

## TRINIDAD AND TOBAGO

### Project Profile

#### I. BASIC DATA

<b>Project name:</b>	Wastewater Rehabilitation Program - Phase I
<b>Project number:</b>	TT-L1026
<b>Project Team:</b>	Evan Cayetano (WSA/CJA), Project Team Leader; Rodrigo Riquelme, Lucio Garcia, Efrain Rueda, and Irene Cartin (INE/WSA); Marcello Basani (WAS/CGY); Dale James (CCB/CTT); Denise Salabie (PDP/CTT); Shirley Gayle (PDP/CTT); Guillermo Eschoyez (LEG/SGO); Natasha Ward, Stefanie Brackmann (VPS/ESG).
<b>Borrower:</b>	Republic of Trinidad & Tobago
<b>Executing Agency:</b>	Water and Sewerage Authority (WASA)
<b>Financing Plan:</b>	IDB (OC): up to US\$200 million <sup>1</sup> Total: up to US\$200 million
<b>Safeguards</b>	Policies triggered: OP-703, OP-102, OP-704 Classification: Category: B

#### II. GENERAL JUSTIFICATION

- 2.1 Trinidad and Tobago (T&T) has achieved almost universal coverage of potable water. According to the 2010 UNICEF/WHO Joint Monitoring Program, 94% of the population uses an improved drinking water source (98% in urban areas and 93% in rural areas). This report also indicated that 92% of the population uses improved sanitation facilities referring to flush toilets. Despite these improvements, the wastewater and water services face institutional, operational, maintenance and financial challenges.
- 2.2 According to the Water and Sewerage Authority (WASA), a statutory authority created under the Water and Sewerage Authority Act 1965, fully owned by the GORTT, and responsible for the provision of water and wastewater services in T&T, only 30% of the population is connected to a wastewater collection system (20% serviced by WASA and 10% by private entities). The remainder of the population has on-site sanitation solutions serviced by septic tanks and pit latrines. WASA informs that much of the wastewater collected is inadequately treated due to aged and underperforming treatment plants. Exacerbating the problem is a large number of plants that have been abandoned by private sector developers and are non-functional but still have flows from housing schemes directed to them. Below-quality-standard effluents from malfunctioning facilities are often discharged into water courses or upstream of water intakes, posing health and environmental risks and increasing the costs of potable water treatment.
- 2.3 In addition to the foregoing, the water and sewerage sector in T&T, and more specifically WASA itself faces several operational, financial and institutional challenges and difficulties regarding, among others: (i) covering its operational costs through tariffs (WASA's operating revenue is nowadays about a third of its OPEX, and the deficit is

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<sup>1</sup> This amount will finance the first phase of the program. The estimated costs for phases II and III are US\$160 and US\$240 million, respectively (these amounts may be subject to change, as agreed by the Bank and the GOTT in the context of the Bank's annual programming exercise). The estimated total cost of the program (three phases) is US\$600 million.

being covered by the GORTT in the form of subsidies); (ii) increasing metering levels (less than 4% of the customer's water consumption is metered), and (iii) improving other operational inefficiencies, such a high number of employees per 1000 connections (circa 15x) ([See Financial Annex](#)). Specifically with regards to its wastewater treatment services, T&T and WASA are experiencing among others: (i) limited expansion of the central sewers; (ii) tariffs below the cost of providing sewerage services; (iii) limited financial and technical/skilled level of human resources; (iv) poor infrastructure designs and aged systems; and (v) poor maintenance of the existing infrastructure.

- 2.4 In order to address the above-mentioned difficulties, WASA and the GORTT have submitted to the Bank their Wastewater Development Strategies 2012 - 2022, which provide the grounds for the instant program. WASA is also working with the Regulated Industries Commission (RIC) to increase water tariff levels in the coming years so as to allow WASA to cover its operational costs. On its side, WASA is actively working to address its institutional problems and its operational and maintenance issues. Consistent with this effort, WASA and the GORTT expressed to the Bank their interest in undertaking a long-term program aimed at pursuing the improvement and expansion of the existing wastewater management services and facilities, as well as the institutional and operational reforms that WASA needs to tackle in order to strengthen and improve the efficiency and cost-effectiveness of its services.
- 2.5 **Institutional Arrangement.** WASA is under the policy direction of the Ministry of Public Utilities. As a state-owned entity, WASA is subject to regulation by a number of agencies including the Regulated Industries Commission (RIC), the Environmental Management Authority (EMA), and the Occupational Safety and Health Administration (OSH). Other GORTT agencies that have roles in the water sector include the Tobago House of Assembly, the Water Resources Agency (appended to WASA), the Forestry Division of the Ministry of Agriculture, Land and Marine Resources and the Ministry of Health.
- 2.6 **IDB Assistance.** In the past, the Bank's support in the sector in T&T was limited to studies. A Technical Cooperation (TC) was approved in 1999 to develop a plan for wastewater sector development. In 2008, under the Water and Sanitation Initiative (GN-2446-2), the Bank financed another plan to review the strategic vision of the water sector. In December 2009, a TC "Preparation of Wastewater Rehabilitation Program" (ATN/OC-11932-TT) was approved. Implementation began in 2011 with the objective of: (i) preparing an action plan to rehabilitate the malfunctioning or abandoned wastewater facilities, including the final designs for selected interventions; and (ii) providing recommendations for the improvement of the institutional arrangement for the wastewater sector. The outputs of the TC served as base for the preparation of the US\$50 million Wastewater Infrastructure Improvement Program (TT-L1018/Loan 2600/OC-TT), which was approved in 2011 with the objective of supporting the takeover, refurbishment, upgrade, integration or decommissioning of malfunctioning wastewater treatment facilities; the rationalization of WASA's personnel; and the improvement of WASA's wastewater management operational and maintenance performance.
- 2.7 **Link to Country Strategy.** The proposed operation is aligned with the 2011-2015 Bank Country Strategy (CS) with T&T, where wastewater is cited as priority sector. The program will contribute directly to attaining the CS indicators related to the

