

Policy Support Unit  
of the  
Water Supply and Sanitation Sector Programme Support, Phase II

**FINAL**  
**Climate Management Plan**  
**Water Supply and Sanitation Sector**  
**Bangladesh**

**July 2009**

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## ABBREVIATIONS

ASPS-II	Agricultural Sector Programme Support, Phase Two
BCCSAP	Bangladesh Climate Change Strategy and Action Plan
CBO	Community Based Organisation
CCA	Climate Change Adaptation
CMP	Comprehensive Disaster Management Plan
DPP/TPPs	Development Project Proposal / Technical Project Proposal, GoB
DRR	Disaster Risk Reduction
ERD	Economic Relations Department
GoB	Government of Bangladesh
LGD	Local Government Division, MLGRD&C
LGED	Local Government Engineering Department
MLGRD&C	Ministry of Local Government, Rural Development and Cooperatives
MoEF	Ministry of Environment and Forestry
MoF	Ministry of Finance
MoFL	Ministry of Fisheries and Livestock
MoWR	Ministry of Water Resources
NAPA	National Adaptation Programme of Action
NFP	National Fisheries Policy (1998)
NWMP	National Water Management Plan 2004
NWP	National Water Policy, 1997
PIM	Project Implementation Manual, HYSAWA Project
PRPS	Poverty Reduction Strategy Paper
PSC	Programme Steering Committee
RFLDC	Regional Fisheries and Livestock Development Component, ASPs-II
SDP	Sector Development Programme, DPHE
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UP	Union Parishad
WSS / WATSAN	Water Supply and Sanitation (sector)
WSSPS-II	Water Supply and Sanitation Programme Support, Phase Two

## 1 INTRODUCTION AND BACKGROUND

It has been revealed from a number of studies and reports that Bangladesh is one of the countries in the world that may become most severely affected by ongoing and future impacts from climate change related hazards.

In order to deal with these challenges, coping with climate change through management planning becomes of particular importance due to the widespread and cross-cutting nature of climate change related hazards. In order to be able to plan properly within and across sectors, it is necessary that adequate management/planning tools and mechanisms are in place at the various institutional levels. The purpose and scope of this report is described in Chapter 2.

The preparation of this Climate Management Plan compose the third and last phase in a climate screening process within the agricultural and water & sanitation sectors that was initiated during autumn 2008. The screening process has taken outset in two Danida-funded programmes within the sectors (the Agricultural Sector Programme Support, Phase II (ASPS-II) and the Water Supply and Sanitation Sector Programme Support (WSSPS-II)) with a view to extend experiences and perspectives towards the sector and sub-sector levels.

The two previous phases in this climate screening process have consisted of the following:

- Phase 1: *Inception Phase (Final Inception Report, January 2009<sup>1</sup>)*  
The inception phased consisted mainly of development of specific methodology and planning for the climate change screening exercise to be implemented during phase 2. Climate change related hazards and their potential impact on the two sectors were identified and discussed with sector stakeholders.
- Phase 2: *Climate Change Screening of agricultural and water & sanitation interventions (Final Climate Change Screening Report, April 2009)*  
This climate screening exercise was taking outset in specific interventions within the agricultural and water & sanitation sectors and pointed to priority areas for adaptation options.

The first section of this report outlines the strategic framework for the management planning process. The following sections include mapping and review of existing management structures, strategies, policies, manuals and guidelines related to interventions within the agricultural and water supply & sanitation sectors. The findings from the mapping and review, together with results and experiences from the climate screening exercise carried out during Phase 2 and from discussions and consultations with key stakeholders related to the sectors and to climate change in Bangladesh, provide the basis for the formulation of general and specific recommendations as well as a preliminary ideas for a limited number of suggested pilot projects on how to mainstream climate change into planned and future interventions within the two sectors. This report covers the water supply and sanitation sector only; a separate report has been prepared for the agricultural sector.

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<sup>1</sup> All produced reports as well as supporting documentation are available from the website: [www.bangladesh-climate.org](http://www.bangladesh-climate.org)

## 2 PURPOSE AND METHODOLOGY OF CLIMATE MANAGEMENT PLAN

### 2.1 Purpose and Scope

The purpose of this Climate Management Plan is to provide a number of recommendations for management of the water supply and sanitation sector with the ultimate goal of working towards building a greater robustness (or resilience) to climate change hazards to sector development and to the preservation of natural resources<sup>2</sup>.

Ideally, a Climate Management Plan would take its departure in an Environmental Management Plan, that could be extended or revised to also cover climate change issues, but a such does not exist for the WSS sector

The Climate Management Plan is aimed at both the management of the sector programme (WSSPS-II) and at wider sector management institutions such as ministries, departments, etc.

The recommendations provided are of the following nature:

- Specific recommendations for how to mainstream activities of ongoing projects under the sector programme (such as re-directing activities to be supportive of building resilience to climate change hazards (adaptation); or to suggest new activities within the scope and financing mechanisms of the sector programmes). Those recommendations are mainly aimed at the WSSPS-II management team, but may be of inspiration to others;
- General management recommendations for the sector programme (the Policy Support Unit in specific) in dealing with wider sector issues, policies, strategies, or plans;
- Suggestions for pilot projects that would have to be financed outside the existing sector programme; and finally
- Suggested action to be taken by different sector stakeholders involved in order to move forward the agenda of adapting to climate change.

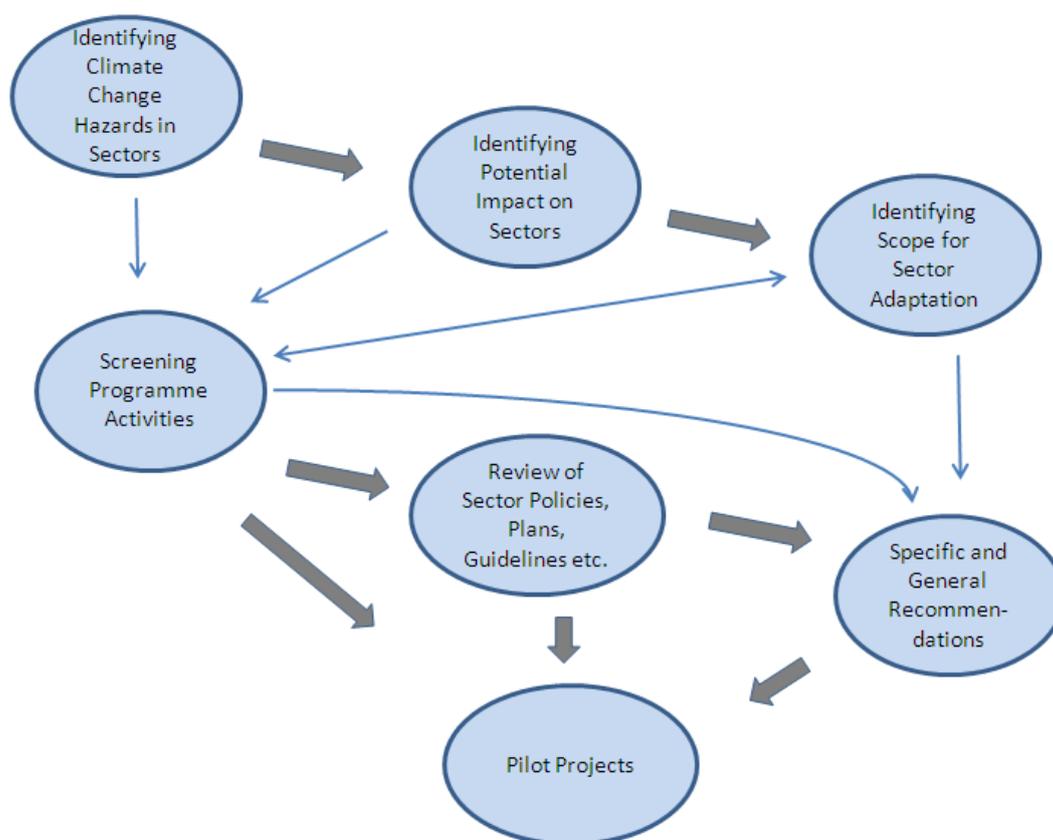
### 2.2 Methodology of Developing the Climate Management Plan

The methodology of the climate management planning exercise has followed the approach laid out in the Inception Report. Please see Figure 1 overleaf.

The first step of the climate change adaptation and management planning exercise was to work with a range of stakeholders and climate change experts to identify the climate changes observed or predicted for Bangladesh, with special focus on the potential impact of the climate change hazards on the two sectors of agriculture and water & sanitation. The findings were presented in the Inception Report.

