

**PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE**

Report No.: AB6312

Project Name	Bangladesh Rural Water Supply and Sanitation Project
Region	SOUTH ASIA
Country	BANGLADESH
Sector	Water supply (80%); Sanitation (20%)
Lending Instrument	Specific Investment Loan
Project ID	P122269
Borrower(s)	PEOPLE'S REPUBLIC OF BANGLADESH
Implementing Agency	Department of Public Health Engineering (DPHE) 14 Shahid Captain Mansur Ali Sarani DPHE Bhaban, Kakrail, Dhaka, Bangladesh Tel: + 880 (2) 934-3358
Environment Screening Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	January 27, 2011
Estimated Date of Appraisal Completion	May 15, 2011
Estimated Date of Board Approval	August 25, 2011
Concept Review Decision	Following the review of the concept, the decision was taken to proceed with the preparation of the operation.

I. INTRODUCTION AND CONTEXT

1. **Country Context.** With over 1000 people per square kilometer, Bangladesh has one of the highest population densities in the world. 40% of Bangladesh's total population of 153.3 million (2005) is categorized as poor and 25% as hardcore poor¹. The rural population of Bangladesh is estimated as 117.4 million (2009) which corresponds to 72% of the total country population. The rural population plays a key role in economic growth of the country notably through rural urban migration as the migrants provide much needed labor to manufacturing, services and other sectors. Rural to urban migration is attributed to extreme rural poverty and landlessness, and large urban-rural wage differentials.
2. The country is divided into six administrative divisions: Dhaka, Chittagong, Khulna, Rajshahi, Barisal and Sylhet. Each Division is placed under a Divisional Commissioner and is further subdivided into Zilas (Districts) with a District Commissioner (DC) as the Chief Administrator.
3. The country's public administration at the local level comprises a four tier system - Village, Union (5001), Upzila (Sub District, 481) and Zila (District, 64) councils, or Parishads. Local officials are elected at the Union and Upzila level whilst the Zila and Divisions are run by members of the civil service. Rural service delivery and infrastructure development (e.g. rural feeder roads, water supply) is entrusted to designated government departments including Local Government Engineering Department (LGED) and Department of Public Health Engineering

¹ Based on the Household Income and Expenditure Survey, 2005 (Bangladesh Bureau of Statistics - BBS). Poverty headcount ratio (%) updated in HIES, 2005.

(DPHE) which coordinate with Local Government Institutions (LGI) to determine and develop infrastructure programs.

4. The national rural water supply coverage in Bangladesh is estimated as 97.4% according to the Multiple Indicator Cluster Survey (MICS) conducted by Bangladesh Bureau of Statistics and UNICEF (BBS/UNICEF, 2009). However water quality issues, particularly Arsenic contamination, has significantly reduced this figure to an estimated 83% (total 97.4 million people) according to MICS 2009.
5. The contamination of groundwater by Arsenic in Bangladesh was first confirmed by the Department of Public Health Engineering (DPHE) in Chapai Nawabganj in late 1993. Since then a large number of local, regional and national investigations have been conducted in the country. The Bangladesh Arsenic Mitigation Water Supply Project (BAMWSP) under Bank funding completed screening of all the water supply wells in 270 Arsenic affected Upazilas during the period 2001 to 2003. A survey – Situation Analysis of Arsenic Mitigation 2009 - was undertaken by DPHE/JICA in 2009 and found that Arsenic contamination is highest in the central part and lowest in the northern part of the country.
6. Whilst the total population exposed to Arsenic is some 82 million, it is found that about 53.2% (43.6 million people) live in 1575 unions where Arsenic contamination ratio² is less than 20%³ whereas about 13.4% of the population (11 million people) of the affected population lives in 466 unions where Arsenic contamination ratio is found to be equal or more than 80%⁴. Arsenic is the single largest threat to safe water service provision but others include low water table and bacteriological contamination of shallow tubewells.
7. The MICS survey of 2009 also estimated the national rural sanitation coverage in Bangladesh as 78.9%⁵. This is a major achievement given that rural sanitation coverage was recorded as 32% in 2006 (MICS, 2006). Notwithstanding this relatively high level of coverage there are challenges in changing behavior at the individual level. This is acknowledged by the Government and its total sanitation campaign that has led to only 30% of the rural local governments (1325 Union Parishads) declaring themselves ‘open defecation free’. The program focuses on mobilizing communities at a village level as a collective to influence the sanitation practices of individuals through group peer pressure.
8. Bangladesh is vulnerable to natural disasters and this is an emerging concern that the Government of Bangladesh has given high priority. It is expected that the frequencies and intensities of the natural disasters would be on the rise in the coming decades as a result of climate change. The rise of sea level has already caused inundation and erosion, saline intrusion, deforestation, loss of biodiversity and agriculture, and migration. It is also predicted that by the year 2030, an additional 14.3% of the country would become extremely vulnerable to floods, while the existing flood prone areas will face higher levels of flooding. It is therefore critical to manage water and sanitation infrastructure vulnerabilities including – (i) development of natural disaster resilient infrastructure; and (ii) establish a response mechanism in terms of reconstruction and rehabilitation at times of natural disasters like floods and cyclones.

