PROJECT PROFILE

I. BASIC DATA

Project Name:	Water Supply and Sanitation Infrastructure Improvement		
Project Number:	GY-L1040		
Project Team:	Marcello Basani (WSA/CGY), Team Leader; Rodrigo Riquelme, Javier Garcia-Merino, Maria Julia Bocco, Raul Muñoz and Irene Cartin (INE/WSA); Marle Reyes (WSA/CGY); Leticia Ramjag (CCB/CGY); Roy Parahoo (FMP/CBA); Naveen Jainauth-Umrao (FMP/CGY); and Guillermo Eschoyez (LEG/SGO)		
Borrower:	Cooperative Republic of Guyana		
Executing Agency:	Guyana Water Incorporated (GWI)		
Financial Plan:	IDB:	US$	13,902,326[1]
	EU (CIF):	US$	13,902,326[2]
	Total:	US$	27,804,652
Safeguards:	Policies triggered:	OP-703, OP-102, OP-704	
	Classification:	Category B	

II. GENERAL JUSTIFICATION AND OBJECTIVES

2.1 In 2010, 94% of the population in Guyana used an improved drinking water source (98% in urban areas, 93% in rural areas), as compared with 89% in 2000.[3] These statistics also indicate that about 84% of the population used improved sanitation facilities (88% in urban areas, 82% in rural areas). Despite these improvements, the water and sewerage services face constant operational, financial, and institutional challenges, as described below.

2.2 Guyana Water Inc. (GWI) is the public utility owned by the Government of Guyana (GOG) in charge of providing water and sewerage services in the country. Established in 2002, GWI operates in accordance with the regulations outlined in the Water & Sewerage Act 2002, under a license issued by the Ministry of Housing and Water. This Ministry is in charge of sector policies and, along with the Public Utilities Commission (PUC), monitors the services provided by GWI. The PUC, a multisectoral regulatory body, has oversight for tariffs and quality of service provided by all public utilities.

[1] The U.S. dollar amount may vary due to the exchange rate to be applied when the CIF resources have been received and converted.

[2] The European Union's Caribbean Investment Facility (CIF) will contribute with 10,675 million euros, equivalent to US$13,902,326, according to the exchange rate on October 2013. The U.S. dollar amount may vary due to the exchange rate to be applied when the CIF resources have been received and converted.

[3] WHO/UNICEF, 2012. Progress on Drinking Water and Sanitation: 2012 Update.

2.3 The recently completed GWI Strategic Business Plan for the period 2012-2016 identifies as main targets the reduction of Non-Revenue Water (NRW), the increase of national treated water coverage and the move to universal metering.

2.4 Potable water service. With a base of approximately 178,000 customers across the country, GWI water supply systems operate under constant challenges, the main problems including aging pipes and equipment, poor asset management and maintenance, high energy costs, and low financial performance (GWI's operating expenses are covered through a combination of tariffs rates and GOG transfers) (see Financial Link). These problems have led to: (i) deterioration of the networks, with nationwide NRW levels estimated between 50% and 70% (above 70% in Georgetown); (ii) unreliable service, with pressure as low as 1-3 meters,[4] and an average operating period of 16 hours/day; and (iii) electromechanical efficiency of equipment as low as 50% (in 2012), which, combined with the current operation and maintenance (O&M) practices and the high energy costs, brings GWI expenditure on energy to about 60% of its annual operating expenses. All these challenges are aggravated in those areas still not covered by a water treatment plant (WTP) (the existing 25 WTP in the country serves only 50% of the population), and where the network has not been rehabilitated in years. Three of the most densely populated areas in the country (Cornelia Ida to De Kinderin; Diamond-Herstelling; and Cumberland-Williamsburg, with a combined population of 69,000 people) currently receive untreated water, with the water quality failing to meet WHO quality standards.[5] Also, in Georgetown, there are pockets within its 134,497 inhabitants that are not served by a WTP and even the water coming from the main WTP in Shelterbelt is worsening due to the deteriorating condition of the infrastructure.

2.5 Sanitation service. The existing sewer system serves only 48,000 citizens living in the capital Georgetown, about 6.5% of the country's population. Currently, wastewater from this sewer system is discharged untreated through an outfall at the mouth of the Demerara River. In un-sewered areas of Guyana, households manage wastewater through septic tanks and pit latrines. The pit latrines, largely used in low-income areas, are generally in poor conditions (below WHO standards) and the septic tanks are not properly maintained (PAHO, 2009).

2.6 **IDB assistance**. The Bank has extended experience in the sector in Guyana. A US$14.7 million "Georgetown Water Supply and Sewer Program" (LO-1047/SFGY) was completed in June 2010. A US$10 million "Georgetown Sewerage Rehabilitation Program" (LO-2428/BL-GY) was approved in October 2010, aiming at improving the Georgetown sewer system and strengthening GWI's performance through better asset management and efficient energy use. The Bank's involvement in the sanitation sector is complemented by RG-X1011 "Caribbean Regional Fund for Wastewater Management Project", which aims to mobilize

[4] In the coastal area, according to the License GWI is required to provide 24-hour continual service of pressurized water supply to a minimum of 5 meters at costumers' premises.

