



Project Completion Report

PCR

Project Name: Georgetown Water Supply and Sewer System II

Country: The Co-operative Republic of GUYANA

Sector/Subsector: Sanitation/Sanitation

Original Project Team:

Antonio Javier Almagro (RE3/IES3) Project Team Leader;

Hugo De Oliveira (RE3/ES3);

Maria Claudia Perazza (RE3/EN3);

Claudio Purificato (RE3/EN3);

Vernon Colin Forsythe (COF/GY);

Juan Carlos Perez-Segnini (LEG/OPR); and

Giselle Brain (RE3/ES3).

Fuad Abularach (RE3/EN3) assisted the project team.

Project Number: LO-1047/SF-GY

Loan Number (s), TC(s):

CRG Date:

Final Approval Date of PCR:

PCR Team:

Peter G S Smith (independent consultant), Marcello Basani (WSA/CGY), Javier Grau (WSA/CDR,) Leticia Ramjag (CCB/CGY)

Version 1.1 (July 25, 2006)



DEV
DEVELOPMENT EFFECTIVENESS
AND STRATEGIC PLANNING DEPARTMENT

PCR April 2006

Acronyms and Abbreviations

ADT	Asset Development Team
AFS	Audited Financial Statement
CIPD	Capital Investment and Planning Department of GWI
Cu.m	Cubic meter
DCM	Domestic Consumption Monitor
DFID	Department for International Development (UK)
DMA	District Metered Area
DO	Development Objective
EPA	Environmental Protection Agency
GoG	Government of Guyana
GPL	Guyana Power & Light (the electricity supply utility)
GS&WC	Georgetown Sewage and Water Commissioners
GT2	IDB Georgetown Water Supply and Sewage System Project 2
GUYWASP	Guyana Water Sector Programme
GWI	Guyana Water Incorporated
HIPC	Heavily Indebted Poor Countries
HR	Human Resources
IDB	Inter-American Development Bank
IP	Implementation Progress
IT	Information Technology
l/h/d	Liters per head per day
lpd	Liters per person per day
MC	Management Contract
MI	Mega liters (= millions of liters)
Mm³	Million cubic meters
MoH	Ministry of Health
MoHW	Ministry of Housing and Water
NPTAB	National Procurement and Tender Administration Board
NRW	Non-Revenue Water
O & M	Operation and Maintenance
PNCR	People's National Congress
PPP	People's Progressive Party
PPMR	Project Performance Monitoring Report
PRSP	Poverty Reduction Strategy Program
PUC	Public Utilities Commission
SAR	Semi-Annual Report
STWI	Severn Trent Water International
TAP	Turn Around Plan
WAN	Wide Area Network
WB	World Bank
WCP	World Bank Water Consolidation Project



Table of Contents

I.	Basic Information	1
II.	The Project	2
A.	PROJECT CONTEXT	2
B.	PROJECT DESCRIPTION	3
i	Development Objective(s).....	3
ii	Components.....	3
C.	QUALITY -AT- ENTRY REVIEW (IF APPLICABLE).....	5
III.	Results	5
A.	OUTCOMES	5
B.	EXTERNALITIES	7
C.	OUTPUTS.....	7
D.	PROJECT COSTS	9
IV.	Project Implementation.....	9
A.	ANALYSIS OF CRITICAL FACTORS	9
B.	BORROWER/EXECUTING AGENCY PERFORMANCE	11
C.	BANK PERFORMANCE	11
V.	Sustainability.....	12
A.	ANALYSIS OF CRITICAL FACTORS	12
B.	POTENCIAL RISKS	13
C.	INSTITUTIONAL CAPACITY.....	13
VI.	Monitoring and Evaluation.....	14
A.	INFORMATION ON RESULTS	14
B.	FUTURE MONITORING AND EX-POST EVALUATION	14
VII.	Lessons Learned.....	15

Annexes

Annex 1	Minutes of Exit Workshop
Annex 2	Borrower's Evaluation
Annex 3	Logical Frameworks and Procurement Plan
Annex 4	Evolution of Indicators
Annex 5	IDB Guyana: Future Operations in Water and Sanitation
Annex 6	Principal persons met/consulted and field visits
Annex 7	Bibliography/Documents Reviewed



