

Rural Sanitation Situation in Bangladesh: Some Experiences and Issues

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Abstract

Maintaining sanitation is important for well-being and dignity of people, and its consideration in water supply system is very important because majority of human diseases are water borne. These diseases might have enormous loss on economic and social sectors. Bangladesh being a highly populated country with inefficient waste management system, sanitation in drinking water supply has been a serious issue. This study reviewed existing literatures about the sanitation concerns in Bangladesh focusing on water supply system. The study shows that sanitation issue is poorly addressed in projects/programs related to water supply system. Some efforts have been made to integrate sanitation issue in water supply, but it has been poorly budgeted and activities of government and non-government activities are not integrated. To address this issue, this study recommend total sanitation framework. This framework could be useful to integrate sanitation issue in the current water supply system, brining the innovations from government and non-government agencies in the same platform.

1. Introduction

Supply of safe and adequate quantity of water is an essential element for maintaining primary health. It could be achieved through the development of appropriate technologies for water source management, and distribution of water in an efficient way. These technologies should be promoted in a participatory approach so that community members could internalize their roles in water management and use. The pertinent issue associated with safe drinking water is how we could maintain sanitation in water sources. Studies have already shown that many diseases spread in communities due to poor quality water, which has great economic and social costs. The economic costs include potential expenses on disease management, whereas social costs capture the essence of shorter life expectancy and unhealthy life due to diseases transmitted from water. So, the concern of sanitation comes automatically while dealing with safe drinking water. The Agenda 21 has firmly established that safe water is critical for economic development because the contribution of safe water on human health and labor productivity could be linked with economic development. Similarly, The World Summit on Sustainable Development in Johannesburg, South Africa, in September 2002, has greatly emphasized on safe water and urged that the population without sanitation in developing countries be reduced to half by the year 2015 (WHO/ UNICEF/WSSCC, 2013).

In spite of the great role of safe drinking water in people's livelihood, its access is a great concern. The 'Global Water Supply and Sanitation Assessment' by World Health Organization (WHO), United Nations Children Fund (UNICEF), Water Supply and Sanitation Collaborative Council (WSSCC) reported that in 2012 about 40% (2.6 billion) of the world's population was without access to safe water. Approximately 4 billion cases of diarrhea each year causes 2.2 million deaths, and majority of them are children under the age of five. This situation in Bangladesh is also challenging. A study by Water and Sanitation Program (WSP) wing of the World Bank reveals that Bangladesh incurred a loss of Tk295.48 billion in 2010 due to inadequate sanitation, which is 6.3% of the GDP. However, there is some progress in reducing child mortality rate in recent years. The annual diarrheal mortality of children under the age of 5 decreased from 260,000 in 1991 to 110,000 in 1996 (BBS/UNICEF, 2013), and one of the reasons behind it might be direct government intervention on safe drinking water. As a result, the mortality rate due to diarrhea has been decreased, the incidence of diarrhea still remains high as 752,000 people were suffered from this problem in 2012 (BBS/UNICEF, 2013). It is estimated that this problem might continue to be a challenging issue in the future especially in the rural areas of Bangladesh as still 84% of the rural people use contaminated surface water for household purposes, which along with unhygienic practices make people vulnerable to mild to moderate diarrhea. The major source of contamination in surface water is human excreta, and it is very common in Bangladesh as many people do not have access to good latrine facility. This paper reviews the development efforts, challenges and issues in Bangladesh in sanitation to water supply system.

2. Development of sanitation in Bangladesh

The government of Bangladesh has prioritized access to drinking water but the progress made in sanitation issue is quite low. Most of the government initiatives in sanitation to water sector were implemented through development projects. The Department of Public Health Engineering (DPHE) undertook an action research program in collaboration with World Health Organization in 1954 to develop low-cost option for controlling Cholera epidemic through introduction of safe disposal of human excreta. In 1962, DPHE-UNICEF collaboration introduced about 3564 water-sealed latrines free of cost to the community in selected areas. A water sealed latrine is simply a pit latrine that has a water barrier to prevent odors. These latrines are simply pits dug in the ground in which human waste is deposited. A water sealed latrine has a bowl fixture that has a set amount of water retained in it. It is operated on the pour to flush system. These types of latrines can be connected to a septic tank system. A study in 1973 showed that only 30% of these latrines were in use with water seal broken. Similarly, in 1975, water-sealed latrine with concrete slab was sold at highly subsidized price by the local entrepreneurs and 60% of the latrines were found in use. The program of selling water-sealed latrines gradually expanded through production centers in Upazilas. The concrete slab of the water-sealed latrine suffered heavy damage during transportation in rural conditions. Moreover, in 1979, UNICEF collaborated on an action research to develop a durable robust slab for water-sealed latrine, and ferro-cement slab was introduced in 1980. The project authority involved Department of Public Health Engineering (DPHE) under the Ministry of Local Government, Rural Development and Cooperatives, Government of the People's Republic of Bangladesh. The DPHE officials directly involved to motivate install this type of latrines in rural selected households of Bangladesh (ADP, 2002).