[5] Iron content and coliform count are consistently high. Water Quality National Regulations follow WHO standards, with slightly higher values allowed for iron.

investments in wastewater management operations, looking at treatment opportunities. Previously, the Bank financed a "Georgetown Sewerage and Water Master Plan" (ATN/SF/JF-3640-GY), completed in 1999; and a project for "Remedial Maintenance for Georgetown Sewerage and Water Supply Systems" (LO-909/SF-GY), completed in 2002. Notwithstanding the results achieved, these interventions focused only on the capital city. For this reason, and to address the widespread issue of poor water quality, in June 2011 a US$12 million "Linden Water Supply Rehabilitation Program" (LO-2535/BL-GY) was approved, aiming to improve the water services in Linden, Guyana's second largest town. While this represents a crucial step, there remain several areas where the treatment level and the network conditions need urgent improvement. Together with Georgetown, this intervention will target the areas of Cornelia Ida-De Kinderin; Diamond-Herstelling; and Cumberland-Williamsburg, bridging key treatment gaps.

2.7 **Program objectives**. The general objective of the proposed operation is to improve efficiency, quality and sustainability of the potable water services and sanitation infrastructure in the program areas. The specific objectives are to: (i) improve pressure, quality and continuity of the water supply service in Georgetown, Cornelia Ida-De Kinderin; Diamond- Herstelling and Cumberland-Williamsburg; (ii) reduce the level of NRW in the program areas, especially in Georgetown; (iii) improve access to sanitation for low-income households in the program areas; and (iv) strengthen GWI performance in terms of O&M practices.

2.8 **Link to IDB Country Strategy**. The proposed program is in line with the Bank's Country Strategy (CS) for Guyana (2012-2016) that aims to sustaining economic growth while giving priority to investments that promote the sustainability of its natural resources endowments and favor the access of low income families to good quality services. Water and Sanitation is included in the CS as an area of dialogue, to discuss alternatives for improvements in efficiency, quality, sustainability and coverage of the potable water supply and sanitation services. Through a better management of infrastructure and of water as a natural resource, the proposed operation is also aligned with 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" and will contribute 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. TECHNICAL ISSUES AND SECTOR KNOWLEDGE

3.1 **Program Design**. It is proposed that the program be comprised of four components as outlined below.

3.2 Component I: Construction, rehabilitation and expansion of water treatment plants. This component will finance the designs[6] and works required to improve the supply system and the water quality in the program areas. It will include: (i) the construction of five large ground storage tanks aimed to ensure continuity in water supply and better pressure in the distribution network; (ii) the construction of three new WTPs to ensure that the water quality standards are met; (iii) the rehabilitation of the Shelterbelt treatment plant, and (iv) the expansion of the Sophia and Central Ruimveldt WTPs.

3.3 Component 2: NRW Program. Complementing component 1, this component will finance activities to reduce the NRW level in all the program areas. It will include: (i) development of a comprehensive NRW management program to address, monitor and control physical and commercial losses; (ii) establishment of District Metered Areas and system sectorization; (iii) installation of micro-meters; and (iv) network rehabilitation works.

3.4 Component 3: Institutional strengthening. This component will address the need to strengthen GWI in its capacity to manage the new infrastructure. It will include: (i) capacity building activities on O&M and asset management; (ii) capacity building activities on NRW reduction; (iii) activities to strengthen GWI's water resource management and planning capabilities; and (iv) development and implementation of a monitoring and evaluation system.

3.5 Component 4: Improved access to sanitation. This component will finance the conversion of pit latrines into efficient septic tank units. The number of pit latrines to be converted in each area will be proportional to the number of low-income households in each of the targeted areas. The component will include: (i) works for the construction and installation of septic tanks, (ii) dissemination of information on O&M, and (iii) hygiene public awareness activities.

3.6 **Execution and complementary activities required**. The Borrower for the proposed program will be the Cooperative Republic of Guyana and the Executing Agency (EA) will be GWI. GWI is knowledgeable of the Bank's procurement and financial policies and procedures as it executed LO-1047/SF-GY, and is currently executing LO-2428/BL-GY and LO-2535/BL-GY. The mid-term evaluation conducted on both programs confirmed GWI execution proficiency.

3.7 **Lessons learned and past knowledge.** Past projects in Guyana indicate that: (i) treatment based on removal of insoluble iron and pH correction, with chlorine for disinfection, has proven to be effective in achieving the required water quality;[7] (ii) construction supervision, to be carried out by qualified firms, needs to include

[6] The conceptual designs for the infrastructure works related to all the WTPs will be prepared within the ATN/OC-14086-GY "Support for water sector development and identification of future interventions" (approved on October 28, 2013). The proposed program will only finance the preparation of the final construction designs through design-build turnkey contracts.