I. Basic Information

BASIC DATA (AMOUNTS IN US\$)							
PROJECT NO: GY 0054	TITLE: Georgetown Water Supply and Sewer System II						
Borrower: Cooperative Republic of Guyana Executing Agency (EA): Guyana Water Inc. (Initially Georgetown Sewerage & Water Commissioners)	Date of Board Approval: 01 December 1999 Date of Loan Contract Effectiveness: 14 June 2000						
Loan(s): LO 1047/SF-GY Sector: Sanitation	Date of Eligibility for First Disbursement: December 27, 2002						
Lending Instrument: Investment-specific	Months in Execution * from Approval: 127 * from Contract Effectiveness: 120						
	Disbursement Periods Original Date of Final Disbursement: 14 June 2005 Current Date of Final Disbursement: 14 June 2010 Cumulative Extension (Months): 60 Special Extensions (Months): Nil						
	Loan Amount(s) * Original Amount: USD27,000,000 * Current Amount: USD14,760,800 * Pari Passu (if applicable): 100%						
Poverty Targeted Investment (PTI): Yes	Disbursements * Amount to date: 100%						
Social Equity (SEQ): No	Total Project Cost (Original Estimate): USD30,000,000						
Environmental Classification: A, B, or C	Redirectioning Has this Project? Received funds from another Project [...]						
	Sent funds to another Project [...]						
	N/A [N/A]						
	<table border="1"> <thead> <tr> <th>To/From Project Number</th> <th>From Sub-Loan Number</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	To/From Project Number	From Sub-Loan Number	Amount			
To/From Project Number	From Sub-Loan Number	Amount					
	* Current amount (adjusted for redirectioning):						
	On Alert Status Is project currently designated "on alert" by PAIS: No If yes then why is the project on alert (DO, IP Ratings and/or relevant PAIS indicators):						
	Comments on relevance of "on alert" status for this project (if applicable): Project was 'on alert' for much of its life, but has improved and was taken off such status in						

Summary Performance Classifications				
DO	<input type="checkbox"/> Highly Probable (HP)	<input checked="" type="checkbox"/> Probable (P)	<input type="checkbox"/> Low Probability (LP)	<input type="checkbox"/> Improbable (I)
IP	<input type="checkbox"/> Highly Satisfactory (HS)	<input checked="" type="checkbox"/> Satisfactory (S)	<input type="checkbox"/> Unsatisfactory (US)	<input type="checkbox"/> Very Unsatisfactory (VU)
SU	<input type="checkbox"/> Highly Probable (HP)	<input checked="" type="checkbox"/> Probable (P)	<input type="checkbox"/> Low Probability (LP)	<input type="checkbox"/> Improbable (I)



II. The Project

a. Project Context

Having gained independence in 1966, Guyana suffered severe economic decline in the 1970's and 1980's. In 1989, an Economic Recovery Program supported by World Bank and the IMF began. Inflation declined to 3.6% by 1997 and has typically been 4-8% since then, except in 2007 (14%). The economy achieved growth of about 7% annually between 1991 and 1997. This declined over the next 2 years, and the economy stagnated until 2005, since then, there has been further annual growth averaging 4.4%. GDP has doubled since 2003 to US\$2.2 bn. During the same period, public debt has declined markedly from about 205% to 62% of GDP aided by debt write-off. The external current account deficit increased from 1.3 to 8.5% of GDP, driven by higher fuel and commodity prices. Guyana is classified as a lower middle income country, placed at the lower end of the range of that group and qualified for HIPC support. The World Bank estimates that in the past decade, poverty rates have dropped from 43% to 36% (moderate poverty) and 28% to 18% (extreme poverty). GDP/capita rose from US\$991 to US\$2,497.

The Georgetown Water Supply and Sewer System Program 2 ("GT2") was formulated over 13 years ago as the third stage of a long-term plan for the rehabilitation and expansion of the water supply and sewerage systems in Georgetown. The project was initiated in 1997/8 to follow-on from previous IDB support provided initially through the 1990-1994 Georgetown Master Plan (ATN/SF(JF)-3640-GY, and later by the 1993-2002 IDB Georgetown Water Project, the Remedial Maintenance Program (909 SF/GY).