All of the aforementioned initiatives were focused on access to water but greater emphasis on sanitation issue was given during International Drinking Water Supply and Sanitation Decade (IDWSSD) during 1980-1990. Initially, the project supported for demonstration of sanitary latrines. By the end of 80s, latrine shops selling water-sealed latrines and concrete rings had begun to appear in bazaars and towns. To make the project outcome sustainable, the project reduced subsidy from 68% in 1975 to 34% in 1985. Subsequently, conditionality was introduced that the beneficiaries consisting of 10 families must have sanitary latrine installed to make them eligible for a government tube-well. Despite a lot of efforts by DPHE and UNICEF, the sanitation coverage could not reach more than 16% at the end of the decade in 1990 (GOB, 1998; WHO/UNICEF, 2000). The reasons for the failure of these dissemination efforts are mainly the follow of top up approach. It was not as demand of the beneficiaries.

In 1991, a 10-year national sanitation strategy was formulated and the country-wide sanitation program moved into a much higher gear. The social mobilization program was launched in 1993 and sanitation week was introduced at the national level down to the union level, which was later discontinued in 1998. School Sanitation Program was also launched in phases in 44 districts during 1992-2000 to promote sanitation involving school management committee with technical support from DPHE and UNICEF. The home-made pit latrine was also promoted under latrine building campaign. The basic consideration

3. Population coverage

According to World Health Organization (WHO) Global Assessments of Water Supply and Sanitation the urban, rural and

total sanitation coverage in Bangladesh in 2000 was 82%, 44% and 53%, respectively (WHO/UNICEF/WSSCC, 2013). But UNICEF using multiple indicators survey claimed that pit latrines in urban, rural and total sanitation coverage in Bangladesh in the same year was 61.2%, 41.3% and 43.4%, respectively. This survey also shows that the proportion of households with hanging latrine and open defecation were 34% and 23%, respectively.

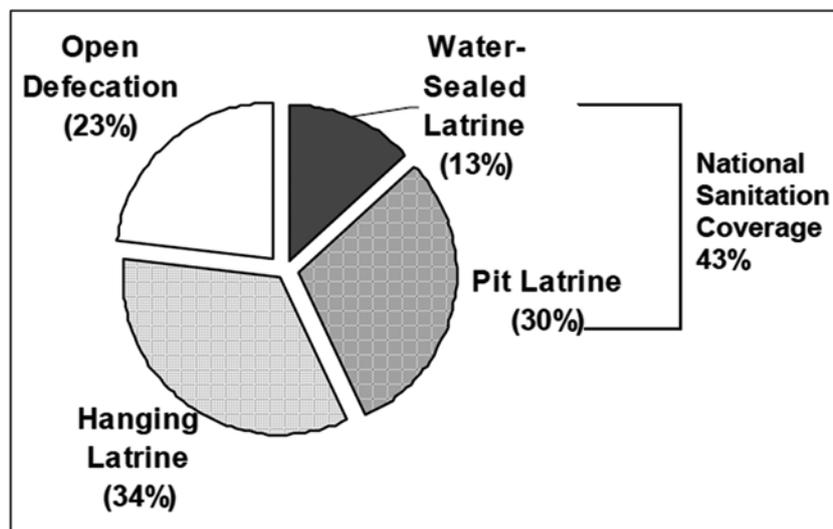


Figure1. Sanitation situation in Bangladesh in 2000 (BBS/UNICEF, 2013)

During the years from 2001 to 2009, it was found that the sanitation situation is increasing and in 2009 about 80% household have sanitary latrines in urban areas (Figure 2) and in rural areas about 58% households have the sanitary latrines (Figure 3). Criteria for sanitary latrines are:

- a) Excreta should not contaminate the ground or surface water.
- b) Excreta should not pollute the soil.
- c) Excreta should not be accessible to flies, rodents or animals.
- d) Excreta should not create bad odor or ugly appearance.