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<sup>2</sup> For a detailed analysis of climate change hazards and impacts on the two sectors, please refer to the Inception Report [http://www.bangladesh-climate.org/reps/final\\_inception\\_report\\_090109.doc](http://www.bangladesh-climate.org/reps/final_inception_report_090109.doc)

**Figure 1 Process of Climate Change Adaptation and Management Exercise**

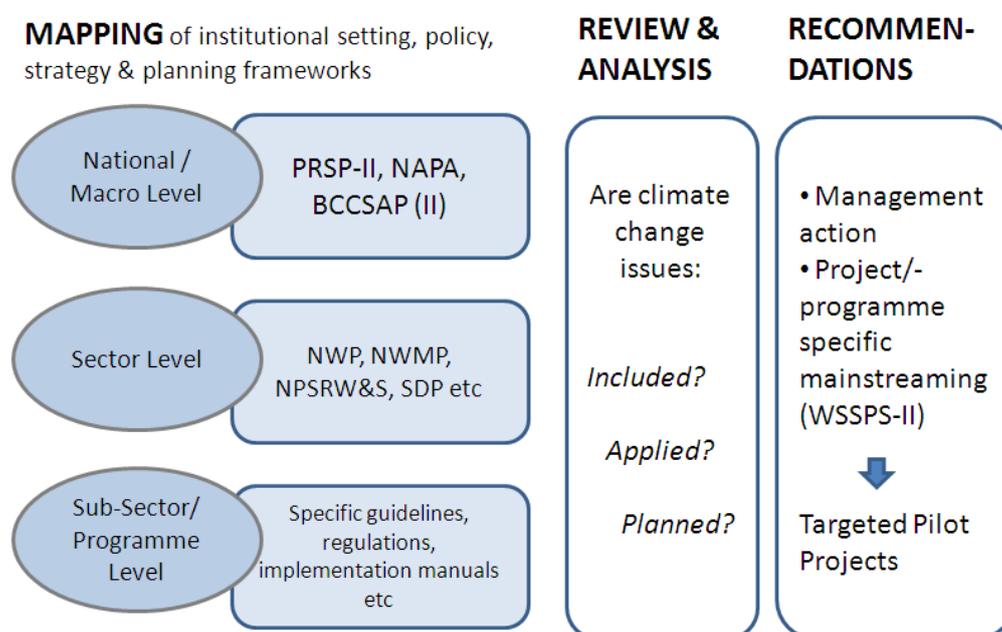
The next step was to screen the activities of the WSSPS-II, in terms of their vulnerability (the climate change risk) to the hazards. A methodology was developed to rate the risk of individual projects or activities according to frequency and severity of hazards. The screening process led to a number of preliminary adaptation options (both within and outside the scope of the two sector programmes), and also to some more general recommendations. The findings were presented in a Climate Change Screening Report<sup>3</sup>.

Following the screening of the sector programme, a mapping and review of relevant sector policies, plans, strategies, guidelines etc. were carried out, illustrated in Figure 2 below. Basically, the review tried to ask and answer the following questions:

1. Are the policies, strategies, and plans including considerations on how to tackle climate change issues?
2. If they are included, are the issues being dealt with (applied)?
3. If they are not included, are there plans to do so in the near future?

The findings from that review are presented in this report.

<sup>3</sup> [http://www.bangladesh-climate.org/dox/DRAFT\\_CC\\_Screening%20Report\\_19MAR2009.pdf](http://www.bangladesh-climate.org/dox/DRAFT_CC_Screening%20Report_19MAR2009.pdf)

**Figure 2 Approach for Climate Management Plan**

The findings of the management planning review – coupled with the experiences gathered during the Screening exercise – forms the basis for a number of general and specific recommendations for the sector programme but also for the institutional management framework within which they are operating. Furthermore, some more cross-sector or national level recommendations have also appeared from the review and consultations.

Finally, the total process of the climate change adaptation and management planning exercise – and mainly from the interaction with sector stakeholders, climate change specialist and communities – has gradually generated a number of ideas for pilot projects. They are all presented briefly in this report, and more details can be found in annexes. Some of the pilot projects remain sketchy in form and content, depending on the level of consultation with a broader segment of stakeholders undertaken by the time of submission of this report.

### 3 SECTOR CLIMATE MANAGEMENT

#### 3.1 Sector and Sub-Sector Definition, Policy Framework, and Institutional Set-up

In Bangladesh, there is no uniform definition, structure or coordinated management of water sectors and sub-sectors that could clearly guide the preparation of a “sector” climate management plan. A relatively large number of institutions are involved in setting policies, planning, managing and implementing activities within the broader water sector. While this Climate Management Plan is mainly concerned with service delivery for water supply and sanitation and hygiene promotion for rural areas (the scope of the WSSPS-II), the linkages to other sectors and sub-sectors are of great importance when dealing with climate change. Therefore, an overview of the definitions, institutional set-up and policy framework of the broader water sector is provided below.

##### Sector and Sub-Sector Definitions

The water sector and sub-sectors are defined and used in various ways, depending on the institutional and policy setting. For example, the Planning Commission defines, for national planning purposes, Infrastructure as a sector, while Physical Planning, Housing and Water Supply as its sub-sectors. From a more technical point of view, the National Water Policy, 1997 (NWP) and National Water Management Plan 2004 (NWMP) considers Water Resources as a sector (sometimes called Water sector) and WSS as a sub-sector to it. Health is considered as sector on its own, and often WSS is considered as its sub-sector because of its important role in preventative health and hygiene.

For purposes of this climate management plan, WSS is considered a sector on its own. This is because of the importance of WSS and also because its do not come solely under the domain of any other sector, e.g. functions are not solely related to water resources sector (see Figure 3). As such, the climate management plan is take its departure in the water supply and sanitation service delivery sector, but is also seeking to link up to the sectors.

##### Sector and Sub-Sector Institutional Set-Up

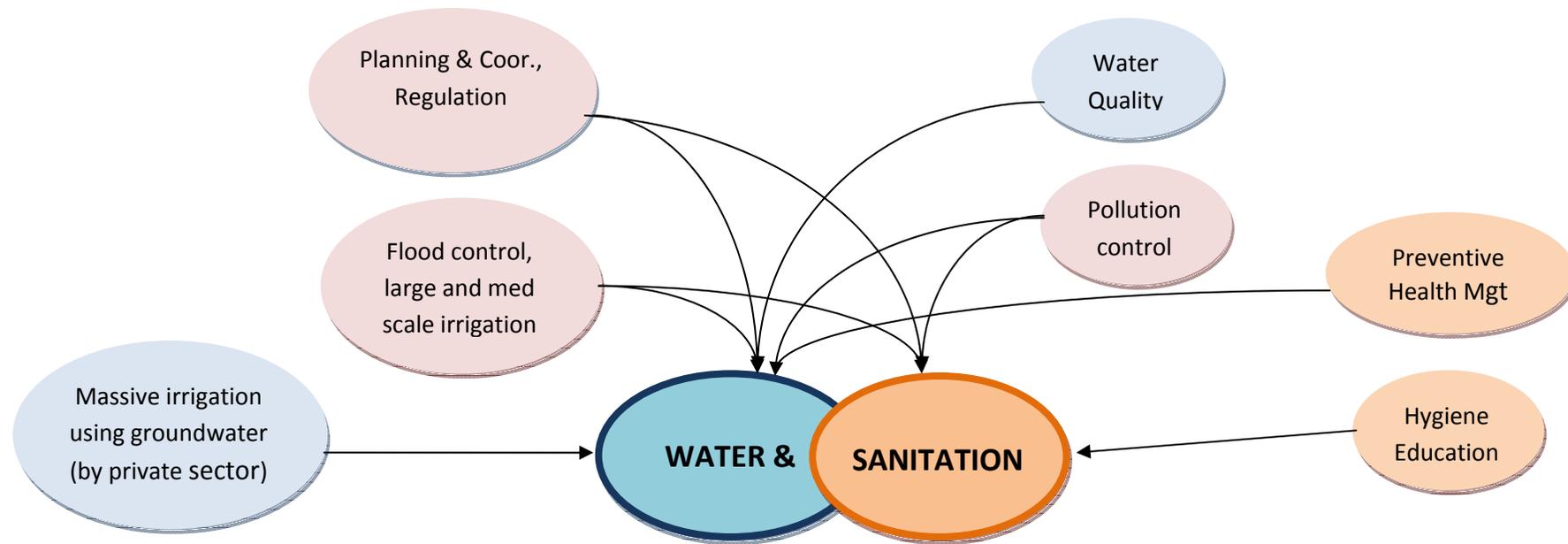
The institutional setting of the water sector and its sub-sectors is complex. Altogether 35 Central government organizations affiliated to 13 Ministries are identified to have functions relevant to the Water Resource sector. Many of these organizations are also directly or indirectly related to the WSS sub-sector. The main organizations related to the WSS sector and their institutional settings are provided in Annex 2.

Figure 3 overleaf shows how the WSS sector is linked with some important functions of other ministries and organizations. The WSS sector has functions related to two distinctive components – water supply and sanitation. As seen in the figure the functions of other organizations are linked to either water or sanitation or both. Examples of linkages are that excessive groundwater withdrawal for irrigation by private sector lowers the groundwater levels and many hand pump shallow tube wells are becoming non-functional. Water resources planning and management is done by WARPO under the Water Resource Ministry. This has direct implication on drinking water sources. Flood control done by BWDB helps to protect latrines and water sources from flood. In a similar functions of Environment and Health ministries are related to WSS sector.

**Figure 3 Linkages of WSS sector with functions of other ministries and organizations**

RELATED MINISTRIES AND ORGANIZATIONS				
Agriculture	Water Resources	LGD&C	Environment	Health
BADC	BWDB, WARPO	DPHE, WASAs, LGED, RDA	DOE	DOH

**FUNCTIONS AND LINKAGES**



## 3.2 Mapping and Review

### 3.2.1 Mapping and Review – Sector and Sub-Sector Level

The main findings from the mapping and review of the major strategies, policies, manuals and guidelines for the sector are summarized in Table 1 below.

