

Government of Bangladesh
Local Government Division, Policy Support Unit

Sector Development Plan (FY 2011-25)

Water Supply and Sanitation Sector in Bangladesh

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Disaster Preparedness and Response
Management

Prepared by

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The working documents were used as background materials for preparing the Sector Development Plan (SDP). The factual information and views expressed in the working documents are of the authors and does not necessarily of the Policy Support Unit or of the agencies that the authors belong to.

Background:

- River-based **floods** occur frequently in Bangladesh upsetting the life of vulnerable population, especially women and children. Floods have a gradual onset, in most cases taking several weeks to peak. With the complex Ganga-Brahmaputra-Meghna river system and dominance of flood plain, annual floods inundate over 20 per cent area of the country and this can reach as high as about 70 per cent during extreme flood event (Elsevier Science Ltd, 2002). Intensity and frequency of such incidences has increased with heavier and erratic rainfall as an impact of global warming. The flood that usually inundates over 40 per cent geographical area of the country with a return period of 20 years earlier, have already occurred twice in last 10 years (BCAS, 2010). Floods often cause widespread displacement of people and loss of personal/public infrastructure including the water supply, sanitation and other waste management services. During and immediately after floods, lack of sanitation facilities, widespread faecal contamination, and poor hygiene practices leads to increased level of diarrhoeal diseases.
- **Flash floods** in the northeast *haor* region affect livelihood, shelter and water supply sanitation facilities over a Million people every year during early stage of monsoon and the effect continues up to the post monsoon period.
- **River bank erosion**, in the northern part of the country, is an endemic and recurrent natural hazard. It is estimated that about five per cent of the total floodplain i.e. up to 2,000 ha of land is directly affected by erosion every year. Over a Million of people, affected by erosion that destroys their farm and homestead lands, are forced to migrate.
- High sedimentation in the Kapatakho river leads to water logging in south-west part of the country covering majority of Jessore and Satkhira districts for a period varying from three to nine months every year. This results to displacement of about a Million people leading to disturbance in the sanitary and hygiene practices; and consumption of water from unsafe sources. Prolonged water-logging in the region also adversely affect water supply and sanitary infrastructure.
- The country is also vulnerable to several sudden onset-types of emergencies, especially **cyclones, and tornadoes**. Bangladesh has suffered substantial loses of life from cyclones in the past, and major cyclones will undoubtedly strike the coastal zone again. In last 122 years, there have been 164 severe tropical cyclones in the Bay of Bengal and the Arabian Sea. There is indeed a trend in the enhanced cyclogenesis during November and May (SAARC Meteorological Research Centre, 2001). Cyclones often cause seawater ingress in the coastal areas adversely affecting the freshwater bodies. People in these areas, being dependent on surface water, immediately face the drinking water scarcity. Other infrastructures including ones for sanitation and waste management also get equally affected. Tornadoes have led to significant property damage and loss of life, but tend to affect relatively small area.
- **Urban fringes and slums** often face water logging; increasing health related vulnerability among inhabitants. The phenomenon is prominent in large cities like Chittagong and Dhaka.

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- Various intensity of ***arsenic contamination*** in shallow aquifers, spreading over 60 per cent of the geographical area of the country, leads to scarcity of the drinking water for over 30 million people.
- ***Drought***, in the western part of the country, a silent disaster affecting about 20 per cent of the geographical area, is seldom discussed. In this region, frequent drought coupled with excessive groundwater withdrawal for irrigation is continually responsible for the drawdown of the aquifers. As a consequence of this drawdown, shallow tube wells remain seasonally defunct challenging communities to find alternative water resources. This also poses challenge to households in securing water for the use of latrines and other hygiene practices.
- ***Rise in the sea-level*** is threatening the overtopping of coastal embankments affecting the fresh surface water bodies and increasing the risk of both vertical infiltration and lateral intrusion of saline water into aquifers. Such phenomena will potentially increase scarcity of freshwater in coastal areas adversely affecting 17 Millions people. Moreover, in the recent years, the trend and type of disasters have changed with increased frequency and intensity; adversely affecting ecosystem, livelihood, life-style, water supply and sanitation facilities.
- Bangladesh is considered highly vulnerable to ***Avian Influenza***. In the event of a human epidemic of the H5N1 and H1N1 virus, it is anticipated that hygiene promotion would become a critical strategy in disease control.
- The potential vulnerability in case of a major ***earthquake*** is massive, but a major earthquake has not occurred since 1895. An earthquake is likely to cause major disruption in urban areas such as on the piped water supply and sewerage systems.
- Hygiene practices especially hand-washing with soap: after defecation; after cleaning bottom of children; before serving food; and before eating/ feeding children is relatively low as understood from observatory surveys. Scenario of protecting/handling of drinking water is also equally a matter of concern. The practices go further worse during any such disaster as people are: compelled to leave their house; constrained with supply of drinking water; inadequate number of latrines; and non-availability of materials to support hygiene behaviour. The disturbance in normal behaviour further increases the potential of diarrhoeal incidences in the aftermath of a disaster.