Photo1. Sanitary latrine in urban area of Bangladesh

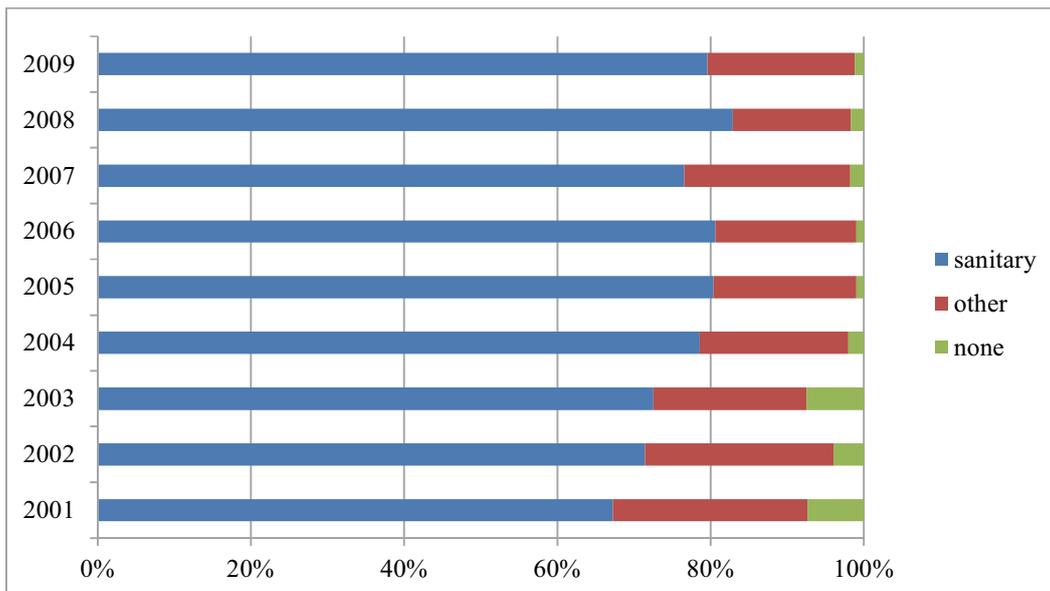


Figure 2. Sanitation situation in urban areas of Bangladesh in different years (WHO/UNICEF, 2010)

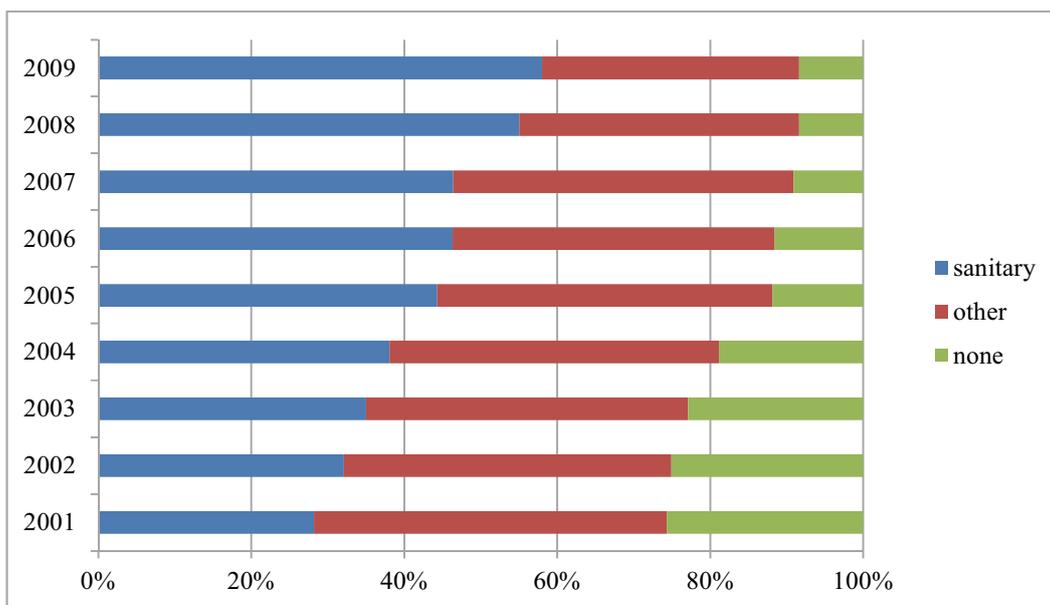


Figure 3. Sanitation situation in rural areas of Bangladesh in different years (WHO/UNICEF, 2010)