[7] Projects that financed the construction of WTP with the same treatment technology include the IDB-financed US$14.7 million "Georgetown Water Supply and Sewer Program" (LO-1047/SF-GY), completed in 2010, and the World Bank-financed US$12.4 million "Guyana Water Sector Consolidation Project", completed in 2011. The completion report of these projects confirmed the soundness of the proposed technology.

knowledge transfer to the EA; (iii) institutional support needs to be provided to ensure the financial and operational sustainability of all capital investments; and (iv) for complex works, turnkey contract including final designs and construction shall be considered.

IV. SAFEGUARDS AND FIDUCIARY SCREENING

4.1 By improving water and sanitation services, this operation will contribute to the health and wellbeing of 23% of Guyana's population. The program is not expected to have any major large scale, significant and/or irreversibly negative environmental or social impacts. Negative expected impacts are mainly related to water supply and sanitation infrastructure construction works including construction noise, dust, waste generation, traffic disruption and occupational risks. Due to the potential impacts, which are considered minor to moderate and readily manageable implementing known mitigation measures, the project team has proposed a Category "B" classification under IDB's Environmental Policy (OP-703). IDB Policies and Directives applicable to the program include OP-703, esp. B.6 "Consultation", B.11 "Pollution Prevention and Abatement" and OP-102 "Disclosure Policy". In accordance with the Category "B" classification (B.05), the Environmental and Social Strategy involves the preparation of an Environmental and Social Assessment (ESA).

4.2 The Bank and GWI conducted the Institutional Capacity Assessment System (ICAS) analysis on GWI in 2010, whereby all areas of its operations, including human resources, fiduciary and financial management, and internal and external controls were evaluated and analyzed. During the preparation of this program this ICAS will be updated. No notable fiduciary issues are foreseen.

V. OTHER ISSUES

5.1 The proposed operation will be financed as follows: up to the amount of US$3,650,000 of Bank´s Ordinary Capital (OC) resources from the allocation within the Grant Leverage Mechanism and, up to the amount of US$5,126,163 of the Bank´s OC resources and up to the amount of the FSO (US$5,126,163) resources from the OC-FSO allocation as provided in document GN-2442-42. In addition, up to the amount of US$13,902,326 will be provided by the EU (CIF) on a non-reimbursable basis. Resources from the EU will available once the Bank and EU has entered into the corresponding financial arrangement.

VI. RESOURCES AND TIMETABLE

6.1 Annex V details the project preparation steps, dates and estimated resources for project preparation. Expected Board consideration is June 25, 2014. The administrative budget for the preparation of the project provides US$72,000.00. US$50,000 was used from C&D funds to finance preliminary technical studies and economic surveys. ATN/OC-14086-GY provides US$500,000 for the preparation of technical inputs, including consultant services for engineering, for the preparation of the ESA and for strengthening GWI capacity in water quality monitoring.

Annex I –

SAFEGUARD SCREENING FORM

PROJECT DETAILS

IDB Sector	WATER AND SANITATION-WATER SUPPLY URBAN
Type of Operation	Other Lending or Financing Instrument
Additional Operation Details	
Country	GUYANA
Project Status	
Investment Checklist	Infrastructure Water and Sanitation
Team Leader	Basani, Marcello (MARCELLOB@iadb.org)
Project Title	Water Supply and Sanitation Infrastructure Improvement Program
Project Number	GY-L1040
Safeguard Screening Assessor(s)	Muñoz Castillo, Raúl (raulmu@IADB.ORG)
Assessment Date	2013-10-28

PROJECT CLASSIFICATION SUMMARY

Project Category: B	**Override Rating:**	**Override Justification:**
		Comments:
Conditions/ Recommendations	• Category "B" operations require an environmental analysis (see Environment Policy Guideline: Directive B.5 for Environmental Analysis requirements). • 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. • 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.	

SUMMARY OF IMPACTS/RISKS AND POTENTIAL SOLUTIONS

Identified Impacts/Risks	Potential Solutions
The negative impacts from production, procurement and disposal of hazardous materials (such as fuel and chlorine) are minor and will comply with relevant national	**Monitor hazardous materials use:** The borrower should document risks relating to use of hazardous materials and prepare a hazardous material management plan that indicates how

