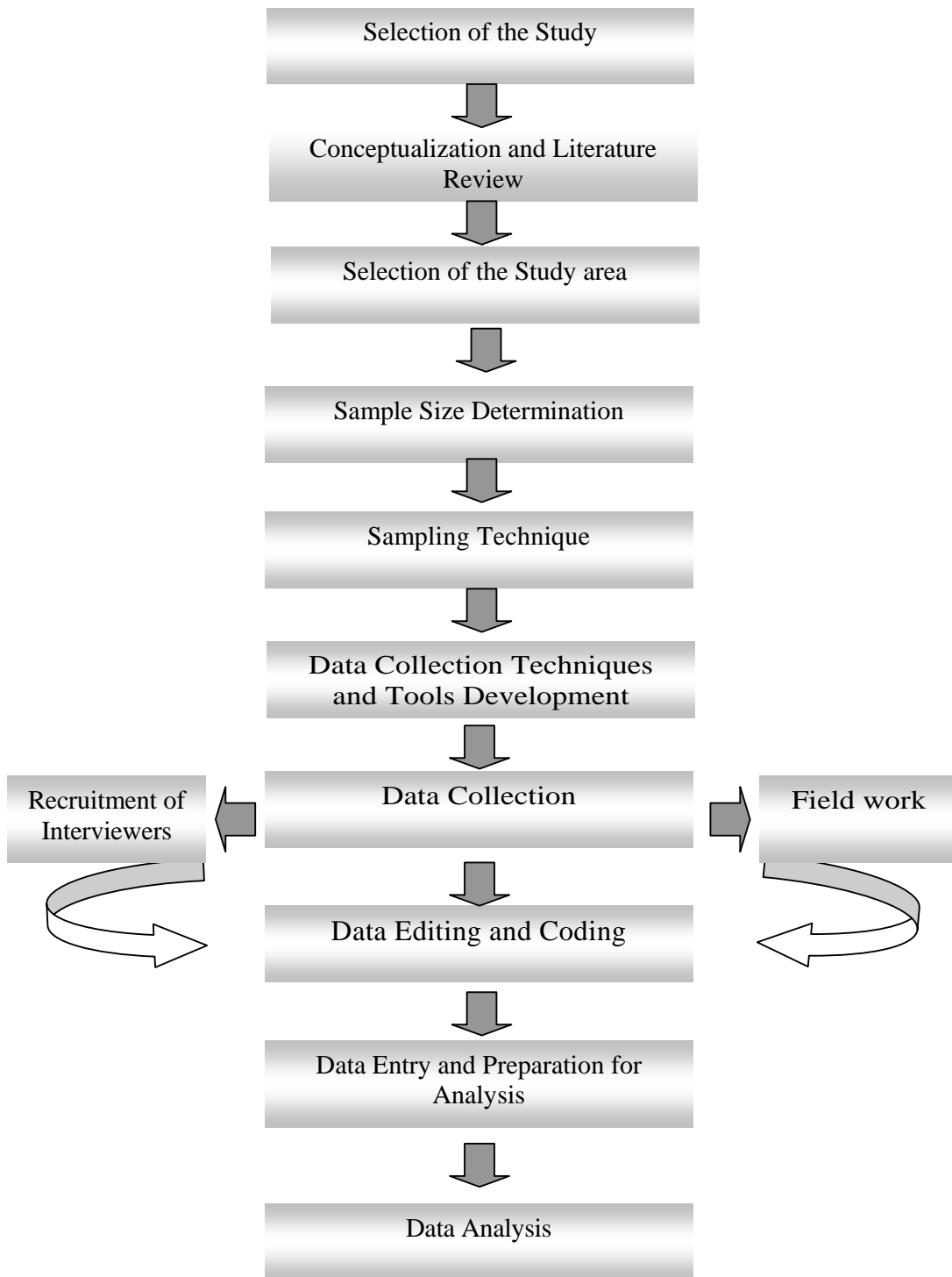
Table 3.4: Illustrated indicators of the study		
Sectors	Relevant Features and Activities	Measuring techniques
Water Safety status	Protection of water source(s), i.e Condition of water Reservoir Cover, probability of waste water contamination at source, Cleanliness of surrounding area of water reservoir cover etc.	Observation
	Sitting of latrines in relation to water source(s)	Observation
	Maintenance of water source(s)	Observation
	Water use at the source(s)	Observation
	Other activities at water source(s)	Observation
	Water collection methods and utensils	Questionnaire survey and observation
	Water treatment at the source	Questionnaire survey and observation
	Methods of transporting water	Questionnaire survey and observation
	Water storage and treatment in the home	Questionnaire survey and observation
	Water handling in the home	Questionnaire survey
Sanitation, Excreta disposal	Location of defecation sites	Questionnaire survey and observation
	Latrine maintenance (access road, structure and cleanliness)	Questionnaire survey and observation
	Safe disposal of waste from latrine (using safety tank or having proper sewerage connection)	Questionnaire survey and observation
	Disposal of children's faeces	Questionnaire survey

Sectors	Relevant Features and Activities	Measuring techniques
Hygiene Practices	Hand-washing at <i>critical</i> times (before eating, before handling food, feeding young children after cleaning children's bottoms; after handling children's faeces; after defecation)	Questionnaire survey
	Bathing (children and adults)	Questionnaire survey
	Using sandals at latrines	Questionnaire survey
	Utensils used for cooking, serving food, feeding young children, and storing leftover food	Questionnaire survey
	Sweeping of floors and courtyards Household refuse disposal	Questionnaire survey
	Cleanliness of footpaths, play areas and roads	Questionnaire survey
Sustainability of CBO Activities	Continuation of activities of the Committees at different level	FGD with CBOs
	Coordination among the CBOs	FGD with CBOs
	Hygiene message promotion through CBOs	FGD with CBOs
	Continuation of courtyard sessions	FGD with CBOs
	Organizational sustainability of CBOs at different level	FGD with CBOs

3.14 Ethical Issues

Ethical guidelines of Declaration of Helsinki IV (2001) were strictly followed during this study. Firstly, following the guidelines, informed consent was obtained from all study subjects, describing them about the identity of the researcher, study rationality, study objectives, necessity of their valuable opinions, and their rights as human to deny to answer to some or all the questions. Secondly, no force was applied to the respondents for drawing information necessary for this study. Thirdly, in order to ensure the highest level of confidentiality, instead of name, one unique identification number was used. Finally, the collected data were only used to find the research result other than any purpose.

Figure 3.2: Methodology of the study



Chapter four: Status of the respondents on Socio-economic and Hygiene Practice in the slums

4. Introduction

Among the four study areas, one study area (Bauniabad D Block, which is under Non CBO Managed WATSAN initiatives) is a low income settlement of the government. Though there are not adequate urban basic amenities in this settlement but the inhabitants of this settlement have been enjoying better services (legal water connection, gas connection, planned road etc) than other three study areas for couple of years. This chapter has made an effort to analyze the socio-economic status of the respondents, water status of the respondents, sanitation status of the respondents, health and hygiene practice of the respondents, food handling status and household garbage disposal condition of the respondents. The socio-economic status of the respondents will give clear idea about the age-sex composition, occupational status family income and house ownership pattern of the respondents. This information is relevant for the study to clarify whether there is homogeneity among the respondents of the four study areas irrespective of their age, sex, income and occupation. Additionally the Water status and Sanitation status of the respondents will give a view of the present WATSAN and hygiene practice (using the pre set indicators) in the study areas. This will also help in the later chapters to find out the sustainability of CBO managed water and sanitation service in slums comparing with the previous situation.

4.2 Socio-economic Status of the respondents

4.2.1 Area wise Age distribution

Among the four studied slums, there were respondent of different age ranged from 14 to 96. Area wise Age distribution of the respondent has been shown in the table 4.1.1.

Table 4.1.1: Area wise Age distribution of the respondent

Age Class of the respondent	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
14-23	27%	34%	44%	11%
24-33	41%	28%	17%	26%
34-43	17%	24%	29%	43%
44-53	11%	13%	3%	12%
54-63	4%	1%	5%	8%
64-73	0%	0%	1%	0%
84-93	0%	0%	0%	0%
94-103	0%	0%	1%	0%

Source: Field Survey 2008

The table 4.1.1 illustrate that, there were two slums namely, Ta Block and Duaripara with having CBO managed WATSAN initiatives. In Ta Block slum 27% the respondent were from 14 to 23 age, 41% surveyed people were from 24 to 33 age group, 17% surveyed people were from 34 to 43 age group; 11% surveyed people were from 44 to 53 age group and the rest 4% surveyed people were from 54 to 63 age group. In Duaripara slum, 34% the respondent were from 14 to 23 age, 28% surveyed people were from 24 to 33 age group, 24% surveyed people were from 34 to 43 age group; 13% surveyed people were from 44 to 53 age group and the rest 1% surveyed people were from 54 to 63 age group.

On the other hand the table also illustrates that, no CBO is managing the WATSAN services in Bauniabad D Block and Baubazar slums. In Bauniabad D Block slum 44% the respondent were from 14 to 23 age, 17% surveyed people were from 24 to 33 age group, 29% surveyed people were from 34 to 43 age group; 3% surveyed people were from 44 to 53 age group and the rest 7% surveyed people were from above age 53. in addition to this, in Baubazar slum 11% the respondent were from 14 to 23 age, 26% surveyed people were from 24 to 33 age group, 43% surveyed people were from 34 to 43 age group; 12% surveyed people were from 44 to 53 age group and the rest 8% surveyed people were from above age 53 years.

From the table it becomes clear that, there were homogeneity in terms of age among the respondents because, most of the respondents in the study areas of both having CBO managed WATSAN services and not having non-CBO managed WATSAN services, were within the age group of 14 to 43 years age.

4.2.2 Area wise sex distribution

The table 4.1.2 represents the sex structure of the study areas of both having CBO managed WATSAN services and not having non-CBO managed WATSAN services.

Table 4.1.2: Area wise Sex distribution of the respondent

SEX	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Male	20%	27%	30%	35%
Female	80%	73%	70%	65%

Source: Field Survey 2008

The table shows that, there were 20% male and 80% female respondents from Ta Block slum; and 27% male and 73% female respondents from Duaripara slum, where the WATSAN services were managed by CBOs.

On the other hand, the table also shows that, there were 30% male and 70% female respondents from Bauniabad D Block slum; and 35% male and 65% female respondents from Baubazar slum, where the WATSAN services were not managed by CBOs.

In general, the percentage of female respondents is more than the male in each of the studied area. This is also important that, female plays the key role in maintaining the hygiene in personal and family level and also in transferring the hygiene education to the successor.

4.2.3 Area wise Occupational Status of Household Head

The respondents of all the study areas were found involved in different profession. The occupational status of the respondents has been given in the table 4.1.3. The table explains that in among the study areas of having CBO managed WATSAN services, 18% of the surveyed population were found have small businesses and 17%, 13%, 12%, 9%, 7%, 7%, 4%, 4% and 3% respondents were found work as garments worker, rickshaw puller, hawker, masson, driver, restaurant worker and private service holder respectively in Ta Block slum. Besides, 1% of the respondents of this area were found engaged in each of occupation of Imam, carpenter and maid servant. In addition to this, in another slum of having CBO managed WATSAN services (Duaripara slum), there were 12% of the surveyed population were found have small businesses and 19%, 11%, 9%, 7%, and 6%, respondents were found work as rickshaw puller, driver, tea stall owner, garments worker and hawker respectively.

Besides, 5% of the respondents of this area were found engaged in each of occupation of day labor, tailor, restaurant worker and Imam; 4% of the respondents were found engaged in each of occupation of construction labor, private service and maid servant.

Alternatively, the table also shows that among the study areas of having Non-CBO managed WATSAN services, 19% of the surveyed population were found have small businesses and 8%, 7%, and 7%, respondents were found work as driver, masson, and rickshaw puller respectively in Bauniabad D Block Slum. Besides, 6% of the respondents of this area were found engaged in each of occupation of construction labor, restaurant worker, private service holder, hospital/clinic worker and Imam in this area. In addition to this, in another slum of having Non-CBO managed WATSAN services (Baubazar slum), there were 20% of the surveyed population were found engaged as day labor, 13% as construction labor, 13% as construction labor and 11% have small businesses. Additionally, 9% found work as masson and 8% were tea stall owner.