**Table 1: Summary of Main Findings from Review of Sector Policy Documents and Plans**

Ministry/Institution	Policy/Plan/Guideline	Main Findings
Ministry of Water Resources (MoWR)	National Water Policy (1998)	<p>The NWP prepared by the Ministry of Water Resources and approved in 1998 outlines the national policy for management of water resources. The NWP provides guidance to all agencies and institutions working directly or indirectly with the water sector.</p> <p>The Policy aims to increase involvement of Local Government in local water resources management. The policy promotes institutional changes that will help decentralize the management of water resources and develop a legal and regulatory environment that will help the process of decentralization and improve the investment environment for the private sector in water development and management.</p> <p>Issues of climate change are not incorporated in the NWP.</p>
	National Water Management Plan (1999)	<p>MoWR has prepared the National Water Management Plan with the intention of operationalising the directives given by the NWP. The plan provides a framework at national and regional level within which central government, local Government and other stakeholder should implement their activities and projects.</p> <p>The NWMP identifies the investment needs in the water supply and sanitation sub-sector in the short-term (year 2000 – 2005), in the medium term (year 2006 – 2010) and in the long term (year 2011 – 2025). The plan covers 84 programmes for the next 25 years that should contribute tot the overall sector objectives, as well as to intermediate sub-sector goals.</p> <p>The plan states that future irrigation mainly based on groundwater would not be sustainable as the amount of groundwater recharged each year is finite, and the dangerous phenomenon of arsenic contamination of groundwater. The plan highlights the development of new legislation and regulations, particularly a Water Resources Act and a regulatory framework for private sector participation.</p> <p>NWMP has considered the effect of climate change in estimating water demand in various regions of the country. Although it recognized the fact that predicting the exact affects of climate</p>

		change is difficult at this stage, it mentions the impacts of climate change like increase water demand particularly in Ganges basin, prolonged floods and drainage congestions and negative impacts in coastal zone due to sea-level raise. NWMP also identifies some positive impacts like coastal zone sedimentation. It is, however, not very instrumental in provision of specific guidance on how to tackle climate change.
<b>Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&amp;C)</b>	National Policy for Safe Drinking Water and Sanitation (1998)	<p>This policy, issued by the Local Government Division of the Ministry of Local Government, Rural Development and Co-operatives, calls for nationwide access to safe drinking water and sanitation services at an affordable cost. The objective is to improve public health and produce a safer environment by reducing water-borne disease and contamination of surface water and groundwater. The Government will encourage increased user participation, including the active support and involvement of other partners, such as non-governmental organizations (NGOs), market-oriented business organizations and similar private organizations in water and sanitation development.</p> <p>Issues of climate change are not incorporated in the National Policy for Safe Drinking Water and Sanitation.</p>
	Sector Development Programme (SDP)	<p>The SDP under the process of review and revision. The SDP will be managed by the Bangladesh Government and will include the roles and responsibilities of the donors, NGOs, private sector and, importantly, the people of the urban and rural communities. The revised SDP will be for a period of 25 years which will be divided into short, medium and long term plans. Necessary reforms in the sector will be formulated with specific milestones. One of the main components of the SDP will be the separate strategic development plans for the large cities, secondary and small urban areas, rural areas and Chittagong Hill Tracts. Another important aspect is to prepare road maps by which the projects or investments in the sector could be carried out under a common framework, or in other words, a Sector Wide Approach (SWAp). Sector Investment Plans will be prepared different timeframes.</p> <p>SDP would give a plan to prepare and implement development programme in the sector in a coordinated way. It is expected that the forthcoming projects or programmes in the sector will be under the overall management guideline of the revised SDP. The SDP will also suggest monitoring mechanisms for the sector activities and outcomes and <u>there are plans to include the climate change issues</u> in the revised SDP. The revised SDP is expected to be finalized early 2010.</p>
	Vetting Guidelines	This guideline was developed based on a check list of 12 policy principles related to the National Policy for Safe Drinking Water Supply and Sanitation, 1998. Although the Planning Commission has its own procedure and guideline to prepare projects, the vetting guideline is expected to complement their guidelines for preparing

		<p>and screening projects in the water and sanitation sector. All ministries and departments would in principle have to apply the vetting guideline to ensure that the Project Documents are in accordance to the policy principles.</p> <p>Environmental Assessment is one of the twelve check list item of the vetting guideline. It included only one question that is “Will the project have an adverse impact on the environment?”</p> <p>The vetting guideline is however not much in use. The PSU has taken up effort to update the vetting guideline and promote its use. The PSU has plans to include the climate change issues in the updated vetting guideline.</p>
	National Policy and Implementation Plan for Arsenic Mitigation (2004)	<p>This policy is prepared by the Ministry of LDRG&amp;C and approved by the cabinet. The Policy states that access to safe water for drinking and cooking shall be ensured through implementation of alternative water supply options in all arsenic affected areas. All arsenicosis cases shall be diagnosed and brought under an effective management system. Impact of arsenic on agricultural environment shall be assessed and addressed. The Arsenic Mitigation Policy provides guidelines for assessment of arsenic in water, soil and agricultural products; public awareness raising and technology choice. The Policy promotes the use surface water over ground water. An implementation plan is also given with the policy.</p> <p>The climate change issues were not considered in the Policy. Any impact of climate change on arsenic is not clear as of yet.</p>
	National Sanitation Strategy (2005)	<p>LGD has formulated the National Sanitation Strategy. The primary objective of this strategy is to delineate the ways and means of achieving the national target through providing a uniform guideline for all concerned. The strategy aims to create effective demand through health education and hygiene promotion and will follow the pro-poor strategy in assisting the hardcore poor (see next section). The strategy gives some guideline for technology choice however the climate change aspects are not mentioned there.</p>
	Pro Poor Strategy for Water and Sanitation Sector (2005)	<p>The Pro-Poor Strategy is for assisting the hardcore poor in water supply and sanitation. The strategy rests on four pillars: Definition of Hardcore Poor households; Definition of Basic Minimum Service; Targeting and Organizing the Hardcore Poor households; and Mechanism for Administering Subsidies.</p> <p>The Strategy does not address the climate change issues or communities that may be affected by climate change impacts.</p>

### 3.2.2 Mapping and Review – WSSPS-II Programme level

**Table 2: Summary of Main Findings from Review of WSSPS-II**

<b>Policy, Guideline, Manual</b>	<b>Main Findings</b>
Programme documents & DPP/TPPs	Climate change issues not included.
HARDWARE: HYSAWA Project Implementation Manual (PIM)	Climate change issues not included at the moment. <i>(detailed review can be found in Annex 3)</i>
SOFTWARE/Capacity building projects: <ul style="list-style-type: none"> <li>• HYSAWA</li> <li>• ITN-BUET</li> <li>• NILG</li> <li>• NGO Forum</li> </ul>	Climate change issues not included at the moment. <i>(detailed review can be found in Annex 3)</i>

### 3.3 Major Findings and Recommendations

The key findings or main issues identified are found to be:

#### **Key Finding 1: Limited or no mainstreaming of climate change into sector and sub-sector policy documents and plans**

With the exception of the National Water Management Plan, climate change is not mentioned or included in any of the reviewed documents. This may not be at all that surprising; most were developed more than a decade ago.

#### **Recommendation 1: Mainstreaming of Policy Documents and Plans**

Climate change adaptation should be included when the National Water Policy, the National Water Management Plan, and the National Policy for Safe Drinking Water and Sanitation are being updated or revised in the coming years. The ongoing revision of the Sector Development Plan for WSS may provide inspirations and guidance on how to go about it, also in light of the needed coordination of policies, plans and mandates of sector and sub-sector institutions.

Furthermore, it is recommended to pilot - within the Planning Commission - the procedures around project appraisal to include aspects of climate change. Please see pilot project proposal no. C1 in Chapter 5.

#### **Recommendation 1b: Ongoing Revision of Vetting Guidelines**

It should be ensured that on ongoing revision of the vetting guidelines is incorporating CCA adaptation and DRR factors as additional parameter in the check list against which projects would be screened and approved. How to better enforce the use of the vetting guidelines should also be explored. The guidelines should be discussed with the Planning Commission,

especially in the light of ongoing plans of mainstreaming climate change into national planning procedures.

**Recommendation 1c: Ongoing Revision of the Sector Development Plan**

The revised SDP should include a framework for screening planned sector investments and ensure financing for adaptation to climate change. The framework could be embedded within the usual environmental appraisals (e.g. EIA) because of interrelationship of several parameters of CC with environment. This issue may be discussed with LGD and MoE. The SDP should also suggest mechanisms of how to improve interaction and coordination with other sectors such as Agriculture, Water Resources, Disaster Management, and Health.

**Key Finding 2: Absence of Water Resources Management – Protection of Water Sources for Safe Drinking Water**

The regulation of the extraction from water resources appears to be extremely weak. Basically, any person, business or institution can extract groundwater with little or no limitations. Climate change will increase the demand for water, not only for drinking purposes, and thus aggravate saline intrusion as well as prolonged flooding. Water sources – both surface and groundwater – are at real risk. Water regulation is urgently needed, and enforcement of such regulations likewise. Only if water sources suitable for safe drinking water are protected and control mechanisms enforced, will the Ministry of Local Government, Rural Development and Cooperatives be able to fulfil its mandate or responsibility of providing safe drinking water in the future. Water resources management – and especially capacity building for an effective management - is a subject that has supported by several donors including Danida and JICA. The NWP and the NWMP provides a guideline on how to achieve this. In spite of this, no proper legislation is in place and there is limited enforcement.

**Recommendation 2:** The Department of Public Health Engineering should actively seek to use the present debate, attention, and increasing awareness about climate change and its impact on water sources suitable for drinking purposes, to push for increased political and administrative commitment for protection of water resources. Continued discussions and consultations with DPHE should be undertaken by the PSU of the WSSPS-II on how to further this cause, also taking into consideration other water resources sector initiatives are being carried out at the moment (supported e.g. by the World Bank and the Netherlands). The ongoing revision of the Sector Development Plan is also an opportunity to take up the need for increasing the scope of coordination across sub-sectors. It is therefore suggested to use climate change as another opportunity to actively pursue the issue.

**Key Finding 3: Limited Collection and Sharing of Sector Specific Adaptation Knowledge and Experience**

Many CCA and DRR activities are being carried out through out the country. Stakeholders express the need for a central institution which can gather information and data, and share experiences and best practises of climate change adaption and disaster risk reduction in the sector. At present, there is no where to go to seek overall information or advise. Even though the Climate Cell is supposed to play a central role in this respect, its future is highly uncertain, and is not dealing specifically with technical issues around water supply and sanitation.

**Recommendation 3:** It should be considered to support - in a limited scale - one of the existing institutions involved in the sector to engage in gathering and sharing of best adaptation practises.

**Key Finding 4: Limited Knowledge or Research on the Vulnerability of Water Supply and Sanitation Installations**

There is little scientific research available on the more technical or locational issues of the vulnerability of water supply and sanitation installations, i.e. to which degree the installations being promoted at present are actually suitable or sustainable. Also, there is a need to look into and test new or improved technologies that may be more resilient to climate change.