legislation, IDB requirements on hazardous material and international standards and guidelines such as the IFC Water and Sanitation Guidelines (if applicable).	hazardous materials will be managed (and community risks mitigated). This plan could be part of the ESMP.
Generation of solid waste is moderate in volume, does not include hazardous materials and follows standards recognized by multilateral development banks.	**Solid Waste Management:** The borrower should monitor and report on waste reduction, management and disposal and may also need to develop a Waste Management Plan (which could be included in the ESMP). Effort should be placed on reducing and re-cycling solid wastes. Specifically (if applicable) in the case that national legislations have no provisions for the disposal and destruction of hazardous materials, the applicable procedures established within the Rotterdam Convention, the Stockholm Convention, the Basel Convention, the WHO List on Banned Pesticides, and the Pollution Prevention and Abatement Handbook (PPAH), should be taken into consideration.
Likely to have minor to moderate emission or discharges that would negatively affect ambient environmental conditions.	**Management of Ambient Environmental Conditions:** The borrower should be required to prepare an action plan (and include it in the ESMP) that indicates how risks and impacts to ambient environmental conditions can be managed and mitigated consistent with relevant national requirements and international standards and guidelines such as the IFC Water and Sanitation Guidelines (as appropriate). The borrower should (a) consider a number of factors, including the finite assimilative capacity of the environment, existing and future land use, existing ambient conditions, the project's proximity to ecologically sensitive or protected areas, and the potential for cumulative impacts with uncertain and irreversible consequences; and (b) promote strategies that avoid or, where avoidance is not feasible, minimize or reduce the release of pollutants, including strategies that contribute to the improvement of ambient conditions when the project has the potential to constitute a significant source of emissions in an already degraded area. The plan should be subject to review by qualified independent experts. Depending on the financial product, this information should be referenced in appropriate legal documentation (covenants, conditions of disbursement, etc.).

DISASTER RISK SUMMARY

Disaster Risk Category: Moderate

Disaster/ Recommendations	• The reports of the safeguards policy filter (SPF) and the safeguard classification, i.e. the safeguard screening form (SSF) constitute the Disaster Risk Profile to be included in the Environmental and Social Strategy (ESS). Project Team must send to the ESR the PP (or equivalent) containing the ESS. • Moderate disaster risk operations do not require a full Disaster Risk Assessment (DRA) (see Directive A-2 of the DRM Policy OP-704). On the basis of pertinent information, a Disaster Risk Management Summary is prepared by the borrower, concentrating comprehensive information on the specific moderate disaster risks associated with the project and the risk management measures proposed by the Borrower. The Project Team arranges for addressing risk reduction proposals in the engineering and insurance review (if applicable) during project analysis or due diligence by the sector expert or the independent engineer. The potentially exacerbated risks for the environment and population and the risk preparedness measures are included in the Environmental and Social Management Report (ESMR), and reviewed by the ESG expert or the environmental consultant. The results of these analyses are reflected in the general risk analysis for the project. Regarding project implementation, monitoring and evaluation, the project team identifies and supervises the approaches which the project executing agency applies to DRM.

	• The disaster risk management specialists in INE/RNE may be consulted in the process, in particular for country and other disaster risk related information and standards. Climate change adaptation specialists in INE/CCS may be consulted for influence of climate change on existing and new natural hazard risks. If the project needs to be modified to increase resilience to climate change, consider the (i) possibility of classification as adaptation project and (ii) additional financing options. Please consult the INE/CCS adaptation group for guidance.

SUMMARY OF DISASTER IMPACTS/RISKS AND POTENTIAL SOLUTIONS

Identified Impacts/Risks	Potential Solutions
Riverine flooding is prevalent and the likely severity of impacts is moderate.	When moderate riverine flooding risks for the project during execution and operation, and potential exacerbated risks for people and the environment are confirmed in the (limited) DR assessment taking into account the modifying influence of climate change, the appropriate measures to reduce the risks (predominantly engineering), to prepare for impact (predominantly environmental and social safeguards) and to include financial protection are examined, proposed and reviewed.
Area flooding from sustained rainfall is prevalent and the likely severity of impacts is moderate.	When area flooding risks for the project during execution and operation, and potential exacerbated risks for people and the environment are confirmed in the (limited) DR assessment taking into account the modifying influence of climate change, the appropriate measures to reduce the risk, (predominantly engineering), to prepare for impact (predominantly environmental and social safeguards) and to include financial protection are examined, proposed and reviewed.
Reduction or prolongation of rainy season and the likely severity of impacts is moderate.	Future modified water availability for drinking water, irrigation etc. is addressed appropriately in the hydrological assessment, and the risks for the project's viability are taken info account. The appropriate measures of adaptation (predominantly alternative project design and engineering) are examined, proposed and reviewed.

DISASTER SUMMARY

Details	Actions
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.	The project triggered the Other Risks policy (B.04): climate risk.Please include sections on how climate risk will be dealt with in the ESS as well as client documents (EIA, EA, etc);Recommend addressing risks from gradual changes in climate for the project in cost/benefit and credit risk analyses as well as TORs for engineering studies.