To sum up, in all the study areas, more than 10% respondents were engaged in small business, but in one of the area of Non-CBO managed WATSAN services, the percentage of day labor and construction labor is high, which indicates the income level of that group is very low. Sometimes, poor income keeps impact on the management of WATSAN services.

Table 4.1.3: Area wise Occupational status of the respondent

Occupation of Household Head	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Hawker	12%	6%	7%	0%
Garments Worker	17%	7%	1%	1%
Day Labor	9%	5%	5%	20%
Rickshaw Puller	13%	19%	7%	4%
Tailor	3%	5%	4%	1%
Small Business	18%	12%	19%	11%
Tea Stall Owner	3%	9%	2%	8%
Imam	1%	2%	6%	0%
Masson	7%	3%	7%	9%
Carpenter	1%	2%	3%	0%
Maid Servant	1%	4%	0%	8%
Driver	7%	11%	8%	0%
Work in Restaurant	4%	5%	6%	1%
Private Service	4%	4%	6%	0%
Construction Labor	0%	4%	6%	13%
Van Puller	0%	0%	0%	13%
Beggar	0%	0%	0%	2%
Mechanic in Car repairing and Maintenance Shop	0%	0%	0%	4%
Electrical Mechanic	0%	2%	0%	4%
Teacher	0%	0%	7%	0%
Work in Hospital/Clinic	0%	0%	6%	1%

Source: Field Survey, 2008

4.2.4 Monthly Family Income of the respondents

The table 4.1.4 represents the monthly family income of the study areas of both having CBO managed WATSAN services and having Non-CBO managed WATSAN services.

Monthly income in taka of the household head	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
2000-4000	45%	30%	25%	31%
4001-6000	30%	36%	34%	34%
6001-8000	16%	28%	33%	25%
8001-10000	7%	4%	4%	0%
10001-12000	2%	2%	4%	0%

Source: Field Survey, 2008

The table 4.1.4 illustrate that, there were two slums namely, Ta Block and Duaripara with having CBO managed WATSAN initiatives. In Ta Block slum 45% respondent have monthly income from Tk.2000 to 4000, 30% respondent have monthly income from Tk. 4001 to 6000, 16% respondent have monthly income from Tk. 6001 to 8000, 7 % respondent have monthly income from Tk. 8001 to 10000 and the rest 2% respondent have monthly income above Tk. 10000. In addition, in the other area (Duaripara slum) of having CBO managed WATSAN services, it has been found that, 30% respondent have monthly income from Tk.2000 to 4000, 36% respondent have monthly income from Tk. 4001 to 6000, 28% respondent have monthly income from Tk. 6001 to 8000, 4 % respondent have monthly income from Tk. 8001 to 10000 and the rest 2% respondent have monthly income above Tk. 10000.

Conversely, table 4.1.4 also explains that, there were two slums namely, Bauniabad D Block and Baubazar with having Non-CBO managed WATSAN initiatives. In Bauniabad D Block slum 25% respondent have monthly income from Tk.2000 to 4000, 34% respondent have monthly income from Tk. 4001 to 6000, 33% respondent have monthly income from Tk. 6001 to 8000, 4 % respondent have monthly income from Tk. 8001 to 10000 and the rest 4% respondent have monthly income above Tk.

10000. In addition, in the other area (Baubaza slum) of having Non-CBO managed WATSAN services, it has been found that, 31% respondent have monthly income from Tk.2000 to 4000, 34% respondent have monthly income from Tk. 4001 to 6000 and the rest 25% respondent have monthly income from Tk. 6001 to 8000.

To sum up, except Baubazar slum, the income level of the other three slums is almost homogeneous.

4.2.5 Area wise House ownership of the respondent

Table 4.1.5: Area wise house status of the respondent

House ownership of the respondent	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Owner of the house	25%	21%	61%	14%
Tenant	75%	79%	39%	86%

Source: Field Survey, 2008

The table 4.1.5 represents the area wise house ownership status of the study areas of both having CBO managed WATSAN services and having Non-CBO managed WATSAN services. The table shows that, in general, the percentage of tenants is more than the owners in three of the studied areas. More specifically, 75% were tenants and 25% were the owner of the house in Ta Block slum; and 79% were tenants and 21% were the owner of the house in Duaripara slum, where the WATSAN services were managed by CBOs.

On the other hand, the table also shows that, 39% were tenants and 61% were the owner of the house in Bauniabad D Block slum; and 86% were tenants and 14% were the owner of the house in Baubazar slum, where the WATSAN services were managed by Non-CBOs. it becomes clear that, except Baunibad, there is high level of tenants found among the respondents. Because, for installation of WATSAN options in the slums, the house ownership plays an important influence in decision making.

4.2 Status of Water of the four study areas

For maintaining water safely from source of collection to final use of the user, the water safety plan is maintained and monitored in CBO based approach. There is a risk of contamination in all stages from source to final use of it. For instance, it can be contaminated in source, or during collection, or during transportation, or at the time of reservation, or after pouring it in unclean jug or glasses. Therefore, to stop contamination, it is very important to be aware about the source of pure water, proper covering of water source; cleanliness of collection place; cleaning water pots used for water collection; covering it during transportation and reservation and cleaning jug and glasses before pouring water into it for drinking.

4.2.3. Sources of water for Drinking, Cooking and Bathing

Water source is an important factor to be healthy, because there always lay risk of suffering water borne diseases due to using impure water for drinking, cooking and bathing.

Drinking

Table 4.2.1.1: Source of Drinking Water

Source of Drinking Water	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
DWASA Line To Reservoir/ Stand Post (legal connection)	100%	38%	100%	0%
Tube Well	0%	60%	0%	46%
Direct Pipe from DWASA line (illegal connection)	0%	2%	0%	54%
Source: Field Survey, 2008				

The table 4.2.1.1 represents the area wise source of water for drinking of the study areas of both having CBO managed WATSAN services and having Non-CBO managed WATSAN services. The table illustrates that in one slum (Ta Block) having CBOs in managing WATSAN services, all respondents collect water for drinking from legal connection of WASA line, where the water are either reserved in a reservoir tank (of Water Point/Sanitation Block) or through stand post. And in another

slum (Duaripara) 60% respondents collect water from Tube Well, 38% from legal connection of WASA line in either reserved in reservoir tank or from stand post and 2% respondents collect water through illegally connecting direct pipe from WASA line.

Alternatively, that in one slum (Bauniabad D Block) having Non-CBOs in managing WATSAN services, all respondents collect water for drinking from legal connection of WASA line and another slum (Baubazar Slum) 46% respondents collect water from Tube Well, 54% respondents collect water through illegally connecting direct pipe from WASA line.

Cooking

The table 4.2.1.2 represents the area wise source of water for cooking of the study areas of both having CBO managed WATSAN services and having Non-CBO managed WATSAN services. The table explains that in one slum (Ta Block) having CBOs in managing WATSAN services, all respondents collect water for cooking from legal connection of WASA line, where the water are either reserved in a reservoir tank (of Water Point/Sanitation Block) or through stand post. And in another slum (Duaripara) 40% respondents collect water from Tube Well, 58% from legal connection of WASA line in either reserved in reservoir tank or from stand post and 2% respondents collect water through illegally connecting direct pipe from WASA line.

Table 4.2.1.2: Source of Water for cooking

Source of Water for Cooking	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
DWASA Line To Reservoir/ Stand Post (legal connection)	100%	58%	100%	0%
Tube Well	0%	40%	0%	46%
Direct Pipe from DWASA line (illegal connection)	0%	2%	0%	54%

Source: Field Survey, 2008

Alternatively, that in one slum (Bauniabad D Block) having Non-CBOs in managing WATSAN services, all respondents collect water for cooking from legal connection of WASA line and another slum (Baubazar Slum) 46% respondents collect water from Tube Well, 54% respondents collect water through illegally connecting direct pipe from WASA line.

Bathing

Table 4.2.1.3: Source of Water for bathing

Source of Water for Bathing	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
DWASA Line To Reservoir/ Stand Post (legal connection)	100%	58%	100%	0%
Tube Well	0%	40%	0%	0%
Direct Pipe from DWASA line (illegal connection)	0%	2%	0%	54%
River	0%		0%	46%

Source: Field Survey, 2008

The table 4.2.1.3 represents the area wise source of water for bathing of the study areas of both having CBO managed WATSAN services and having Non-CBO managed WATSAN services. The table illustrates that in one slum (Ta Block) having CBOs in managing WATSAN services, all respondents collect water for bathing from legal connection of WASA line. And in another slum (Duaripara) 60% respondents collect water from Tube Well, 38% from legal connection of WASA line and 2% respondents collect water through illegally connecting direct pipe from WASA line.

On the other hand, in one slum (Bauniabad D Block) of having Non-CBOs in managing WATSAN services, all respondents collect water for bathing from legal connection of WASA line and another slum (Baubazar Slum) 46% respondents bath in Tube Well and 54% respondents bath in the river.

In short, most of the households of the slums of having CBO managed WATSAN services and one slum (Bauniabad D Block) of having Non-CBO managed WATSAN

services were getting safe water source for drinking, cooking and bathing, but most of the households of another slum (Baubazar slum) of having Non-CBO managed WATSAN services were not getting safe water source for these purposes.

Though a significant number of people collect water from DWASA line, but, most of them worried about the purity of the water. For this reason, they follow different techniques according to their financial ability.

The table 4.2.1.4 embodies the methods used by the respondents to purify drinking water. In Ta Block slum 10% respondents boiled, 8% used Halo tab, 39% used Chlorine in the Reservoir Tank of Sanitation Block or Water Point to purify water and rest 36% used water as they got it from the source. In Duaripara slum, though 40% respondents use water from WASA line for drinking, but they used to do nothing to purify water. Significantly, all respondents of the Bauniabad D Block slum boil water for drinking and lastly, 13% all respondents of Baubazar slum boil water for drinking.

This is mentionable that, among studied slums, there were gas connection only one (Bauniabad D Block) of having Non-CBO managed WATSAN services and some portion of another slum (Baubazar slum).having Non-CBO managed WATSAN services. But in the slums of having CBO managed WATSAN services, there were no gas connection. So, along with the awareness and the influence of CBOs, the availability of the gas connection plays an important role to purify unsafe water for drinking.

Table 4.2.1.4: Methods used by the respondents to purify water for drinking

Purifies Drinking water by	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Boiling	10%	0%	77%	13%
Using Halo Tab	8%	0%	0%	0%
Using Chlorine	39%	0%	0%	0%
Using Fit Cree	7%	0%	0%	0%
Nothing Done	36%	100%	23%	87%

Source: Field Survey, 2008

4.2.4. Water safety

4.2.2.1 Condition of the Water Collection Place

To keep water safe, it is essential to keep the water collection source clean and hygienic. The conditions of the water collection place of the four slums both having CBO managed WATSAN services and having Non-CBO managed WATSAN services are shown in the table 4.2.2.1.

Table 4.2.2.1 Condition of the Water Collection Place

Water Collection Place is clean and Hygienic	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	63%	31%	0%	0%
No	4%	4%	80%	54%
Moderately clean	33%	65%	20%	46%

Source: Field Survey, 2008

The table 4.2.2.1 illustrates that, that in one slum (Ta Block) having CBOs in managing WATSAN services, 63 % water collection place were clean and hygienic, 33% is moderately clean and hygienic and the rest 4% is totally unclean and unhygienic, where, in another slum (Duaripara), 31 % water collection place is clean and hygienic, 65% is moderately clean and hygienic and the rest 4% is totally unclean and unhygienic.

On the other hand, in one slum (Bauniabad D Block) of having Non-CBOs in managing WATSAN services, 80% water collection place is totally unclean and unhygienic and the rest 20% is moderately clean and hygienic and in another slum (Baubazar) 54% water collection place is totally unclean and unhygienic and the rest 46% is moderately clean and hygienic.

4.2.2.2: Status of Bathing near reservoir or over reservoir tank or water collection source

Bathing near reservoir or over reservoir tank or water collection source increase the risk of source water contamination, because used water can be enter in the source water through or near the reservoir cover.