increase in the volume of wastewater treated, and to the increase in the number of households covered by centralized wastewater treatment systems. The operation is directly aligned to assist T&T prepare for a post-oil economy. The program is consistent with the Bank's Water and Sanitation Initiative as it contributes to the goals set under its "100 Cities" "Water Defenders", and "Efficient and Transparent Utilities." Through the implementation of activities oriented towards a better management of WWTP infrastructure and of water as a natural resource, the proposed program will contribute directly to the Report on the Ninth General Increase in the Resources of the IDB (GCI-9) lending target for the 2012-2015 period "Lending to support climate change initiatives, sustainable energy and environmental sustainability." The program also contributes to the lending target "Support development to small and vulnerable countries." Lastly, it is aligned with the second GCI-9 sector priority for 2012-2015 "Infrastructure for competitiveness and social welfare."

### **III. PROJECT DESIGN, OBJECTIVE, EXECUTION AND SECTOR KNOWLEDGE**

- 3.1 This program is being designed as a Multi-Phase Program (MPL) in order to provide long term support, (financial, institutional and technical) to the wastewater sector in Trinidad and Tobago over an estimated period of eight (8) years. The entire program will be financed and implemented in three phases, each with its corresponding loan contract, so as to allow WASA to adjust to a change from operating many small and medium size wastewater treatment plants to operating a smaller number of significantly larger plants; the specific sector and institutional adjustments that would be required to assure sustainability of the change will also be addressed as part of the program.
- 3.2 The first phase will take approximately three (3) years, while the second and third phases are estimated at two (2) and three (3) years, respectively. The program will build on WASA's ongoing efforts to reform and improve its operational efficiency, deepen the institutional strengthening activities comprised in Loan No. 2600/OC-TT, and address key wastewater infrastructure needs. On the institutional strengthening front, the program will assist WASA to update its policy framework for improvements in corporate governance and management of operations consistent with a modern utility, as well as to improve the technical capacity of its personnel for proper management and operation of the new plants. During phase I, the program will finance the infrastructure works, specifically the construction of wastewater treatment plants, and the initiation of the policy and institutional adjustments and training of WASA's personnel
- 3.3 The design of the proposed operation as a MPL is based upon the following reasons: (i) the need of implementing long term institutional and policy reforms at WASA; (ii) the need for different construction works, which by the nature of its complexity would take more than one project cycle to complete; and (iii) the crucial fact that the economic benefits of the infrastructure works (for which final designs have been prepared and the Bank is studying) will only and solely be achieved after the conclusion of the last phase of the program. The phases of the program are sequential and the commencements of the second and third phases are dependent on the completion of the respective preceding phase. Specific triggers will be developed to indicate the completion of one phase and moving to the next. The strengthening of WASA and the construction of wastewater treatment plants proposed for the first phase will be followed and complemented by the construction of sewerage network during a second phase, and finally by the provision of connections to the network during the third phase.

- 3.4 **Objectives:** The general objective of the operation is to continue with the GORTT's effort to improve the environmental conditions of T&T by decreasing the uncontrolled discharge of untreated wastewater into the environment. The specific objectives of the Phase I are: (i) the strengthening of WASA, through the implementation of institutional and policy reforms, which will enable WASA to provide efficient and cost-effective services; and (ii) the improvement of the existing wastewater management services in San Fernando and Malabar catchment. The program is comprised of the following phases.
- 3.5 **Phase 1 (up to US\$200M).** This phase will finance activities related to the initiation of policy and institutional reforms at WASA, which will be aimed at setting the reform agenda for WASA, advance the economic regulation of the water sector, institutional restructuring and capacity building, and the construction of two wastewater treatment plants and collection systems for the San Fernando catchment and the Malabar catchment areas. The first phase will have two components: (i) Component 1: Policy and Institutional Reforms: this component will finance technical assistance to update WASA policy framework, institutional reform and training. This phase will augment WASA's institutional restructuring and training requirements; and (ii) Component 2 : Construction of San Fernando and Malabar Wastewater Treatment Plants: will finance infrastructure works for the construction of these WWTPs together with trunk sewers and collection systems from existing connections.
- 3.6 **Phase 2 (US\$160M).** This will involve the takeover, refurbishment, upgrade, and/or decommissioning of malfunctioning wastewater treatment facilities in the respective catchment area and their eventual integration into the newly constructed plants. This phase will finance the continuation of necessary institutional strengthening activities and the construction of the sewerage network for connection to the WWTP constructed in Phase 1.
- 3.7 **Phase 3 (US\$240M).** This phase will finance the expansion of the wastewater collection system to cover the population in the catchment areas that are currently on septic tanks and other individual sanitation solutions. This will include financing the connections of individual households in the catchment areas to facilities refurbished/ upgraded in Phase 2.
- A. Execution and complementary activities required**
- 3.8 The Republic of Trinidad and Tobago will be the Borrower and WASA will be the Executing Agency for the project. A specific Project Executing Unit (PEU) will be required headed by a Project Manager. Parallel to the preparation of the project, the team is preparing a technical cooperation (TC) for the institutional strengthening of the WASA. The output from the TC will complement the project components prior to their execution.
- B. Lessons Learned and Sector Knowledge**
- 3.9 Lessons Learned. Past projects indicate that in order to ensure successful project implementation, the following conditions must apply: (i) the beneficiary's willingness to change; (ii) government support for the project and the political will to implement the project as proposed; and (iii) knowledgeable counterparts and a well organized project implementation team.