The government of Bangladesh conducted a countrywide extensive survey of existing sanitation situation throughout the country under National Sanitation Campaign engaging Local Government Institutions (LGIs). It is a commendable work completed by the Local Government Division to acquire baseline data for area-wise planning of sanitation programs to achieve the National target. The results of a baseline survey of 21.08 million household in 64 districts, 278 Paurasavas (Municipalities) and 6 City Corporations show that only 32% of households uses sanitary latrines, 25% uses unhygienic latrines and 43% uses no latrines (Figure 4). It means that the real impact of the project in the ground is different from what had been reported in the project documents. One of the reasons for this discrepancy might be due to removal of subsidy in sanitary latrine.

Moreover, the study shows that 31% of the households cannot construct latrine for financial inability due to less purchasing power and less access to micro-credit, about 5% do not have any land to construct latrines (Figure 4).

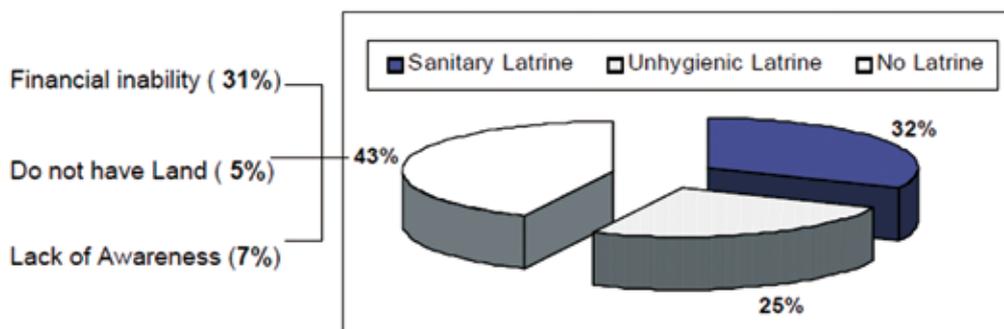


Figure 4. Types of Latrines used in Bangladesh and reasons behind the use of these latrines (GOB, 2003)

It is quite important to note down that there is good progress in population coverage by the project over the years (Figure 5). The growth rate of sanitation coverage is higher during social mobilization phase (1980 to 2000) than that of previous time. This is due to the fact that social mobilization increases awareness of people towards the importance of adopting latrine facilities, and also social mobilization component is less costly and therefore large number of people could be covered.

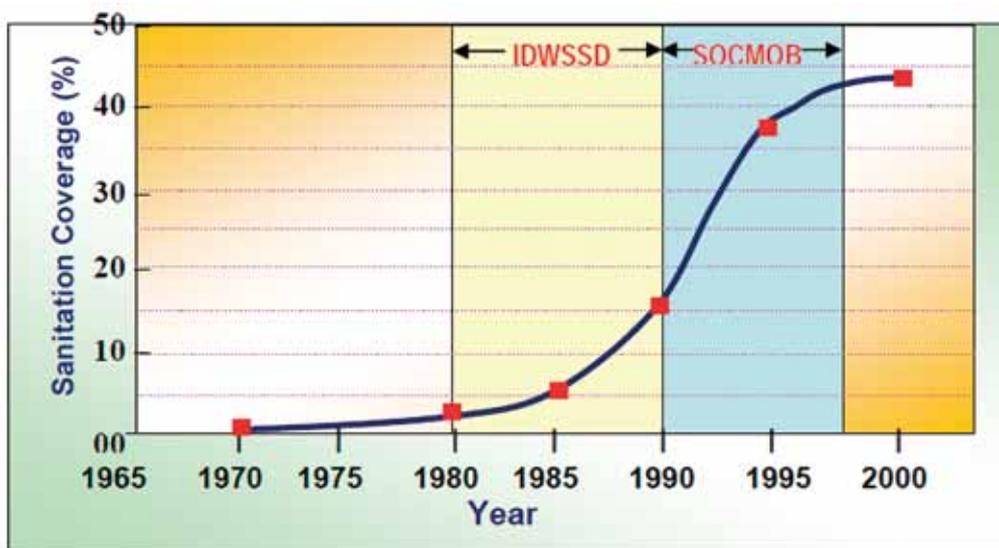


Figure 5. Sanitation coverage in Bangladesh during last 3 decades
Source: Various documents from social mobilization project