²Percentage (ratio) of point sources affected with Arsenic

³Tubewells exceeding Bangladesh drinking water limit of 0.05 mg/l

⁴Tubewells exceeding Bangladesh drinking water limit of 0.05 mg/l

⁵Population using improved sanitation facilities including flush toilets connected to sewage systems, septic tanks or pit latrines, ventilated improved pit latrines and pit latrines with slabs, and composting toilets.

9. **Sectoral and Institutional Context.** Various key sector policies have been promulgated over the last decade. The National Policy for Safe Water Supply and Sanitation (1998) represents the ‘parent’ policy which stipulated specific objective of facilitating access of all citizens to a basic level of services in water supply and sanitation. Various other policies and strategies augment the national policy e.g. the National Water Resources Management Plan (2004), the National Policy on Arsenic Mitigation (2004), Sector Development Framework (2004), the National Sanitation Strategy (2005) and the Pro-Poor Strategy (2005). In 2005, the Government developed the Sector Development Program – Water and Sanitation Sector in Bangladesh (SDP-WSSB) which provides an avenue for the various policies to be incorporated onto a single platform. The Government targets are to provide access to pure drinking water to entire population by 2011 and access to sanitation for all by 2013. Clearly these are aspirational, rather than realistic, achievable, targets.
10. Institutionally the Department of Public Health Engineering (DPHE) under Ministry of Local Government, Rural Development and Cooperatives is responsible for planning, designing and implementing water supply and sanitation services in rural and urban areas except city corporation areas of Dhaka, Chittagong and Khulna. The Local Government Engineering Department (LGED) under Ministry of LGRD&C is responsible for urban and rural infrastructure development but its activities in water supply (point source) and sanitation overlap with the responsibilities of DPHE⁶.
11. The current institutional arrangements for water supply and sanitation services at the national level are not well coordinated to face the challenges of the sector. Planning and service delivery are supply driven, government agencies have overlapping functions and pay insufficient attention to operation and maintenance issues, and user involvement. Hygiene promotion is inadequate. These have resulted in weak service delivery mechanisms and lack of ownership by the users leading to reduced sustainability of the water and sanitary services.
12. At the local level, provision of rural water services (which is predominantly through point water sources) is channeled through the Union Water Supply and Sanitation Committees where DPHE contractors install the tubewells. Communities participate in site selection and make cash contributions depending on the type of water point installed. Operation and maintenance of water points is the responsibility of the users while caretakers⁷ undertake minor repairs.
13. The Situation Analysis of Arsenic Mitigation 2009 (DPHE/JICA, 2010) revealed that more than 82 million people in 3,132 unions are exposed (in varying degrees) to Arsenic. However, after taking into account existing public and private initiatives, the estimated population still in need of safe water option in 2009 was about 19 million.
14. Various options have been considered for Arsenic safe water sources among which deeper tubewells connected to piped water supply systems are considered to be a safe and viable mitigation option especially in the high density villages. Although the present population covered by piped water supply can be considered insignificant⁸, it is expected that a substantial percentage of population will use piped water supply in near future.