ASSESSOR DETAILS

Name of person who completed screening:	Muñoz Castillo, Raúl (raulmu@IADB.ORG)
Title:	

Date:	2013-10-28

COMMENTS

No Comments

SAFEGUARD POLICY FILTER REPORT

PROJECT DETAILS	
IDB Sector	WATER AND SANITATION-WATER SUPPLY URBAN
Type of Operation	Other Lending or Financing Instrument
Additional Operation Details	
Investment Checklist	Infrastructure Water and Sanitation
Team Leader	Basani, Marcello (MARCELLOB@iadb.org)
Project Title	Water Supply and Sanitation Infrastructure Improvement Program
Project Number	GY-L1040
Safeguard Screening Assessor(s)	Muñoz Castillo, Raúl (raulmu@IADB.ORG)
Assessment Date	2013-10-28

SAFEGUARD POLICY FILTER RESULTS		
Type of Operation	Loan Operation	
Safeguard Policy Items Identified (Yes)	Activities to be financed by the project are in a geographical area and 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 project includes activities to close current "adaptation deficits" or to increase the capacity of human social and ecological systems to adapt to a changing climate.	(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	(B.06)

	and (c) mechanisms for equitable participation by vulnerable groups.	
	The Bank will monitor the executing agency/borrower's compliance with all safeguard requirements stipulated in the loan agreement and project operating or credit regulations.	(B.07)
	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)
Potential Safeguard Policy Items(?)	The Borrower/Executing Agency exhibits weak institutional capacity for managing environmental and social issues.	(B.04)
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, PP (or equivalent) and Safeguard Screening Form to ESR. The project triggered the Disaster Risk Management policy (OP-704). A Disaster Risk Assessment (DRA) may be required (see Directive A-2 of the DRM Policy OP-704) in case of high risk, a limited DRA in case of moderate risk. Next, please complete a Disaster Risk Classification along with Impact Classification. The project triggered the Other Risks policy (B.04): climate risk.Please include sections on how climate risk will be dealt with in the ESS as well as client documents (EIA, EA, etc);Recommend addressing risks from gradual changes in climate for the project in cost/benefit and credit risk analyses as well as TORs for engineering studies.	
Additional Comments:		

ASSESSOR DETAILS

Name of person who completed screening:	Muñoz Castillo, Raúl (raulmu@IADB.ORG)
Title:	
Date:	2013-10-28

COMMENTS

No Comments

ENVIRONMENTAL AND SOCIAL STRATEGY

I. PROGRAM DESCRIPTION

1.1 The general objective of the proposed program (US$27,804,652) is to improve efficiency, quality and sustainability of the potable water services and sanitation infrastructure in the program areas. The specific objectives are to: (i) improve pressure, quality and continuity of the water supply service in Georgetown, Cornelia Ida-De Kinderin; Diamond- Herstelling and Cumberland-Williamsburg; (ii) reduce the level of Non-Revenue Water (NRW) in the program areas, especially in Georgetown; (iii) improve access to sanitation for low-income households in the program areas; and (iv) strengthen GWI performance in terms of O&M practices.

1.2 Component I: Construction, rehabilitation and expansion of water treatment plants. This component will finance the designs[1] and works required to improve the supply system and the water quality in the program areas. It will include: (i) the construction of five large ground storage tanks aimed to ensure continuity in water supply and better pressure in the distribution network; (ii) the construction of three new WTPs to ensure that the water quality standards are met; (iii) the rehabilitation of the Shelterbelt treatment plant, (iv) and the expansion of the Sophia and Central Ruimveldt water treatment plants.

1.3 Component 2: NRW Program. Complementing component 1, this component will finance activities to reduce the NRW level in all the program areas. It will include: (i) development of a comprehensive NRW management program to address, monitor and control physical and commercial losses; (ii) establishment of District Metered Areas and system sectorization; (iii) installation of micro-meters; and (iv) network rehabilitation works.

1.4 Component 3: Institutional strengthening. This component will address the need to strengthen GWI in its capacity to manage the new infrastructure. It will include: (i) capacity building activities on O&M and asset management; (ii) capacity building activities on NRW reduction; (iii) activities to strengthen GWI's water resource management and planning capabilities; and (iv) development and implementation of a monitoring and evaluation system.

1.5 Component 4: Improved access to sanitation. This component will finance the conversion of pit latrines from the three program areas outside Georgetown into efficient septic tank units. The number of pit latrines to be converted in each area will be proportional to the number of low-income households in each of the targeted areas. The component will include: (i) works for the construction and installation of septic tanks, (ii) dissemination of basic information on operation and maintenance, and (iii) hygiene public awareness activities.

[1] The conceptual designs for the infrastructure works related to all the WTPs will be prepared within the GY-T1090 "Support for water sector development and identification of future interventions". The proposed program will only finance the preparation of the final construction designs.

1.6 Execution arrangements. The Borrower for the proposed program will be the Co-operative Republic of Guyana, and the Executing Agency (EA) will be GWI. GWI is knowledgeable of the Bank's procurement and financial policies and procedures as it executed LO-1047/SF-GY, and is currently executing LO-2428/BL-GY and LO-2535/BL-GY. The mid-term evaluation conducted on both programs confirmed GWI execution proficiency.

