

BARBADOS Project Profile

I. BASIC DATA

Project name/	Water and Sanitation Systems Upgrade		
Project number:	(BA-L1015)		
Project Team:	Evan Cayetano (WSA/CJA), Project Team Leader; Yvon Mellinger, Lu Shen, Rodrigo Riquelme, Catalina Gallego (INE/WSA); Javier Grau (WSA/CGY); Janette Archer-Headley (CCB/CBA); Javier Jimenez Mosquera (LEG/SGO).		
Borrower:	Government of Barbados (GOB)		
Executing Agency:	Barbados Water Authority (BWA)		
Financing Plan:	IDB (OCR):	US\$30,000,000	
	Local:	US\$ 3,000,000	
	Total:	US\$33,000,000	
Safeguards	Policies triggered: OP-704 A-2 and OP-703 B.04, B.05, B.06, B.11 , B.12		
	Classification: Category B		

II. GENERAL JUSTIFICATION AND OBJECTIVES

- 2.1 Barbados is ranked among the top fifteen countries in the world in terms of water scarcity, with only 170 m³ of fresh water available per capita per year. According to the Barbados Water Authority (BWA), abstractions for water production in 2007 averaged about 159,100 m³ per day¹. Other abstractions from privately owned and operated wells accounts for approximately 36,364 m³ per day. Based on these abstraction estimates and a population of 270,000, current groundwater abstraction levels exceed the sustainable groundwater yields. As a result, further development, as is currently the case with a proliferation of requests for tourist developments (golf courses, hotels, etc) is constrained by the unavailability of fresh water. The BWA, a government-owned utility company, provides 100% of the potable water coverage for the island's population. Estimates from water production versus billed by the BWA indicate that unaccounted-for-water (UFW) has escalated to 63%² consequent upon the age of the system, deferred infrastructure maintenance, and inadequacies in the operation of the system.
- 2.2 With the increase of water demand, wastewater discharge has also become an important concern not only from the public health standpoint, but also for the preservation of beach water quality, near shore waters and the coral reefs. In principle, the BWA is responsible for sewage disposal services. However, the majority of wastewater and sewage are disposed via septic tanks. Currently there are 4,500 sewage connections in Barbados, versus 100,000 potable water connections. Consequently, there is a pressing need for an efficient use and

¹ The abstraction includes brackish water supply for the desalination plant.

² Estimates based on production volume at 35,000,000 gallons per day, or 159,110 m³ as opposed to billable volume at 12,994,832 gallons per day, or 59,074 m³.

preservation of the existing water resources, wastewater treatment, and a review of Barbados long-term water resource strategy.

- 2.3 The Bank's involvement in Barbados in the water and sanitation sector has been traditionally focused on the sewerage sector. Initially the Bank financed the Bridgetown Sewerage Project in 1975 (network infrastructure and a treatment plant in downtown Barbados). Following the execution of this project, the Bank and the European Investment Bank supported development of the South Coast Sewerage Project in 1992 - BA0036 (network infrastructure and a treatment plant). With the designation of the Fair Trading Commission (FTC) as the new independent regulator for water services per Cabinet Directive³ in 2008, the focus for the Bank and the Government of Barbados (GOB) has shifted towards increasing the efficiency and viability of the BWA, water services and wastewater management.
- 2.4 The goal of the Project is to improve water resources management in Barbados and sustainable water and wastewater service provision by the BWA. Specifically, the Project will support the GOB's efforts to modernize the institutional setting of the water and sanitation sector; improve water production infrastructure and the efficiency of the operations of BWA by reducing unaccounted-for-water and implementing adequate cost recovery mechanisms.
- 2.5 The proposed Project is in line with the Bank's Strategic Plan for Barbados (2005 - 2008) through support for improvement in transport, neighborhood and environmental infrastructure as well as for improvements in results-based management, accountability and efficiency. The new Country Strategy (2009 - 2013), currently under preparation, contemplates Bank support for improvement in water resources management, efficiency of water service and the management wastewater. This Project is also consistent with the Water Initiative of the Bank as it contributes to the "Efficient and Transparent Utilities" Program as it will support BWA in improving its efficiency.