⁶ Irrespective of institutional mandates of DPHE, the Local Government Engineering Department (LGED) implements rural water supply and sanitation schemes as part of rural infrastructure projects

⁷ Appointed by Union Parishad from the water user group members

⁸ Ref. Sector Development Plan, 2005

15. Compared to the single point water systems commonly used in Bangladesh, piped water systems in villages require higher investment costs, and alternative institutional management, operations and maintenance models that are relatively new in Bangladesh. A limited number of pilot piped schemes and models have been put in place, mainly through Government agencies, e.g., the DPHE, the Social Development Foundation, the Rural Development Academy, and the Barind Multipurpose Development Authority with Government or donor funding. These piped schemes generally include arrangements for local communities and private parties to partly finance, implement and/or operate the schemes.
16. While majority of the pilot rural piped water supply schemes are developed by government agencies and operated by communities i.e. water and sanitation committees⁹, a few of the schemes are developed and operated by private sponsors/operators. Such models draw largely from the success of small scale private operators in mobilizing resources, and promote private sponsors¹⁰ to plan, implement and manage rural piped water schemes with a capital grant¹¹ to ensure access to the poor households.
17. For sanitation, while there has been a significant movement in Bangladesh away from ‘open defecation’ towards ‘fixed point defecation’, the quality of sanitation coverage is the emerging area of concern. A study by WSP on the sustainability of sanitation shows that only half of the improved latrines are sanitary and 35% are unclean. With 79% of the rural population using improved sanitation facilities it is essential to refocus on the quality and sustainability of the existing coverage, whilst continuing to address the access issues of the hard to reach. In the context of Bangladesh, this requires a threefold effort to - i) tailor collective approaches to address the access of the hard-to-reach people still defecating in the open; ii) Strengthen markets (informed demand and responsive supply) to improve the quality of sanitation and iii) increase the role of local governments to ensure that the quality and inclusiveness of sanitary access is sustained for all of the population.
18. The Bangladesh Water Supply Program Project (BWSPP) [Start: June 17, 2004; End: December 31, 2010; Ratings: S (PDO), S (Implementation)] has piloted innovative service delivery models including rural piped water supply schemes with private sponsor involvement and demonstrated significant sector advancement. The project demonstrated rural piped water supply schemes in PPP mode involving partnerships between community and local private sponsors, private part financing and risk taking, and long term operations by local operators. A nascent small-scale private industry is emerging in rural piped water supply system that the Bank can help nurture and establish. There are ample demands for scale up as new scheme proposals are waiting to be processed by the line agency i.e. DPHE. BWSPP’s non-piped component also demonstrated a mechanism to support the sustainable provision of community-managed arsenic-free water points to small villages on an Upazila-wide scale. There is demonstrated demand from other small villages that the Bank can support. Additionally, the project’s cyclone response to support post-cyclone infrastructure rehabilitation at district level demonstrated a mechanism for the central sector institutions to respond to large scale physical infrastructure damage related to natural disasters in the medium term¹².

⁹ Established by Local Government Institutions i.e. Union Parishad

¹⁰ Private Sponsor for rural piped water supply schemes includes entrepreneurs, cooperatives, CBOs and/or NGOs

¹¹ Sector grants have been used while equity shared with private sponsors for the construction of rural piped water systems in which poor population among others got connected

¹² The emergency relief response to natural disaster is coordinated through Ministry of Food and Disaster Management. The Disaster Management and Relief Division (DM&RD) of the ministry executes the task for disaster risk reduction and emergency response related issues. The DM&RD coordinates with local organizations particularly the Disaster Management Committees at

In total the BWSPP is providing safe water to about 1.25 million people. 21 innovative PPP village piped water schemes are serving about 0.106 million people. In 24 Pourashavas affected by the 2007 floods, rehabilitation and reconstruction works (including production tubewells, pump houses, pumping machineries, network extension) have been carried out towards enhancing the quality and quantity of water supply. About 13000 point sources have been installed in three Upazilas heavily affected by arsenic in Munshiganj district, as well as in 14 districts that were affected by cyclones SIDR (2007) and AILA (2009)¹³ serving about 0.95 million beneficiaries. BWSPP has thus demonstrated the successful development of innovative water services delivery models and arrangements that the Bank is well poised to follow through with support to scale up these arrangements.