II. INSTITUTIONAL AND REGULATORY CONTEXT

2.1 The Environmental Protection Authority (EPA), established under the Environmental Protection Act, promulgated in 1996, is the institution with the mandate for coordinating environmental management. The purpose of the Act is to provide for the management, conservation, protection and improvement of the environment, the prevention and control of pollution, the assessment of the impact of economic development on the environment and the sustainable use of natural resources.

2.2 Because of the potential impacts which are considered minor to moderate, readily manageable through the implementation of mitigation measures, the project team proposed a Category "B" classification under IDB's Environmental Policy (OP-703). IDB Policies and Directives applicable to the program include OP-703, esp. B.6 "Consultation", B.11 "Pollution Prevention and Abatement" and OP-102 "Disclosure Policy". Additional relevant policies that apply to this program include OP-708 (Public Utilities), OP-742 (Health), and OP-745 (Basic Environmental Sanitation).

2.3 **Disaster Risk Management**: Guyana is subject to droughts and floods (most recent floods were experienced in 2005 and 2006). In the last decade extreme weather conditions have become more frequent. While earthquakes and cyclones are not prominent, sanitary conditions and public health concerns are a major priority as flood waters have overwhelmed drinking and wastewater management systems. Actions will be taken to ensure compliance with IDB's Disaster Risk Management Policy (OP-704) if needed.

2.4 It is not anticipated that resettlement will take place and that OP-710 on Involuntary Resettlement or OP-703, B.9 "Natural Habitat and Cultural Sites" will apply. However, this will be assessed during the due diligence process.

III. ENVIRONMENTAL AND SOCIAL SETTING AND CONTEXT

3.1 In 2010, 94% of the population in Guyana used an improved drinking water source (98% in urban areas, 93% in rural areas), as compared with 89% in 2000.[2] These statistics also indicate that about 84% of the population used improved sanitation facilities (88% in urban areas, 82% in rural areas). Despite these improvements, the water and sewerage services face operational, financial, and institutional challenges, as described below.

3.2 Potable water service. With a base of approximately 170,000 customers across the country, GWI water supply systems operate under constant challenges, the main problems including aging pipes and equipment, poor asset management and maintenance, high energy costs, and low financial performance. As a result, these problems have led to: (i) a gradual deterioration of the networks, with average nation-wide NRW levels estimated between 50% and 70% (higher than 70% in the capital Georgetown); (ii) unreliable service, with pressure as low as 1-3 meters,[3] and an average operating period of 16 hours/day; and (iii) electromechanical efficiency of equipment as low as 50% (in 2012), which, combined with the current operation and maintenance (O&M) practices and the high energy costs, brings the GWI expenditure on energy to about 60% of its annual expenses. On top of this, the existing 25 water treatment plants (WTP) in the country ensure a level of treated water coverage of only 50% of the population. While this level has been steadily increasing (it was 20% in 2001, GWI), there remains several areas served by below-WHO-standards water quality (GWI, 2010), due to old, inefficient or inexistent treatment and O&M practices.

3.3 Sanitation service. The city of Georgetown has a population of approximately 175,000 people, which is about 23% of the country's total population.[4] The sewerage system, a conventional network of sewers constructed between 1924 and 1929, serves only 48,000 citizens (1,160 acres) in central Georgetown.[5] A satellite sewer network located in Tucville serves approximately 3,000 residents. The two systems are connected via a trunk main which originates at the Tucville septage receiving facility and terminates within the central sewer system. A third smaller system serves the University of Guyana, which owns and operates it. In areas not served by the sewerage systems in Greater Georgetown, as well as in the hinterland, septic tanks and pit latrines are used for wastewater disposal (with 66

[2] World Health Organization/UNICEF Joint Monitoring Programme on Water Supply and Sanitation: "Progress on sanitation and drinking-water – 2012 Update". An improved drinking-water source is defined as one that, by nature of its construction or through active intervention, is protected from outside contamination, in particular from contamination with fecal matter. An improved sanitation facility is defined as one that hygienically separates human excreta from human contact.

[3] In the coastal area, according to the License GWI is required to provide 24-hour continual service of pressurized water supply to a minimum of 5 meters at costumers' premises.

[4] Population and Housing Census of Guyana, 2002.

[5] The service area is bounded by the Demerara River in the West, Vlissengen Road in the East, the Atlantic Ocean in the North and Sussex Street in the South.

percent of Guyana's population using pit latrines, 24 percent septic tanks, and 3 percent with no toilet). The pit latrines are generally in poor conditions (below WHO standards) and the septic tanks are not properly maintained (PAHO, 2009).

3.4 In order to address some of the key problems highlighted, four locations were identified where the issues related to water supply described above call for urgent attention. They are: Georgetown, where the large majority of the population lives; Cornelia Ida to De Kinderin, Diamond-Herstelling, and Cumberland-Williamsburg, three among the most densely populated areas in the country, presently expanding.