The GT2 was approved in December 1999 as a three-stage operation, with technical and financial performance conditions to be met before moving from one stage to the next. The original loan agreement was signed by GoG on 14 June 2000. It was aligned with the 1998 draft PRSP which identified Water Supply and Sanitation as a key social sector for donor support. In parallel, other donors, notably World Bank and DFID developed the Guyana Water Sector Program (GUYWASP) for GoG in response to the PRSP, and GoG requested that DFID take the lead in the water sector. DFID worked closely with the World Bank and co-ordinated with other donors through a sector reform Project Steering Committee. In 1999, a fast-tracked diagnostic study for GUYWASP recommended major institutional changes to the water supply sector, which significantly affected GT2.

IDB worked with the original project partner, Georgetown Sewage and Water Commissioners (GS&WC), during 1998 and 1999 to develop GT2. However, in April 2000, GoG took a decision to merge GS&WC with GUYWA, the utility responsible for water supply in the rest of Guyana, to form Guyana Water Inc. (GWI). Several other important legal and institutional changes were developed and implemented in 2000–2003 including a new Water and Sewerage Act, an Operator's License granted to GWI, and appointment of the PUC as sector regulator. The present project partner, GWI, was established in June 2002, and a DFID-funded Management Contract to support GWI was awarded as a key component of GUYWASP. Finalizing these institutional changes delayed the eligibility for first disbursement for 2 and half years, until 27 December 2002.

The appointment of a Project Management Firm was a condition precedent to first disbursement for GT2. However, the appointment by GWI of Severn Trent Water International (STWI) as a Management Contractor, with non-IDB funding source, affected GT2 adversely, as the Terms of Reference were significantly different from those initially envisaged by IDB for the 'Project Management Firm' as set out in the original Loan Contract.

As a result of this institutional restructuring, in October 2004 a first Amendatory Contract (#1) was signed, granting an extension of the disbursement period for an additional five years (up to 2010) and re-conceptualizing some of the conditions to be met before moving from one stage to the next. The start of GT2 was delayed until Amendatory Contract #1 was signed. This was required as the legal contract between IDB and GoG was effectively rendered invalid by the institutional changes, and also because there had been insufficient financial accounting work done during 2000-2003 to enable the financial conditions precedent to be satisfied. Weak financial and technical capacity at that time within GWI led to continued delay, so that there was little actual spend until the middle of 2005, some 5 years after the original date of Contract Effectiveness. The role of STWI, which was not primarily focused on the IDB support project, contributed to the overall delays to GT2 during this time.

Another Amendatory Contract (#2) was then signed in May 2006, to change the procurement arrangements (without affecting project scope, timeframes or budget). In 2006-2007, IDB and GoG agreed to a third restructuring of GT2 loan arrangements, as part of a wider review of the IDB Guyana portfolio linked to



international debt write-off. As part of this restructuring, several loans that were perceived as not performing well were reviewed, including the GT2. The project value was reduced from USD30m to USD16.4m in Amendatory Contract #3 (signed in May 2008), with corresponding reductions in the scope of infrastructure works to be supported and changes to the stages of the program (the staged implementation effectively dispensed). At the same time additional targets were introduced for GWI performance. Annex 4 shows the progressive evolution of Indicators and targets during the project.

In February 2007, the STWI management Contract was terminated one year prematurely by GoG on the grounds of poor performance. A 100% local management team led GWI thereafter. GWI developed a Turn-Around Plan (TAP) – mostly in-house, but with limited donor support. The TAP was accepted by GoG towards the end of 2007, and has been the basis for project implementation and performance monitoring since then. The TAP adopted significantly less stringent performance targets, and these have generally been achieved.

GT2 experienced further delays especially in 2006-8 when most procurement was being done. Project delivery has gradually improved since, so that by the project completion the (reduced) project loan was fully disbursed and the revised scope of works completed. Further support to the water sector outlined in the Bank's 2008-2012 strategy has been confirmed and detailed studies are currently under way.

b. Project Description

i. Development Objectives (DO's)

There was no change in principle between the DO's of Loan Proposal and the most recent PPMR. The GT2 had three main DOs for Georgetown's water and sewage systems:

- DO1. Further improvement of availability and quality of potable water and reliability of the system.
- DO2. Improvement in the performance of the sewerage system.
- DO3. Consolidation and further improvement of GS&WC as the operating agency.

Although GWI is responsible for water throughout Guyana, DO1 was largely unaffected by the institutional changes as the investments by the IDB loan continued to be used exclusively to improve Georgetown water supplies. However the scope of works completed at Georgetown, especially new distribution pipes, was reduced by the budget reduction of Amendatory Contract #3.