19. The DPHE is also collaborating with other Development Partners (DP) in extending and improving safe water supply and sanitation services in rural areas. This includes Sanitation, Hygiene and Water Supply Project (US\$82 million) under GOB-UNICEF-DFID financing and South Western Rural Water Supply Project (US\$5.6 million) under JICA (Japan Debt Cancellation Fund - JDCF) financing. As part of Arsenic mitigation activities, the UNICEF-DFID funded project is implementing installation of 20,500 safe water (point) sources in 19 districts covering 68 Upazila (sub-district).

20. **Relationship to CAS.** The scaling up of rural water supply and sanitation to support Arsenic mitigation forms an important element of the CAS (FY11-14). The CAS has also emphasized increasing the efficiency of social services delivery e.g. access to clean water and sanitation in order to address maternal mortality and childhood malnutrition. The proposed project therefore supports progress towards improving social services delivery through expanded access to safe water and sanitation services (CAS Strategic Objective 3, Outcome 3.2).

II. PROPOSED PROJECT DEVELOPMENT OBJECTIVE(S)

21. **Proposed Project Objective.** The objective of the project is to increase sustainable access to safe water supply and improved sanitation in the rural areas of Bangladesh, focused on supporting the Government in mitigating against deteriorating water quality arising from arsenic, pathogens, salinity and others.

22. **Key Results.** The key results of the proposed project are listed below.

- (i) Increase in population with access to safe, sustainable, piped water supply
- (ii) Increase in population with access to safe, sustainable, point water sources
- (iii) Increase in population with access to improved sanitation
- (iv) Increased role of Private Sponsors in provision of piped rural water supply

III. PRELIMINARY DESCRIPTION

City Corporation, Pourashava, Upazila and Union level for disaster management. At the central level National Disaster Management Council (NDMC) and Inter-ministerial Disaster Coordination Committee (IMDMCC) performs the decision making as well as policy advocacy role.

¹³ As part of the project's response to support reconstruction and rehabilitation efforts in cyclone affected areas demonstrating a mechanism to respond to large scale physical infrastructure damage related to natural disasters.

The following summarizes the proposed key areas of support:

- *Component 1: Piped Rural Water Supply Schemes (IDA US\$ 46.8 million)* – Investments in rural piped water supply systems¹⁴ with local public-private partnerships in financing and operations. Sponsors e.g. NGOs, village cooperatives or private entrepreneurs, in partnership with communities, local government entities especially Union Arsenic Committee and with the technical support of DPHE will develop the schemes. The schemes will be single-purpose, (i.e. drinking water) providing service through a combination of individual household connections, yard standpipes and shared / public standpipes. The scheme locations will be in locations affected primarily by Arsenic followed by other water quality issues e.g. salinity and iron concentration.
- *Component 2: Non-piped Rural Water Supply Schemes (IDA US\$ 18.6 million)* - This component will target small villages with less than 400 households where non-piped Arsenic mitigation options¹⁵ are necessary. This component will address the situation in small villages located in Arsenic-affected hot spot Upazilas.
- *Component 3: Rural Sanitation (IDA US\$ 1.6 million)* – Implementing the Government of Bangladesh “Sanitation Campaign” to eradicate open defecation and promote safe sanitary practices in villages where Rural Piped Water Supply and Rural Non-piped Water Supply are being undertaken. This will address both hard-to-reach people still defecating in the open as well as improvement of the quality of coverage for the existing population using unsanitary latrines.
- *Component 4: Capacity Building and Project Management (IDA US\$ 8 million)* - Supporting the technical assistance requirement for the establishment of institutional frameworks for the service provision schemes/models supported by the project. This will include technical support arrangements to the private sector and public-private arrangements, community user groups, and Local Government Institutions through training, benchmarking and horizontal learning systems. Technical assistance will also be provided for the characterization and monitoring of safe groundwater resources, strengthen the water quality monitoring and capacity at the national (DPHE) level as well as evaluate the overall institutional framework for rural water supply and sanitation service provision in the country. Finally, this component will finance project management support including technical support staff (consultant).