3.5 As for Georgetown: the existing WTPs (i.e. Shelterbelt, Central Ruimveldt and Sophia) serve only 70% of the population living in the capital, and none of them meet WHO standards consistently.[6] In particular, the Shelterbelt WTP, which serves 40% of the Georgetown population, has been in operation for over 80 years and has deteriorated over time. The two other plants cover only 30% of the remaining households (15% Central Ruimveldt WTP and 15% Sophia WTP). With strategic rehabilitation and upgrade infrastructure works on the three WTPs, water quality could be improved and the supply of treated water could be extended to at least 90% of the population in Georgetown. Additional works on the water supply network in Georgetown, where a significant portion the infrastructure has deteriorated over the last century, would also contribute to decreasing the overall NRW level, which is currently the highest in the country and represents a key priority in the medium-long run.

3.6 The situation in the three other locations mentioned above (i.e. Cornelia Ida to De Kinderin; Diamond-Herstelling; and Cumberland-Williamsburg) reflects the challenges already described, with the piped borehole water pumped, typically, for less than 16 hours per day; water pressure for the majority of households below the minimum acceptable level of 5m, with a significant proportion actually below 3m; and water losses well above 50%. In all areas, the water quality fails to meet WHO quality standards (see Annex IV).[7] These conditions would already justify the need of an urgent intervention. However, what makes an intervention in these locations highly strategic is that the construction of well-engineered WTPs would bridge some key geographical "treatment-gaps" in the West Coast of Demerara and in the East Bank Demerara. In particular:

a. In the peri-urban area of Cornelia Ida to De Kinderin residents are receiving untreated water of extremely poor quality. Presently there are two WTPs serving around 60% of the population on the West Coast of Demerara. With

[6] In 2013, in particular, a sensible increase in total coliform count has been detected (GWI, 2013).

[7] Water Quality National Regulations follow WHO standards, with slightly higher values allowed for iron. The maximum threshold values allowed are as follows: PH (6.5-8.5); Turbidity (<5.0 NTU); Iron at point of use (<0.5 mg/l Fe); Aluminum at point of use (<0.2 mg/l Al3+); Color (<15.0 Hazens); Total Coliform (0 CFU); Faecal Coliform (0 CFU); Free Chlorine Residual at point of use (0.2 mg/l Cl).

the construction of a new WTP in the area, around 90% of the population on the West Coast will receive treated water.

b. The area of Diamond-Herstelling has been one of the fastest growing housing developments over the past seven year. This area is now comparable to other major towns such as New Amsterdam, Linden, Rose Hall and Anna Regina. However, contrarily to these towns, the area is not served by a WTP. The construction of a new WTP in the area will contribute covering a large treatment gap.

c. The peri-urban area of Cumberland-Williamsburg is located close to the New Amsterdam WTP but does not benefit from the treated water supply as the customers in New Amsterdam. The water possess excessively high iron content, with the iron content being abnormally high (up to 7.2 mg/L, one of the highest within the whole GWI system), and the residents have to spend extra costs to purchase water for consumption. The construction of a new WTP would bridge the treatment gap between the New Amsterdam's and Port Mouran's WTPs, to cover 90% of the costumers within this area.

3.7 The issues related to poorly maintained pit-latrines will be addressed through a sanitation component targeting low-income households in selected targeted areas. Additional works on the water supply network in these areas would also contribute to decreasing the overall NRW level.

3.8 The works under this program would improve significantly the quality of services in the area, achieving service continuity of 24 hours per day, and water pressure of 5m, affecting positively the quality of life of the targeted population, in particular low income families by improving health and environmental conditions.

IV. IMPACTS, RISKS AND CONTROL MEASURES

4.1 By improving water and sanitation services, this operation will contribute to the health and well-being of almost 23% of Guyana's population (about 28,400 households in Georgetown and 17,000 outside the capital), especially in preventing illnesses due to waterborne diseases and improving quality of life and overall environmental conditions. The program is not expected to have any major large scale, significant and/or irreversibly negative environmental or social impacts.

4.2 **Construction:** Main impacts during the construction phase will mostly be associated to construction works for water supply and sanitation infrastructure (in particular in those cases when access to homes, public facilities, transportation and other services is difficult). Expected negative impacts also include noise, dust, waste generation, traffic inferences and occupational health and safety risks. For these impacts, which are likely to be local and short term, effective mitigation measures can be designed.