There are no significant sewage works outside Georgetown, so DO2 was also not directly affected by the institutional changes. However, the improvements to the Georgetown sewerage system were principally scheduled for the 2nd and 3rd stages of the original program. When the GT2 was revised with Amendment Contract #3, most of the financial cuts were made to these stages, and so DO2 was particularly affected.

DO3 was significantly affected by the incorporation of GS&WC into GWI. GWI had a more extensive geographical coverage than GS&WC, and also included GUYWA - a much weaker organization than GS&WC. The operating agency improvements required at GWI were much greater than they would have been at GS&WC alone. As GWI covered water supply throughout Guyana, there was some loss of focus on Georgetown.

ii. Components

a) DO1 Further improvement of availability and quality of potable water and reliability of the system.

DO1 activities focused on improving the Level of Service (LoS) available to Georgetown residents in terms of quality and availability of water supply by:

- a) Rehabilitation of Shelter Belt water treatment works – refurbish filters, change chlorination system, improve chemical dosing, construction of a sludge holding tank, and removal of asbestos cladding.
- b) Construction of new 12MI/d Iron Removal plants at Sophia and Central Ruimveldt groundwater sources.
- c) Replacement of over 120 km distribution mains, with new service connections and meters in Zones W2, W4, W14.

The rationale for DO1 components was that water quality in Georgetown was very poor, with high coliform count and high iron content (>2mg/l). Pressure was very low, typically less than 1.00m (1.5psi) and water was only available for a few hours per day in much of the city. Leakage was very high, estimated at 70% of water abstracted. Because the pumps were only operated for about 12-18 hours/day, contamination of treated water occurred due to infiltration of polluted surface water into the unpressurized distribution pipes.

50% of Georgetown supply is surface water abstracted from an irrigation canal at the GWI Shelter Belt Works. This water is of poor quality, increasingly polluted by human activities along the banks, and also



vulnerable to agri-chemical pollution from the irrigated areas. The Shelter Belt Works was originally constructed in the 1950's, upgraded in the 1980's, and by the late 1990's was in a dilapidated state.

The other 50% is groundwater abstracted from 14 boreholes. The groundwater has a natural high dissolved iron content, which produces very fine rust colored iron oxide particles in the pipes when aerated or chlorinated. The color creates a poor visual impression and discolors laundry, but is not harmful to health.

The distribution system in Georgetown is old. The clay soils provide poor support for pipes, and many service connection pipes have moved or settled over time, causing leaks especially where they join larger pipes. There are many old pipes laid in the edges of roads that were subsequently widened, vulnerable to damage by increased traffic and heavy vehicles. Residents have damaged pipes trying to obtain water when pressure is too low to reach properties. Waterhammer shock waves generated during the frequent stop and start operations also contribute to bursts. All these problems lead to very high leakages and low pressures throughout the system.

b) DO2 Improvement in the performance of the sewage system

DO2 activities supported modifications to the sewage pumping stations and purchase of new submersible sewage pumps. They were also intended to fund improvements to the sewers, but this was cancelled in the 2008 restructuring. A facility for disposal of septic tank sludge was also funded, in order to try to remove the pollution of the surface drainage trenches throughout Georgetown.

Georgetown's sewage system dates back to 1929 and apart from some upgrade in the 1980's it is unchanged since then. It only covers about 1/3 of the city. It comprises 24 interlinked pumping stations that receive sewage in a 'wet well' from yard and street sewers. The untreated sewage is pumped via a pressure main to an outfall in the Demerara River estuary. Many of the yard and street sewers get blocked or damaged, and the pumps were vulnerable to damage from hard debris often thrown into the sewers or pumping stations. The motors and controls for the pumps were easily damaged by flooding during heavy rainfall. Failure of the pumps led to overflow of raw sewage into the streets, a public health hazard as well as being extremely unpleasant.

The new pumping stations use submersible pumps with controls above ground with effective overload protection. New pipe arrangements and additional screens have been added to reduce risks of blockage and damage.

c) DO3 Consolidation and further improvement of GS&WC as the operating agency.

DO3 was intended to be implemented by a Project Management Firm that would:

- (a) assist GS&WC in the execution of the physical components of the Program.
- (b) provide institutional strengthening to GS&WC.
- (c) improve the financial situation of GS&WC by being responsible for the commercial aspects of the services.