**Recommendation 4:** A short and to-the-point pilot project should be considered on Applied Research on Climate Change Resistant Water Supply and Sanitation Technologies. Please see Pilot Project No. W1 in Chapter 5.

**Key Finding 4: Need for WSSPS-II Mainstreaming of Climate Change**

Climate change is not yet sufficiently incorporated in the management and implementation of WSSPS-II activities.

**Recommendation 5:**

Possible future revisions of DPPs/TPPs should include funding for CCA/DRR mainstreaming and for actual adaptation to new location specific technologies, guidelines, manual etc. as they develop gradually the coming years, possible as a result of the recommended pilot project on Vertical Learning. If revisions are not going to be carried out during the last years of WSSPS-II implementation, climate change mainstreaming should be considered for a possible third phase of the programme.

**Recommendation 6: Revision of HYSAWA Project Implementation Manual (PIM)**

Please see Pilot Project W3 for a detailed description and review of the PIM and suggestions for how to mainstream climate change and disaster preparedness into the ongoing activities. Furthermore, a one-year Pilot Project is recommended for Applied Research on Climate Change Resistant Water Supply and Sanitation Technologies (see W2 Chapter 5). Both projects could possibly be financed with the existing budgets of WSSPS-II. The opportunities to finance the research projects out of HYSAWA Fund may be explored.

## 4 SUGGESTED PILOT PROJECTS

**Table 3: Suggested Cross-Sector Pilot Projects**

Project Title	Main Project Objective	Scope
<b>C1 Formulation of climate change risks guidelines and implement practices on TPP/DPP appraisal – Planning Commission</b>	Mainstreaming Climate Change into Project Appraisal procedures – Planning Commission	<p>At present there is no TPP/DPP appraisal guideline. The responsible officers evaluate the TPP/DPP with their own wisdom, knowledge and experiences. In general the evaluation is not very intensive due to lack of appropriate guidelines and the evaluators need capacity to do this. The evaluators assess/appraise the projects based on the TPP/DPP completion/formulation “structure”. If the structure is followed well when completing the TPP/DPP, the environment risks are covered. But Climate Change risks and mitigation issues do not reflect in the TPP/DPP.</p> <p>So, there is an opportunity for making a small addition/change in the TPP/DPP clause numbers 23 and 28 in order to make these more specific and focused towards Climate Change risks. Task would be easy since it is not reinvention of a new wheel. In the same way, Climate Change guideline for appraisal should be in line with the TPP/DPP clauses.</p> <p>The proposed pilot project will be an attempt to establish a Climate Change Focal Person as well a Cell for initiating all activities in relation to developing a CC guideline which will in turn incorporated/main-streamed in the TPP/DPP appraisal guideline.</p>
<b>C2 Vertical Adaptation Pilot Project (VAPP) (to be developed)</b>	<p>A limited but representative number of vulnerable UPs are scientifically informed and has received location specific technical advise on how to adapt to climate change in agriculture and WSS</p> <p>Gained location specific knowledge is being used actively at higher levels to inform research, management and planning</p>	<p>Specific locational knowledge/data on climate change parameters relevant to agriculture and WSS will be gathered, building on existing data (mapping). Data will be used for more precise projections (modelling) on future scenarios.</p> <p>Projections will be used to give more direct and specific advice on how to adapt to climate change at locational level, i.e. developing location specific and informed adaptation activities. Research activities in agriculture and WSS (carried out separately during the first year, separate pilot projects) will feed into this process.</p> <p>The information can feed into local level planning, district planning, and national planning as well as research institutions. A strategy on how to do this must be developed before project approval.</p> <p>Two districts and two upazilas will be selected in each district, and 2-3 UPs in each upazila (a total of 8-12 locations). Ideally coast and NW, and most vulnerable places. Should be covered by existing presence of ASPS/WSSPS.</p>

<b>C3</b> <b>Awareness raising campaign in mass media on climate change risk</b>	Increase awareness among TV media and communities on climate change risk	The TV media will receive training on climate change risks and a number of episodes from different parts in the country with different micro-ecological conditions will be produced to illustrate impacts and coping strategies from climate change. Experts on climate change and researchers will be present in the TV studio to discuss and comment on the episodes. The Bangladesh Television (BTV) will be the leading partner in the project.
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**Table 4: Suggested Water Supply and Sanitation Sector Pilot Projects**

Project Title	Main Project Objective	Scope
<b>W1</b> <b>Applied Research on Climate Change Resistant Water Supply and Sanitation Technologies</b>	Research and Development to devise technology options that can offset the impact of climate change on WSS	A) To obtain an overview of <u>existing technologies</u> for rural drinking water supply and sanitation in terms of their resistance vs. vulnerability to climate change hazards in different zones of Bangladesh, using different scenarios for extent of zone-specific hazards. B) To produce and disseminate a catalogue of <u>potential improved technologies</u> and their relevance to different zones and hazard scenarios C) To suggest <u>testing approach and modalities</u> for those technologies considered most relevant (formulation of new pilot research project to be carried out the year after)
<b>W2</b> <b>Collection and sharing of best practises in CC adaption options in the WSS sector.</b>	Effective knowledge and information management of adaptation to climate change in WATSAN sector	Limited support to an existing sector institution to collect and disseminate experience and best practices of the several ongoing projects dealing with adaptation within the WATSAN sector, both in terms of technologies, testing of improved technologies, community based adaptation, integrated water resources management.
<b>W3</b> <b>Climate Change Adaptation in HYSAWA Project</b>	Mainstream Climate Change into the Hygiene, Sanitation and Water Supply (HYSAWA) Project.	<ul style="list-style-type: none"> <li>- HYSAWA Guidelines/Project Implementation Manuals (PIM) updated/revised</li> <li>- Behavioral Change Communication (BCC) strategy and materials are revised/updated</li> <li>- Training Modules for Support Organizations (SOs), Partner NGOs (PNGOs), Union Parishads (UPs), Community Development Forums (CDFs) are revised</li> <li>- New short course training courses on Climate Change awareness for higher level of project actors (i.e. sector professionals, national sector institutions for example NILG ) are developed</li> </ul>

**ANNEX 1****SUGGESTED PILOT PROJECTS – IDENTIFICATION SHEETS****PILOT PROJECT IDENTIFICATION SHEET – C 1**

PROJECT TITLE	<b>Formulation of climate change risks guidelines and implement practices on TPP/DPP appraisal.</b>
PROJECT DURATION	1 year
IMMEDIATE OBJECTIVE (related to CCA)	Mainstreaming Climate Change into Project Appraisal procedures
RATIONALE	<p>At present there is no TPP/DPP appraisal guideline. The responsible officers evaluate the TPP/DPP with their own wisdom, knowledge and experiences. In general the evaluation is not very intensive due to lack of appropriate guidelines and the evaluators need capacity to do this. The evaluators assess/appraise the projects based on the TPP/DPP completion/formulation “structure”. If the structure is followed well when completing the TPP/DPP, the environment risks are covered. But Climate Change risks and mitigation issues do not reflect in the TPP/DPP.</p> <p>So, there is an opportunity for making a small addition/change in the TPP/DPP clause numbers 23 and 28 in order to make these more specific and focused towards Climate Change risks. Task would be easy since it is not reinvention of a new wheel. In the same way, Climate Change guideline for appraisal should be in line with the TPP/DPP clauses.</p>
STRATEGY	The proposed pilot project will be an attempt to establish a Climate Change Focal Person as well a Cell for initiating all activities in relation to developing a CC guideline which will in turn incorporated/mainstreamed in the TPP/DPP appraisal guideline.
OUTCOMES/OUTPUTS	<ul style="list-style-type: none"> <li>▪ Important elements of CC are appraised during TPP/DPP evaluation within Agriculture Division of Planning Commission</li> </ul>
ACTIVITIES TO BE CARRIED OUT (in brief)	<ul style="list-style-type: none"> <li>▪ Selection of a focal person from Environment Wing of Ag Division</li> <li>▪ Establishing a CC Cell (Within Environment Wing) in Ag Div of Planning Commission</li> <li>▪ Consultation with other Wings and Divisions within Planning Commission and plan for next steps (i.e. changes in TPP/DPP, CC appraisal guidelines, etc.)</li> <li>▪ Review current TPP/DPP clauses/structures, particularly clause # 23 and 28 and suggest necessary modification/changes relevant for CC risks in relation to Agriculture sector.</li> <li>▪ Formulating and developing CC risks appraisal guidelines</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Provide technical support (to relevant Ministries/Divisions) for changing TPP/DPP guidelines and formulating/developing guidelines on CC risks appraisal</li> <li>▪ Initiate, facilitate and implement necessary actions required.</li> </ul>
BENEFICIARIES	<ul style="list-style-type: none"> <li>▪ Policy Planners</li> </ul>
TARGET AREA	Policy at National Level
INSTITUTIONAL SET-UP FOR IMPLEMENTATION	Planning Commission
TOTAL BUDGET	BDT 300,000 (TA support (consultancy fees) and Consultation meeting within Planning Commission)