III. PROJECT DESIGN, EXECUTION AND SECTOR KNOWLEDGE

- 3.1 Project Design: There is a need to modernize the BWA in order to address the issues related to UFW and improvements in key water production infrastructure. With respect to sanitation, GOB has initiated the investments in wastewater treatment plants⁴ and has expressed interest in the Bank's assistance to define concrete action plan for wastewater management and reuse. It is therefore proposed that the Project be comprised of three components as outlined below.
- 3.2 Component 1: Reorganization and modernization of the BWA (US\$ 1.9 million): This component will address the institutional strengthening needs of the BWA and will include: (i) the preparation of a long-term business plan including a HR Strategy (institutional review), an operational Strategy (standard operational

³ The GOB considers that prior to "enacting" the designation of FTC as the regulator for water services; it needs to prepare BWA for this through improvements in its service standards and efficiency.

⁴ South Coast Sewerage System financed by the Bank (BA0036)

procedures), change management/re-branding, benchmark performance standards, 24-hour service provision, and a review of the role of BWA as regulator of water abstraction; (ii) a proposed tariff structure reflecting the true cost of water delivery; (iii) installation of Management Information Systems (MIS) and training⁵, network management systems such as the Supervisory Control And Data Acquisition (SCADA), and Geographical Information Systems (GIS); and (iv) Public Awareness Campaign / Stakeholder Management.

- 3.3 Component 2: Rehabilitation of potable water supply (US\$ 30.0 million): This component will include: (i) improvements required for the Belle Pumping Station, the largest source of public water supply accounting for approximately one-third of total supply; (ii) UFW reduction including a meter installation and replacement program, preparation of a multi-phased mains replacement program with implementation of the first phase; and (iii) equipment upgrades and energy efficient alternatives.
- 3.4 Component 3: Wastewater treatment action plan (US\$ 1.1 million): This component will include the preparation of an action plan to identify options for wastewater reuse, including aquifer recharge, agricultural and commercial uses. The action plan will also prepare the necessary technical, social, environmental and financial documents, such as relevant environmental analysis, stakeholder awareness and tariff setting mechanisms related to wastewater.

A. Institutional and Financial Evaluation of BWA

- 3.5 BWA is supported by a capable and motivated core management group but suffers from the recurring problems characterizing public sector culture (large unqualified workforce, lack of qualified middle management, low efficiencies and lack of adequate incentives) that is compounded with the lack of financial autonomy and the obsolescence of the commercial and management IT systems.
- 3.6 Initial findings of the financial evaluation reflect the challenges that the BWA faces in its operations. Faulty meters have prevented accurate billing, and lack of real time customer information does not allow for efficient revenue collection. At the same time, network losses have resulted in higher energy and associated production costs, while fixed labor obligations and water production from the desalination plant have prevented a larger degree of flexibility in operational expenditures. The net losses sustained by the BWA have also prevented implementation of necessary capital expenditure programs in the past two years. Preliminary examination of the financial standings indicates the need for an action plan to increase revenues and manage costs. There has been no tariff increase since 2006 and the BWA operational expenditures and capital expenditures are subsidized.

B. Execution and complementary activities required

- 3.7 The BWA will be the Executing Agency for the Project. The heavy workload for BWA managers, compounded by BWA's lack of experience in managing IDB investment programs⁶ indicates that a Project Executing Unit (PEU) should be

⁵ Training will be conducted for system maintenance, and customer MIS including billing and collection

⁶ The Executing Agency for the South Coast Sewerage Project was the Ministry of Health.

established, including at a minimum, a Project Manager, a Procurement and a Financial Officer and reporting to the General Manager of BWA.

- 3.8 The BWA and the GOB have agreed to establish the PEU early during Project preparation and have committed to contract a Project Manager by May 2009 to serve as an interface between the Project Team and the BWA/GOB Team.
- 3.9 In parallel to the preparation of the Project, the team is preparing a \$400,000 technical cooperation (TC), to be financed by the AquaFund. The output from the TC will complement the project components prior to their execution.