- 3.10 The IDB has extensive experience in water and sanitation in the Caribbean and has completed 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.

#### **IV. ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS**

- 4.1 In general terms, the construction and operation of the San Fernando, and Malabar wastewater treatment plants will have a positive impact to the rivers and surrounding environment in the respective areas of the projects through the proper collection, treatment and disposal of wastewater, presently discharging into local rivers and watercourses, and will decrease waterborne diseases, safeguard public health and improve the overall quality of life of local residents.
- 4.2 The two projects are not expected to have significant and/or irreversible negative impacts on the social or biophysical environment. Rather, they are expected to have mostly local and short-term impacts typically resulting from construction and operation with large infrastructure works, the most noteworthy of which are expected to be noise and traffic disruption; as such, it is classified as a Category "B" under OP-703. There are also potential risks associated with the capacity of the EA to manage and monitor the construction and operation of the two projects.
- 4.3 The focus of the environmental and social due diligence (ESDD) will be on the potential environmental and social impacts and risks during all phases of the proposed program. The ESDD will especially focus on water and waste pollution control, compliance with effluent standards and noise standards, sludge management and disposal, proper decommissioning of existing WTTs and EA's capacity to identify, mitigate and manage these impacts and risks. As part of the ESDD process, the Bank will prepare an Environmental and Social Management Report (ESMR) presenting the conclusions of the ESDD for consideration by the Bank.

#### **V. OTHER ISSUES AND RISKS**

- 5.1 As with any multi-phase operation, the length of time to complete the full program could potentially lead to changing priorities and policies of the borrower. This risk would be mitigated by vigilance, ownership building, monitoring of performance, and the maintenance of clear objectives and sector strategy. This is critical as the ultimate benefit of the Program comes from the implementation of Phase 3. The need for improved capacity at WASA to manage the implementation of this operation including the environmental monitoring will be addressed in Component 1 of Phase 1.

#### **VI. RESOURCES AND TIMETABLE**

- 6.1 Annex V details the project preparation steps, milestone dates and estimated resources for project preparation. Expected date for approval of the Draft Loan Proposal is July 26, 2012, and expected Board approval is September 5, 2012. The administrative budget for the preparation of the project provides for a total of three missions for an amount of US\$101,800 including consultant services for review and validation of engineering designs, and economic survey.

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**SAFEGUARD POLICY FILTER REPORT**

<b>PROJECT DETAILS</b>	<b>IDB Sector</b>	WATER AND SANITATION-SEWERAGE	
	<b>Type of Operation</b>	Investment Loan	
	<b>Additional Operation Details</b>		
	<b>Investment Checklist</b>	Infrastructure Water and Sanitation	
	<b>Team Leader</b>	Cayetano, Evan Stephen (EVANC@iadb.org)	
	<b>Project Title</b>	Wastewater Rehabilitation Program	
	<b>Project Number</b>	TT-L1026	
	<b>Safeguard Screening Assessor(s)</b>	Ward, Natasha Kate (NATASHAW@iadb.org)	
	<b>Assessment Date</b>	2012-02-16	
	<b>Additional Comments</b>		
<b>SAFEGUARD POLICY FILTER RESULTS</b>	<b>Type of Operation</b>	Loan Operation	
	<b>Safeguard Policy Items Identified (Yes)</b>	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).	(B.01) Disaster Risk Management Policy– OP-704
		The Bank will make available to the public the relevant Project documents.	(B.01) Access to Information Policy– OP-102
		The operation is in compliance with environmental, specific women’s rights, gender, and indigenous laws and regulations of the country where the operation is being implemented (including national obligations established under ratified Multilateral Environmental Agreements).	(B.02)
		The operation (including associated facilities) is screened and classified according to their potential environmental impacts.	(B.03)
		The Borrower/Executing Agency exhibits weak institutional capacity for managing environmental and social issues.	(B.04)
		An Environmental Assessment is required.	(B.05)
		Consultations with affected parties will be performed equitably and inclusively with the views of all stakeholders taken into account, including in particular: (a) equal participation of women and men, (b) socio-culturally appropriate participation of indigenous peoples and (c) mechanisms for equitable participation by vulnerable groups.	(B.06)
		The Bank will monitor the executing agency/borrower’s compliance with all safeguard requirements stipulated in the loan	(B.07)

