



## Project Data Sheet

Project 42469-012

Project Name	Strengthening the Resilience of the Water Sector in Khulna to Climate Change	
Project Number	42469-012	
Country / Economy	Bangladesh	
Project Status	Closed	
Project Type / Modality of Assistance	Technical Assistance	
Source of Funding / Amount	<b>TA 7197-BAN: Strengthening the Resilience of the Water Sector in Khulna to Climate Change</b>	
	Climate Change Fund	US\$ 600,000.00
Strategic Agendas	Environmentally sustainable growth Inclusive economic growth	
Drivers of Change	Governance and capacity development Partnerships	
Sector / Subsector	<b>Agriculture, natural resources and rural development</b> / Water-based natural resources management	
Gender	No gender elements	
Description		

Project Rationale and  
Linkage to  
Country/Regional  
Strategy

Bangladesh is considered one of the countries most adversely affected by climate change. Not only geographic features represented by vast low-lying areas along Ganges-Brahmaputra-Meghna deltas, but socio-economic status such as inadequate infrastructure, low level of social development, lack of institutional capacity and a high dependency on natural resources make the country more vulnerable to climate stimuli. Though Bangladesh has made steady progress in terms of social and economic development and poverty alleviation, the country as a whole, and in particular poorer communities, could suffer the earliest and most from climate change impacts, negating these past achievements. Therefore, strengthening resilience to climate change is central to the development and poverty reduction agenda.

Khulna, the third-largest city in Bangladesh, is located on the banks of the Rupsha and Bhairab rivers in the southwest of the country, where the consequences of climate change are expected to be particularly severe. It had a population of 1.4 million in 2007 in an area of 46 square kilometers (km<sup>2</sup>). The present water supply to Khulna is mainly from groundwater sources drawn from both deep and shallow tube wells. To cope with current insufficient supply and increasing demand, the Khulna Water Supply and Sewerage Authority (KWASA) plans to construct a new treatment plant for surface water with assistance from ADB and the Japan International Cooperation Agency.

The increase in salinity in Khulna started after the commencement in 1975 of the Farakka Barrage operation in India, which significantly reduced the flow of the Ganges upstream of the Gorai River, a major source of freshwater to the rivers surrounding Khulna. Salinity near Khulna recorded in 2007 its highest level for the past 32 years. Sea level rise and prolonged dry weather are expected to further drive up salinity levels in Khulna. Therefore, future investments in water supply, such as the construction of water intake and treatment plants, need to incorporate climate change risks into their design. As groundwater is currently the major source of water in the area, assessing groundwater resources, including the possibility of salinity intrusion in the aquifer, needs to be done.

Khulna currently suffers recurring and worsening waterlogging problems. The situation could be further exacerbated by increased rainfall and sea level rise. Careful assessments need to be undertaken on the extent of the impacts, on the bases of which appropriate response mechanisms need to be developed.

ADB's country operations business plan for Bangladesh (2009-2011) identifies two planned projects in Khulna: the City Region Development Project (PPTA in 2008 and loan in 2010) and the Khulna Water Supply Project (PPTA in 2010 and loan [standby] in 2011). Considering likely climate change impacts in Khulna, future investment projects in the water sector (e.g., water supply and drainage) need to be climate proof. Therefore, the TA will assess the impacts of climate change on drainage, water availability, and salinity and recommend practical and effective options for such matters as the location of water intake works and the appropriate design of the drainage system. Structural and other options will be identified in the TA and prioritized in a participatory manner. The output of the TA will be reflected in the design of these future projects and other Government interventions.

Impact

Strengthened resilience of water sector to climate change impacts in Khulna.

## Project Outcome

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Description of Outcome	Adaptation options, both structural and non-structural, prepared for two planned investment projects: City Region Development Project and Khulna Water Supply Project, and other projects and policy actions by the Government of Bangladesh.
Progress Toward Outcome	Adaptation options, both structural and not, have been prepared for two planned investment projects - City Region Development Project and Khulna Water Supply Project.

## Implementation Progress

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Description of Project Outputs	<p>The TA will be implemented in three steps. The first step will involve (i) data collection related to hydro-meteorology, water salinity and outputs of various modeling results and analyses in Khulna and relevant areas; and (ii) assessment of plausible climate scenarios for 2030 and 2050. In the second step, the TA team will undertake (i) data collection and review of existing structures and future improvement plans in the water sector; (ii) collection of socio-economic data such as population density, population trend and damages caused by past extreme weather events and data related to physical characteristics such as topography, land use and land subsidence; (iii) review of land use plans and policies and current local practices coping with climate variability and extreme weather events (such as early warning system and evacuation); and (iv) hydrological simulation and assessment of flooding, water salinity and other impacts on the water sector by using mathematical modeling. Assessment results will be presented in the GIS based map. Tasks conducted in the third step will comprise (i) identification of adaptation options, both structural and non-structural, focusing on the water sector; (ii) assessment of preliminary feasibility of each option, with due considerations to effectiveness, urgency, associated benefits and costs and social acceptability, and identification of relevant agencies responsible for implementation; (iii) prioritization of preferred options through a participatory approach; and (iv) integration of priority actions into project designs of future ADB-assisted projects or other projects and policy actions by the Government. The TA will also focus on strengthening capacity and raising awareness for climate change. Workshops and other training programs will be carried out mainly for officials of central and local government departments and agencies. Other key stakeholders, such as universities, research institutes, NGOs and the private sector are invited to the workshops, where objectives, progress and outputs of the TA will be shared and discussions for prioritizing various adaptation options will be made. Based on the experiences of the TA implementation, recommendations for further programs on capacity building and public awareness raising and for up-scaling/replicating in other areas in Bangladesh and other countries will be provided.</p>
Status of Implementation Progress (Outputs, Activities, and Issues)	<p>The TA was implemented as planned. Climate change and socio-economic development scenarios for 2030 and 2050 were developed. Three hydraulic models (southwest region model, salinity model, and urban drainage model) were also developed, and the impacts of climate and socio-economic changes on river salinity, the source of surface water supply, and urban drainage system were assessed. Adaptation options were then identified and evaluated. Capacity building programs were undertaken. The final report was submitted in August 2010. A report based on the TA findings was published in April 2011. The TA was completed in June 2011 and is under process of financial closing.</p>

Geographical  
Location

## Summary of Environmental and Social Aspects

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Environmental Aspects

Involuntary Resettlement

Indigenous Peoples

## Stakeholder Communication, Participation, and Consultation

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During Project Design From the onset, consultation will be conducted with a wide range of stakeholders, namely central and local government departments and agencies, universities, research institutes, NGOs, representatives of communities and the private sector.

During Project Implementation

## Business Opportunities

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Consulting Services To be determined.

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Responsible ADB Department South Asia Department

Responsible ADB Division Urban Development and Water Division, SARD

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## Timetable

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Concept Clearance	30 Sep 2008
Fact Finding	11 Oct 2008 to 18 Oct 2008
MRM	-
Approval	10 Dec 2008
Last Review Mission	-
PDS Creation Date	28 Oct 2008
Last PDS Update	29 Jul 2011

## TA 7197-BAN

## Milestones

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Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
10 Dec 2008	10 Feb 2009	10 Feb 2009	31 Dec 2009	30 Jun 2011	31 Aug 2011

Financing Plan/TA Utilization							Cumulative Disbursements	
ADB	Cofinancing	Counterpart		Project Sponsor	Others	Total	Date	Amount
		Gov	Beneficiaries					
600,000.00	0.00	120,000.00	0.00	0.00	0.00	720,000.00	17 Jun 2022	496,554.93

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