C. Lessons learned and sector knowledge

- 3.10 Lessons learned: Past projects indicate that in order to ensure successful project implementation, the following conditions must apply: (i) willingness to change on the part of the organization being addressed; (ii) government support for the project and the political will to implement the components as proposed; (iii) knowledgeable counterparts and a well organized project implementation team. BA0036 experienced delays, requiring 7 years for its execution with cost overrun of 70%. While different in its focus from the proposed operation, the lessons learned from BA0036 will be included in the execution scheme.
- 3.11 Sector Knowledge: The Bank has extensive experience in water and sanitation in the Caribbean and is completing strategic sector plans updates for many of these countries. The Bank has also been networking with water operators and sponsoring training through the Water Operators Partnership of the Water and Sanitation Initiative. It is noteworthy that the situation of the BWA is not unlike that of the Water and Sewerage Corporation of The Bahamas and the National Water Commission of Jamaica that also experience high UFW and require modernization of the utility company. During late nineties and early 2000's the Bank approved several water and sanitation projects in The Bahamas (US\$14 million for the Family Island's Potable Water Project in 1998), Jamaica (US\$10 million for the Rural Water Program 2001; and US\$40 million for the Kingston Water and Sanitation Project 2004). A US\$16 million Bank-funded operation is currently in execution in Guyana, one of its objectives being the reduction of high UFW. In Barbados the Bank financed the Bridgetown Sewerage Project in 1975 (network infrastructure and a treatment plant in downtown Barbados). Following the execution of this project, the Bank and the European Investment Bank supported the development of the South Coast Sewerage Project in 1992 (network infrastructure and a treatment plant).

IV. SAFEGUARDS AND FIDUCIARY SCREENING

- 4.1 By improving water supply and sanitation this operation will contribute to the health and well being of Barbados's population, especially in preventing illnesses due to waterborne diseases and improving overall environmental conditions. The Program is not expected to have any major large scale, significant and/or irreversible negative environmental or social impacts. Negative expected impacts are mainly related to water infrastructure construction works and operations, including construction noise, dust, waste generation, traffic interferences and occupational risks. Key issues to be assessed during project preparation will

focus on (i) groundwater abstraction levels; (ii) water quality; and (iii) BWA operating procedures.

- 4.2 Six (6) Policy Directives: OP-704 A-2 and OP-703 B.04, B.05, B.06, B.11 and B.12. have been triggered. OP-704 A-2 pertains to natural hazards as Barbados is within the Atlantic hurricane belt and is exposed to storm events. OP-703 relates to weak institutional capacity of the Executing Agency to manage environmental and social issues; the need for an Environmental Analysis, and public consultations. Positive impacts will be fostered by modernizing the BWA and improving efficiency of the operations of this utility.
- 4.3 In accordance with the Category “B” classification, the Environmental and Social Strategy (ESS) involves the preparation of an Environmental and Social Analysis (ESA) including an Environmental and Social Management Plan (ESMP) for Component I – “Reorganization and Modernization of the BWA” and Component II - “Rehabilitation of potable water supply”. Environmental and social procedures will be included in the Operational Manual.
- 4.4 The action plan for Component III “Waste water treatment action plan” will be carried out during Project implementation. Studies will include the preparation of an EIA. Approval by the Bank and GOB and disclosure of the EIA will be a condition for any start of construction.

V. OTHER ISSUES AND RISKS

- 5.1 There may be the need to provide for the strengthening of the FTC. The Project Team will have to evaluate the capacity of the FTC to add the regulation of water to their portfolio; it will also review with the GOB, the process towards the enacting of the FTC as the regulator for the sector (Ref. 2.3). The Team is cognizant of the need for a dedicated focus on the BWA but the FTC will need to play a critical role.
- 5.2 In 2003 the Bank had agreed to consider financing the West Coast Sewerage Project upon completion of the South Cost Sewerage Project. Unfortunately, as the execution of the South Coast Project faced numerous setbacks, financing of the West Coast Sewerage Project was postponed. While the Government remains keen on the need to address wastewater management, it agrees with the Bank regarding priority to address BWA efficiency.