The table 4.2.2.2 illustrates that, that in one slum (Ta Block) having CBOs in managing WATSAN services, only 6% respondents bath near water reservoir or over water reservoir tank or water collection source, 62%r respondents bath in bath bathroom or near the tube well and 32%r respondents have no water reservoir. In another slum (Duaripara), 21% respondents bath near water reservoir or over water reservoir tank or water collection source, 36% respondents bath in bath bathroom or near the tube well and 43%r respondents have no water reservoir.

On the other hand, in one slum (Bauniabad D Block) of having Non-CBOs in managing WATSAN services, respondents bath near water reservoir or over water reservoir tank or water collection source and in another slum (Baubazar) 44% respondents bath near water reservoir or over water reservoir tank or water collection source and 56% respondents bath in river.

Table 4.2.2.2: Status of Bathing near water reservoir or over water reservoir tank or water collection source

Bathing Place	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Bath near reservoir or over reservoir tank or water collection source	6%	21%	100%	44%
Bath in Bathroom/ near the tube well	62%	36%	0%	0%
Bath in river	0%	0%	0%	56%
Have No Reservoir	32%	43%	0%	0%

Source: Field Survey, 2008

It is clear from the table that, the respondents of the slums having CBOs in managed WATSAN services were aware about the water safety at source or reservoir, but in spite of having legal water connection the respondents of another Non-CBO managed slums were not found aware about the safety of water at collection place or source.

4.2.2.3: Status of Reservoir Cover

To protect water from contamination, it is needed to make reservoir cover raised during construction of the water reservoir tank. Having raised water reservoir cover ensure less risk of contamination of the reserved water in it, either anyone bath near or over the cover of the tank or from other side source.

The status of the water reservoir cover of the four slums both having CBO managed WATSAN services and having Non-CBO managed WATSAN services are shown in the table 4.2.2.3.

Table 4.2.2.3: Status of Reservoir Cover

Water Reservoir Cover is raised	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	68%	40%	0%	0%
No	0%	17%	100%	0%
Have No Reservoir	32%	43%	0%	100%
Source: Field Survey, 2008				

From the table 4.2.2.3, it becomes clear that, among the respondents, 68% respondents of one slum (Ta Block) having CBOs in managing WATSAN services had raised water reservoir cover and the rest of them have no water reservoir. In another slum (Duaripara), 40 % respondents had raised water reservoir cover, 17% respondents had not raised water reservoir cover and the rest of them had no water reservoir. Alternatively, no cover of the water reservoir tank was raised in one slum (Bauniabad D Block) of having Non-CBOs in managing WATSAN services and in another slum no respondent had water reservoir tank.

To sum up, there was less risk of contamination of the reserved water in the water reservoir both in the slums having CBOs in managed WATSAN services. But in spite of having legal water connection there was high risk of contamination of the reserved water in the water reservoir in one of Non-CBO managed slums.

4.2.2.4 Cleanliness of surrounding area of water reservoir cover

The cleanliness of surrounding area of water reservoir cover of the four slums both having CBO managed WATSAN services and having Non-CBO managed WATSAN services are shown in the table 4.2.2.4.

The table 4.2.2.4 demonstrates that, in one slum (Ta Block) having CBOs in managing WATSAN services, surrounding area of water reservoir cover of 65% respondents' were clean and hygienic and the rest 3% were not clean. In another CBO managed slum, surrounding area of water reservoir cover of 20% respondents' were clean and hygienic and 37% were moderately clean

In contrast, in one slum (Bauniabad D Block) of having Non-CBOs in managing WATSAN services, surrounding area of water reservoir cover of 20 % respondents' were clean and hygienic and the rest 80% is unclean.

Table 4.2.2.4: Cleanliness of surrounding area of water reservoir cover

Surrounding area of Water reservoir/ Tanks cover is clean	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	65%	20%	0%	0%
No	3%	0%	80%	0%
Moderately Clean	0%	37%	20%	0%
Have No Reservoir	32%	43%	0%	100%

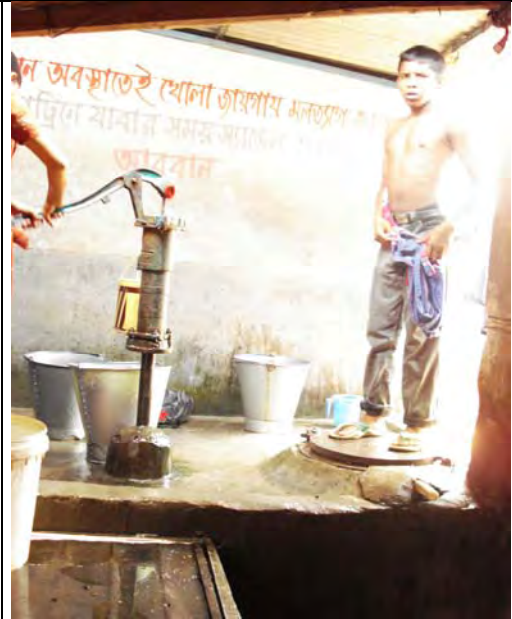
Source: Field Survey, 2008

The following pictures are the given here as example and to illustrate the water safety status of the study areas.

Slums having CBO Managed WATSAN Services



A Water Point with raised reservoir cover of Ta Block



A water point with raised reservoir cover of Duaripara

Slums having CBO Managed WATSAN Services





A Picture of Water Reservation at Home, Ta Block Slum



A Picture of Water Reservation at Home, Duaripara Slum

Slums having Non-CBO Managed WATSAN Services

	
<p>A Water Point (unhygienic water collection Place) of Bauniabad D Block</p>	<p>A Water Reservoir Tank (found open during the survey) of Bauniabad D Block</p>

4.2.2.5: Status of water handling from source to home

The status of cleaning the water pot before collecting water from source of the the study areas both having CBO managed WATSAN services and having Non-CBO managed WATSAN services are shown in the table 4.2.2.5.

The table 4.2.2.5 demonstrates that, in one slum (Ta Block) of having CBOs in managing WATSAN services, 96% respondents used to clean water pot before collecting water from source and 92% respondents of another slum (Duaripara) did the same practice. Quite the opposite, in one slum (Bauniabad D Block) of having Non-CBOs in managing WATSAN services, only 4% used to clean water pot before collecting water from source no respondent of another slum clean water pot before collecting water from source. The main reason was, as the water source of Bauniabad D Block slum was near and adjacent their house and all of them used to boil water to purify for drinking, so they believed that cleaning water pot before collecting water from source was less important. Besides, the most of the respondents of the Baubazar slum had to wait in long queue to collect water from either pile line of WASA or from tube well, so it became difficult for them to clean water pot before collection.

In a nutshell, the respondents of the slums of having CBOs in managing WATSAN services were more aware about the safety of water compared to the respondents of the slums of Non-CBOs in managing WATSAN services

Table 4.2.2.5: Status of cleaning the water Pot before collecting water from source

Clean Water Pot before Collecting Water from source	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	96%	92%	4%	0%
No	4%	8%	96%	100%

Source: Field Survey, 2008

The table 4.2.2.6 illustrates that all respondents of the slums of having CBOs in managing WATSAN services were used to cover water pot during transportation from Source to Home, where, that status was 4% and 57% for the slums of Non-CBOs in managing WATSAN services i.e Bauniabad D block and Baubazar respectively.

Table 4.2.2.6: Status of covering the water Pot during transportation from source to home

Cover Water Pot during transportation from Source to Home	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	100%	100%	4%	57%
No	0%	0%	96%	43%

Source: Field Survey, 2008

Besides, all respondents of the four study area cover water at reservation it at home.

Table 4.2.2.7: Status of cleaning glass before pouring water into it for drinking

Clean glass before pouring water into it for drinking	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	85%	83%	19%	0%
No	15%	16%	81%	100%
Sometimes	0%	1%	0%	0%

Source: Field Survey, 2008

The table 4.2.2.7 illustrates that 85% respondents of one slum and 83% respondents of another slum of having CBOs in managing WATSAN services were used to clean glass before pouring water into it for drinking. Besides, in Non-CBO managed WATSAN services slums, 19% respondents of Bauniabad D Block and no respondent of Baubazar slum clean glass before pouring water into it for drinking.

4.3 Status of Sanitary facilities in the study areas

4.3.1 Type of the latrine used by the respondents and their family

One of the major focuses of sustainable WATSAN is to ensuring the use of sanitary latrine. The status of latrine of the study areas both having CBO managed WATSAN services and having Non-CBO managed WATSAN services are shown in the table 4.3.1. The data in the table 4.3.1 indicate that, 94% of the surveyed population of one study area (Ta Block) of having CBOs in managing WATSAN services used hygienic latrine and the rest of them used Unhygienic latrine. Additionally, 100% surveyed population in another study area (Duaripara slum) of having CBOs, 100% of the surveyed population used hygienic latrine. On the contrary, 70% of the surveyed population of one study area (Bauniabad D Block) of having Non-CBOs in managing WATSAN services used hygienic latrine and the rest of them used unhygienic latrine. Also, in another area of having Non-CBOs in managing WATSAN services, only 5%, of the surveyed population used hygienic latrine and the rest of them used Unhygienic latrine, in which 45% used temporary shed in an open place as latrine.

Table 4.3.1: Type of the latrine Used by the respondents and their family

Status of latrine	Type of the latrine Used	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
		Ta Block	Duaripara	Bauniabad D Block	Baubazar
Hygienic	Ring Slab/Pit Latrine	17%	20%	27%	5%
	Cluster Latrine	34%	52%	1%	0%
	Sanitation Block	43%	20%	0%	0%
	Brick wall Hygienic Latrine	0%	8%	42%	0%
Total		94%	100%	70%	5%
Unhygienic	Unhygienic outlet surrounded by fence	2%	0%	0%	21%
	Unhygienic Outlet surrounded by Brick wall	1%	0%	30%	12%
	Hanging latrine	3%	0%	0%	7%
	Drain	0%	0%	0%	4%
	Open Space	0%	0%	0%	5%
	Temporary shed in a Open Place	0%	0%	0%	45%
	River/Canal/Khal	0%	0%	.0%	1%
Total		6%	0%	30.0%	95%

Source: Field Survey, 2008

4.3.2: Condition of the access road of the latrines

The access road to latrine should be clean to maintain the cleanliness of the latrine. Though it becomes difficult in the slum areas to maintain the

Among the four study areas, in Ta Block and Duaripara slums around half of the access road of the latrines which has been used by the respondents and their family are found clean and most of the remaining are moderately clean. Alternatively, in Bauniabad D Block and Baubazar around half of the access road of the latrines which has been used by the respondents is found moderately clean and most of the remaining is not clean at clean at all.

Table 4.3.2: Condition of the Access road of the latrine Used by the respondents and their family

Condition of latrine Access road	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Clean	57.0%	49.0%	8.0%	.0%
Moderately clean	39.0%	49.0%	56.0%	43.0%
Not clean at all	4.0%	2.0%	36.0%	57.0%

Source: Field Survey, 2008

4.3.3 Presence of water in the water seal of the latrines

Having water in the water seal of the latrine fulfill one of the criteria of hygienic latrine. The table 4.3.3 represents the status of presence of water seal in the latrines of the surveyed slums. The table shows that, there is water in water seal in 88% latrines in Ta Block slum and in 98% latrines of Duaripara slum. On the other hand, in Bauniabad D Block slum there is water in water seal only in 4% latrines and in Baubazar slum, no latrines water in water seal.

Table 4.3.3: Presence of water in the water seal of the latrines

Presence of water in the water seal	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	88%	98%	4%	0%
No	12%	2%	96%	100%

Source: Field Survey, 2008

4.3.4 Presence of feces on or near pan in the latrines

Presence of feces in the pan on the latrines is very much unhygienic. Due to this, germs can be transmitted to food through flies. Additionally, it creates odor and pollutes air. The table 4.3.4 represents the status presence of feces were seen on or near Pan in the latrines of the surveyed slums. The table shows that there were no feces seen on or near the pan in 95% latrines of Ta Block slum, in 98% latrines of Duaripara slum and in 24% of Bauniabad D Block slum. However, in Baubazar slum, no latrines were found where there is no presence of feces was seen on or near Pan in the latrines.