Present sector status:

- Existing national policies have not clearly spelt over the emergency water, sanitation and hygiene management protocols. However, the standing order on disaster (SOD) issued by the Ministry of Food and Disaster Management identifies department of public health engineering (DPHE) to address the water supply, sanitation and hygiene related risk reduction, preparedness, response, and rehabilitation issues with sector partners.
- First time the sector/cluster coordination for emergency preparedness and response was activated following cyclone Sidr during November 2007. Twenty-five agencies at national level have come together as a result of emergency WASH coordination led by DPHE-UNICEF. As the WASH cluster was activated in sub-national levels, several more field agencies joined the coordination effort. The co-chair responsibility was shared

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among several national/ international organizations. DPHE co-chaired the WASH Cluster, alongside UNICEF/NGOs, from the beginning at national/sub-national levels. The establishment of cluster systems has helped in: understanding response gaps; reduce overlapping of interventions; efficient utilization of resources/stockpiles; identifying/adopting best-practices; and capacity building of partner agencies. This initiative was further strengthened during cyclone Aila response in 2009.

- In the meanwhile, several measures have been taken to improve the emergency coordination and response capacity at the cluster level such as by: assessing the cumulative capacity of organizations; distribution of capacity across the country; WASH vulnerability against flood/cyclone; and developing inter-agency contingency plan (IACP). The first such plan was prepared for the year 2008 that was reviewed and updated for the years 2009 and 2010.
- The sector agencies worked together to develop cyclone/flood related emergency WASH standard operating procedures, assessment/monitoring tools, and technical guidelines. The coordination responsibility for developing these guiding materials was shared amongst agencies/organizations. The revised draft documents are available to all actors in the sector and encouraged to be used. A final editing is needed prior to formal submission to the Ministry for the endorsement.
- In January 2010, the standing order on disaster (SOD) management has been revised by the Disaster Management Bureau, Ministry of Food & Disaster Management as a commitment to enhance the capability of all tiers of administrative and social structure for coping with the disaster management related issues. This is done in consultation with the sector line department DPHE; reflecting its responsibility in disaster risk reduction and emergency response management including the role of the department in sector coordination. However, there is poor reflection in the role of international humanitarian agencies/organization such as: UN agencies, IFRC/BRCS, and NGOs that calls for review of these documents. The issues related to the activation of cluster to support emergency preparedness and response coordination is missing.

Issues:

- The standing order on disaster (SOD) to explain the ***modalities of activation of cluster*** and its sector coordination role in emergency preparedness and response management.
- Despite the pending ***official endorsement*** of standard operating procedure, assessment/monitoring tools, technical guideline, the cluster approach has helped voluntary collaboration among the sector partners out of a conviction as it is at the best interest of the emergency response/preparedness. However, the functioning of the cluster, including the gap/quality management of emergency WASH preparedness/response, can be strengthened further by enhancing its legal stand as a coordination mechanism.
- Although DPHE remains as nodal government department to address all concerns for the preparedness and response, the department often fails to receive timely requisite ***funding*** from the Government to meet to such obligation.
- Preparedness and response ***capacity*** to face a disaster ***at the community and local institutions*** is low. Despite of good intension of increasing authority of local governments

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and disaster committees at union/ upazila levels in SOD, they have not been in a position to take requisite action; primarily because of low-level awareness/skills and centralized/ department driven governance.