VI. PREPARATION STEPS AND RESOURCES

- 6.1 Annex V provides details of the Project preparation steps and the milestone dates. Distribution of the POD to Quality and Risk Review (QRR) is scheduled for September 15, 2009. The administrative budget for the preparation of the project provides for a total of 3 missions for an amount of US\$ 46,720 and an amount of US\$ 10,000 for consultants to support the preparation of the socio-economic analysis and an amount of US\$ 15,000 for a consultant to support the preparation of the Environmental and Social Analysis.

SAFEGUARD POLICY FILTER REPORT

This Report provides guidance for project teams on safeguard policy triggers and should be attached as an annex to the Project Concept Document (or equivalent) together with the Safeguard Screening Form, and sent to ESR.

1. Save as a Word document. 2. Enter additional information in the spaces provided, where applicable. 3. Save new changes.

PROJECT DETAILS	IDB Sector	Water and Sanitation	
	Project Type	Investment Loan	
	Additional Operation Details		
	Country	Barbados	
	Project Status	New Operation	
	Investment Checklist	Infrastructure Water and Sanitation	
	Team Leader	Evan Cayetano	
	Project Title	Water and Sanitation Systems Upgrade	
	Project Number	BA-L1015	
	Safeguard Specialist(s)	Evan Cayetano	
	Assessment Date	2009-04-01	
	Assessment Number	2009-04011734-2	
	Additional Comments		
SAFEGUAR D POLICY FILTER RESULTS	Project Type	Investment Loan	
	Safeguard Policy Items Identified (Yes)	Activities to be financed in the project area are located within a geographical area or sector exposed to natural hazards (Type 1 Disaster Risk Scenario) .	OP-704 A-2
		The Borrower/Executing Agency exhibits weak institutional capacity for managing environmental and social issues.	(B.04)
		An Environmental Assessment is going to be performed.	(B.05)
		Consultations will be performed.	(B.06)
		Potential to cause air, soil or water contamination (also see B.10).	(B.11)
		Part of the investment is already under construction by the Executing Agency or the Borrower.	(B.12)
	Potential Safeguard Policy Items (?)	No potential issues identified	
	Recommended Action	Operation has triggered 1 or more Policy Directives; please refer to appropriate Directive(s). Complete Project Classification Tool. Submit Safeguard Policy Filter Report, PCD (or equivalent) and Safeguard Screening Form to ESR. <small>Policy Directives can be accessed from the Resources tab on the Toolkit home page.</small>	
	Additional Comments		
ASSESSOR DETAILS	Name of person who completed screening:		
	Title		
	Date	2009-04-01	

SAFEGUARD SCREENING FORM

This Report provides a summary of the project classification process and is consistent with Safeguard Screening Form requirements. The printed Report should be attached as an annex to the Project Concept Document (or equivalent) (together with the Safeguard Policy Filter Report) and sent to ESR.

1. Save as a Word document. 2. Enter additional information in the spaces provided, where applicable. 3. Save new changes.