Table 4.3.4: Presence of Feces are seen on or near Pan in the latrines

Feces are seen on or near Pan	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	5%	2%	76%	100%
No	95%	98%	24%	%

Source: Field Survey, 2008

4.3.5 Presence of odors in the latrines

The data in the table 4.3.5 indicates the status presence of odors in the latrines of the surveyed slums. The table shows that there were no odors smelt in 77% latrines of Ta Block slum, in 92% latrines of Duaripara slum and in 4% of Bauniabad D Block slum. However, in Baubazar slum, no latrines were found without the smell of odor in the latrines

Table 4.3.5: Presence of Odors in the latrines

Presence of Odore	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	23.0%	8.0%	96.0%	100.0%
No	77.0%	92.0%	4.0%	.0%

Source: Field Survey, 2008

4.3.6 Presence of flies or mosquitoes in or near the latrines

The data in the table 4.3.6 indicates that, there were no presence of flies or mosquitoes in or near the latrines in all the latrines of Duaripara slum, and most of the latrines of Ta Block slum. On the other hand, in half of the latrines of Bauniabad D Block slum

there were presence of flies or mosquitoes and in Baubazar slum, in most of the latrines there were found flies and mosquitoes flying here and there.

Table 4.3.6: Presence of flies or mosquitoes in or near the latrines

Presence of flies or mosquitoes	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	3.0%	.0%	55.0%	85.0%
No	97.0%	100.0%	45.0%	15.0%

Source: Field Survey, 2008

4.3.7 Presence of Soap/Ash in Latrine

There were Soap/Ash kept only in 30% latrines of Ta Block slum and 44% of Duaripara slum, where there were no presence of Soap/Ash for hand washing after defecation in 96% latrine of Bauniabad D Block slum in any of the latrines of Baubazar Slum there were no Soap/Ash kept, which has been shown in the table 4.3.7

Table 4.3.7: Presence of Soap/Ash in Latrine

Presence of Soap/Ash in Latrine	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	30.0%	44.0%	4.0%	.0%
No	70.0%	56.0%	96.0%	100.0%

Source: Field Survey, 2008

4.3.8 Water availability for using after defecation

Water availability is very important for hygienic latrine, because certain amount of water needed to wash the pan, making it odor free, after defecation in the latrine. There were available water, which could be used after defecation in 87% latrines of Ta Block slum and 90% of Duaripara slum, in 99% latrine of Bauniabad D Block slum and in 43% latrines of Baubazar Slum, which has been shown in the table 4.3.8.

Table 4.3.8: Water availability for using after defecation

Presence of available water	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	87%	90%	99%	43%
No	13%	10%	1%	57%

Source: Field Survey, 2008

The following pictures are the given here as example and to illustrate the Sanitary status of the study areas.

A Cluster Latrine slum having CBO Managed WATSAN Services



A Cluster Latrine of Ta Block Slum

A Cluster Latrine slum having CBO Managed WATSAN Services



A Cluster Latrine of Duaripara Slum



A Cluster Latrine of Duaripara Slum

A Cluster Latrine slum having Non-CBO Managed WATSAN Services



A Cluster Latrine of Bauniabad D Block Slum

4.4 Area wise Health and Hygiene

4.4.4. Frequently occurring diseases in the last six one month in the Study areas

Table 4.4.1: Frequently occurring diseases in the last six one month in the Study areas

Frequently occurring diseases	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Diarrhea	24%	17%	68%	90%
Dysentery	34%	30%	29%	67%
Cholera	1%	0%	23%	23%
Itching Skin	22%	18%	71%	71%
Fever	85%	75%	57%	25%
Cold	39%	47%	20%	8%
Typhoid	0%	0%	16%	32%

Source: Field Survey, 2008

Diarrhea, Dysentery, Cholera, Typhoid etc, various types of water borne diseases are prevalent in each of the surveyed area, which has been shown in the table 4.4.1. The table indicates that, in the last six months 90% respondent of Baubazar Slum and 68% respondent of Bauniabad D Block slum have been suffered from Diarrhea where this number is 24% and 17% in Ta Block slum and Duaripara slum respectively. Additionally, 67% surveyed population of Baubazar Slum have been suffered from Dysentery, where this figure is around 30% in the other three slums. Moreover, a significant number of population of Baubazar Slum and Bauniabad D Block slum have been suffered from Cholera, though in other two slums, this figure is almost zero. On the other hand, a significant amount of the respondents of Ta Block slum and Duaripara slum suffered from fever and cold in the last six months which is relatively low in other two slums.

4.4.5. Hand washing status of the respondents

4.4.2.1 Practice of Hand washing before eating

As we do a lot of activities with bare hand and as most of us used to eat with the help of hands, so practice of hand washing properly before eating is very important for safe hygiene practice.

Table 4.4.2.1: Practice of Hand washing before eating

Washes Hand before eating	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Always	100%	100%	17%	14%
Most of the times	.0%	.0%	40%	15%
Sometimes	.0%	.0%	43%	71%

Source: Field Survey, 2008

Among the four studied slums, 100% people of Ta Block and Duaripara have the habit of always washing hand before eating, where 17% people of Bauniabad D Block and 14% people of Baubazar Slum always washes hand before eating, which has been illustrated in the table 4.4.2.1.

4.4.2.2 Practice of using soap/ash while hand washing before eating

Habit of hand washing before eating is not enough for safe hygiene, because without using soap or ash during washing can not make hands dirt free. This practice is very important due to be far from diarrhea and some other diseases caused by germs and microbes, which can be transmitted through unclean hands. The table 4.4.2.2 indicates that, 31% surveyed people of Ta Block always wash hands with soap or ash before eating, where 29% of them most of the times and 40% of them never wash hands with soap or ash. Sharply, the same figure also found in the Duaripara slum. But, in Bauniabad D block and Baubazar slum, this feature is different.

Table 4.4.2.2: Practice of using soap/ash while hand washing before eating

Washes Hand before eating with Soap/Ash	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Always	31%	29%	2%	.0%
Most of the times	29%	31%	1%	.0%
Never	40%	40%	42%	57%
Sometimes	.0%	.0%	55%	43%

Source: Field Survey, 2008

In Bauniabad D Block Slum, only 2% surveyed inhabitants always washes hand with soap/ash where no interviewed people of Baubazar slum use soap/ash for hand washing. Additionally, 55% population in Bauniabad D block and 43% population of Baubazar slum sometimes wash hand with soap/ash

4.4.2.3 Practice of using soap/ash while hand washing after eating

Hand washing practice after eating is also very important because of cleanliness, In every slums all people washes hand after eating with water but, practice of using of soap/ash is very low in all the studies areas, table 4.4.2.3 indicates that 26% surveyed people of Ta Block always wash hands with soap or ash before eating 32% of them most of the times and 42% of them never wash hands with soap or ash. Sharply, the same figure also found in the Duaripara slum. But, in Bauniabad D block and Baubazar slum, respectively 84% and 72% surveyed inhabitants never wash hand with soap/ash after eating.

Table 4.4.2.3: Practice of using soap/ash while hand washing after eating

Washes Hand with Soap/Ash after eating	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Always	26%	28%	9%	0%
Most of the times	32%	28%	0%	1%
Never	42%	42%	84%	72%
Sometimes	0%	2%	7%	27%

Source: Field Survey, 2008

4.4.2.4: Practice of using soap/ash while hand washing after defecation

Proper hand washing after defecation makes germ free, so that, no germs can be transmitted through hand. The data from the survey in table 4.4.2.4 indicates that, in all Ta Block and Duaripara slums, respectively 74% and 73% surveyed inhabitants always wash hand with soap/ash after defecation. On the other hand, in Bauniabad D block only 3% and in Baubazar slum no surveyed respondent washes hand with soap/ash after defecation

Table 4.4.2.4: Practice of using soap/ash while hand washing after defecation

Washes Hand with Soap/Ash after defecation	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Always	74%	73 %	3%	0%
Most of the times	25%	25%	1%	0%
Never	1%	0%	4%	100%
Sometimes	0%	2%	92%	0%

Source: Field Survey, 2008

4.4.2.5 Practice of hand washing with water after cleaning garbage

Furthermore, Proper hand washing after cleaning garbage is also important for safe hygiene. It has been found from the survey that, in Ta Block and Duaripara slums, respectively 80% and 89% surveyed inhabitants always wash hand with after cleaning garbage, where only half of them use soap/ash for hand washing. This has been indicated in the table 4.4.2.5 and 4.4.2.6. On the other hand, these tables also illustrates that, in Bauniabad D block only 4% and in Baubazar slum no surveyed respondent washes hand with soap/ash after cleaning garbage

Table 4.4.2.5: Practice of hand washing with water after cleaning garbage

Washes Hand after cleaning garbage A	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Always	80.0%	89.0%	4.0%	.0%
Most of the times	20.0%	11.0%	.0%	.0%
Never	.0%	.0%	96.0%	100.0%

Source: Field Survey, 2008

Table 4.4.2.6: Practice of using soap/ash while hand washing after cleaning garbage

Washes Hand after cleaning garbage with Soap/Ash	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Always	44.0%	51.0%	2.0%	.0%
Most of the times	45.0%	36.0%	.0%	.0%
Never	11.0%	13.0%	98.0%	100.0%

Source: Field Survey, 2008

4.4.6. Habits in using Latrine

4.4.3.1 Practice of using sandal while go to latrine

Using sandal for latrine using is necessary to be germ free and to be hygienic. The data from the survey in table 4.2.4.1 indicates that, in all Ta Block and Duaripara slums, respectively 81% and 88% surveyed inhabitants always use sandal when they go to latrine for defecation. On the other hand, in Bauniabad D block only 71% and in Baubazar slum 86% surveyed respondent never use sandal for latrine using. In Bauniabad D block slum, there is a common conception among the people that, using latrine with barren foot is not unhygienic, if the latrine's floor are made of concrete.

Table 4.4.3.1: Practice of using sandal while go to latrine

Use sandal while go to latrine	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Always	81%	88%	8%	0%
Most of the times	19%	12%	9%	0%
Never	0%	0%	71%	86%
Sometimes	0%	0%	12%	14%

Source: Field Survey, 2008

4.4.3.2 Practice of using sufficient water after defecation/urination

After defecation in the latrine, the flies are attracted by the feces, and they transmit germs from latrine to open food and even to water, so using sufficient water to make the pan feces and odor free is very important for safe hygiene. Though there is a prominent scarcity of water in most of the slums, some of the inhabitants are aware and in practice of using sufficient water defecation or urination, which has been shown in the table 4.2.3.2.

Table 4.4.3.2: Practice of using sufficient water after defecation/urination

Use Sufficient water after using latrine	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Always	52%	51%	6%	0%
Most of the times	41%	41%	11%	0%
Never	7%	8%	71%	29%
Sometimes	0%	0%	12%	71%

Source: Field Survey, 2008

The data from the survey in table 4.4.3.2 points out that, in all Ta Block and Duaripara slums, respectively 52% and 51% surveyed inhabitants always use sufficient water to clean the pan of the latrine after defecation or urination. 41% respondents of both of this two slum most of the times use sufficient water to clean the pan of the latrine after defecation or urination

On the other hand, in Bauniabad D block only 71% and in Baubazar slum 29% surveyed respondent never clean the latrine pan properly with water after defecation or urination. Additionally, in Baubazar slum a significant number of respondents use (form Table 4.3.1) latrines like temporary shed on the open places, and those latrine users think that, which amount of water they are using is sufficient. Though this is totally wrong idea, but honoring their answers, it has been found that, 71% respondents of the Baubazar slum sometimes using sufficient water to clean the pan of the latrine after defecation or urination.

4.4.3.3: Responsible person and frequency of cleaning latrine

The table 4.4.3.3 and the table 4.4.3.4 illustrate the Responsible person for cleaning latrines and the frequency of cleaning latrines in the study slums, which represents the poor conditions of Baubazar slum in both cases.