- Although the cluster efforts have been decentralised, the challenge continues to build ***skill and capacity*** of individuals/organizations: to carry out information management; to conduct coordination meeting; and to share the meeting notes among participating organizations/agencies. The organizations also face challenge to support ***associated costs***.
- While operating cluster at sub-national level, partner agencies face the challenge to commit or ***to decide over*** an emerging issue that may need urgent decision. Most of such decisions are taken at their national offices; and often these decisions take longer time than expected.
- Additional effort over the emergency WASH preparedness/ response is called on as a result of the climate change implications such as:
 - Increased frequency and severity of cyclones and sea-level rise have increased the ***vertical infiltration and lateral intrusion of saline water*** to underground aquifers; in addition to contaminating the freshwater bodies in the southern coast.
 - Declining trend in ***groundwater aquifers***, especially in the north-western part of the country, is questioning the sustainability of groundwater resources and reliability of shallow tube wells to supply domestic water in dry season.
 - Frequent ***damage of water-points, latrines and other sanitary infrastructure***, as a result of increased/ intense cyclones/floods, is demanding enhanced resource allocation for rehabilitating/ rebuilding them in a more climate resilient way.
 - The ***migration*** as a result of climate change is not only reducing the access to water supply and sanitation facilities amongst affected people, but also creating additional pressure over the facilities as the ratio of water-points and sanitation facilities to population reduces in the rehabilitated location. The phenomenon also demands installation of ***additional water supply and sanitation facilities*** where displaced people are rehabilitated.
- In case the resource is made available, the sector will be challenged with its ***limited capacity*** to undertake preparedness/ response efforts. The organisations/ agencies in the sector and the local government institutions need to be support for their enhanced skill and capacity to undertake the required interventions.

Objective:

- Develop sector capacity to design, plan and implement interventions; reducing climate change and disaster related vulnerabilities.

Recommendations:

- Ministry of Local Government takes coordinating role with Ministry of Food and Disaster Management: ***to endorse the standard operating procedures and technical guidelines and assessment/monitoring tools***; and to bring in the ***elements of cluster coordination in standing order on disaster***. Sector/coordination clearly forms the part of the overall coordination mechanism.

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- Emergency WASH ***inter-agency contingency plan (IA CP)*** need to ***be an integral part of sector development plan***. IA CP defines sector/cluster partners interventions for short, medium and long-terms based on the most likely vulnerability scenarios of natural disasters and climate change implications.
- Ministry of Local Government ***dialogue with the sector/cluster partners*** organizations/agencies ***for the mandatory inclusion of emergency WASH preparedness/ response*** within the objectives of development projects/programmes.
- Ministry of Local Government increase its own investment; and also appeal to the donor communities to ***invest on research/development*** activities such as to:
 - Develop protocols and test effectiveness of various practical water buffering solutions such as: to augment groundwater; and to protect freshwater resources.
 - Develop user-friendly cost-effective tube well technologies that support harnessing groundwater in depleting groundwater areas.
 - Develop other climate resilient water supply, sanitation and waste management technologies
- Ministry of Local Government advocates in favour of ***promoting technologies that support disaster risk reduction*** in all the WASH infrastructure development projects.
- Promote ***inter-sectoral disaster risk reduction*** programming to address overall concern of climate change implications.
- Develop ***capacity of DPHE and other organizations*** on emergency preparedness and response programming including its capacity to coordinate with international agencies, national/international NGOs responding to the disasters. Also explore the scope of developing a roster of emergency WASH professionals, who may be used to enhance the surge capacity.
- Formalize the involvement of private sector actors such as manufactures/suppliers of: hand pumps and its accessories, water treatment reagents, non-food items, hygiene kits, latrine kits, etc. to collaborate with the Government and NGOs towards disaster management efforts.
- The cluster coordination mechanism need to be strengthened with a GIS based MIS including frequent update of information through a web-page. Remote sensing imageries and special analysis techniques may be used to enhance its effectiveness.
- Develop mechanism to share sector knowledge, especially the best practices, amongst sector partners and inter-sectoral partners.

Short (0-5 years)/medium (0-10 years) term Implementation Plan:

Policy/Advocacy:

- Finalise standard operating procedures for cyclone and flood related emergency WASH coordination/response.
- Incorporate cluster approach and inter-cluster coordination mechanism in the SOD.
- Finalise assessment, monitoring and reporting tools and WASH technical guidelines for cyclone/flood emergency preparedness and response.
- Develop cyclone/flood emergency WASH comprehensive assessment tool.