		agreement and project operating or credit regulations.	
		The operation has the potential to impact the environment and human health and safety from the production, procurement, use, and disposal of hazardous material, including organic and inorganic toxic substances, pesticides and Persistent Organic Pollutants (POPs).	(B.10)
		The operation has the potential to pollute the environment (e.g. air, soil, water, greenhouse gases...).	(B.11)
		Suitable safeguard provisions for procurement of goods and services in Bank financed projects may be incorporated into project-specific loan agreements, operating regulations and bidding documents, as appropriate, to ensure environmentally responsible procurement.	(B.17)
	<b>Potential Safeguard Policy Items(?)</b>	Potential disruption to people’s livelihoods living in the project's area of influence (not limited to involuntary displacement, also see Resettlement Policy.)	(B.01) Resettlement Policy– OP-710
		Potential to negatively affect women or gender equality ( <a href="#">See Gender Equality Policy</a> )	(B.01) Gender Equality Policy– OP-270
		Conversion of Natural Habitats in project area of influence (please refer to the <a href="#">Integrated Biodiversity Assessment Tool</a> for more information).	(B.09)
	<b>Recommended Action:</b>	Operation has triggered 1 or more Policy Directives; please refer to appropriate Directive(s). Complete Project Classification Tool. Submit Safeguard Policy Filter Report, PP (or equivalent) and Safeguard Screening Form to ESR. The project triggered the Disaster Risk Management policy (OP-704). A more limited and specific Disaster Risk Assessment (DRA) may be required (see Directive A-2 of the DRM Policy OP-704). Please contact a Natural Disaster Specialist in VPS/ESG or INE/RND for guidance.	
	<b>Additional Comments:</b>		
<b>ASSESSOR DETAILS</b>	<b>Name of person who completed screening:</b>	Ward, Natasha Kate (NATASHAW@iadb.org)	
	<b>Title:</b>		
	<b>Date:</b>	2012-02-16	

**SAFEGUARD SCREENING FORM**

<b>PROJECT DETAILS</b>	<b>IDB Sector</b>	WATER AND SANITATION-SEWERAGE		
	<b>Type of Operation</b>	Investment Loan		
	<b>Additional Operation Details</b>			
	<b>Country</b>	TRINIDAD AND TOBAGO		
	<b>Project Status</b>			
	<b>Investment Checklist</b>	Infrastructure Water and Sanitation		
	<b>Team Leader</b>	Cayetano, Evan Stephen (EVANC@iadb.org)		
	<b>Project Title</b>	Wastewater Rehabilitation Program		
	<b>Project Number</b>	TT-L1026		
	<b>Safeguard Screening Assessor(s)</b>	Ward, Natasha Kate (NATASHAW@iadb.org)		
	<b>Assessment Date</b>	2012-02-16		
	<b>Additional Comments</b>			
<b>PROJECT CLASSIFICATION SUMMARY</b>	<b>Project Category:</b> B	<b>Override Rating:</b>	<b>Override Justification:</b>	
	<b>Conditions/ Recommendations</b>		<b>Comments:</b>	
		<input type="checkbox"/> Category "B" operations require an environmental analysis (see Environment Policy Guideline: Directive B.5 for Environmental Analysis requirements). <input type="checkbox"/> The Project Team must send to ESR the PP (or equivalent) containing the Environmental and Social Strategy (the requirements for an ESS are described in the Environment Policy Guideline: Directive B.3) as well as the Safeguard Policy Filter and Safeguard Screening Form Reports. <input type="checkbox"/> 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). 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.		
<b>DISASTER SUMMARY</b>	<b>Details</b>		<b>Actions</b>	
	<p>The Project should include the necessary measures to reduce disaster risk to acceptable levels as determined by the Bank on the basis of generally accepted standards and practices. Alternative prevention and mitigation measures that decrease vulnerability must be analyzed and included in project design and implementation as applicable. These measures should include safety and contingency planning to protect human health and economic assets. Expert opinion and adherence to international standards should be sought, where reasonably necessary.</p>		<p>A more limited and specific Disaster Risk Assessment (DRA) may be required (see Directive A-2 of the DRM Policy OP-704). Please contact a Natural Disaster Specialist in VPS/ESG or INE/RND for guidance.</p>	
<b>ASSESSOR DETAILS</b>	<b>Name of person who completed screening:</b>	Ward, Natasha Kate (NATASHAW@iadb.org)		
	<b>Title:</b>			
	<b>Date:</b>	2012-02-16		

**ENVIRONMENTAL AND SOCIAL STRATEGY (ESS)**  
28th March, 2012

**I. SUMMARY**

<b>Project Name:</b>	Wastewater Rehabilitation Program
<b>Project Number:</b>	TT-L1026
<b>Country</b>	Trinidad and Tobago
<b>Project Team:</b>	Evan Cayetano (WSA/CTT), Project Team Leader; Marcello Basani (WSA/CGY); Rodrigo Riquelme, Lucio Javier Garcia Merino, Efrain Rueda (INE/WSA); Dale James (CCB/CTT), Denise Salabie, Shireley Gayle (PDP/CTT); Stefanie Brackmann and Natasha Ward (VPS/ESG).
<b>Borrower:</b>	Government of the Republic of Trinidad and Tobago (GORTT)
<b>Executing Agency:</b>	Water and Sewerage Authority (WASA)
<b>Financing Plan:</b>	IDB: US\$600 million Local: 0 Total: US\$600 million
<b>Safeguard Policies:</b>	OP-703 (B.4, B.5, B.7, B.9, B.11), OP-102, OP-704
<b>Environmental Category:</b>	B

**II. PROJECT DESCRIPTION**

- 2.1 The general objective of the Wastewater Rehabilitation Program is to continue with the effort to improve the environmental conditions of Trinidad and Tobago (T&T) by decreasing the uncontrolled discharge of untreated wastewater into the environment. The specific objective is to improve the existing wastewater management services in San Fernando and Malabar catchment areas, through: (i) the construction of wastewater treatment plants (WWTPs) and installation of trunk sewers for each facility; (ii) the takeover, refurbishment, upgrade and eventual integration, or decommissioning, of malfunctioning wastewater treatment facilities in the respective catchment areas; (iii) expansion of the wastewater collection system; and (iv) the strengthening of WASA operational and maintenance performance. The project is comprised of the following activities:
- 2.2 Construction of two wastewater treatment plants and collection system for the San Fernando catchment and the Malabar catchment areas. Financing will also be available for take-over by WASA of the orphaned plants with the catchment and integration into the new WWTP.
- 2.3 **San Fernando.** The project involves the establishment of a new WWTP, centrally located at the existing San Fernando WWTP site, the integration of existing sewers into a centralized collection system and the provision of new sewers to service all un-sewered properties within the wastewater catchment area. The new WWTP is to replace all nine currently existing plants within the project boundaries.
- 2.4 **Malabar.** The project proposes the decommissioning of the existing Arima WWTP and the construction of a new conventional activated sludge plant in Malabar, south of the existing Malabar WWTP. The new plant will consist of two modules to treat flow from all existing WWTPs as well as the currently unsewered portions of the catchment.