Table 4.4.3.3: Responsible person for cleaning latrine

Latrine is cleaned by	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Female Respondent	17%	9%	28%	3%
An Woman of Respondent's family	4%	2%	68%	6%
Women of each family by rotation	2%	0%	0%	0%
Selected caretaker	77%	89%	4%	0%
Nobody cleans	0%	0%	0%	91%

Source: Field Ssurvey, 2008

Table 4.4.3.4: Frequency of cleaning latrine

Frequency of cleaning latrine	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Daily	18%	18%	8%	0%
One day after one day	5%	23%	17%	0%
One day after three days	23%	33%	4%	0%
Weekly	54%	26%	67%	9%
Other	0%	0%	4%	0%
Never	0%	0%	0%	91%

Source: Field Survey, 2008

4.5 Food Hygiene Status

Cleaning vegetables before cooking and cleaning fruits before eating is necessary for safe hygienic practice and also for proper nutrition.

Table 4.5.1: Status of cleaning vegetables before cooking

Clean Vegetables Before Cooking	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	100%	100%	23%	14%
No	0%	0%	77%	86%

Source: Field Survey, 2008

The table 4.5.1 tells that, all respondents of Ta Block and Duaripara slum are aware about cleaning vegetables before cooking, where only 23% of Bauniabad D Block and 14% respondent of Baubazar slum are aware on this issue.

Table 4.5.2: Status of cleaning fruits before eating

Clean fruits Before eating	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Yes	33%	36%	6%	0%
No	44%	42%	93%	100%
Sometimes	23%	22%	1%	0%

Source: Field Survey, 2008

Moreover the table 4.5.2 indicates that, in Ta Block 33% respondents always and 23% respondents sometimes clean fruits before eating. Additionally, in Duaripara slum, 36% respondents always and 22% respondents sometimes clean fruits before eating. Instead, Bauniabad D Block, only 6% respondents always and 1% respondents sometimes clean fruits before eating, where no respondents of Baubazar slum are aware on this issue.

4.6 Garbage Disposal Conditions

Keeping House Premises clean is also a part of safe hygiene, because this practice keeps flies and mosquitoes far from the residence.

Table 4.6.1: Frequency of cleaning House Premises

Frequency of cleaning House Premises	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Daily	44%	43%	1%	0%
One day after one day	1%	0%	98%	0%
One day after three days	9%	12%	0%	0%
Weekly	14%	14%	0%	43%
Have no House Premises	32%	31%	1%	57%

Source: Field Survey, 2008

The table 4.2.8.1 illustrates the frequency of cleaning house premises among the respondents of the four slums. The table tells that, in Ta Block 44% respondents daily their clean house premises. Among the others, 14% weekly cleans house premises and 9% cleans house premises one day after three days. Additionally, in Duaripara 43% respondents daily their clean house premises. Among the others, 14% weekly cleans house premises and 12% cleans house premises one day after three days. On the other hand, 98% respondent of Bauniabad D Block slum cleans house premises one day after one day and all respondents who have house premises (43%) of Baubazar slum weekly cleans their house premises.

Table 4.6.2: Place of leaving household garbage

Place of leaving household garbage	Slums having CBO Managed WATSAN Services		Slums having Non-CBO Managed WATSAN Services	
	Ta Block	Duaripara	Bauniabad D Block	Baubazar
Garbage Collector/ dust been	0%	0%	83%	21%
Near the House	0%	0%	4%	0%
Nearby Lake	77%	28%	2%	0%
Drain	0%	0%	0%	15%
Open Space	0%	8%	11%	64%
Other safe place	23%	64%	0%	0%

Source: Field Survey, 2008

In Dhaka city, garbage creates lots of environmental problems. In slums and squatter settlements, garbage disposal system is not sufficient as like as the other parts of the city. In the four studied slums, it came out that, though the degree other hygiene practice is very good in Ta Block and Duaripara slum comparative to other two slums, but in case of garbage management system this slums representing poor status comparing to the other two slums, which has been indicated in table 4.6.2. The data of the table tells that, 77% respondents of Ta Block and 28% of Duaripara slum leave their household garbage in the nearby lake, where 23% of Ta Block and 64% of Duaripara slum leave those in other safe places. In case of Bauniabad D Block slum, 83% respondents leave their household garbage to the garbage collector and 11% keep it on open spaces, which finally are taken by the garbage collector. In Baubazar slum, 21% respondents leave their household garbage in the dust been, 15% leave it in the drain and 64% keep it on open space.

In a nutshell, the garbage disposal system of Bauniabad D block slum is well managed, which has been found in very poor condition in other slums.

Chapter five: CBO Approach - Activities and Practice in the study areas

5. Introduction:

Among the four Study areas, there are existences of CBOs in 3 slums, where, the CBOs are directly involved in water sanitation management in two slums (**Duaripara and Ta Block**) and in one slum (Bauniabad D Block), the CBOs are involved only in solid waste management. The information of this chapter has been collected through a Focus Group Discussion with the CBOs of different level (of **Duaripara and Ta Block slums**) using a structured checklist. Additionally, information has been cross checked with the ARBAN staffs working in these areas. This chapter emphasizing the existing CBO approaches in the study areas because positive changes in Water supply, Sanitation and in Hygienic practices have been seen in **Duaripara and Ta Block slums** (Chapter four and Chapter six). So , this chapter trying to investigate that if the CBO approaches are really existing in those areas and to which extent it exists.

5.1. CBO approach in Duaripara and Ta Block slum.

5.1.7. Objective of CBO Approach

The main objectives of CBO Approach are

- ❖ Provision of water and sanitary services to all
- ❖ Ensuring women participation and encouraging women leadership in decision making.
- ❖ CBO's will act as the change agents for the community to ensure WATSAN services
- ❖ Behavioral change of the community through effective communication and networking.
- ❖ Social and financial sustainability of the project in the working community, so that the community become benefited for long.

(Source: Field Survey 2008)

5.1.8. Key components of CBO Approach

The implementation of community-based water and sanitation services is comprised of two broad components, 'Software' and 'Hardware'. The integration of the following specific activities are undertaken to establish the software component and also for the improvement of water safety and hygiene practices.

A. Software

- a. Establish baseline and need assessment through participatory approaches
- b. Projection meeting to revisit the findings of the baseline report
- c. Formation of CBOs / Community Management Groups (CMGs)
- d. Training on Water safety plan, Hygiene Promotion, Community Management and operation maintenance of the Hardwares
- e. Book-keeping training for the CBOs /WMCs/ SMC/s CDCs and community members

B. Hardware:

- a. Water points supplying water through legal connections to metropolitan
- b. Water authority lines;
- c. Installation of tube-wells
- d. Construction of sanitation blocks combining water points, bathing stalls and hygienic latrines;
- e. Community/cluster latrines with septic tanks;
- f. Household water-seal, pit latrines;

(Source: Field Survey 2008)

5.1.9. Types of the committee found in the study areas:

The following committees have been found in the abovementioned two study areas:

- a. **CDC (Community Development Committee):** The whole slum is divided into different clusters. There is one CDC in each cluster taking representatives of the community which has been selected by them, so that the people of the community can directly participate at the decision making process. Each CDC consisted with 10/12 members and they-
☞ arrange monthly meeting and discuss the problems of their area and plan and initiate strategies to solve the problems

- ☞ Develop community based action plan in a participatory manner where the community analyze the overall situation of the clusters
- ☞ Identify the types of water and sanitation services required for ensuring better living conditions in the area
- ☞ Identify the number of water points and sanitary latrines that would be required in the slum to ensure cent percent WATSAN coverage.
- ☞ Form WMC and SMC for water and sanitation option.
- ☞ involved in the monitoring of the work of the SMCs and WMCs
- ☞ Take sessions in the women, adolescent and child groups on water safety and hygiene messages
- ☞ Closely monitor the water safety and hygiene practices at the household level
- ☞ Participate in various awareness raising activities arranged by the CBO and the respective NGOs
- ☞ Participate in different trainings and workshop arranged by the respective NGOs
- ☞ Share learning and disseminate messages to the existing women, adolescent and child groups in the respective cluster.
- ☞ Keep regular communication with the Slum level CBO and the NGO working in this sector for the development of their community

- b. **WMC (Water Management Committee):** For each water options like, water point, stand post, water connection to the Sanitation Block and tube-well, one SMC is formed taking 2/3 representative from cluster CDC, initially after taking decision to install the option of that area. This committee-
- ☞ gets involved during the site selection, purchase and follow up of construction of the water option
 - ☞ collects money, returns to the NGOs and keeps record of the cost sharing of the beneficiaries
 - ☞ collects money for cleanliness and maintenance of the option
 - ☞ keeps transparency and accountability to the beneficiaries through the CDCs
 - ☞ Participate in different trainings and workshop arranged by the respective NGOs specially for WMCs

- ☞ Participate in various awareness raising activities arranged by the CBO and the respective NGOs
- c. **SMC (Sanitation Management Committee):** For each Sanitation options like, sanitation block or Cluster latrine one SMC is formed taking 2/3 representative from cluster CDC, initially after taking decision to install the option of that area. This committee-
- ☞ gets involved during the site selection, purchase and follow up of construction of the sanitation option
 - ☞ collects money, returns to the NGOs and keeps record of the cost sharing of the beneficiaries
 - ☞ collects money for cleanliness and maintenance of the option
 - ☞ keeps transparency and accountability to the beneficiaries through the CDCs
 - ☞ Participate in different trainings and workshop arranged by the respective NGOs specially for SMCs
 - ☞ Participate in various awareness raising activities arranged by the CBO and the respective NGOs
- d. **CBO (Community Based Organization):** A Central Slum Level CBO is formed taking representatives from each CDC. This committee is consisted with 10 to 12 members. This committee is more involved
- ☞ to plan for the whole slum,
 - ☞ to negotiate with both the NGOs and the government authority (DWASHA) for piped water line connection and sanitation facilities based on the requirements of their area
 - ☞ to arrange trainings for the CDC, WMC and SMC in collaboration with respective NGO.
 - ☞ to arrange monthly meeting and discuss the problems of their area and plan and initiate strategies to solve the problems
- e. **WSC (Ward Sanitation Committee):** WSC in the ward level is formed with the representatives from slum level CBOs, which are existed in the same ward. They work for

- ☞ Advocacy to the ward level for different issues like getting legal water connection,
- ☞ Being the strong platform to negotiate with the government authority
- ☞ Networking with other organizations for different services. Different day observation in cooperation with the slum CBOs. For example, world water day, world environment day, Sanitation month etc. Source: Field Survey 2008).

5.1.10. Linkage among the CBOs

There are different levels of CBOs in a slum, which has been discussed earlier. The figure 5.2.1 represents the linkage among the CBOs in the study area, which has been developed based on the information shared by the CBOs during the survey

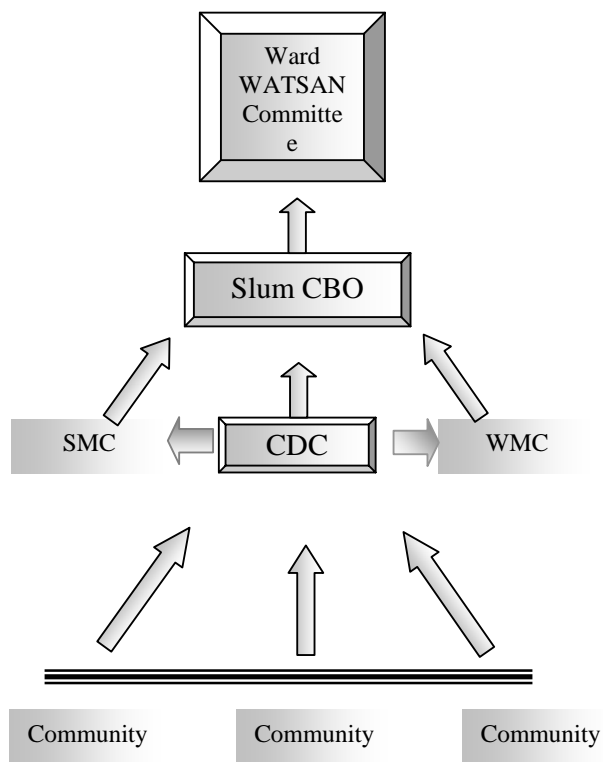


Figure 5.2.1: linkage among the CBOs
Source: Field Survey 2008

5.1.11. Approach to the community using CBO Approach

The facilitating organization ARBAN, having the objective to reach to every family in the community in hardware and software through CBO approach, follows the following steps:

- a. **Cluster division:** At the beginning of entering any slum for working on water sanitation sector, the total slum is divided in some cluster by ARBAN

consisting of 80 to 100 household in each cluster. This is done for ensuring maximum participation of the community people in planning, decision making and keep contribution for the development of their community. In the TA block Slum, there are 5 clusters and in Duaripara Slum there are 7 clusters.

b. **Situation Analysis:** After the cluster division, the situation analysis of every cluster is done, which is facilitated by ARBAN with the participation of the community through participatory approach. The information of the situation analysis helps in adequate planning for the community.

c. **CDC formation:** In each cluster a CDC is formed consisting of 12 to 15 members, which headed by a Chairman. There are also the positions of Secretary and Treasure in the committee. Females are prioritized welcomed most in the committee fro different positions. The Chairman, Secretary, Treasurer and the Members of this committee are selected by the community people. There is also provision of reselection of the important positions of the CDCs in every two year.

d. **Planning for Water Sanitation options:** Initially after the CDC formation, the CDC and the community people with the facilitation of ARBAN Staff make plan for their cluster. This is basically, how many water options (water point/ HTW/ stand post), how many sanitations options (cluster latrine/ pit latrine/ sanitation block) will be needed for providing safe Water and Sanitation in their cluster and site selection to install the hardwares. Additionally, they also plan how to dispose their garbage to safe place. Based on the plan, the CDC communicates with the facilitating organization to get both financial and technical assistance for the implementation of their community plan.

e. **WMC and SMC and Purchase Committee formation:** After getting the conformation from ARBAN about getting the financial and technical assistance for hardware, the CDC forms Hardware management committees (consisting 2 to 3 members) and purchase committees(consisting 2 to 3 members) taking members from CDC or from Community. This committee is called Water Management Committee (WMC) for water options and Sanitation Management Committee (SMC) for sanitation options. These Committees get involved during the construction phase and also as caretaker when the options are in use. In addition to this, the purchase committees are involved with the

ARBAN staff for purchasing materials of the options during the construction phase

f. **Hygiene Group formation:** As ARBAN has the target to reach every family through hardware and soft ware, so in one side they provide hardware to cover safe water and sanitation in the community and in the other side, they make different hygiene groups taking one representative from every family to disseminate hygiene messages. In one cluster, 2 to 3 courtyard groups, one adolescent group, one child group and one hygiene group are formed. These groups consisted of 15 to 20 members. Some members of the hygiene group and the facilitator from ARBN run hygiene promotion session with courtyard groups, adolescent group and child group, where hygiene messages are discussed and a monitoring plan is prepared to monitor every household about the hygienic practice by the selected hygiene group members.

g. **Training for CDC, WMC, SMC and Hygiene group:** All the groups receive different training from ARBAN, particularly, the CDC on Basic Hygiene, Organizational development

and Water Safety Plan; the WMC and SMC on hardware management of respective option and Hygiene group on Basic Hygiene and Water safety plan.

Slum CBO formation: Slum CBO is formed taking 2to 3 representatives from each CDC. Here there exist different positions as like as CDC. The activities of the slum CBO is described in 5.3

h. **Ward Sanitation Committee Formation:** when the slum level CBO work properly, then CBO at the Ward level titled Ward Sanitation Committee



Pic 5.1.5: Steps of Community Capacity Building through CBO Approach

(WSC) is formed taking 2 to 3 representatives from some slum CBO and some elite person of the area. The activities of the slum WSC is described in 5.3

i. **Exchange visit and other NGO visit:** Finally, ARBAN initiates some exchange visit among different slum CBOs to share their views, experiences and to get new ideas for the development in their community. Additionally, some visits are arranged to other NGOs who are working for Water Sanitation promotion in slums (Source: Field Survey 2008).

5.1.12. Cost sharing of the beneficiaries in CBO Approach

According to the ASEH (Advancing Sustainable Environmental Health, the Project of Water Aid) guidelines, community has to pay the monthly installment charge after handing over the hardware to the beneficiaries. The beneficiaries also enjoy 3-6 months grace period before start paying the monthly charges. At the moment, the users of the water point/stand are paying monthly installment and monthly charge for water used and the users of sanitary latrines are paying only the monthly installment of the capital cost. In the case of the handset tube-well, people are allowed to repay the fraction of the capital cost through 18 installments and 24 installments for the sanitation block.

(Source: Field Survey 2008)

Table 5.6.1: Cost sharing of the beneficiaries in CBO Approach

Family Category	Criteria to define family category	% of repayment by the beneficiaries	% of repayment by the Organization
A-rich	Can easily manage meals and other needs	100	0
B-poor but relatively better off household	Can easily manage meals and other needs hardly	40-60	60-40
C-Moderate poor household	Can hardly manage 3 meal per day	15-30	85-70
D-Hard core poor	Can hardly manage 2 meal per day	10-15	90-85
E-Vulnerable	Can hardly manage 1 meal per day	5	95

Source: Field Survey 2008

5.2. CBOs involvement in Bauniabad D Block slum

In the Bauniabad D Block slum, there is some CBO, who works for education, micro credit, health services and even they work for the solid waste management by the support of Some NGOs in their area, but they do not follow the approach as like as the approach the CBOs follow in Ta Block and Duaripara Slum. For Solid Waste Management, the activities of the CBO are

- ❖ The CBO collects money from every household for dumping the household garbage in the safe place. A garbage collector is appointed by the CBO to collect the garbage from every household in a van (a donation of ARBAN with the funding of Terre des Hommes Italy) and dump it to safe place.
- ❖ The CBO Monitor the works of garbage collector and also take care the maintenance of the van
- ❖ The CBO works for cleaning Primary, Secondary and Tertiary drain, once in a year as a part of Bio gas plant management. In this case they estimate the total cost to clean the drains and ask the full money from the NGO (DSK and ARBAN), here CBO works as a vendor.

Chapter Six: Evaluation of CBO Intervention and Sustainability

6. Introduction

Positive changes in Water Sanitation Sector brought by CBO intervention have been identified in Ta Block and in Duaripara Slum. These changes have been remarked from the comparison of some indicators with the present situation, which has been found from the field survey and from the Base line Survey. This Base line survey has been conducted by ARBAN in 2005. Additionally, the comparison has also been done for the other two slums, where there is little changes found over the period. In case of Bauniabad D Block slum, the base line data is taken from the study of some researchers of UNU-IAS, 2005 and in case of Baubazar slum, the base line data of 2004 has been taken from the Slum Observatory Report, published by Aparajeyo Bangladesh (AB).

6.1 Changed status in water source both in CBO managed and non-CBO managed study areas

According to the situation analysis report (2005) of ARBAN, all the inhabitants of Ta Block and most of the inhabitants Duaripara Slum were used to collect drinking water from illegal pipe connection with the main Pipe of WASA water line. These pipes were brought through nearby lake, drain, water logged places, dirty filthy areas to maintain the most shortage distance from the main line, so that more water flow can be achieved to get water. Normally, water would available in the line one or two hours per day, so people would get less time to collect sufficient water for their household activities (drinking, cleaning, cooking and bathing), as there were one illegal pipe line for 8 to 15 families. Furthermore, there was high risk of contamination as the line is brought through unhygienic areas. In Duaripara, some families used to get water from Hand Tube well (HTW), where the situation was a bit better than illegal pipe line connection. Though the families had to press the HTWs with strength to pump water, but the water was available for 24 hours and comparatively safe for drinking. The major problem was for HTW that, the basement areas of the HTWs were not made by concrete, so there was risk of contamination in the pot during water collection. Besides, the surrounding areas near the HTWs became filthy and unhygienic due to the water and abovementioned reason, which reduced the durability of the water option.

In Bauniabad D Block Slum, hundred percent families found having legal water connection in the Study of UNU-IAS. Also, according to the Slum Observatory Report of AB (2004) in Baubazar slum, around half of the families found using illegal water pipe line from DWASA Supply, which condition were as like as the illegal connection of the other slums. In addition to this, rest of the families of this slum used HTW water for drinking. The changed status of drinking water sources of these four slums is shown in the table 6.1

Table 6.1: Change in Status of Drinking Water Source

Source of Drinking Water	Areas Having CBO Managed WATSAN Services				Areas Having Non-CBO Managed WATSAN Services			
	TA Block		Duaripara		Bauniabad D Block		Baubazar	
	Percentage (2005)	Percentage (2008)	Percentage (2005)	Percentage (2008)	Percentage (2005)	Percentage (2008)	Percentage (2004)	Percentage (2008)
Families using water for drinking through illegal collection of Water from WASA line	100%	0%	62.23%	2%	0%	0%	48%	54%
Families using water for drinking through legal collection of Water from WASA line	0%	100%	6.43%	38%	100%	100%	0%	0%
No of families using water from HTW for Drinking	0%	0%	31.35%	60%	0%	0%	51.2%	46%

Source : Situation Analysis Report of ARBAN; Water Sanitation in Urban Poor Settlement: A case Study of Bauniabad, Bangladesh by UNU-IAS; Slum Observatory Report of AB and Field Survey

The table 6.1 illustrates that in Ta Block slum, all households are now getting water from legal connection of DWASA. Moreover there is almost no risk of source water contamination due to well constructed water reservoir and maintenance made by the

Water Management Committee (WMC) (see Chapter 4, table 4.2.5.5, table 4.2.5.6, table 4.2.5.7 and table 4.2.5.8). Additionally, during the survey at 2008 in Duaripara slum, 38% households are found getting water from legal connection of DWASA, 60% households found getting water from HTW and only 2% found till collecting water form illegal connection of DWASA line where this percentage was 62.23% in 2005.

In the Bauniabad D Block, the feature is different than other slums. As this is a government rehabilitation scheme, so there was legal water connection to all plots. Additionally, 3 to 4 families were getting water from one line as there live 3 to 4 families in a plot instead of one. This status is same at 2008 as it was in 2005. Though the households in Bauniabad D block have legal water connection and most of them have water reservoir, but unhygienic condition and poor maintenance have been observed during the survey in 2008 for example, the water reservoir area is not clean, people are bathing on the water reservoir, reservoir cover is not raised etc (see Chapter 4, table 4.2.5.5, table 4.2.5.6, table 4.2.5.7 and table 4.2.5.8). which indicate the high risk of reservoir water contamination.

Safe water collection status in Baubazar Slum is found very poor as it was in 2004. Actually, the situation also deteriorated compared to 2004. At present, 46% households found getting drinking water from HTW, which was 51.2% in 2004. Remaining households are collecting water from illegal DWASA line.

It has been described in the earlier chapters that, with the provision of the water options like water point, stand post and HTWs for some certain households in the community, WMC was also been formed for each option from that community people, who were trained for particular purposes so that proper cleanliness and maintenance can be ensured. This committee also works for collection of money from the users for Cost Recovery to ARBAN, payment of bill to DWASA and maintenance. Additionally, the cost recovery system for the water connections increases ownership in the community , which is an important factor bringing positive changes related to hygienic practice and sustainability of the option in the community. These changes are significant in Ta Block and Duaripara slum.