Also, it is clear that there is no increase in sanitation coverage after discontinuation of the social mobilization project in 1998. It appears from the baseline survey that sanitation coverage has in fact decreased after discontinuation of social mobilization program due to poor accountability of local government body to provide technical support in these areas and less ownership of the local people in the intervention.

Moreover, the sanitation coverage in city corporations and Paurasavas (Municipalities) are comparatively better than rural sanitation coverage in Bangladesh (Figure 6). But its coverage decreases from city corporations to small towns (Paurasavas) and to rural areas, while households without latrine increases from urban to rural areas. The more focus of the project in

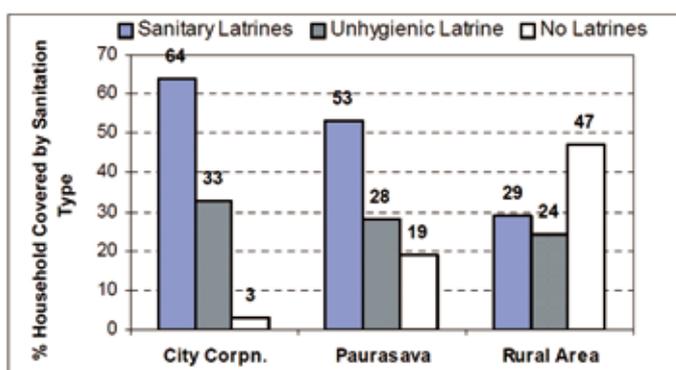


Figure 6. Rural and urban sanitation coverage by types of latrine
Source: Various documents from social mobilization project

urban center was due to the fact that due to people's migration from rural to urban areas sanitation became more serious issue in this area. Sewage from unplanned urban areas finally reaches the water bodies in and around urban centers to cause severe water pollution. Laboratory research also shows that the water sources of rivers, lakes and ditches around urban centers are 3 to 10 times more contaminated than those in the rural centers, and an estimate indicates that 50% of this contamination is contributed by untreated sewage. About 33% of the total people of Bangladesh live at urban areas, and there is increasing trend of migration of people from rural areas in search of opportunities. So, sanitation issue could be challenging in Bangladesh.

4. Major challenges

4.1 Lack of sanitation consideration in water supply sector

Department of Public Health Engineering (DPHE) and Water Supply and Sewerage Authority (WASA) have been implementing 29 projects throughout the country to supply safe drinking water. These projects address water logging problems and sewage management in rural areas by developing physical infrastructure and hardware support to improve/protect water source bodies. However, there is no component of sanitation in their programs and diseases like diarrhea, arsenic problems in underground water could be important health concerns here. In other words, water, sanitation and hygiene (WASH) sector as a part of the overall development, still remains neglected. The poor integration of sanitation issue in water supply system might be due to no/poor involvement of health experts in project design and management. This is because mostly the engineers are playing main role in running the DPHE project activities. However, it is important to design the program combining sanitation issue properly and this strategy might be easier to monitor the progress of the project as well. For example, in a paper presented by a government official on the WASH sector of Bangladesh claimed that the country achieved 81% access to safe water in 2012 compared to 74% in 2003. In toilet component of sanitation, the country has achieved 90% coverage in 2012 against 33% in 2003 and open defecation has currently reduced dramatically to 4%. Joint Monitoring Program for Water Supply and Sanitation, however, evaluates that Bangladesh's performance on the sanitation coverage as 56% as they do not consider the use of the shared latrines as improved sanitation system (WHO/UNICEF, 2013).

The WASH concept might be useful for bringing the experience and innovations from different sectors. For example, the target in the 6th Five Year Plan is very specific, but need to realize its potential implementation. It mentioned that 100% access to minimum level of services in the sanitation sector is expected to be achieved by 2013 by combined effort of DPHE, Local Government, NGOs, community based organizations (CBO), private sector and individual household owner.