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- Advocacy with the Ministry of Local Government to support DPHE with well defined budget on emergency preparedness/ response.
- Advocacy within the sector and among the donors to support promotion of WASH services to meet to the requirements of climate change adaptation and disaster risk reduction.
- The shelter and WASH clusters to jointly work for the development and promotion of services that are climate resilient.
- Dialogue with donors pre and during crisis to make sure they can be called upon for WASH resource mobilization.
- Dialogue with key donors to ensure their implementing partners be responsible to cluster coordination functions.

Vulnerability/capacity assessment and action planning:

- Update, finalise and share cyclone/ flood related emergency WASH sector/ cluster group capacity assessment results
- Update, finalise and share WASH cyclone/flood related vulnerability mapping results
- Develop detailed short-term and medium-term IA CP for the sector/cluster
- Carry out vulnerability mapping and sector capacity assessment to prepare the sector for earthquake related disasters addressing both urban and rural issues.

Research and development:

- Identify ways and means to address climate change issues/impacts; including the development of climate resilient technologies to cope with the induced calamities and changes. Emphasize on improving existing/traditional WASH technologies.
- Create platform to share collective learning among sector partners.
- Mobilise resources for piloting/ scaling up successful interventions.

Human resources development:

- Develop roster of trained emergency WASH professionals; and develop long-term agreements with professional organizations and individuals to support technical, managerial and coordination functions.
- Define/ allocate key emergency WASH functions amongst sector partners.
- Develop training modules and manuals, picture based, to make them available among ToTs and resource organisation.
- Orient/train cluster partners on emergency WASH technical/ managerial and coordination functions.

Stockpiles and other supplies:

- Develop/ update a pre-selected list of vendors for various WASH supplies; also develop long-term agreements with WASH NFIs suppliers.
- Strengthen warehousing arrangements within DPHE and other cluster partner agencies.

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- Strength capacity of sector partners, including DPHE, with requisite equipments/supplies such as; hygiene kits, medium-size water containers, mobile desalination units, and appropriate desludging units.
- Share, among cluster partner agencies, sum-total WASH supply pre-positioning arrangements; and facilitate access to supplies through an agreed arrangement in the real-time emergency.

Community preparedness/ response capacity development:

- Develop strategy to enhance knowledge, skill and capacity on disaster risk reduction, mitigation and response at local government institutions and communities through ongoing WASH projects; and other additional efforts.
- Enhance the roles and responsibilities of local government institutions, community based organizations and local leaders in the assessment, monitoring and management of disasters; during both preparedness and response stages.

Coordination:

- Establish effective and formal links of cluster partners with the Disaster Management Bureau (DMB) and inter-cluster mechanism.
- Establish linkage with early warning systems such as: flood forecasting and warning centre (FFWC); and disaster management information centre (DMIC) among WASH cluster agencies.
- Develop WASH sector/ cluster web-page to support information sharing and coordination.
- Develop pre-prepared appeal documents with narrative and budget heads. This should reflect standard operating procedure and technical guidelines.
- Use cluster/sector forum to address the risk reduction measures against climate change related vulnerabilities.
- Develop mechanism for inter-sectoral coordination for the holistic planning/ implementation for sustainable disaster risk reduction interventions.

Long-term (0-15 years) implementation plan:

- Carry out vulnerability mapping and sector capacity assessment to prepare the sector for earthquake related disasters addressing both urban and rural issues. Update sector/cluster strategies, tools and guidelines to respond to such emerging issues.
- Continue research and development activities to develop/pilot appropriate climate resilient and disaster risk reduction WASH technologies.
- Support inter-sectoral/ sectoral coordination to continue climate resilient WASH interventions; and raise resources with requisite advocacy with the donors.
- Continue interventions to enhance knowledge, skill and capacity on disaster risk reduction, mitigation and response at local government institutions and communities through upcoming WASH projects/programme.

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Risks:

- Climate change impacts are still uncertain; and therefore the trend and intensity of disasters seems unpredictable.
- Political instabilities and changes could have impact over the planned interventions.