PROJECT DETAILS	IDB Sector		Water and Sanitation
	Project Type		Investment Loan
	Additional Operation Details		
	Country		Barbados
	Project Status		New Operation
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	Project Title		Water and Sanitation Systems Upgrade
	Project Number		BA-L1015
	Safeguard Specialist(s)		Evan Cayetano
	Assessment Date		2009-04-01
	Assessment Number		2009-04012646-2
	Additional Comments		
PROJECT CLASSIFICATION SUMMARY	Project Category: B	Override Rating:	Override Justification:
			Comments:
	Conditions/Recommendations	<ul style="list-style-type: none"> Category "B" operations normally require an environmental impact analysis (see Environment Policy Guideline: Directive B.5 for Environmental Analysis requirements). However, these operations should also establish safeguard, or monitoring requirements to address environmental and other risks (social, disaster, cultural, health and safety etc.) where necessary. The Project Team must send to ESR the PP or PCD (or similar) containing the E&S Strategy (the requirements for an ESS are described in the Environment Policy Guideline: Directive B.3) plus the Safeguard Policy Filter and Screening Form Reports. These operations will normally require an environmental and/or social impact analysis, according to, and focusing on, the specific issues identified in the screening process, and an environmental and social management plan (ESMP). <small>Policy Directives can be accessed from the Resources tab on the Toolkit home page.</small>	
SUMMARY OF IMPACTS/RISKS AND POTENTIAL SOLUTIONS	Identified Impacts/Risks		Potential Solutions
	Safety issues associated with structural elements of the transaction (e.g. sedimentation basins, water and sewer pipes), or road transport activities (increase in heavy vehicle movements, transport of hazardous materials, etc.) which could result in <u>moderate</u> health and safety risks to local communities.		<ul style="list-style-type: none"> Address Community Health Risks: The client should be required to provide a plan for managing risks which could be part of the ESMP; (including details of grievances and any independent audits undertaken during the year). Compliance with the plan should be monitored and reported. Requirements for independent audits should be considered if there are questions over client commitment or potential outstanding community concerns.
ASSESSOR DETAILS	Name of person who completed screening:		Date:
	Comments:		

Environmental and Social Safeguard Strategy

PROJECT DESCRIPTION

This operation will include under Component I “Reorganization and modernization of the Barbados Water Authority (BWA)” the institutional strengthening needs of the BWA” (i) the preparation of a long-term business plan including a Human Resource Strategy, an operational Strategy, change management/re-branding, benchmark performance standards, 24-hour service provision, and a review of the role of BWA as regulator of water abstraction; (ii) a proposed tariff structure reflecting the true cost of water delivery; (iii) installation of Management Information Systems and training, network management systems; and (iv) Public Awareness Campaign / Stakeholder Management.

Component 2: “Rehabilitation of potable water supply (US\$ 30.0 million)” will include: (i) improvements required for the Belle Pumping Station; (ii) unaccounted-for-water (UFW) reduction including a meter installation and replacement program, preparation of a multi-phased mains replacement program with implementation of the first phase; and (iii) equipment upgrades and energy efficient alternatives.

Component 3: “Wastewater treatment action plan (US\$ 1.1 million)” will include the preparation of an action plan to identify options for wastewater reuse, including aquifer recharge, agricultural and commercial uses. The action plan will also prepare the necessary technical, social, environmental and financial documents, such as the relevant environmental impact assessment, stakeholder awareness and tariff setting mechanisms related to wastewater.

Key issues to be assessed during project preparation will focus on (i) groundwater abstraction levels; (ii) water quality; and (iii) BWA operating procedures.

INSTITUTIONAL AND REGULATORY CONTEXT

Barbados does not have legislation specific to environmental protection as exists in other countries of the region. Environmental protection in Barbados is covered within the Town and Country Planning Act 1985 (TCPA), and the Coastal Zone Management Act 1998 (CZM). With respect to the protection of water resources, this is implicit within the core duties of the BWA under the Barbados Water Authority Act. The Environmental Protection Department (EPD) has informed that an Environmental Management Act is in draft.

Part IV of the TCPA, Planning Control, stipulates the requirement for planning permission for any development, i.e. “building, engineering, mining, or other operation” in Barbados. Except for development in the coastal zone management area, planning permission may be granted through a development order for an area of the country for development specified in the order or provide for the grant of planning permission subject to submission of application to the Chief Town Planner. Planning permission by a development order may be granted unconditionally or subject to specified conditions and limitations. Section 17 of the TCPA stipulates that application for planning permission “shall include such drawings and other particulars as may be prescribed; and in particular if requested by the Chief Town Planner, may be accompanied by an assessment of the impact that the development in respect of which planning permission is being applied for is likely to have on the environment of Barbados.” According to the TCPA,

the requirement for such assessment is mandatory where part or all of the development or use of land is proposed to occur in the coastal zone management area.