## PILOT PROJECT IDENTIFICATION SHEET – C 2

PROJECT TITLE	<b>Vertical Adaptive Pilot Project (VAPP)</b>
PROJECT DURATION	2 years
IMMEDIATE OBJECTIVE (related to CCA)	The immediate objective is to gain location specific CC related knowledge from local levels which will be analysed and interpreted at higher levels for subsequent use in local level.
RATIONALE	<p>Only general or country level knowledge about the impacts of CC and ways to mitigate them is not sufficient as the magnitude of the impacts are different in different parts of the country.</p> <p>The need for location specific knowledge is required to design and manage agriculture and WSS. At present there is no substantial location specific knowledge related to CC impacts on different agriculture or WSS zones</p> <p>The knowledge gained would be useful to develop and sharpen the planning and management tools for agriculture and WSS services.</p>
STRATEGY	<p>Selecting representative geographical areas (unions) corresponding to major CC hazards</p> <p>Use present state of the knowledge and advanced techniques (modelling) to predict the future impacts and other scientific data required for specific designing and managing mitigation options</p> <p>Coordinate with other pilots and researches in the same locations</p>
OUTCOMES/OUTPUTS	<ul style="list-style-type: none"> <li>▪ Location specific reliable scientific data gained on the future CC scenario</li> <li>▪ Design guidelines of mitigation options formulated (e.g. how many meters should a tubewell platform be raised in a specific location to withstand the floods in the next 25 years)</li> <li>▪ Useful data generated for researchers</li> <li>▪ National capacity developed to meet the future CC challenges</li> </ul>
ACTIVITIES TO BE CARRIED OUT (in brief)	<ul style="list-style-type: none"> <li>▪ Identifying and selecting representative 2-3 unions in about 3 upazila to represent the vulnerable areas related to the major CC hazards (e.g. for tidal surges and cyclones in the coastal districts, frequent floods in flood plain and drought prone areas in north-west )</li> <li>▪ Preparing strategies and modalities on how the knowledge gained to be feed into local planning</li> <li>▪ Collecting baseline information related to agriculture and WSS</li> <li>▪ Using the baseline information in CC scenario (modelling) for the</li> </ul>

	<p>specific areas</p> <ul style="list-style-type: none"> <li>▪ Preparing guideline for location specific design and management of agriculture and WSS services</li> </ul>
BENEFICIARIES	<ul style="list-style-type: none"> <li>▪ Local communities in the project areas</li> <li>▪ Planners and researchers at National level</li> </ul>
TARGET AREA	Selected unions in three to four agriculture/WSS zones
INSTITUTIONAL SET-UP FOR IMPLEMENTATION	<p>The project will be implemented within the framework of ASPS and WSSPS programmes</p> <p>Further institutional arrangement will be determined during the project preparation stage.</p>
TOTAL BUDGET	USD 2 million

### PILOT PROJECT IDENTIFICATION SHEET – C 3

PROJECT TITLE	<b>Awareness raising campaign in mass media on climate change risk</b>
PROJECT DURATION	6 months - 1 year
IMMEDIATE OBJECTIVE (related to CCA)	The immediate objective of the proposed project is to produce a documentary film of 13 episodes which will document the prevailing climate change issues in Bangladesh considering realistic approach and initiatives which will help raise awareness and knowledge of different stakeholders to address those issues as coping strategies.
RATIONALE	<p>The need for awareness raising on climate change issues within communities has been highlighted recently in the BCCSAP, as well as by a number of other studies.</p> <p>AEC is currently providing capacity building of media on agricultural issues. This project will complement these efforts.</p>
STRATEGY	<p>A multi-dimensional approach will be adopted to document and address various critical climate issues. Different thematic issues and different locations will be selected for 13 episodes.</p> <p>The documentary film and a number of climate change spots will be broadcasted by Bangladesh Television (BTV).</p>
OUTCOMES/OUTPUTS	<ul style="list-style-type: none"> <li>▪ BTV staff trained on climate change issues</li> <li>▪ 13 special episodes in BTV on “climate change”</li> <li>▪ Climate Change TV spots projected through BTV channels as a regular feature</li> <li>▪ Awareness raised on climate change issues within communities all over Bangladesh</li> </ul>
ACTIVITIES TO BE CARRIED OUT (in brief)	<ul style="list-style-type: none"> <li>▪ Identification and selection of climate ‘hotspots’ from all over Bangladesh (with special attention to areas where climate change vulnerability is visible)</li> <li>▪ Identification and selecting of climate change experts to participate in programmes</li> <li>▪ Development of training materials</li> <li>▪ Conducting of training</li> <li>▪ Training of BTV staff on climate change issues</li> <li>▪ Production of 13 episodes from different locations and with different thematic focus.</li> <li>▪ Production of Climate Change TV Spots to be shown regularly on BTV.</li> </ul>

BENEFICIARIES	<ul style="list-style-type: none"> <li>▪ Local communities all over Bangladesh</li> <li>▪ BTV staff</li> </ul>
TARGET AREA	Nationwide
INSTITUTIONAL SET-UP FOR IMPLEMENTATION	<p>BTV together with an NGO.</p> <p>BTV will take lead role in filming documentation of thematic issues at field levels, editing and production of the film (13 episodes) and arrange to broadcast those in BTV.</p> <p>The NGO will arrange training of BTV staff, identify hot climate change spots and arrange with CC experts to participate in programme.</p>
TOTAL BUDGET	USD 75,000

## PILOT PROJECT IDENTIFICATION SHEET – W 1

PROJECT TITLE	<b>Applied Research on Climate Change Resistant Water Supply and Sanitation Technologies</b>
PROJECT DURATION	1 year
IMMEDIATE OBJECTIVE (related to CCA)	<p>A) To obtain an overview of <u>existing technologies</u> for rural drinking water supply and sanitation in terms of their resistance vs. vulnerability to climate change hazards in different zones of Bangladesh, using different scenarios for extent of zone-specific hazards.</p> <p>B) To produce and disseminate a catalogue of <u>potential improved technologies</u> and their relevance to different zones and hazard scenarios</p> <p>C) To suggest <u>testing approach and modalities</u> for those technologies considered most relevant (formulation of new pilot research project to be carried out the year after)</p>
Adaptation to Specific CC hazards and impacts on WSS services	<p><u>Hazards:</u> Sea level rise, cyclones, storm surges, flooding, drought, etc.</p> <p><u>Impacts:</u>  Ground water stress  Depleted water resources  Saline intrusion  Damage to WSS infrastructure  Contamination of ground and surface water sources  Water and vector born diseases</p>
Linkages to policies and strategies	<p><b>National Adaptation Programme of Action (NAPA):</b></p> <p><b>Project no 2:</b> Providing drinking water to coastal communities to combat enhanced salinity due to sea level rise.</p> <p><b>Project no 4:</b> Climate change and adaptation information dissemination to vulnerable community for emergency preparedness measures and awareness raising on enhanced climatic disasters.</p> <p><b>Bangladesh Climate Change Strategy and Action Plan 2008 (BCCSAP);</b></p> <p><b>Theme T1: Food Security, Social Protection and Health, program, P3.</b>  <b>Adaptation against drought:</b>  <b>Program P3.</b> Adaptation against drought  <b>Program P7.</b> Water and sanitation programme in climate vulnerable areas</p> <p><b>Theme T4: Research and Knowledge Management:</b>  <b>Program P3.</b> Preparatory studies for adaptation against sea level rise</p> <p><b>Guidelines for Vetting Project Proposals for Water and Sanitation Projects</b> (Under process of updating)</p> <p><u>Sector Principles for natural disaster and climate Change:</u></p> <ul style="list-style-type: none"> <li>• Research and Development to devise technology options that can</li> </ul>

	<p>offset the impact of climate change</p> <ul style="list-style-type: none"> <li>• Research and development into disaster resistant technologies</li> </ul>
RATIONALE	<ul style="list-style-type: none"> <li>- Impacts of climate change is of different types for different areas of the country e.g. cyclone and storm surges in coastal areas, water level declining in North-West and flooding in the flood plains</li> <li>- The water and sanitation technologies are vulnerable in a different set of fashion in the different zone</li> <li>- Adaptation of technologies thus need to be zone-specific</li> <li>- The present level of knowledge regarding the impact of climate change and the vulnerability of the water and sanitation technology is limited</li> </ul>
STRATEGY	<ul style="list-style-type: none"> <li>- Obtain a better understanding on the zone-specific impacts of climate change</li> <li>- Identifying the “knowledge gap” related to the impact on water and sanitation technologies</li> <li>- Learn from present adaptation (if any) and improve the currently used technologies as far as possible</li> <li>- Taking immediate preparation for larger interventions and ready to launch well designed projects one funding and other opportunities are available</li> </ul>
OUTCOMES/OUTPUTS	<ul style="list-style-type: none"> <li>- Assessment report on the resistance vs. vulnerability of the present water and sanitation technologies to climate change hazards in different zones</li> <li>- Specific “knowledge gap” identified for designing appropriate climate resistant technologies</li> <li>- A pilot project prepared which would draw a road map on how to test and generate knowledge in the field levels and how it is used to contributes to knowledge bases at higher levels (vertical learning) in order to adapt the present technologies and/or design new technologies to withstand the different climate change hazards in different zones.</li> </ul>
ACTIVITIES TO BE CARRIED OUT (in brief)	<ul style="list-style-type: none"> <li>- Through modeling or by other suitable instrument assessing the magnitude of climate change hazard in different zones of the country. Making projections for different scenario for different level of climate change impacts.</li> <li>- Mapping of present technologies used and assess their vulnerability to the zone specific impacts of climate change, and for different scenario.</li> <li>- Reviewing the present coping mechanisms and any pilot activities related to adaptation of water and sanitation technologies</li> <li>- Based in the current experiences and technical analysis suggesting improvements of the present technologies</li> <li>- Preparing a catalogue of improved technologies mentioning its capacity to function in zones in different scenario. Also indicating their limitations and technical or other improvements or new technologies that are required.</li> <li>- Preparing a testing approach and methodology for the suggested improved/new technologies in different zone. This will include</li> </ul>

	preparing a pilot project indicating the scope and locations of piloting and cost estimate
BENEFICIARIES	Water and sanitation sector planners, researchers and investors in climate change
TARGET AREA	Country wide
INSTITUTIONAL SET-UP FOR IMPLEMENTATION	<p>This action research is expected to be implemented by PSU under the supervision of WSSPS-II. PSU would contract out the assignment to research organization/consulting firms and may set up a technical committee to guide and supervise the works. The committee members would be from the WSSPS-II projects, DPHE and sector professionals.</p> <p>It is expected that PSU would subsequently take up the initiatives to find funds for implementing the pilot project and would also administer its implementation</p>
TOTAL BUDGET	Taka 5 million