6.2 Changed status in sanitation both in CBO managed and non-CBO managed study areas

6.2.1 Use of Sanitary Latrine:

To be safe and healthy, it is very essential to use hygienic latrine because unhygienic latrine is the main source of a lots of diseases like diarrhea, cholera, etching urinary infection etc. In the CBO approach, it is considered that, use of hygienic latrine reduce poverty through reducing some common diseases in the community. According to the baseline

survey of ARBAN, it is found that no households in Ta Block and only 1.72% families in Duaripara used

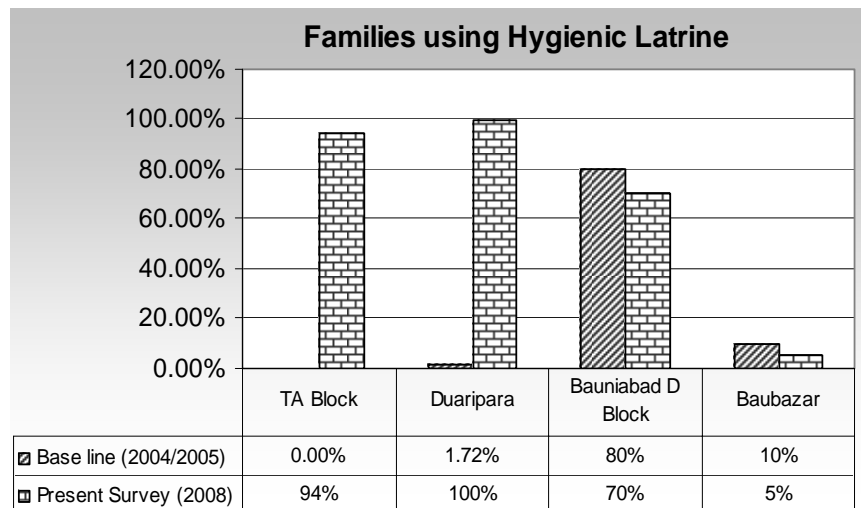


Figure: 6.2.1 Use of hygienic latrine in the survey areas

hygienic latrine in 2005. After NGO (ARBAN) intervention through CBO Approach in this area, at present 94% families in Ta Block and 100% families in Duaripara are using safe sanitary latrine, and this has been depicted in the fig 6.2.1. The figure also tells that, in Bauniabad D Block, around 80% people had sanitary latrine in 2005 but now only 70% families are using hygienic latrine. As, this slum is government rehabilitation scheme, so the roads and houses are comparatively improved and planned than other slums. This degradation is due to poor maintenance of the options, not making renovations of the old ones etc. Some NGOs like DSK and ARBAN were found working here for Water and Sanitations with their other programme. But their approach was to provide hygiene message through school and providing some latrines without any part of reimbursement. A CBO exist here who only work for education and solid waste management. As the latrines provided here without any community cost involvement, there is less ownership built in the community, which in turn leads to poor take care of the options.

In case of Bubazar, the situation is very poor. The table shows that, in 2004, only 10% families used hygienic latrine, where in 2008, this amount is only 5%. This area is most disadvantaged in case of water sanitation. According to the information from Aparajeyo Bangladesh, no NGOs worked here focusing Water Sanitation till 2008. Only, AB, with the funding of Terre Des Hommes Italy and European Commission provided 63 latrines and 18 HTWs in 2005. But these options were provided with need basis and without any reimbursement or making any committee for the take care and maintenance of these options. During this survey in 2008, no latrines were found existed of that time and only 3 HTWs found but one of them was inactive. As the user families has no monetary contribution to these options, so they felt less ownership for the take care and maintenance of these options. On the other hand, according to the Slum observatory report, 90% dwellers of Baubazar use Open Latrine, Hanging Latrine, Temporary shed on the open place and some not mentioned places and this situation has been found almost unchanged in the recent survey in 2008. The use of these types of unhygienic latrine is very harmful for the community and for the environment(Source : Situation Analysis Report of ARBAN; Water Sanitation in Urban Poor Settlement: A case Study of Bauniabad, Bangladesh by UNU-IAS; Slum Observatory Report of AB and Field Survey).

6.2.2 Use of soap/ash for hand washing before eating

Hand washing only with water before eating is not sufficient for proper hygienic practice. To get germ free hands it needs to wash with soap or wash. In the four studied slums, all the surveyed dwellers found used to wash their hands with water during the baseline survey and till now. But some of them found using soap or ash for hand washing. The changed feature of using soap or ash for washing hands before eating is shown in the figure 6.2.2

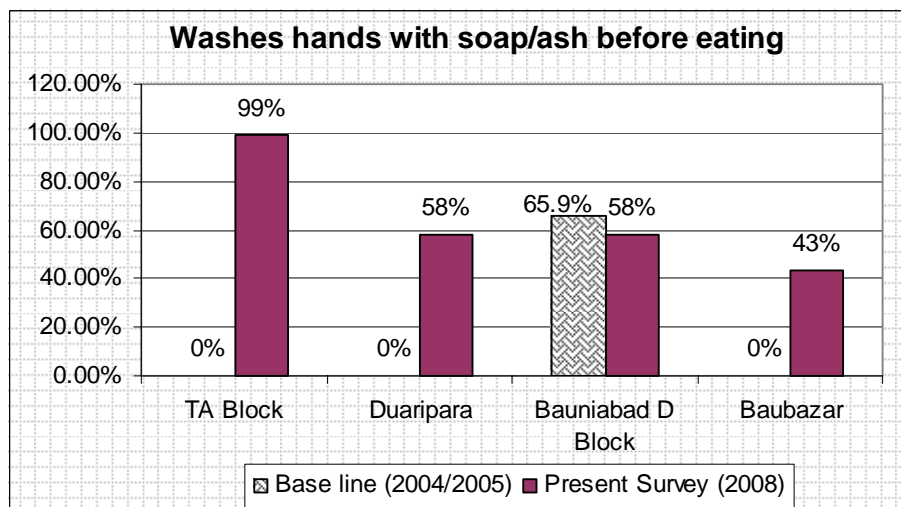


Figure 6.2.2 Use of soap/ash for hand washing before eating

The figure 6.2.2 represents that during the baseline survey of ARBAN, no families of Ta Block and Duaripara were used to wash hands with soap or ash before eating; only water was used instead. The figure also tells some improved situation of these areas, which has been found during the present survey at 2008. At present, 99% respondents of Ta Block and 58% respondents of Duaripara washes hands with soap or ash before eating. On the contrary, in case of Bauniabad D Block slum the situation found almost unchanged as it was in 2005. But in case of Baubazar slum there found some positive changes without any CBO activity, the percentage of using soap/ash for washing hands before eating increased from 0% to 43% in that areas but they use the agent sometimes not always or most of the times (Source : Situation Analysis Report of ARBAN; Water Sanitation in Urban Poor Settlement: A case Study of Bauniabad, Bangladesh by UNU-IAS; Slum Observatory Report of AB and Field Survey).

6.2.3 Use of Sandal to go to Latrine

Though a little change found in Ta Block and Duaripara slum incase of using sandal in latrines, but the changes are positive. The comparison of the situation changes have been shown in the figure 6.2.3. The figure gives a picture that in Ta block, 100% respondents were used to this practice during the base line survey and till 2008. Additionally, in Duaripara 28% increase has been found in this practice after the CBO intervention in this area. In Bauniabad D Block, only 5% change has occurred

during the last 3 years. The figure also shows a decrease in the practice of using sandal to go to latrine in Baubazar slum.

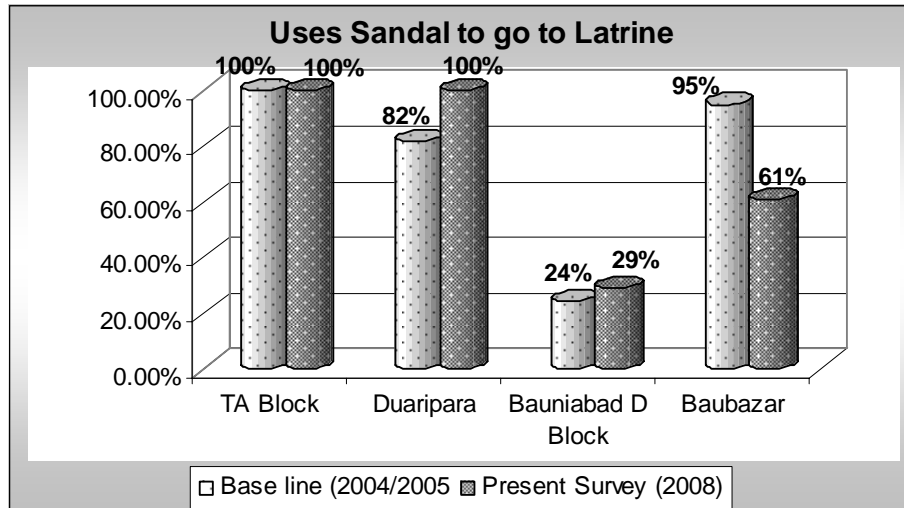


Figure 6.2.3: Use of Sandal to go to Latrine

6.2.4 Use of soap/ash for hand washing after defecation

There found a radical change in case of using soap or ash for hand washing after defecation in Ta Block, Duaripara and Bauniabad D Block Slum, which has been shown in the figure 6.2.4. The figure tells that, during the baseline survey, only 18% people of Ta

Block and 7% people of Duaripara were used to wash their hands with soap or ash after defecation which has been changed to 100% and 99% after the intervention of the

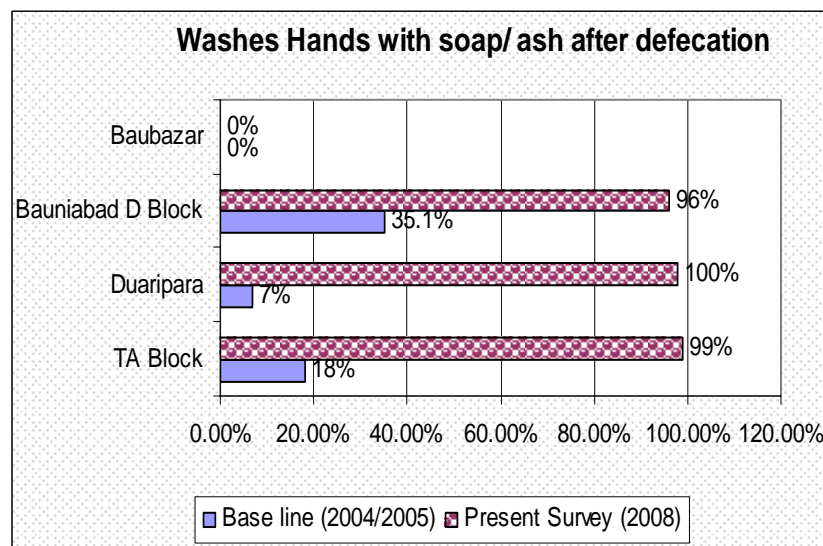


Figure 6.2.4: Use of soap/ash for hand washing after defecation

Additionally, these 100% respondents of Ta Block and 99% respondents of Duaripara

accustomed to use the agent always or most of the times (Chapter 4). Though the figure tells that in Baunibad D block, this change came from 35.1% to 96%, but in this 965 respondents use the agent sometimes to clean their hands after defecation (chapter 4). The figure shows the poor status of Baubazar slum. It tells that, no people were familiar with use of soap or ash for rinsing hands after defecation at the time of 2004 and not even today. This is because, most of the people of this slum use unhygienic latrine, particularly open latrine, hanging latrine, temporary shed in the open places etc., and also they get limited water for their daily activities, so it is very difficult to maintain hygienic practice in their area. Additionally, according to the information from the slum and AB, at present no NGO is working in this area for Water and Sanitation, which resulting less WATSAN facility to the slum dwellers and less awareness about hygienic practices.

6.3 Proved positive changes gained through CBO approach, supported by other studies

According to the base line survey done by ARBAN in 2005, the community people faced difficulties for using illegal water line from DWASA line, because they had to bring the pipe lines through lake and hanging place, where the open end of these pipe lines were kept into lake water and normally these lines had 15 ft to 22 ft distance with the hanging latrines. Further, the surrounding environment was also dirty. Besides, the sources were insufficient compares to the households and, in summer and rainy season the water was not available in the pipes everyday.

On the other hand, as most of the households of the community used open hanging latrine, so they had to walk on bamboo to reach to the latrine. Additionally, as the hanging latrines were fenced by jute clothes (locally called “Chot”), so it created problems to use latrine during day light for the women and adolescent girls. Moreover, the latrines were far from home and also they had to wait in a queue in the morning and men were prioritized to use latrine. Besides, they faced more difficulties to use those latrines at night due to darkness, insecurity and risk of falling in the lake.