It would have been impractical to have had two management firms associated with GWI, and so the DFID-funded contract with STWI was drafted to include details intended to deliver the above. Both (b) and (c) were common aims of the original GT2 and of the STWI contract, but with different emphases and indicators. (a) was not part of the original concept of the DFID-funded STWI contract. Although clauses were added into their contract to provide this for the IDB funded facilities, the final contract wording was ambiguous. Eventually separate contracts were awarded for a design engineer and an Asset Development Team Leader, working with GWI engineers to provide these services, but this was a further delaying factor.

There was increasingly close SWAp-style co-operation and co-ordination between IDB and the programs of World Bank and DFID, especially from 2005 onwards. Other donors, including EU and Caribbean Development Bank, also co-ordinated their support through GUYWASP. The World Bank program funded new treatment works and distribution pipe work at several localities outside Georgetown. DFID funded ICT, meters, pumps and motors, and the management contract. All this support also included funding for underlying changes intended to improve the efficiency and financial viability of GWI through capacity building and development of better management approaches and much increased use of modern ICT equipment. The development of the 2007 Turnaround Plan provided a single document that all main donors recognized and provided a common basis for monitoring performance, (although conditions set up by individual donors still existed from previously signed documentation.)

c. Quality -At- Entry Review (if applicable)

Not Applicable

III.

Results

a. Outcomes

The 3 key components of GT2 are listed below, together with a summary of the outcomes.

1. Further improvement of availability and quality of potable water and reliability of the system.
2. Improvement in the performance of the sewerage system.
3. Consolidation and further improvement of GS&WC as the operating agency.

1. Potable Water component - Overall this component has been successful, with significant improvements in pressure, quality and reductions in physical loss, despite the cut backs in funds.

Pressure. The improvements achieved in the Georgetown potable water service have been less than initially planned. The pressure in the distribution network has increased on average to 6psi from 2psi, but has not reached the design figure of 10psi. A major reason was that significant lengths of distribution main were cut from the Project in 2008, preventing completion of a ring main layout.

Quality. The main parameter targeted was iron content. Two iron removal plants were built, but only commissioned in March/April 2010. The plants are able to deliver the required 0.5mg/l iron content specification in the area supplied, but reliability is not yet established (At the time of this analysis, some equipment was not working and there had not been an extended period of operating experience).

Availability. The baseline figure of 70% physical losses was probably exaggerated, but there has been significant improvement due to the renewal and rehabilitation of the distribution pipe work in some zones, and general upgrade of service connections and installation of meters, with an estimated physical loss now of 45%, well within the most recent target of 60% (see Annex 4).

2 Sewerage System - This component has still to be fully tested in service conditions, but was affected more than the Potable Water component by the funding reductions.

Sewage Pumps. 15 pump-stations have been modified and new pump-sets have been installed, and 8 existing pump-sets are in operating order, so the system is effectively fully operational and sewage overflows should not occur. However the pumps were only commissioned in June 2010, and the reliability and effectiveness have yet to be fully demonstrated in the more difficult rainy season.

Septic tank sludge disposal. A new sludge receiving facility has been built, but has not yet operated properly pending modifications to the sludge handling equipment. Enforcement of use of this facility has yet to be confirmed, so there is still poor quality surface water in the drainage trenches around Georgetown.

3 GWI as an Operating Agency - There have been improvements in most GWI management indicators, including the log frame indicators. However, further investment linked with continued management support will be needed for a significant time yet.

Metering. Metering in Georgetown has reached the recent (reduced) target of 50%, but is still some way off the original target of 85%. Reduced funding was the main reason for this. Continued meter installation is needed to maintain progress on reduction in leakage and wastage, and reduced operating costs.

Collection Efficiency. This has remained constant at about 70% throughout the Project period. There has been limited political support for 'hard-line' approaches to improve revenue collection, with the fact that GWI does not yet provide an overall high quality service 'justifying' this.

Coverage of O&M costs. There has been an improvement in the level of cost coverage, since the introduction of the new billing system, which has generated billings that increased much faster than costs over a short time period. Modest reductions in some costs due to efficiencies have been more than offset by large increases in power costs during the project lifetime, and tariff increases have lagged behind the cost increases. Further changes to financial plans will be needed in the near future to avoid deterioration in the situation, as billings are approaching a 'ceiling'. A new tariff structure will be needed to change this.