## PILOT PROJECT IDENTIFICATION SHEET – W 2

PROJECT TITLE	<b>Collection and sharing of best practises in CC adaption options in the WSS sector.</b>
PROJECT DURATION	2 years
IMMEDIATE OBJECTIVE (related to CCA)	Effective knowledge and information management of climate change related to water and sanitation
Adaptation to Specific CC hazards and impacts on WSS services	All hazards
Linkages to policies and strategies	<b>National Adaptation Programme of Action (NAPA) project no 6:</b> Mainstreaming adaptation to climate change into policies and programmes in different sectors (focusing on disaster management, water, agriculture, health and industry).
RATIONALE	<ul style="list-style-type: none"> <li>- The government and the international communities have given high importance to the climate change issue and already earmarked funds for climate change adaptation and disaster risk reduction (CC &amp; DRR). As such there will be a lot of CC &amp; DRR activities by many different parties – academicians, researchers, professionals, policy makers, etc. Different organizations like government, donors, NGOs and consulting companies will be involved. Works will be carried out in different sectors including water and sanitation</li> <li>- At present there is no mechanism to coordinate and retain the knowledge and information that would be developed in the sector</li> <li>- Thus there is a strong need for a body for the above functions.</li> </ul>
STRATEGY	<ul style="list-style-type: none"> <li>- Using existing institutional arrangements as far as possible</li> <li>- Limited support to an existing organization to retain and disseminate the knowledge gained</li> <li>- Learn from the experiences from recent similar projects, e.g. NAMIC and Sanitation Secretariat, on what worked and what did not</li> </ul>
OUTCOMES/OUTPUTS	<ul style="list-style-type: none"> <li>- Knowledge about CC adaptation options gathered and disseminated</li> <li>- Better coordination among stakeholders</li> </ul>
ACTIVITIES TO BE CARRIED OUT (in brief)	<ul style="list-style-type: none"> <li>- Assess the present and future institutions those would be engaged in CC &amp; DRR and ways of linking to the water and sanitation sector</li> <li>- Gather and disseminate best practises for CC adaption in WSS sector</li> <li>- Establish and maintain a data base which is accessible to interested parties</li> </ul>
BENEFICIARIES	Government agencies, NGOs and other development partners
TARGET AREA	Country wide
INSTITUTIONAL SET-UP FOR IMPLEMENTATION	TBD
TOTAL BUDGET	Taka 1 Crore

### PILOT PROJECT IDENTIFICATION SHEET – W 3

PROJECT TITLE	<b>Climate Change Adaptation in HYSAWA Project</b>
PROJECT DURATION	1 year
IMMEDIATE OBJECTIVE (related to CCA)	Mainstream Climate Change into the Hygiene, Sanitation and Water Supply (HYSAWA) Project
Adaptation to Specific CC hazards and impacts on WSS services	<p><u>Hazards:</u> Sea level rise, cyclones, storm surges, flooding, drought, etc.</p> <p><u>Impacts:</u>  Ground water stress  Depleted water resources  Saline intrusion  Damage to WSS infrastructure  Contamination of ground and surface water sources  Water and vector born diseases</p>
Linkages to policies and strategies	<p><b>National Adaptation Programme of Action (NAPA) Project no 3:</b> Capacity building for integrating Climate Change in planning, designing of infrastructure, conflict management, and land-water zoning for water management institutions.</p> <p><b>Bangladesh Climate Change Strategy and Action Plan 2008 (BCCSAP);</b>  <b>Theme, T4:</b> Research and Knowledge Management; <b>Program, P1.</b> Establishment of a Centre for Knowledge Management and Training on Climate Change</p> <p><b>Theme, T6:</b> Capacity Building and Institutional Strengthening  <b>Program, P4.</b> Strengthening institutional capacity for Climate Change Management</p>
RATIONALE	<ul style="list-style-type: none"> <li>- Climate change is a relatively new issue in the water and sanitation sub-sector and as such it has not yet developed adequate capacity to meet the challenges ahead.</li> <li>- Capacity building is fundamental for developing and sustaining effective strategies and interventions</li> </ul>
STRATEGY	<ul style="list-style-type: none"> <li>- Develop capacities at all levels – community, LGIs, professional, etc.</li> <li>- Testing and developing different guidelines, tools and materials</li> <li>- Devising effective ways of communication to and empowerment of the communities</li> <li>- Develop institutional capacities of government agencies, NGOs and other related organizations</li> </ul>
OUTCOMES/OUTPUTS	<ul style="list-style-type: none"> <li>- HYSAWA Guidelines/Project Implementation Manuals (PIM) updated/revised</li> <li>- Behavioral Change Communication (BCC) strategy and materials are revised/updated</li> <li>- Training Modules for Support Organizations (SOs), Partner NGOs (PNGOs), Union Parishads (UPs), Community Development Forums (CDFs) are revised</li> <li>- New short course training courses on Climate Change awareness for higher level of project actors (i.e. sector professionals, national sector institutions)</li> </ul>

	for example NILG ) are developed
ACTIVITIES TO BE CARRIED OUT (in brief)	<p><b>Task A:</b> Revision of HYSAWA Project Implementation Manual (PIM)</p> <ul style="list-style-type: none"> <li>- Study and review preparation and processing of community sub-projects by CDFs in association with PNGOs and SOs,</li> <li>- Review of process and procedures for appraisal and consolidation of UP sub-projects by UPs,</li> <li>- Review of validation process and procedures of UP sub-projects by UZ WATSAN Committees,</li> <li>- Review of final appraisal and approval process and procedures of consolidated UP sub-projects by HYSAWA Fund Company.</li> </ul> <p><b>Task B:</b> Capacity building of HYSAWA Project implementing partners on Climate Change and Disaster Risk Reduction</p> <ul style="list-style-type: none"> <li>- Training Needs Assessment (TNA) for the HYSAWA Project implementing partners e.g. SOs, PNGOs, UPs and CDFs</li> <li>- Design and development of training courses/curriculum for capacity building and awareness raising of the implementing partners</li> <li>- Organizing, conducting and evaluating training programmes for the implementing partners</li> </ul> <p><b>Task C:</b> Capacity building of Sector Professionals on CC &amp; DRR</p> <ul style="list-style-type: none"> <li>- Study and development of design criteria for climate adaptation or climate proofing of water and sanitation infrastructure</li> <li>- Training material development for sector professionals (i.e. Engineers, academicians of NGOs and LGIs)</li> <li>- Advanced training on climate change and disaster management</li> <li>- Organizing workshop, seminars and focused discussions</li> </ul> <p><b>Task D:</b> Review and Update Behavioral Change Communication (BCC) strategies and materials</p> <ul style="list-style-type: none"> <li>- Review and update HYSAWA BCC strategy and instruments</li> <li>- Design and develop training and BCC materials e.g. print, audio-visual educational and promotional/social campaigning material</li> </ul>
BENEFICIARIES	Government agencies, ITN-BUET, NILG, Partner NGOs, CBOs, User Groups and Communities
TARGET AREA	HYSAWA Districts (3 Northwestern and 6 Coastal-belt districts)
INSTITUTIONAL SET-UP FOR IMPLEMENTATION	This pilot project is expected to be implemented by HYSAWA Fund Company under the purview of WSSPS-II. HYSAWA FMO would contract out the assignment to reputed research organization/consulting firms and may set up a technical committee to guide and supervise the works.
TOTAL BUDGET	Taka 3.0 million

## ANNEX 2

### OVERVIEW OF INSTITUTIONS INVOLVED IN WATER SECTOR MANAGEMENT

Organization	Institutional settings and Functions
<b><u>Administration and Planning</u></b>	
Planning Commission under Ministry of Planning	The planning commission advises the government in development planning. It prepares national development documents like the PRSP, Five Years Plan and Annual Development Plans. It also prepares national planning guidelines and approves development projects.
Local Government Division (LGD) of Ministry of Local Government, Rural Development and Cooperatives (MoLGRD&C).	The LGD oversees the functions of the WSS related service delivery organization under the Ministry (e.g. DPHE, WASAs and LGED) and sets policies and guidelines.
Ministry of Land	Owner of all Kash (public) land including rivers. The Ministry of Land or its representative at local level (District Commissioners) give permission to establish infrastructure related to river water use like boat landings, other structures in rivers, etc.
<b><u>Service Delivery Organizations</u></b>	
Department of Public Health Engineering (DPHE)	The LGD is the led agency in WSS. It is responsible for implementing development schemes to install of water supply and sanitation systems in rural areas and in urban areas outside Dhaka, Chittagong and Khulna (where WASAs exist). The WSS systems are operated and maintained by the communities or municipalities.
Water Supply and Sewerage Authorities (WASA)	WASAs are semi-autonomous bodies formed in accordance with the 1996 WASA Act. Presently there are 3 WASAs (in Dhaka, Chittagong and Khulna cities). WASAs are responsible for providing WSS services to urban areas under their jurisdictions.
Local Government Engineering Department (LGED)	The LGED implements water and drainage projects in urban areas as part of urban infrastructure development projects
<b><u>Other organizations</u></b>	
Ministry of Water Resources (MoWR)	It is responsible to the Government for most aspects of the Water Resource sector including flood control, irrigation, water conservation, surface and groundwater use and river management

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Water Resources Planning Organization (WARPO)	An exclusive public sector agency responsible for macro level water resources planning, including, for instance, monitoring and updating of the National Water Management Plan (NWMP 2004). It also is responsible for establishing and maintaining the National Water Resources Database, a management information system and for coordinating water resource sector developments.
Bangladesh Water Development Board (BWDB)	Is responsible for the planning and execution of medium and large-scale water resource development projects, river dredging and training, flood forecasting, surveys, data collection and sundry activities
Ministry of Agriculture (MoA)	Is responsible for overall agricultural development, including minor irrigation
Bangladesh Agricultural Development Corporation (BADC)	Under MoA pioneered the introduction of mechanized minor irrigation, laying the foundation for the rapid expansion that has since occurred through the private sector.
Ministry of Environment and Forests (MoEF)	Sets policies for environmental protection and management and is responsible through DoE for enforcement of environmental rules and guidelines for all sectors
Department of Environment (DoE)	It is under MoEF and is mandated to regulate and enforce environmental management, including pollution control of water resources. Its responsibilities include ensuring the adequacy of Environmental Impact Assessments
Bangladesh Haor and Wetland Development Board (BHWDB)	Is responsible for monitoring, coordinating and integrating the haor area schemes of other agencies in the wetland areas
Department of Forest (DoForest)	Is responsible for controlling forested watershed areas in Sylhet, Cox's Bazaar, Chittagong, Rangamati, Khagrachari and Bandarban.
Ministry of Health	Public health management including hygiene education
Disaster Management Bureau	Disaster management including providing WSS services
Department of Fisheries	Under the Ministry of Fisheries it is responsible for development of capture and culture of fisheries.