Treated effluent from the plant will be discharged into a creek, which drains into the Mausica, then Caroni Rivers.

- 2.5 The project will also finance capacity building activities required for WASA to be able to manage the implementation of this operation.
- 2.6 In October 2011 the Bank approved a loan for US\$50 million for the Wastewater Infrastructure Improvement Program<sup>1</sup>. WASA is the executing agency for this operation and is working on compliance with conditions precedent to disbursement.

### III. INSTITUTIONAL AND REGULATORY CONTEXT

#### A. Compliance with National Environmental Assessment and Permitting Requirements

- 3.1 The T&T Environmental Management Authority (EMA) is mandated to write and enforce laws and regulations for environmental management. Government policy is that any activity likely to have significant effects on the environment, including water and sewerage systems, is to be made subject to an environmental impact assessment before consent is given<sup>2</sup>.
- 3.2 The EMA has produced in 2006 Water Pollution Rules<sup>3</sup> which set standards for discharge of effluent from industrial processes and domestic WWTPs. However, throughout Trinidad and Tobago, a large number of plants are currently discharging water pollutants that do not comply with these Standards. The Cartagena Protocol entered into force in 2003 and GORTT has ratified the Protocol Concerning Pollution From Land-Based Sources (LBS) Protocol.
- 3.3 **San Fernando EIA:** An application for a Certificate of Environmental Clearance (CEC) for the San Fernando and Environs wastewater collection system and treatment plant was submitted to the EMA in August 2006. The EMA determined that an EIA was required. This was completed in May 2010. The EIA found that there are no significant long term negative impacts to the social or biophysical environment, only short-term impacts during construction, the most significant of which are expected to be noise and traffic disruption. The EIA also concluded that the proposed project will have a positive impact to the rivers and surrounding environment in San Fernando through the proper collection, treatment and disposal of wastewater that is presently discharging into rivers and watercourse. The project will decrease waterborne diseases, safeguard public health and improve the overall quality of life of the residents. The EIA includes analysis of alternatives and a summary of the potential cumulative impacts. The EIA underwent consultation during 2009 and 2010, which included meetings with relevant agencies, a key stakeholders meeting and 2 public consultation meetings. The CEC was granted on 12<sup>th</sup> January 2011. The EIA reported the presence of sensitive habitats in the Project area but it was not clear if the Project would in fact affect these areas, and as such this will be discussed with WASA, with a view to ensuring that analysis of the impacts and risks is undertaken, and that mitigation measures, commensurate with the identified impacts and risks, are appropriately designed and implemented.

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<sup>1</sup> TT-L1018/ Loan 2600/OC-TT.

<sup>2</sup> National Environmental Policy (2005), edited September 2009 by the EMA.

<sup>3</sup> Amendment of the Water Pollution Rules from 2001.

3.4 **Malabar EIA.** An application for a CEC for the Regional WWTPs at Maloney and Malabar was submitted to the EMA in accordance with CEC Rules, who determined the need for an EIA. This was submitted/completed in June 2009. The EIA found that the impacts associated with the Project were principally: traffic congestion during construction, temporary disruption to sewage disposal and an increase in air pollutants and noise levels. These were not found to be significant, and proposed mitigation measures (e.g., traffic management, measures to reduce dust and noise levels), when implemented, will reduce residual impacts to minor or beneficial during the construction and operational phases. The EIA found the following beneficial aspects of the proposed project: increased sewerage disposal efficiency, improvement in river water quality; minor employment opportunities; decrease in human health and environmental concerns regarding untreated wastewater. The EIA includes analysis of alternatives. A cumulative impact study was stated as not pertinent to the project in the EIA. The EIA underwent consultation during 2008, which included two public consultation meetings in each of Maloney and Malabar. The CEC was granted on 5<sup>th</sup> August, 2010. The scope of the EIA did not extend beyond the immediate outfall location for the WWTP, and therefore lacks sufficient analysis on the downstream impacts, and as such this will be discussed with WASA, with a view to ensuring that analysis of the impacts and risks is undertaken, and that mitigation measures, commensurate with the identified impacts and risks, are appropriately designed and implemented.