The CZM is an Act to provide for the more for the effective management of the coastal resources of Barbados, for the conservation and enhancement of those resources and related matters. It stipulates the requirement for a coastal zone management plan comprising policies, strategies and standards that provide for management and conservation of coastal resources, including: policies, strategies and standards for the development and maintenance of structures in the coastal zone management area; standards for EIA for development which may affect the conservation and management of coastal resources; standards for water quality in coastal and marine areas to effect the maintenance, rehabilitation and enhancement of coastal and marine habitats.

According to the TCPA the carrying out by statutory undertakers of any works for the purpose of inspecting, repairing or renewing any sewers, mains, pipes, cables or other apparatus, including breaking open of any road or other land for that purpose do not constitute development. These activities, therefore, are not regulated by planning permission. The BWA Act confers wide ranging functions to the BWA including: (i) maintaining records of the total water resources of Barbados, management and allocation of its water resources; (ii) development of water resources and for water supply and sewerage services; (iii) keeping under review the quality, reliability and availability of water supply and sewerage services and the rates to be charged for these services, among others. By Part IV of the BWA ACT, Water and Sewerage Works, the BWA is authorized to enter upon premises for the purpose of laying pipes or for using the water of any stream, spring or pond thereon; to divert or impound the water from any stream, spring or pond; to open and break up the surface soil of any road; etc. The BWA Board, with the approval of the Minister, also has powers to make regulations governing water and sewerage services; standards of quality for potable and other water supplies, sewage and industrial waste effluents, receiving streams and water courses, among others. The provisions of the Underground Water Control Act relating to the control of underground waters, apply, *mutatis mutandis*, to the control of surface waters and are therefore under the control of the BWA.

The BWA Act stipulates that the BWA is liable to make compensation to the owner or occupier of premises or road authority for the use of the water of any stream, spring or pond or for any damage occasioned in the performance of the BWA's function. The BWA is also obliged to give notice in writing to the owner or occupier of premises or road authority of its intention to do so no later than 7 days before the work commences. Furthermore, premises or roads disturbed by the BWA in the performance of its functions shall be restored to their original condition without unnecessary delay. The BWA Act specifies that the BWA must fence that portion of any road that is broken up and shall provide adequate warning devices of the fact of disrepair.

The Project aims to modernize the institutional arrangement of the BWA and to begin to address the high UFW by preparing a mains replacement program and to implement the first phase of this program. In modernizing the BWA and improving the efficiency of the operations of this utility, the retrenchment of staff is likely and this will have to be properly managed. The BWA confirmed that they do not have standard operating procedures to undertake works for the purpose of inspecting, repairing or renewing any sewers, mains, pipes, including breaking open of any road or other land for that purpose.

The Government of Barbados is establishing a new system of disaster management for Barbados. The National Disaster / Emergency Management System will ensure that disaster management policies and strategies become an essential part of the national development and planning

process. It will provide for suitable infrastructure and governmental authority to embrace the key elements of mitigation and prevention, preparedness, response, recovery, rehabilitation and reconstruction, along with specified role of all governmental agencies as required. The status of this new arrangement and the role of the BWA in disaster management will be ascertained.

IMPACT RISKS AND COTNTROL MEASURES

By improving water supply and sanitation this operation will contribute to the health and well being of Barbados' population, preventing illnesses due to waterborne diseases and improving overall environmental conditions. The Program is not expected to have any major large scale, significant and/or irreversible negative environmental or social impacts. Expected negative impacts are mainly related to water infrastructure construction works and operations, including construction noise, dust, waste generation, traffic inferences and occupational risks. These impacts are likely to be local, short term for which effective mitigation measures will be designed. Positive impacts will be fostered by modernizing the BWA and improving efficiency of the operations of this utility.