4.2 Differences in priorities of actors

Development activist and rightist workers now stress the need for investing more on water, sanitation and hygiene while the government only tries to get the result by investing more in awareness campaign through posters, seminars, workshops and so on; and less interested in investing in the infrastructure, human resource and development, and providing subsidized water and sanitation services for public. The government also wants people to be aware and invest for maintaining their own hygiene system. Considering the economic status, education level and overall culture of the common people; experts are quite concerned over the governments' attitude and program implementation process. Development activists of Bangladesh those who are working in the water and sanitation improvement sector now are making hue and cry for considering water and sanitation as the basic human rights. Especially they are concerned for the inadequate water and sanitation facilities at schools and healthcare centers while maintenance of the existing ones remains a challenge due to the poverty of people (World Bank, 2011). This urges the development of mainstreaming government and non-government agencies' programs in the country.

4.3 Decreasing budget allocation for water and sanitation sector

The budget allocation for water and sanitation sector has decreased by Tk10.6 billion in 2013 against the budget allocated in 2012. However, the government has set a target to provide improved drinking water to additional 12 million people to reach its MDG targets by 2015. In 2011, budget allocation for WASH sector was Tk36.84 billion while in 2013 it has been brought down to Tk26.25 billion. In addition to the central government, the local government has also reduced its budget in WASH project. A study shows that local government budget in 2011 has been reduced by 10% as compared to the previous year's budget. Also, the distribution of allocation in the current development budget is heavily urban biased: 90% urban and 10% rural. Disadvantaged, areas difficult to reach and underserved (Char, hill, coastal belt and slum) are still neglected, depicts the study. The deficit of the budget in WASH projects was also observed in Sector Development Program (SDP). A total of Tk210.45 billion is required for water and sanitation sector while only Tk110.52 billion has been allocated which indicates a 47% budget gap (WHO/UNICEF/WSSCC, 2012).

5. Total sanitation experiences in Bangladesh

Total sanitation means safe disposal of human excreta, solid wastes and wastewater and hygiene practice by all in a geographical area or community. Total sanitation is important to gain maximum health benefit from sanitation. It is heartening to note that there are large numbers of examples of total sanitation of communities and villages implemented by government and nongovernment organizations in different parts of the country. The basic steps adopted by different organizations include baseline survey, mobilization of community, preparation of action plan and implementation of the plan and monitoring of the process. The most important activities of the process are health and hygiene education campaigns (Sessions) to enhance awareness and knowledge base, change attitude towards sanitation and promote hygiene practice followed by construction and installation of hygienic latrines and monitoring of progress of installation of latrines and behavioral change. The chairman and members of the Union Parishad (UPs), influential member of the community, health workers and water management committees, cultural and children groups formed for the campaign played the key roles in achieving total sanitation. The GOs and NGOs, worked as facilitators in the process to achieving total sanitation. While the successful pilots are proof that it is possible to attain total sanitation, the big challenge remains how to scale up the examples to national level. A national strategy is needed to transform the small-scale successes into national level achievements. The experience in Bangladesh shows that when the people are fully aware of the ill effects of poor sanitation and convinced for the change, they make the change themselves. It was interesting to note that even the poor people were supported by the well-off people in the community to achieve total sanitation. The formulation of such strategy requires consensus and participation of all concerned agencies to ensure coordination and cooperation in implementing this huge task. No single agency can tackle this alone (WHO/WSSCC, 2000; WHO/WSSCC, 2002).

These efforts will have insignificant impact on the country's waterborne disease, water resources and ultimately on the quality of life, unless scaled up nation-wide. The experiences of the total Sanitation in the village scale show that the national program should include the following guiding principles:

- A target for total (100%) environmental sanitation in every Union Parishads (Ups);
- A demand based sanitation through awareness and hygiene education;