After correction, the projected routine operating costs for 2010 are G\$4,300m, while the corrected billings will be G\$3,500, a coverage of 93%, although as the collection ratio is 68%, the collection/costs coverage is 63% (up from 56% in 2009).



ACHIEVEMENT OF DEVELOPMENT OBJECTIVES (DO)			
Development Objective(s) (Purpose)	Key Outcome Indicators (as for Amendment Contract #3)		
1. Further improvement of availability and quality of potable water and reliability of the system. Classification: P	<u>Outcome 1.1:</u> Quality of the water supplied to customers is improved. <u>Indicator:</u> Iron content in water treated by the iron removal facilities has been reduced to 0.5mg/l <u>Outcome 1.2:</u> Pressures in the distribution system have increased. <u>Indicator:</u> Average pressure in the system has increased to 10 psi (NB 10 psi = 6.7m water) <u>Outcome 1.3:</u> There is a more efficient use of available water. <u>Indicator:</u> Physical losses have been reduced from 70% to 45% (target in original contract: 55%)		
Planned Outcomes		Outcomes Achieved	
<u>Baseline (B)</u> 1.1 Iron content mg/l <u>1.1B</u> 1.5mg/l (June 2000) 1.2 Pressure (m) <u>1.2B</u> 1.5m (estimate) 1.3 Losses (%) <u>1.3B</u> 70% (June 2000)	<u>Intermediate (I)</u>	<u>End of Project (E)</u> <u>1.1E</u> 0.5mg/l <u>1.2E</u> 6.7m <u>1.3E</u> 45%	1.1 Iron content reduced, but amount is variable, typically in range 0.5 -0.7mg/l (June 2010) 1.2 Pressure has increased to an average of approx. 4m (6psi) (April 2010) 1.3 Physical losses estimated at 45% (June 2010)
NB there were no intermediate planned outcomes.			
2. Improvement in the performance of the sewerage system Classification: P	<u>Outcome 2.1:</u> Blockages in the sewerage system have been reduced <u>Indicator:</u> All pumping stations are working normally and there are no more spillovers of sewage <u>Outcome 2.2:</u> Sludge from septic tanks is disposed of properly <u>Indicator:</u> There is no more discharge of sludge in drainage ditches or sewage pumping stations		
Planned Outcomes		Outcomes Achieved	
<u>Baseline (B)</u> 2.1B 8-12 operational Sewage pumping stations (SPS) 2.2B Indiscriminate disposal of septic tank sludge (no numerical indicator)	<u>Intermediate (I)</u>	<u>End of Project (E)</u> 2.1E 24 Operational SPS's 2.2E Safe disposal of septic tank sludge (no numerical indicator)	2.1 15 operational pumping stations refurbished and fitted with new pumps. 9 stations operating with old pumps. Sewage overflows likely to be eliminated (additional operational time needed to confirm this). 2.2 New septic tank sludge disposal facility completed but not yet fully operational pending modification to sludge handling equipment.
NB there were no planned intermediate outcomes			
3. Consolidation and further improvement of GS&WC as the operating agency. Classification: LP	GS&WC operating efficiency has been improved GS&WC financial situation has improved		
Planned Outcomes		Outcomes Achieved	
<u>Baseline (B)</u> Collection Efficiency <u>3.1B</u> 70% (June 2000) Coverage of O&M+D costs <u>3.2B</u> 69% (June 2000)	<u>Intermediate (I)</u> 3.1I n/a	<u>End of Project (E)</u> <u>3.1E</u> 80% <u>3.2E</u> 70%	3.1 69% (June 2010) 3.2 93% (June 2010) NB Coverage by billings, not collections 3.3 Metering Coverage 49% (April 2010)
NB. original intermediate planned outcomes for coverage of O&M+D costs were: 3.2(I) 100% (2000); 101% (2001); 104% (2002); 115% (2003); 115% (2004)			
<u>Baseline (B)</u> Metering Coverage <u>3.3B</u> 29% (June 2000)	<u>Intermediate (I)</u> 3.3 I n/a	<u>End of Project (E)</u> <u>3.3E</u> 50%	
NB. original intermediate planned outcomes for coverage of O&M+D costs were: 3.2(I) 29% (2000); 46% (2001); 59% (2002); 72% (2003); 85% (2004)			
Reformulation. The Logframe is unchanged and there was no reformulation of Development Objectives. However the 2 significant amendments to the original contract, in 2004 and 2008 impacted on the scale of achievement possible. The 2004 Amendment recognized the institutional changes of merging GS&WC with GUYWA to form Guyana Water Inc. and the appointment by GWI of a Management Support Contractor (funded by the UK agency DFID), and altered the financial performance targets for the newly established Guyana Water Inc. The 2008 Amendment reduced the program value by 46% with consequent reduction in scope of works. The indicators and timeframes for the project were changed at each amendment (see Annex 4). The achievement of the outcomes should be evaluated on the results identified in the 3 rd contract amendment (explanations are provided in the text).			
PPMR Retrofitting. Indicate if and when the PPMR was retrofitted and explain any changes resulting from this exercise. N/A			
Summary Development Objective(s) Classification (DO):			
<input type="checkbox"/> Highly Probable (HP) <input checked="" type="checkbox"/> Probable (P) <input type="checkbox"/> Low Probability (LP) <input type="checkbox"/> Improbable (I)			
Justification of DO classification (based on degree to which planned targets were met, explaining the differences between planned and achieved outcomes and other relevant factors). There has already been significant improvement in the levels of service of both water and sewage systems. A further period of continuous successful service will be needed to provide full confidence in the effectiveness of new water treatment plants and the sewage pumping facilities, but initial experience is positive. However the scope of works is less than originally planned, and the choice to cut-back GT2 in 2008 was largely due to poor loan performance in its early stages. Overall, the program experienced a 5 years delay and delivered about 60% of the works originally planned. However, the achievement of the outcomes should be evaluated on the results identified in the 3 rd contract amendment. GWI has achieved significant improvements in its operating efficiencies in Georgetown, as seen in improvements in pressure, hours of service, quality of water, and cost recovery, but is still institutionally and financially fragile and unlikely to achieve 100% cost recovery in terms of collections/billings without further significant attention/tariff change (GoG currently faces a dilemma between providing social services and charging market rates for these services).			