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**Local Government Institutions**

City Corporation	All the local government institutions are under LGD. There are six City Corporation is the metropolitan cities i.e. Dhaka, Chittagong, Khulna, Sylhet and Barisal. Three city corporations have WASAs where the WSS responsibility is with WASAs. In other three the responsibilities are with City Corporations and the WSS development works are normally supported by DPHE.
Paurashava (Municipalities)	Responsible for providing WSS services. Development works are normally supported by DPHE.
Zila Parishad (District Council)	Presently their roles are limited
Upazila Parishad	Supervise and provide administrative and technical support to the UPs
Union Parishad (UP)	Implements development schemes including WSS in rural areas with their own funds and funds available from Centre. DPHE also implements in WSS schemes in collaboration with UPs.

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## ANNEX 3

### DETAILED REVIEW OF HYSAWA PROJECT IMPLEMENTATION MANUAL AND SUGGESTIONS FOR ADAPTION ACTIVITIES (supporting Pilot Project W3)

Reference of PIM Sections	Management tool	Incorporation of CC & DRR factors	Specific examples
Section 2: HYSAWA Fund 2.5.2 Criteria for approval of UP consolidated Sub-projects	Annex 2.5: Approval Format, Environmental Checklist (Point 5 of section III)	Include checklist on CC & DRR factors e.g. whether these are duly considered	<ul style="list-style-type: none"> <li>- CC &amp; DRR issues considered for technology selection, construction of facilities, costs for installation and O&amp;M</li> </ul>
Section 4: CDF 4.1 Roles of CDF	CDF will undertake village situation analysis, baseline survey, promotional activities related to hygiene, sanitation and water supply	Include CC & DRR issues in the situation analysis, baseline survey and promotional activities	<ul style="list-style-type: none"> <li>- Level of knowledge and existing community perception on climate change and disaster preparedness and management</li> <li>- What messages need to include and disseminate among the communities</li> <li>- What is the mechanism for awareness raising on CC &amp; DRR</li> </ul>
	Annex 4.2: Sub-project Proposal Format included checklist for environmental and institutional aspects; Sub-project Preparation Process; Reporting format	Include question related to CC & DRR in the sub-project proposal format and preparation process	<ul style="list-style-type: none"> <li>- How to address LWT/saline problems?</li> <li>- How to reduce and manage risks of possible disasters on WSS infrastructures and services?</li> <li>- How the strengthen community capacity and build awareness on CC &amp; DRR?</li> </ul>
Section 5: Union Parishad	Annex 5.1: Application Form for UP qualification in HYSAWA Project	Assess and include CC & DRR related issues	<ul style="list-style-type: none"> <li>- What are problems related to/effects of climate change and disasters risk reduction in the UP areas</li> </ul>
	Annex 5.3: Community sub-project identification form	Include CC & DRR issues in assessing present status and identifying problems	<ul style="list-style-type: none"> <li>- Is water table lowering?</li> <li>- Is salinity in drinking water being increased?</li> <li>- Local knowledge on climate change and disaster preparedness and management</li> </ul>

	Annex 5.6: UP sub-project appraisal format	Include CC & DRR in the environmental checklist (point V)	<ul style="list-style-type: none"> <li>- WS technologies are selected considering problems and projections related to CC &amp; DRR</li> <li>- CC &amp; DRR issues are included in promotional activities</li> </ul>
	Annex 5.7: Consolidated UP sub-project format	Include CC & DRR in the checklist for sub-project preparation process	<ul style="list-style-type: none"> <li>- Selection of WS technologies</li> <li>- Advanced superstructures for latrines and tubewells</li> </ul>
Section 6: UDCC 6.2 Criteria for Validation of UP Sub-projects	Annex 6.1: UDCC validation form	Include CC & DRR issues in environmental checklist at Part 2	<ul style="list-style-type: none"> <li>- Have UP Sub-projects considered local context related to CC &amp; DRR in the preparation process?</li> <li>- Have UP Sub-projects duly addressed CC &amp; Disaster effects on WSS infrastructure and services?</li> </ul>
Section 8: Support Organization (SO) 8.1 Roles of SO	Roles related to implementation of water supply, sanitation and hygiene promotion	Include CC & DRR in promotional activities and training programmes (e.g. capacity building supports to NGOs and CDFs)	<ul style="list-style-type: none"> <li>- Training on Awareness building on Climate Change and Disaster Risk Reduction (DRR) for NGOs and CDFs</li> </ul>
Section 4 (CDF), 5 (UP), 8 (SO) and 9 (PNGO)	Cross-cutting issues: Poverty Human Rights & Gender Good Governance Culture and Development Primary Health Care (PHC), HIV/AIDS Environment (in terms of cleanliness, waste management, etc within the CLTS framework)	Include CC & DRR as a separate issue or broaden Environment issue	<ul style="list-style-type: none"> <li>- Climate Change</li> <li>- Disaster Risk Reduction and Management</li> </ul>

## CCA/DRR Related Capacity Building Initiative for WSSPS-II

The WSSPS-II consists of the following projects:

1. Hygiene, Sanitation and Water Supply (HYSAWA) Project
2. National Institute of Local Government (NILG)
3. ITN-BUET
4. NGO Forum

All of the above mentioned projects have a common function to strengthen capacity of the sector stakeholders including the community level service users to implement and manage water supply and sanitation services. Different training programmes and promotional activities are undertaken by the projects at different levels. The issues related to Climate Change (CC) and Disaster Risk Reduction (DRR) are suggested to be included in those training and promotional programmes in order to mainstream them in the development process. The matrix below presents the recommendations:

Projects	Recipient levels	Key topics to discuss	Tools/Strategies
HYSAWA	Community level service users	<u>Awareness and Preparedness:</u> <ul style="list-style-type: none"> <li>- Awareness on climate change issues (i.e. what is it, how does it occur?, etc)</li> <li>- Type of hazards due to climate change and their effects on WSS infrastructures and services</li> <li>- Community level adaptation to climate change</li> <li>- Disaster preparedness and risk reduction/management</li> </ul> <u>Sub-project preparation and processing:</u> <ul style="list-style-type: none"> <li>- Assessing and identification of climate change situation</li> <li>- Formulation of project interventions related to climate change adaptation (technical and social)</li> <li>- Role of community groups in undertaking promotional activities</li> </ul>	<ul style="list-style-type: none"> <li>- Orientation training</li> <li>- Education/promotional campaign materials</li> <li>- Disaster forecasting system (in specific cases)</li> </ul>
	Union Parishads (UPs)	<u>Awareness and Capacity building:</u> <ul style="list-style-type: none"> <li>- Climate change issues</li> <li>- Disaster risk reduction</li> <li>- Role of UPs in DRR and in promotional campaigns within the UP area</li> <li>- Role of UPs in identification, formulation and appraisal of community sub-projects</li> </ul>	<ul style="list-style-type: none"> <li>- Orientation training</li> <li>- Discussion/coordination meetings</li> </ul>
	Support	<u>General:</u>	<ul style="list-style-type: none"> <li>- Orientation Training</li> </ul>

Projects	Recipient levels	Key topics to discuss	Tools/Strategies
	Organization (SO)	<ul style="list-style-type: none"> <li>- Climate Change and DRR issues</li> <li>- Community based adaptation to CC</li> <li>- Strategies, tools and techniques for addressing CC &amp; DRR issues</li> </ul> <p><u>Project process and procedures:</u></p> <ul style="list-style-type: none"> <li>- Role of UPs and community groups e.g. CDF in the context of CC &amp; DRR</li> <li>- Role of PNGOs in the same context</li> <li>- Role of Support Organizations (SOs)</li> <li>- M&amp;E and documentation</li> </ul> <p><u>Sub-project preparation and processing:</u></p> <ul style="list-style-type: none"> <li>- How to facilitate PNGOs and CDFs in identifying and assessing problems related to CC &amp; DRR at community level</li> <li>- How to facilitate sub-project preparation and consolidation at community and UP levels</li> <li>- How to facilitate PNGOs and CDFs in undertaking promotional activities</li> <li>- Monitoring of project activities at community and UP level</li> </ul>	<ul style="list-style-type: none"> <li>- Workshop</li> <li>- Seminar</li> </ul>
NILG	UP Chairmen and Members	<p><u>Sub-project appraisal and consolidation:</u></p> <ul style="list-style-type: none"> <li>- What and how to appraise the community sub-projects?</li> <li>- The identification and appraisal checklist/criteria related to climate change</li> <li>- Criteria for technology selection and installing WSS facilities</li> </ul>	<ul style="list-style-type: none"> <li>- Foundation/Orientation Training</li> <li>- Discussion meeting</li> </ul>
	UP Secretaries	<p><u>General:</u></p> <ul style="list-style-type: none"> <li>- Basic Climate Change and DRR issues and adaptation techniques</li> <li>- Functions of UP Secretaries in preparation and appraising of community sub-project</li> </ul>	<ul style="list-style-type: none"> <li>- Project Implementation Guideline/Manual</li> <li>- Discussion meeting</li> </ul>
ITN-BUET	Sector Professionals (including staff of NILG)	<p><u>Academic:</u></p> <ul style="list-style-type: none"> <li>- Historical background of global warming and climate change</li> <li>- Climate change and hazards (including the change trends in severity and frequency of hazards in Bangladesh)</li> <li>- DRR (preparedness and management)</li> <li>- Developing disaster/climate resilient technologies and infrastructures</li> <li>- Community based adaptation to CC &amp; DRR</li> </ul> <p><u>Project process and support (sector specific):</u></p> <ul style="list-style-type: none"> <li>- Role of sector stakeholders and professionals in the context of CC</li> <li>- Role of Government departments and line agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Advanced training on CC &amp; DRR in WSS Sector</li> <li>- Seminar and Workshops</li> <li>- Symposiums</li> </ul>