**B. Compliance with IDB Environmental and Social Safeguard Requirements**

- 3.5 Key policies and directives triggered in this project include B.4 (Other Risks), due to the limited capacity of the EA; B.5 (Environmental Assessment); B.6 (Consultation), B.7 (Supervision and Compliance), B.9 (Natural Habitats and Cultural Sites), and B.11 (Pollution prevention and abatement) of the Environment and Safeguards Compliance Policy (OP-703), Disclosure of Information Policy (OP-102); and the Disaster Risk Management Policy (OP-704).
- 3.6 It is not likely that Involuntary Resettlement Policy (OP-710) applies, however this, will be assessed during the due diligence process, particularly with respect to any new, or recent, land acquisition that is required for either project. Additionally, the due diligence will affirm whether the Gender Equality in Development Policy (OP-270) is triggered.
- 3.7 The potential negative impacts of the program are expected to be localized and in areas that have for the main part, previously been developed, and as such it is classified as a Category “B” under OP-703 (see section V). Potential impacts and risk will be managed through the implementation of mitigation measures specifically designed for the Project’s construction and operation. The Project is initially being considered as high risk due to the potential limited capacity and pending restructuring of the environmental function of WASA to be able to adequately manage and monitor (particularly the water quality) the Projects.
- 3.8 In accordance with Directive B.5 (Environmental Assessment) of the Environment and Safeguards Compliance Policy and the Disclosure of Information Policy (OP-102) the Environmental Impact Assessments for both operations will be disclosed in the T&T country office and on the IDBs website.

#### **IV. ENVIRONMENTAL AND SOCIAL SETTING**

- 4.1 Wastewater infrastructure only covers approximately 30% of T&T's population, with the remaining 70% being serviced by septic tanks and pit latrines. Overall, the wastewater sector faces following challenges: (i) limited expansion of the central sewers; (ii) limited financial and human resources; (iii) poor designs; and (iii) poor maintenance. As a consequence, the sewerage system is currently in a state of emergency and in urgent need for rehabilitation.
- 4.2 Over the last five decades, population growth and housing developments have not been matched with adequate expansion of the central sewerage systems. As a result, the GORTT required residential and industrial land developments to build and operate their own sewers and small packaged WWTPs, many of which are not properly operated or maintained, or have been abandoned (about 200). However, to date many of these malfunctioning facilities have not been adequately decommissioned closed or rehabilitated and connected to a central wastewater management system. In 2004, WASA received the mandate to assume responsibility for all sewerage treatment plants and associated lift stations owned by the Ministry of Housing, its agencies, and the Urban Development Company of Trinidad and Tobago Limited.
- 4.3 Untreated or below-quality-standard effluents from existing facilities are often discharged into nearby water courses or upstream of water intakes, posing serious public health and environmental risks and increasing the treatment costs to produce potable water. Additionally, the continued disposal of untreated sewage into rivers, underground waterways and coastal waters impacts the quality of aquatic life, posing environmental and ecological threats, as well as an economical threat to the tourism sector.

##### **A. San Fernando Environmental and Social Setting**

- 4.4 The proposed Project site is located in the South of Trinidad in San Fernando, in the county of Victoria. The San Fernando catchment covers an area of 42 km<sup>2</sup>. All wastewater will be conveyed to the new San Fernando WWTP located at the end of Riverside Drive, Gulf View, at the site of the existing San Fernando WWTP.
- 4.5 The biophysical environment where the San Fernando Project is located is largely influenced by anthropogenic activities including agriculture, industry and commercial development. Few natural areas remain within the project boundaries. The remaining areas are categorized as low vegetation with scrub, agricultural and forested areas.
- 4.6 Water quality testing was carried out on the Ciperó, Guaracara, Marabella, Vistabella Rivers and Alley's Creek to assess the effects of the existing situation on the receiving rivers and streams in the San Fernando Catchment. The results of the water quality testing program indicated high levels of fecal coliforms in the rivers, indicative of significant raw sewerage discharges.
- 4.7 Flora and fauna studies were conducted and a land use map was developed, as part of the EIA. The main part of the project area is currently developed by human activities (commercial and residential low density buildings, and for agricultural). A small percentage of the project area is composed of mangrove forest, Riparian Forest and National Parks, and there is the potential that some vulnerable and rare species can visit

the project area. A fish survey in the rivers and in the coastal waters surrounding the San Fernando wastewater catchment area found relatively low diversity in fish species compared to other rivers in Trinidad, likely to be the result of the poor water quality among other reasons.

- 4.8 The San Fernando WWTP and Collection System have been designed up to the year 2035; the population is projected to increase to 111,600 by this time. The San Fernando Wastewater Catchment area is occupied predominantly by residential communities that have been developed both by private entities and the government sector. The proposed San Fernando Wastewater Collection System will service all the buildings within the wastewater catchment including future developments.

**B. Malabar Environmental and Social Setting**

- 4.9 The Malabar catchment consists of an area of 2,766 hectares (ha) and is situated north of the Caroni River and south of the Northern Range with the Maloney catchment to the West and the Valencia/Wallerfield catchment to the East. Resident population of Malabar area for 2035 is estimated to be 108,630 inhabitants. At present, approximately 29% of the total population equivalent of the Malabar catchment has access to sewerage facilities and as with the other catchment areas, the majority of the existing sewerage systems are either abandoned or in a dire state of disrepair.
- 4.10 The Malabar plant is approximately 14 kilometers east of the eastern edge of the Caroni Swamp, which is a Ramsar Site, Important Bird Area (IBA), National Park and Wildlife Sanctuary. The plant drains into a small un-named tributary river, which in turn drains into another small river (the Mausica River), which in turn drains into the Caroni River.
- 4.11 The project is located in a largely residential and commercial area. The EIA reports that the area is not the habitat of any endangered or protected species. Topography is gentle to undulating and soils consist of clays and loams. As such soil instability, erosion and drainage do not present as major factors of concern in the project area. An analysis of surface water quality of the Malabar and Maloney catchment areas revealed very high levels of total and fecal coliforms, high Biological Oxygen Demand and high levels of nutrients. Fish species recorded from samples taken from the Caroni tributary system represented only 65% of the potential species known for the Caroni river system, a probable indicator that the health of the river system is compromised. An avifauna study was conducted as part of the EIA and noted a total of 31 avifaunal species were encountered.
- 4.12 The social environment was assessed as part of the EIA through reviews of data, reports in the public domain, Central Statistical Office and primary data collection via household surveys. Over 900 households were interviewed in the conduct of the survey. The investigation revealed that respondents have an overall sense of benefit to be derived from the project, both on a personal and community level including factors such as employment generation, cleaner water courses and the reduction of potential harm to aquatic life. On the negative side some were apprehensive regarding the technology involved in chemical treatment of water and the risk to human health. Of particular interest is the general concern regarding poor road surfaces in the project area since implementation of the project will require severe but temporary disruption of roadways, property access and traffic diversions.