IV. SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies Triggered	Yes	No	TBD
Environmental Assessment (OP/BP 4.01)	X		
<p>The Environmental Assessment (OP/BP 4.01) Policy will be triggered by the proposed project due to its focus on construction and extension of water supply and sanitation systems. Given the small scale of project interventions, no large-scale, significant and/or irreversible environmental impacts are anticipated in this project. An Environmental Management Framework (EMF) needs to be prepared to identify and assess the potential impacts under different components of the proposed project. Each sub-project will be screened for potential environmental impacts, and subjected to appropriate Environmental Impact Assessment (EIA) by the private sponsors and support organizations. As appropriate detailed design of the sub-projects e.g. piped water supply schemes for carrying out component specific EIA is likely to be available during project implementation only, the system to support the process of environmental review and clearance has to be defined through an Environmental Management Framework (EMF). The EMF will include Environmental Guidelines providing guidance and specifications for planning water supply schemes.</p>			

¹⁴ Piped water supply with water sourced from safe sources (e.g., deep tube wells).

¹⁵ E.g., deep tube wells, dug wells, and pond sand filters.

Safeguard Policies Triggered	Yes	No	TBD
Natural Habitats (OP/BP 4.04)		X	
Forests (OP/BP 4.36)		X	
Pest Management (OP 4.09)		X	
Physical Cultural Resources (OP/BP 4.11)		X	
Indigenous Peoples (OP/BP 4.10)	X		
It is possible that the schemes may be implemented in areas where indigenous people live; hence Bank policy OP 4.10 on Indigenous People will be triggered. DPHE will prepare an Indigenous People's Planning Framework (IPPF) which will apply to all schemes that take place in areas where indigenous populations are found. DPHE will prepare a check-list to ascertain which schemes will require an Indigenous Peoples Development Plan, to be based on the guidelines incorporated in the IPPF.			
Involuntary Resettlement (OP/BP 4.12)	X		
<p>The Involuntary Resettlement (OP/BP 4.12) Policy will be triggered by the proposed project because project activities such as construction and extension of water supply and sanitation systems can result in temporary or permanent loss of land, crops, and other means of income generation. As the exact location of project site(s) is not known at this stage, it is recommended to request DPHE to prepare a Land Acquisition and Resettlement Policy Framework (RPF) laying out the key principles of the World Bank's OP 4.12 and a strategy to fulfill the policy's requirements that are mutually agreed upon. Site specific Social Impact Assessments (SIA) and Resettlement Action Plans (RAP) if needed, will have to be prepared during project implementation for each sub-project that is found to trigger land acquisition, displacement and/or loss of physical/economic assets, once the project site is identified. A check-list will be compiled for this purpose.</p> <p>As women are the main users of domestic water supply, a Gender Framework (GF) would be developed outlining the guidelines for Information, Education and Communication campaign aimed at training women in terms of safer, more hygienic and efficient water usage.</p> <p>The RPF, IPPF and GF will be incorporated under a single Social Management Framework (SMF).</p>			
Safety of Dams (OP/BP 4.37)		X	
Projects on International Waterways (OP/BP 7.50)		X	
Projects in Disputed Areas (OP/BP 7.60)		X	

V. TENTATIVE FINANCING

Source:	(\$m.)
BORROWER/RECIPIENT	13.3
INTERNATIONAL DEVELOPMENT ASSOCIATION	75.0
Total	88.3

VI. CONTACT POINT

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