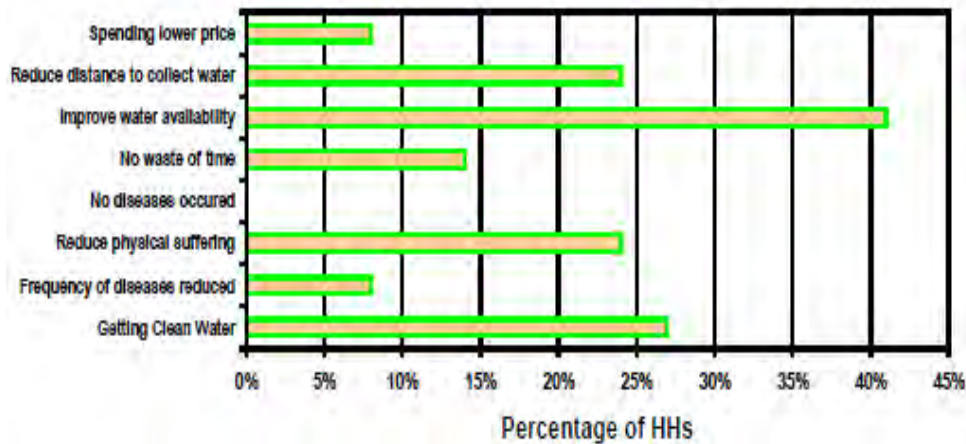


Fig 6.3.1: Benefits from Water Sanitation interventions

According to the Case Study “WATSAN Intervention in Ta Block Slum, Mirpur, Dhaka” conducted by ITN BUET, Center for Water Safety and Waste Management, 2008, People of the community are found the technological options effective for getting safe water and using sanitary latrine. Most of the beneficiaries of the water points mentioned that it has improved the availability of water. Some of the beneficiaries stated that the present option ensures safe water and reduces the distance of collecting water (see figure 6.3.1).

Some of the people are still going for open defecation outside or adjacent to the slum area. It is polluting the surrounding environment. However, almost 90% of the users have expressed their satisfaction on the present sanitary latrine options. Figure 6.2.3 provides information about the level of satisfaction with sanitation options. In general, people

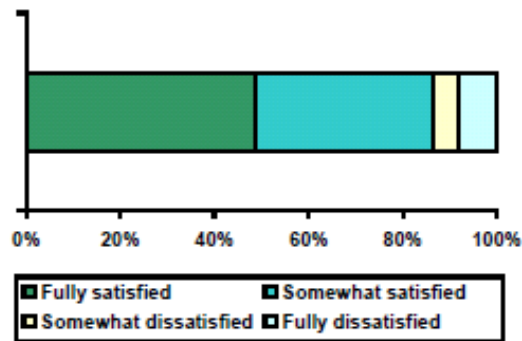


Fig 6.3.2: Level of satisfaction with sanitation options

are satisfied with the present water connection system. (Source: WATSAN Intervention in Ta Block Slum, Mirpur, Dhaka” conducted by ITN BUET, 2008)

In addition to this, the study also tells that, in the beginning, people of the community were unaware on hygiene promotion concept and were not interested to take lessons on these issues. Women were eventful with their family affairs and reluctant to share

more time on social activities. The supervisor of ARBAN worked hard to convince the women and encouraged them to form groups for attending the training sessions. Presently, the participants of the female groups are playing the active role to disseminate and monitor hygiene promotion activities in the slum area. The female leader maintains a monitoring chart to keep records of the status of each household. The chart is prepared on monthly basis. The monitoring tool is developed by the female group with direct guidance from the implementing NGO. The female members visit each house and convey hygiene messages among others and convince them to follow hygiene related instructions into their daily lives.

The community expressed their satisfaction for receiving hygiene lessons from ARBAN. Almost 60% of the people mentioned that such practices reduce the frequency of diseases and they feel healthy due to enduring hygiene practices into their daily lives (see Figure 6.3.4). (Source: WATSAN Intervention in Ta Block Slum, Mirpur, Dhaka” conducted by ITN BUET, 2008)

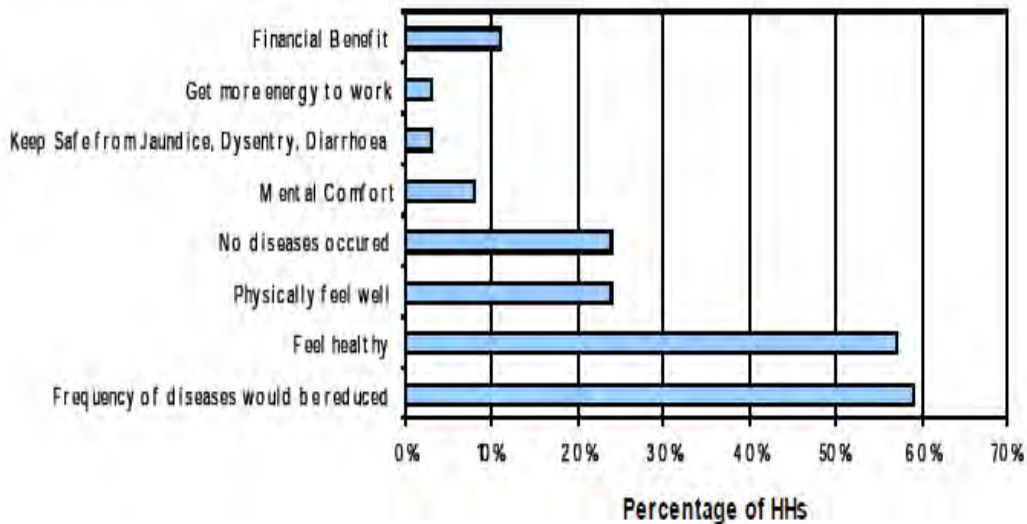


Figure 6.3.4: Benefit of practice personal hygiene

6.4. Evaluation of sustainability of the CBO intervention in the study areas of having CBO managed WATSAN Services

6.4.7 Access to Continuous Water Supply:

Though people are satisfied with the present water connection system, however, in some parts of Ta Block, people are struggling to receive continuous water from DWASA line due to shortage of pipe water supply. There is a need to provide technical support in that area for ensuring continuous water flows for the community. The sustainability of the water system is dependent on easy and continuous flow of water from the water supply options.

6.4.8 Successful CBO linkage in different stages of the community

There are different types of committees exist in the slum, who are working very effectively. The positive changes they have brought for their community can be used as model for other communities. The only limitation is that these community based committees do not have any legal recognition. The long term sustainability of the CBOs will be in threat without having any legal recognition of those committees by the government and other organization

6.4.9 Transparency of the financial transactions

The development of a regulation for the community based committees would be very effective for the long term sustainability of the intervention. Additionally, this is a positive indicator of sustainability that the CBOs are maintaining their organizational bank account, so that these committees are able to keep fund in a secured manner. On the other way, maintaining a bank account is important to ensure transparency of the financial transactions. During the survey, the CBOs were in a process to open a joint Bank account to ensure transparency of the financial transactions

6.4.10 Organizational Procedure of the CBOs

It is found that all the community based committees are functioning for more than two years though it was verbally agreed that the committee would be effective only for two-year tenure and new committee would take the responsibility after that period. The committee would be formed through open selection procedure among the slum dwellers. There is a lack to follow proper procedure for exclusion and inclusion of members into CDC. The common practice of the community is to reform a committee through mutual understanding of the slum dwellers and the implementing NGO. When

a member of the committee resigns, then he is replaced by other member. Such type of practice cannot be sustained in the long run and it is highly discouraged from the management perspective. As the people of the community consider the issue of involving with community based committees as a symbol of status, a transparent procedure will have to be introduced to ensure active participations of the slum dwellers on each committee. There is serious need to introduce a comprehensive regulation for each committee that will provide the possibility to sustain the management procedure in the long run.

6.4.11 Women Empowerment

The present WATSAN innovative process provides positive impacts on women empowerment. Women are effectively participating in community based activities. Such practice creates an opportunity for women to work outside their home. Women purchase raw materials for the construction of hardware; it proves their negotiating capability. Women are presently involved with different CBOs, which improved their leadership qualities. Women are also monitoring and disseminating hygiene promotion issues in the slum area. All these activities provide positive impacts on women empowerment. Additionally, from field discussion most of the male stated that women were more responsible than others and they had the ability to change the present unhygienic situation and ensuring healthy environment in the slum. ARBAN also mentioned that women were responsible and execute their works with full seriousness.

6.4.12 Training and Monitoring Mechanism of the Process

ARBAN has introduced training programme on hygiene promotion practices. It has provided short-term training on the subject. It is expected that it would change the human behavior in a right direction and people will successfully adopt hygiene practices into their daily lives. Yes, this is true that positive changes have been found during the survey. However, the issue of behavioral change is not an easy task; it requires continuous efforts to provide permanent impacts on the previous practices. Even only training cannot be effective unless it is continuous. Later ARBAN had made some groups (Female group, adolescent groups and child groups) and developed a mechanism through providing continuous courtyard sessions with different groups and community based participatory monitoring system to sustain the existing WATSAN innovative process.

Chapter Seven: Recommendations

7.1 Recommendations

The study has focused on the analysis on the sustainability of CBO-managed water and sanitation service in some selected slums. In order to achieve sustainability for long run, the following measures are recommended:

- ❖ **Legal status is required to ensure long term sustainability of community based committees:** There are different CBOs that are functioning in both the two slums. All CBOs have separate roles and responsibilities in the slum and also have dependency among them. This management system is required legal recognition from the relevant government organizations to ensure sustainability of different CBOs. Though, DCC is the prime government organization to take initiative for modification of the existing ordinance, yet the stakeholders including the DCC should take initiative to identify acceptable mechanism to provide legal status and recognition of the community based committees.

- ❖ **Permanent legal provision is required to provide legal water connection into the slum areas:** DWASA is presently not allowed to provide legal water connection into the slum areas. Therefore, DWASA is providing such connection by considering the implementing NGO as a guarantor. It is an intermediate solution but for long term DWASA should take initiative to make necessary changes on the rulers and regulations to provide legal water connection into the slum areas. Otherwise, the present WATSAN practice wouldn't be sustained because the implementing NGO has already phased out from these slums

- ❖ **Community will have to develop a comprehensive regulation to ensure sustainability of the present management system:** At present, CDC and other CBOs are functioning based on verbal understanding among different stakeholders and people of the community. This is one of the basic weaknesses of the WATSAN innovative process. A comprehensive regulation could strengthen CBOs and ensured accountability and

transparency of the management system. Development of a comprehensive regulation is a must to ensure sustainability of the existing WATSAN practice. Users committees should write an act to regulate the functioning of the organization

❖ **Intensive motivation required for the community to provide financial contribution on hardware overcoming the threat of slum eviction:**

Presently, the hardware management committees are playing the proactive role to collect monthly installments from the beneficiaries. Though the beneficiaries are paying the monthly installment, they are not that willing to pay as eviction threat exist in the slum area. People are not interested to invest on hardware because of high risk factor. People stated that this is an insecure investment and wouldn't be last for a long period. Therefore, community is required more motivation on financial issue.

❖ **There is a need to develop an acceptable mechanism for reusing the collected money:**

ARBAN transferred the amounts that are collected through monthly installments into the revolving fund. However, people are unaware about future use of the money. The implementing NGO is also dealing with different alternative options to find out an effective mechanism for reusing the money. Development of an acceptable mechanism can encourage the beneficiaries to pay the monthly installment on a regular basis. Therefore, the participations of women can be encouraged to take different types of initiatives for the improvement of the existing living situation of the slum dwellers. As the ASEH project has already been phased out from these slums, ARBAN can take initiative through other initiatives to encourage women to play more active role in the community, such as formation of small groups for saving money and contribute on small businesses.

Chapter Eight: Conclusion

8.1 Conclusion

The present study focused to find out the changes, which has been brought over time in case of WATSAN services and Hygiene practices in the slums through the intervention of NGOs in different approaches. The study identified that, the CBO based approach in WATSAN service provisions in the low income settlements has brought a significant change in safe water supply and sanitary facilities as well as in hygiene practices compared to other approaches. The study recognized that there is an urgent need to work for WATSAN services in one of Non-CBO Managed areas, Baubazar slum, where no NGO or GO at present working for these services. In addition to this, there is also need for hygiene promotion message dissemination and developing system of close monitoring in Non-CBO Managed areas (Bauniabad D block and Baubazar slum). The CBO approach for providing WATSAN services and hygiene promotion in the low income settlements has been found effective though some modifications must be needed and then can be implemented in the slum areas. The other NGOs and Private actors should take step to serve the poor by providing water supply and sanitation facilities as well as safe hygiene promotion through following the CBO based approach after applying the recommended modifications. To sum up, the study tried to highlight that, inclusion of the community in the development process of that community makes them more responsible and brings sustainability, which reflection can be found in the CBO based approach.

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