Projects	Recipient levels	Key topics to discuss	Tools/Strategies
		<ul style="list-style-type: none"> <li>- National and local level coordination and integration on water resources management</li> <li>- Policies and strategies related to CC &amp; DRR (i.e. need for reforms)</li> </ul>	
NGO Forum	Project Staff	<u>Knowledge and perception:</u> <ul style="list-style-type: none"> <li>- Climate change and DRR issues in the WSS sector</li> <li>- Climate Change as a cross-cutting issue in WSSPS-II Projects (i.e. HYSAWA)</li> <li>- Community based adaptation to Climate Change</li> <li>- Role of project staff in the CC &amp; DRR contexts</li> </ul> <u>Skills and capacity:</u> <ul style="list-style-type: none"> <li>- How to facilitate partner NGOs and CDFs in sub-project preparation and processing</li> <li>- How to assist UPs in managing project activities and partners (e.g. PNGOs, CDFs) at UP level</li> <li>- How to coordinate UP and UZ level line agencies in undertaking promotional activities, etc.</li> </ul>	- Orientation training
	Partner NGOs	<u>General:</u> <ul style="list-style-type: none"> <li>- Climate change and DRR issues in the WSS sector</li> <li>- Community based adaptation techniques to CC</li> <li>- Role of PNGOs</li> </ul> <u>Project process:</u> <ul style="list-style-type: none"> <li>- How to facilitate community organizations (i.e. CDF/CBOs) to assess problems, develop plans and formulate sub-projects including the CC issue</li> <li>- How to assist UPs in project identification and appraisal process</li> <li>- How to facilitate community groups and Facilitators to undertake promotional activities related to CC and DRR beside hygiene practices</li> <li>- How to facilitate coordination among the CDFs and UP bodies (i.e. WATSAN committee)</li> </ul>	
	Union Parishad (UP)	<u>General:</u> <ul style="list-style-type: none"> <li>- Climate change issues</li> <li>- Disaster risk reduction</li> <li>- Role of UPs in DRR and in promotional campaigns within the UP area</li> <li>- Role of UPs in identification, formulation and appraisal of community sub-projects</li> </ul>	

**Water and Sanitation Sector Programme Support (WSSPS), Phase II**  
**GOB-Danida**

**Draft Terms of Reference**

For

Design and Development of Training Programmes on the Climate Change and Disaster Risk Reduction in the  
Water and Sanitation Sector of Bangladesh

**1 Introduction**

The water resources management in Bangladesh is having multifold of challenges. The surface water in general is under huge threat of environmental degradation and pollution, while in the given context the ground water is under overly exploration and contamination. The rapid scale up of tubewells (i.e. shallow and deep) particularly in the rural areas for drinking water purposes (about 3% of total use) and deep-set pumps used for irrigation (about 97% of total use) are believed to be the reasons for that pressure. Besides, unfolding the arsenic contamination in ground water during early 90's has made this problem severe. Due to these reasons, despite the country had achieved almost universal coverage of drinking water supply, it has now reduced to about 70%.

Given the context while the country was looking for sustainable solutions in the water sector, the issues related to Climate Change are emerged, and the situation is further aggravated. In the north-western part of the country the water table is continually lowering, there average temperature is being raised and annual rainfall is reduced which are eventually resulting in drought and severe scarcity of drinking water. In the coastal-belt districts saline intrusion in to the ground water is increased, hazards like flooding and storm surges are accelerated due to rise of sea level. The characteristics of the nature, in other parts of the country, are also changing. The flash floods, water logging and inundation due to heavy rainfall, etc. are continuing to increase. All these natural calamities are leading to a situation where it is believed that a huge and integrated intervention would be required for solving the scarcity of drinking water in near future.

Considering the overall situation of the country and to address the needs for safe drinking water supply and sanitation, the WSSPS-II is being undertaken by the Government of Bangladesh with the financial and technical assistance from Danida. This programme, which started implementation January 2006 is a follow-up programme of WSSPS-I, and is scheduled to be ending by 2010.

At this stage, the need for incorporation of climate change and disaster risk reduction issues into the programme components are recommended by the Climate Change Screening and Adaptation Mission, worked during October 2008 to April 2009. As part of that assignment, the need for capacity strengthening of the WSSPS-II components and its partners on the Climate Change and DRR issues are emphasized. Those TORs are a result of the recommendations provided in the Climate Change Management Plan prepared by the climate change team.

**2 Training Programme in the Context of WSSPS-II**

The WSSPS-II is comprised of four different projects. Those are: i) HYSAWA Project, ii) NILG, iii) ITN-BUET and iv) NGO Forum. The general aims of the four components are to facilitate the sector and build capacity of the sector stakeholders and implementing partners to effectively implement and

manage the water supply and sanitation services. The programme partners and the sector stakeholders defined in the programme covers a wide range of actors including:

- Sector professionals
- Staff of the projects and departments at central, district and upazila levels
- Support Organizations (SOs)
- Partner NGOs
- Union Parishads (UPs) and other LGIs
- UP and Upazila level WATSAN sub-committees
- Community organizations i.e. CBOs

The level of actors mentioned above varies from each other significantly. Thus, the requirement for developing training programme for them also varies. Considering the apparent actor specific needs the following training programmes under a broader curriculum would be required.

- An Advanced Training on Climate Change and Disaster Risk Reduction (for sector professionals and senior project/department staff)
- A Basic Training of Trainers on the WSSPS Project Process and Climate Change (for SOs and PNGOs)
- A Basic Orientation Training on Climate Change and DRR Issues (for UPs, WATSAN Committees, Community Facilitators and CBOs)

### **3 Objectives**

The overall objective of the assignment is to design and develop a full package of Training Curriculum on Climate Change and Disaster Risk Reduction in the Water and Sanitation Sector of Bangladesh. This will include the tasks of designing and developing required training aid/materials to be used for the training programmes, and as per needs of the different level of training recipients.

In specific, the objectives of the assignment will be, but not necessarily be limited to:

- Design and develop an Advance Training Course on Climate Change and Disaster Risk Reduction
- Design and develop a Basic Training of Trainers on the WSSPS Project Process and Climate Change Issues
- Design and develop a Basic Orientation Training on Climate Change and DRR Issues, and
- Design, field test and finalize different sets of training materials required for the training courses targeted towards different level of participants

All these training courses are expected to use participatory training methodologies, and to adopt self-evaluation process for the training participants.

### **4 Scope of Works**

The scope of works for the task assignment will be kept flexible for the competent consultants. However, following is the outline of the scope of works for the assignment.

- a. Review and consult with the WSSPS-II documents and reports (based on availability)

- b. Design and conduct a thorough needs assessment of the training target participants, as described in the section 2.
- c. Visit WSSPS-II project locations and discuss with key actors starting from central to field level including Danida and DPHE
- d. Prepare a detailed methodology for conducting training needs assessment (TNA) for different level of participants, and for the entire work programme
- e. Design outline of individual lesson plan, facilitating methods and processes, time plan and materials to be used including other requirements
- f. Prepare layout of complete training manuals/courses with title, sub-title and instructions to the training facilitators and self-evaluation process/tools
- g. Design, field test and develop necessary training materials
- h. Combine all the individual training courses into a Training Curriculum, and perform other tasks as required
- i. Discuss and review training course duration with the client prior to finalize those, and
- j. Other tasks, as agreed with the client and necessary for the successful completion of the assignment

## **5 Methodologies**

The consultant will design and apply participatory methods and tools for the assignment. This will be prior consulted with and approved by the client. The methodologies may include Focus Group Discussion (FGD), Key Informant Interviews (KII), Participatory Rural/Rapid Appraisal (PRA) and others as applicable for the tasks.

The methodology for carrying out the assignment will be outlined first by the consultants, and then be detailed out upon approval of the client.

## **6 Duration of the Assignment, Expertise required and Key Deliverables**

The tentative duration of the assignment would be for 3 months. This will be proposed by the Consultant through the technical proposal, and would be finalized later on upon agreed by the client.

It is assumed that the design and development of the training curriculum would require one Subject Matter Specialist and another Design Specialist. It can also be done by one Expert who have proven track record of doing similar assignment in the past. The consultants may hire another Material Expert for designing and development of training materials.

Key deliverables of the assignment will be as follows:

- a. An Advance Training Course on Climate Change and Disaster Risk Reduction
- b. A Basic Training of Trainers on the WSSPS Project Process and Climate Change Issues
- c. A Basic Orientation Training on Climate Change and DRR Issues, and
- d. The set of training materials required for the training courses targeted towards different level of participants

## 7 Estimated budget

Total estimated cost for design and development of training programmes would be around Taka 3.5 million. Below is the breakdown of costs:

1 Training Design Expert for 3 months @ Taka 300,000	Tk. 900,000
1 WSS Subject matter specialist for 2 month @ Taka 300,000	Tk. 600,000
1 Material Expert for 2 month @ Taka 250,000	Tk. 500,000
Material Development Cost (Lump sum)	Tk. 500,000
Other Cost (50% of Expert remuneration)	Tk. 500,000
<b>TOTAL COST:</b>	<b>Tk. 3,000,000</b>