4.3 **Operation:** During operation the main environmental risks identified are:

a. Potential impact on the groundwater resources availability due to an increase of the pumping rate associated to the water supply component of the program. This risk may be considered not significant since the increase in the groundwater pumping will be negligible. In addition, it is expected that this risk will be mitigated by the NWR component of the program through a reduction in the real water supply losses with the rehabilitation of the deteriorated infrastructure, compensating any increase in the pumping rate. In any case, it will be assessed during the project preparation phase.

b. Pollution of underground and/or surface water and soil due to a lack of proper operation and maintenance of the new septic tanks to be installed. This risk will be mitigated by the design and installation of the new facilities according to national and international standards., To complement this, the Component for the sanitation infrastructure improvement will include: (i) dissemination of basic information on operation and maintenance of the new septic tanks, and (iii) hygiene public awareness activities.

4.4 "Environmental Guidelines for Construction Projects" and "Corporate Environmental Guidelines" have been prepared by the GWI in conjunction with the World Bank in January 2005. These Guidelines have been signed off by the EPA and include provisions for the preparation for sites-specific environmental briefs, obligations for contractors, health and safety plan, monitoring and evaluation procedures, roles and responsibilities for implementation, etc. They will be duly considered within the environmental and social assessment (ESA) and its environmental and social management plan (ESMP).

V. ENVIRONMENTAL STRATEGY FOR ENVIRONMENTAL AND SOCIAL ANALYSIS

5.1 In accordance with the Category "B" classification (B.3 and B.5), the Environmental and Social Strategy (ESS) involves the preparation of an Environmental and Social Analysis (ESA) and an Environmental and Social Management Plan (ESMP). The due diligence will also include an assessment of GWI's performance as relates to the implementation of the ESMP of the 2535/BL-GY Linden Water Supply Rehabilitation Program (GY-L1036, currently in execution). If this base is deemed to be sound, this ESMP document will be reviewed and updated according to the specific environmental and social risks of the new program. The GY-T1090 includes the preparation of an ESA for this program.

5.2 Key issues which will be addressed during environmental and social analysis for this operation will include, in addition to the standard section of an ESA, the following:

a. Evaluation of the implementation of the GWI Environmental Guidelines (e.g. preparation of environmental briefs for projects, implementation of mitigation measures, environmental and social obligations for contractors). This will also include an assessment of the Health and Safety Procedures and Traffic Management Plan. Preparation and update of these guidelines and additional mitigation measures, including institutional oversight.

b. Assessment of the institutional capacity to implement and supervise the Environmental and Social Management Plan and assess the adequacy of: (i) reporting mechanism; and (ii) complaint mechanism. This institutional capacity assessment will include an evaluation of the GWI's performance for the implementation of the ESMP currently in use for the GY-L1036. Any recommendation for improvement stemming from this assessment will be included in the ESMP of the proposed program.

c. Preparation of draft application of the environmental permit for defined works.

d. Assessment of environmental and social impacts during construction and operation. This will take into account national standards and legislation and IDB Policies. This will include the evaluation of any potential impacts to groundwater resources.

e. In the case of the reservoirs, special attention will be given to site selection, land ownership and the need for resettlement.

f. Propose budget for institutional strengthening activities, equipment, mitigation activities, etc.

g. Inclusion of a Climate Change and vulnerability assessment and assessment of needs for Emergency Response equipment and capacity.

h. Definition of: (i) the consultation and disclosure process during the preparation of the proposed operation; and (ii) the consultation and information distribution process during implementation of the program.

5.3 The ESA will be disclosed prior to the IDB's Analysis mission following IDB Policy OP-102.

5.4 Based on the findings of the ESA, an Environmental and Social Management Report (ESMR) will be prepared and submitted to ESR for review at POD stage.

INDEX for completed and proposed sector work			
Issues	**Description**	**Expected Dates**	**References & hyperlinks to technical files**
Technical options and design	Assessment of current status of the water supply system in the program areas to be carried out, along with the analysis of alternative solutions. Feasibility studies to be completed.	February 2014	
Analysis of project economic viability	Survey data required to analyze economic viability of the program Preliminary evaluation to be updated once the feasibility studies are completed.	March 2014	
Financial management/fiduciary issues and control environment	No special fiduciary issues are anticipated. Preparation/conclusion financial analysis of GWI. Identification of Procurement Unit. Review of lessons learned will be included in the program	March 2014	
Institutional analysis/personnel, procedures other aspects of implementation capacity	Update the Institutional Capacity Assessment (ICAS) of GWI. Review of lessons learned will be included in the program.	March 2014	
Stakeholders and political environment	Maintain close communication with stakeholders in the GWI and the Government on the program. Consultation meetings will be held.	March-April 2014	
Social and environmental safeguards	Preparation/conclusion of Environmental and Social Assessment. Review of aspects specific to the operation, additional baseline evaluation, budget.	March 2014	
Data collection and analysis for reporting on results	Identification of proposed indicators to measure impact of program.	March-April 2014	
Preparation of Operating Regulations	Preparation of the Operating Regulation for the operation.	June-July 2014	
Other key issues, such as donors, gender, sustainability, country/sector issues	Regular coordination with co-financing donors EU. EU to be included in program monitoring committee.	April 2014	

Annex V –