- 4.13 The Malabar Catchment comprises the Borough of Arima and sections of the Regional Corporation of Tunapuna/Piarco. The total area is approximately 2,766 ha and the Malabar facility will be sited on 11.06 ha of land. The Malabar Catchment contains several developments and several industries, and Industrial park and a variety of small to medium sized commercial businesses, which are currently served by the existing Malabar WTP. The catchment area contains institutional facilities such as the University of Trinidad and Tobago, the Arima Regional Hospital and several government schools.

**C. Natural Disasters**

- 4.14 T&T is located within the Atlantic hurricane belt, and as such is subject to tropical storms and hurricanes. The country is also located on the Circum-Caribbean Tectonic Belt, which has produced several earthquakes in magnitudes exceeding 7.0 since 1900; and is subject to floods.

**V. ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS**

- 5.1 In general terms, the San Fernando and Malabar WWTPs will have a positive impact to the rivers and surrounding environment in the respective areas of the projects through the proper collection, treatment and disposal of wastewater, presently discharging into local rivers and watercourses; and will decrease waterborne diseases, safeguard public health and improve the overall quality of life of local residents.

- 5.2 The two projects are not expected to have significant and/or irreversible negative impacts on the social or biophysical environment, rather they are expected to have mostly local and short-term impacts typically resulting from construction and operation with large infrastructure works, the most significant of which are expected to be noise and traffic disruption.

**A. Environmental and Social Impacts during Construction and Decommissioning**

- 5.3 Potential environmental impacts during construction are noise, dust, soil, air and water pollution and inadequate solid waste management. This is also expected to include a moderate disruption of traffic during construction from increased construction vehicles.

- 5.4 There is also the potential for impacts related to the removal and disposal of liquids and sludge presently deposited in existing WTPs. Improper disposal of such liquids, sludge and contaminated soil can result in contamination of surface and underground water. Another water contamination issue relates to silty runoff which may arise from water which is being pumped out of trenches excavated for the installation of sewers and from erosion of cleared areas. Surface and underground water may be contaminated by spills and leaks of hydrocarbons (fuels and lubricants) from construction equipment.

- 5.5 The potential impacts on habitats is not expected to be significant, however will be assessed in more detail during due diligence.

- 5.6 Potential health issues as a result of exposure of workers involved in the removal of sludge and fecal matter from the handling of fecal matter and sludge of older/abandoned WTP facilities. Also, the public may also be exposed if the liquids and sludge are improperly disposed of or if there are spills during transport. Workers and the public may also be exposed to unpleasant odors.

- 5.7 There are also potential social impacts of loss of livelihoods associated with land acquisition for both sites, particularly if such land is currently, or was until recently, used for agricultural purposes by local communities, as well as potential impacts associated with local businesses affected during the construction phases. These will be assessed further during due diligence.

**B. Environmental and Social Impacts during Operations**

- 5.8 Potential environmental and health impacts could be linked to inadequate soil, water and solid waste pollution control and prevention measures, air pollution, noise and odors. These impacts may be more significant in the event that the plants are not well operated and/or maintained, resulting in the release of contaminated waters and/or chemicals affecting surface and underground water resources as well as living organisms that depend on such resources.
- 5.9 Depending on the type of system to be implemented (combined or not), and whether it will treat industrial wastewater, these impacts may be exacerbated. It is unclear at this stage the extent to which the wastewater standards to be applied for this Program (Trinidad and Tobago Specification for the Liquid Effluent from Domestic Wastewater Treatment Plants into the Environment) are sufficient to manage industrial wastewater.
- 5.10 There are potential risks and impacts related to the discharge from both plants into their respective receiving water bodies, and consequent impacts on natural habitats. In particular, the Malabar plant, drains to the Caroni River which is partially connected to the Caroni Swamp National Park, which supports a large concentration of waterbirds and is considered Critical Natural Habitat. This will be assessed further during due diligence.

**C. Environmental and Social Risks**

- 5.11 Risks during construction, operation and decommission could occur from: inadequate health and safety management; inadequate management of hazardous materials and solid waste; accidental spills, degradation of soil, flora and fauna and impacts on water quality due to effluent discharge which do not meet effluent standards.

**D. Other Risks**

- 5.12 There is a risk associated with the capacity of WASA to manage and monitor the construction and operation of the two Projects concurrently, particularly with respect to the implementation of effluent standards and monitoring of water (surface and underground) quality during both construction and operation, which could result in damaging impacts on the natural environment and human health.
- 5.13 Though operating with sufficient technical know-how and a solid internal and external control system (with noted advances made in the EIA review process and health and safety), WASA suffers from many constraints, which include lack of autonomy and insufficient financial resources. A substantial cause of inefficiency is represented by the organizational structure and personnel level, consequence of the politically-driven increase in state companies' employment of the past decade as well as the lack of effective performance-based systems. A restructuring effort is currently underway.
- 5.14 Given T&T's location just to the South of the Atlantic hurricane belt, it is susceptible to tropical storms; however the risk from hurricanes is low. There is also a persistent risk

from seismic activity and it is subject to floods. It is unclear at this stage which standards and building codes are being applied during design and construction to ensure that the projects are designed to withstand potential natural disasters.