The impacts of the project will be localized in areas where the mains are being replaced and will cause traffic disruption and may also have impact on businesses within the work area and a set of standard operating and compensation procedures will be developed.

The Project has been classified as Category "B". The Safeguard Policy Directives: OP-704 A-2 and OP-703 B.04, B.05, B.06, B.11 and B.12. have been triggered. OP-704 A-2 pertains to natural hazards as Barbados is within the Atlantic hurricane belt and is exposed to storm events. OP-703 relates to weak institutional capacity of the Executing Agency to manage environmental and social issues; the need for an Environmental Analysis, public consultations, and the potential to cause air pollution.

ENVIRONMENTAL STRATEGY FOR DUE DILLIGNECE

The institutional arrangement for environmental management in Barbados pertains to planning permission issued by the Chief Town Planner under the TCPA, which, as explained above, does not apply to the BWA. There is also the EPD which has the general mandate to monitor and control conditions likely to affect the quality of land, air and water, and the general health and environmental well-being of persons living in Barbados. However, the EPD's responsibility to review, and approve or refuse applications for private sewage disposal works needed for new development that require a planning permit is related to the TCPA. Hence, the BWA, given its broad mandate for water supply and wastewater treatment services as well as water resources management would be the agency responsible to ensure adequate environmental management of its operations.

In accordance with the Category "B" classification, the Environmental and Social Strategy (ESS) requires the preparation of an Environmental and Social Analysis (ESA) including an Environmental and Social Management Plan (ESMP) for Component I – "Reorganization and Modernization of the BWA" and Component II - "Rehabilitation of potable water supply". Environmental and social procedures will be included in the Operational Manual. The ESA / ESMP will be prepared to terms of references (TORs) agreed with the Bank, which will include the requirement for public consultation. The ESA / ESMP will be disclosed prior to the Analysis Mission.

The ESA / ESMP will (i) identify possible environmental and social impacts including groundwater abstraction and quality; (ii) define mitigation measures (e.g. environmental and social specification which will be included in the bidding documents for contractors) and the implementation arrangements; (iii) assess the capacity of the executing unit and key stakeholders; (iv) assess the disaster risk vulnerability and (v) define monitoring and evaluation arrangement, budget, and capacity building and training activities, and (vi) define the criteria and procedures for compensation. Environmental and social procedures for all activities will be included in the Operational Manual including standard operating procedures to undertake works for the purpose of inspecting, repairing or renewing any sewers, mains, pipes, including breaking open of any road as well as recommendations for separation of water resources management from the BWA.

The action plan for Component III “Waste water treatment action plan” will be carried out during Project implementation. Studies will include the preparation of an EIA. Approval by the Bank and GOB and disclosure of the EIA will be a condition for any start of construction activities.

Based on the ESA / ESMP the team will prepare an Environmental and Social Management Report (ESMR) to summarize the findings of the ESA / ESMP and assess compliance with the IADB’s Safeguard requirements and national policies and legislation

INDEX for completed and proposed sector work BA-L1015

Issues	Description	Expected Dates	References & hyper links to Technical files
Country level sector study	Preparation of Barbados Water and Sanitation Strategic Sector Plan	April 30, 2009	
Technical options and design	Feasibility study completed, design studies to be prepared as a first stage in the implementation of the operation	September 2009	
Analysis of project cost and economic viability	Initial evaluation to be reviewed and updated	June 2009 August 2009	
Financial management/fiduciary issues and control environment	Preparation/conclusion of financial analysis and EIA Review of lessons learned will be included in the Program	August 2009	
Institutional analysis/personnel, procedures other aspects of implementation capacity	Preparation/conclusion of institutional analysis Review of lessons learned will be included in the Program	August 2009	
Stakeholders and political environment	Maintain close communication with stakeholders in the BWA and the Government on the program Consultation meetings will be held	August 2009	
Social and environmental safeguards	Preparation/conclusion of EIA Review of aspects specific to the operation, additional baseline evaluation, budget	September 2009	
Other key issues, such as donors, gender, sustainability, country/sector issues			