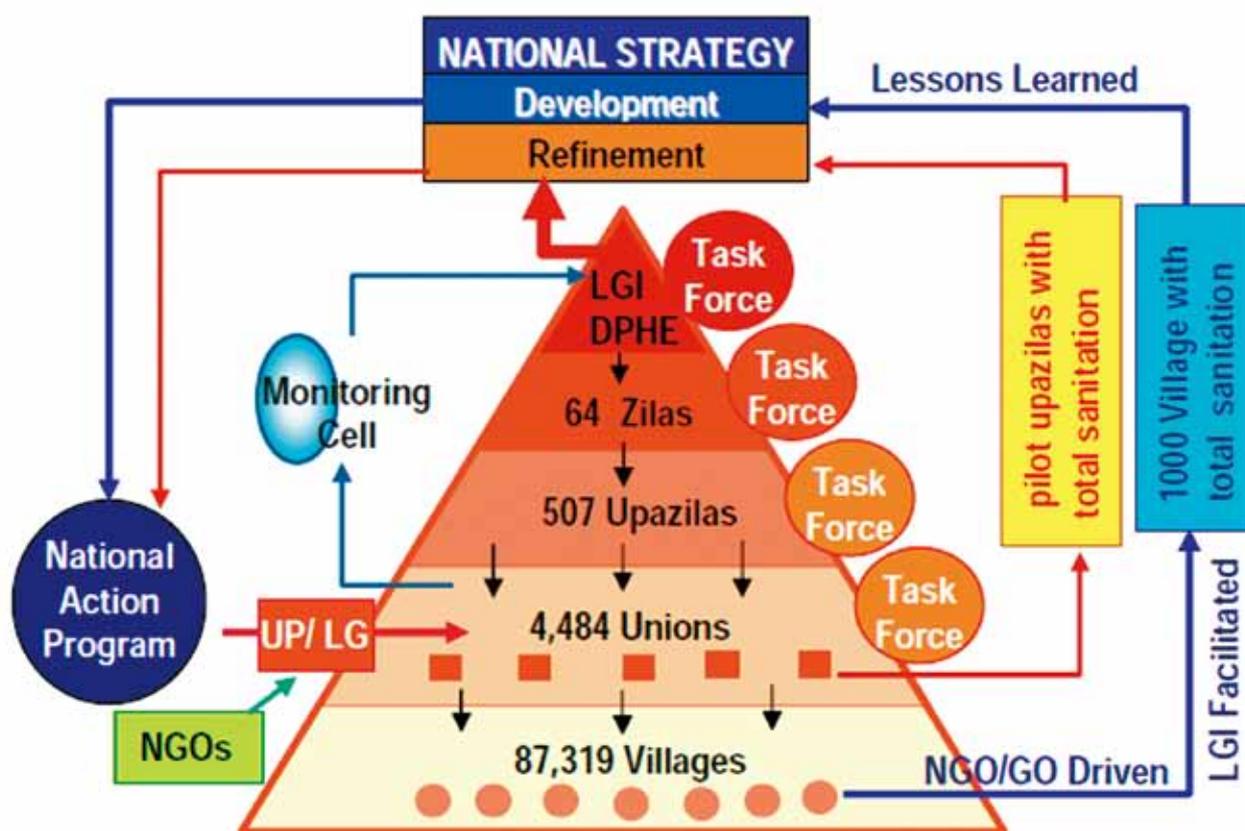


Figure7. A framework of total sanitation in Bangladesh (GOB, 2003)

- c) No fixation on technology, provision of options and choice based on affordability;
- d) Minimum requirement is to effectively confine the excreta, and adopt an incremental improvement of technology over time;
- e) Villagers should plan, implement and monitor under direct leadership of the UP/local government;
- f) NGOs should act as facilitators, including orientation of UPs, mobilization of communities;
- g) The Department of Public Health Engineering as the lead agency should provide technical oversight and coordinate the national program

The above principles should be incorporated into a National Sanitation Program; however, in order to ensure a sound approach for scaling up nation-wide, the initial program should have a process of learning, adaptation, and refinement. Figure 8 illustrates the cycle of events leading to the development, testing, refinement, and scaling up of the National Total Sanitation Program. This plan recognizes the roles of multiple actors in the implementation of the program.

6. Conclusion

This paper reviews the sanitation situation in Bangladesh and its consideration in water supply system. The result shows that most of the development projects in the country are focused on promoting drinking water facility but sanitation issue is neglected in those programs. But it might have severe negative economic and social consequences. One of the challenges in the program is poor integration of health issue with water issue, and some of the initiatives to integrate these components have been affected by poor budget allocation at different government levels. Adoption of total sanitation approach combining the effectors from government, private and public sectors might be more useful to address these problems.

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