## **VI. ENVIRONMENT AND SOCIAL DUE DILIGENCE**

- 6.1 The focus of the environmental and social due diligence (ESDD) will be on the potential environmental and social impacts and risks during all phases of the proposed program. The ESDD will especially focus on water and waste pollution control, compliance with effluent standards and noise standards, sludge management and disposal, proper decommissioning of existing WTPs, and the EA's capacity to identify, mitigate and manage these impacts and risks.
- 6.2 More specifically, the ESDD will look at the following aspects:
- i. Evaluation to confirm that the program has sufficiently defined project design details and environmental and social baseline information to assess potential impacts, risks, and mitigation requirements. This will be done through detailed assessment of the EIAs and corresponding CECs, to confirm that the Program's direct, indirect and cumulative negative environmental and social impacts have been properly identified and evaluated, and that proper mitigation and management measures will be implemented. This assessment will identify any gaps and requirements for further analysis;
  - ii. Determination of wastewater effluent and treatment standards applicable to the program, to ensure that the impacts on surface and ground water is sufficiently mitigated and managed throughout construction and operation. In the case that they do not meet the international standards a justification of the selected standards will be provided;
  - iii. Determination of noise level standards applicable to the program. In the case that they do not meet the international standards a justification of the selected standards will be provided;
  - iv. Determination of the applicable building standards being applied to the program to ensure that the projects are designed to withstand potential natural disasters;
  - v. Assessment of compliance with applicable IDB environmental and social policies, including specifically the Environmental and Safeguard Compliance Policy (specifically B.9 and B.11), Access to Information Policy, Disaster Risk Management Policy; and, if appropriate, the Involuntary Resettlement Policy and Gender Equality in Development Policy.
  - vi. Assessment of the downstream impacts on receiving water bodies and the potential impacts on natural and critical natural habitats.
  - vii. Assessment of compliance status with the applicable environmental, social, health and safety, and labor legal requirements in T&T (e.g., laws, regulations, standards, permits, authorizations, applicable international treaties/conventions, etc.);

- viii. Assessment of the process in place for land acquisition with respect to relocation or displacement of agricultural lands, and or formal or informal communities (if relevant);
  - ix. Assessment of the public consultations undertaken as part of the Projects' preparation, and plans and programs in place for continued consultation during construction and operation;
  - x. Evaluation of the proposed ESMP for the construction, operation and decommission of the wastewater treatment facilities (e.g. confirmation that the plans define the environmental and social control, management, and mitigation measures, monitoring programs, costs, schedule of implementation, designated responsibilities). Particular attention will be given to traffic management and monitoring plans; noise and water quality monitoring;
  - xi. Confirmation that adequate health and safety and contingency plans and procedures will be established and implemented for construction, operation and decommission (including sub-contractors) to address potential worker health and safety risks associated and project-related accidental events (e.g. spills, fires);
  - xii. Confirmation that the natural disaster risks have been adequately identified, and that proper mitigation is implemented in the design of the facilities and into the operational plans of the facilities;
  - xiii. Assessment of WASA's capacity to mitigate and monitor environmental, social, health and safety and labor aspects;
  - xiv. Evaluation of project-related information disclosure and public consultation activities that have been performed including confirmation that the participation processes of stakeholders has been adequately conducted and that the proposed future actions to provide adequate ongoing information disclosure and public consultation with the local population is in compliance with IDB policies.
- 6.3 As part of the ESDD process, the Bank will prepare an Environmental and Social Management Report (ESMR) presenting the conclusions of the ESDD for consideration by the Bank's Quality and Risk Review Committee. The ESMR will outline a series of recommendations and requirements for inclusion in the relevant legal documents.

<b>INDEX for completed and proposed sector work</b>			
<b>Issues</b>	<b>Description</b>	<b>Expected Dates</b>	<b>References &amp; hyperlinks to technical files</b>
Technical options and design	Final construction designs (already completed) reviewed and validated.	June 2012	
Analysis of project economic viability	Survey data required to analyze economic viability of the program Economic analysis completed.	April-May 2012 June 2012	
Financial analysis /fiduciary issues and control environment	No special fiduciary issues are anticipated. Preparation/conclusion of financial analysis, including financial projections based on historical information and business plan of the company. Identification of Procurement Unit. Review of lessons learned will be included in the program.	April - June 2012	
Institutional analysis/personnel, procedures other aspects of implementation capacity	Preparation/conclusion of institutional analysis. Review of lessons learned will be included in the program.	June 2012	
Stakeholders and political environment	Maintain close communication with stakeholders in WASA and the Government on the program. Consultation meetings will be held as part of the Project Risk Management.	April - July 2012 May 2012	
Social and environmental safeguards	Preparation/conclusion of ESA Review of aspects specific to the operation, additional baseline evaluation, budget	May 2012	
Data collection and analysis for reporting on results	Identification of proposed indicators to measure impact of program	May-June 2012	
Preparation of Operating Regulations	Preparation of the Operating Regulation for the operation	September 2012	
Other key issues, such as donors, gender, sustainability, country/sector issues	N/A	N/A	

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