Most of the major project challenges occurred in the first 5 years, and can in many ways be attributed to institutional changes led by GoG with other donors, outside the control of the project. The institutional upheavals of the period 2000–2005 when GWI was being designed, created, and settling in (under new external management) all contributed to the problems. Once the project was put back on track, and received greater support and attention by IDB from 2006 onwards, the situation significantly improved. However, in terms of the stated (logframe) aim to improve the image of GS&WC (GWI) as an operating agency, the project has not made much progress, and there is a need for improved PR to get the message across those service levels, whilst still needing to improve, have made substantial progress in the last decade.

The rating of (P) (probable) is justified as the project has partially achieved its DO's. It has not failed to achieve most DO's, and so does not fall into the (LP) category. At the same time, the failure to fully achieve all the DO's does not justify an (HP) rating.

Project Contribution to Bank's Country Strategy: At its inception, the program was well line with the Bank's Country Strategy Paper for Guyana 1998, designed to promote sustainable growth, social development and poverty alleviation through inter alia the development of the social sector, by improving the delivery of health services and implementing programs for poverty reduction and improvement of urban living conditions. The Support to Water and Sewage services in Georgetown, specifically mentioned in the paper, was consistent with the strategy as it directly delivers improvements in urban living conditions, which in turn reduce the risks to health of poor quality water and untreated sewage. Throughout its implementation, the program remained relevant in the Bank's Country Strategy 2002-2006 (when the Bank's strategy in the social sectors was seeking to increase access to social services and infrastructure) and in the Country Strategy 2008-2012, which specifically stresses the importance of carrying out significant work in order to increase access to potable water and adequate sanitation. The results show that there has indeed been a significant improvement in levels of water supply service and in the sewage disposal service for Georgetown.

b. Externalities

While there were not relevant unintended positive or negative consequences resulting from the GT2 during execution (especially from an environmental and social perspective), there were few external factors that influenced its implementation. Some of them have been referred to earlier e.g., the decision by GoG to pursue a sector reform program almost simultaneously with preparation of GT2 had a negative effect. The 2008 cut back in value of the loan to 57% of the original amount also impacted the scope of works that could be completed. Also, the increase in construction costs of 25–40% during the aforementioned 5 year delay meant that the scope of works had to be reduced even further. Some of the works that were reduced with Amendatory Contract #3 have been taken up by the US\$10 million "Georgetown Sewerage Rehabilitation Program" (GY-L1025), approved in October 2010 with the objective of improving the Georgetown sewerage system and strengthen GWI performance by improving asset management and decreasing energy consumption.

In recovering from the difficult situation after the termination of STWI's contract, the development of the Turnaround Plan was a positive step. It has delivered ownership of the program by GWI staff. The local staff engaged on the supervision of works has gained significant experience and capacity has been built.

The close working relationship developed between the Bank's specialist staff and GWI provides a strong basis on which to move forward into the proposed next stage of support to the water and sanitation sector.

c. Outputs

Water Supply

GWI Shelter Belt Works

- ☐ 10 Filters Refurbished
- ☐ Sludge Holding Tank constructed
- ☐ Gas Chlorine system replaced by hypochlorite system
- ☐ Asbestos cement sheeting of structures - removal and replacement

Other water works

- ☐ Central Ruimveldt – new 12MI/d Iron Removal Plant
- ☐ Sophia – new 12MI/d Iron Removal Plan
- ☐ Distribution System – Zones W2, W4, W14 approx 120km pipes
- ☐ 11,000 Metering and Service Connections
- ☐ Purchase of equipment including - Data loggers, ground-microphones, pipes and fittings

Sewage system

- ☐ 28 New Submersible Sewage Pumps (50% paid by GoG)
- ☐ Purchase of Sewer pipes and fittings
- ☐ 15 Sewage Pumping Stations Modified
- ☐ Tucville Septic Tank sludge Receiving Station and 3.5 km link pumping main



GWl Management

- ☐ Training courses and events
- ☐ Consultant study into GWl Finances
- ☐ Support for program Manager at GWl, temporary engineers and other staff to boost capacity.

IMPLEMENTATION PROGRESS (IP)	
Components (Outputs):	
1. Component 1: Improvement in the Availability and Quality of Potable Water and the Reliability of the Distribution System Total cost of Component 1: USD10,000,000 Counterpart: USD 250,000 IDB: USD 9,750,000 IDB Disbursement: 100% <u>Classification: S</u>	
Key Output Indicators:	
Planned Outputs	Outputs Achieved
<u>Baseline*</u> * (Not applicable) <u>Annual/Intermediate*</u> * (Not applicable) <u>End of Project</u> 1.1E. 2 iron removal plants 1.2E. 7,650m trunk main and 150,000m distribution main installed and in service in 4 Zones 1.3E. 16,800 meters installed 1.4E. Existing treatment plant rehabilitated and upgraded 1.5E. Sectorization of the system	1.1 Two iron 12MI/d iron removal plants substantially completed and in operation (March 2010) 1.2 120km new water mains installed and in service in 3 Zones (June 2009) 1.3 7,000 meters installed in 3 distribution zones (June 2009) 1.4 Existing treatment plant rehabilitated and upgraded (June 2010) Commissioning and testing not yet carried out 1.5 Done under other donor funding
Explanation of differences between planned and actual outputs. Reference DO section. Actual outputs are as per Amendatory Contract #3, but reduced in scope from original plans due to reduction in loan value. [X] N/A	
Restructuring. Resulting from the 2008 Amendatory Contract #3, plans for over 4Km trunk mains that would have significantly improved the hydraulic characteristics of the distribution system by creating a ring main were cancelled.	
2. Component 2: Improvement in the performance of the sewage system Total cost of Component 2: USD2,510,000 Counterpart: USD 510,000 IDB: USD 2,000,000 IDB Disbursement: 100% <u>Classification: S</u>	
Key Output Indicators:	
Planned Outputs	Outputs Achieved
<u>End of Project</u> 2.1E .24 Refurbished sewage pumping stations 2.2E. Septic tank sludge disposal facility constructed and operational * (if applicable)	<u>End of Project</u> 2.1. 15 sewage pumping stations refurbished and equipped with new pumps (June 2010). 13 additional pumps purchased for future 2.2. Septic tank sludge treatment facility constructed and commissioned (June 2009)
Explanation of differences between planned and actual outputs. Reference DO section. Actual outputs are as per Amendatory Contract #3, but reduced in scope from original plans due to reduction in loan value. [] N/A	
Restructuring. Resulting from the 2008 Amendatory Contract #3, plans for rehabilitation of the pumped sewer system were cancelled, the scope of refurbishment of sewage pumping stations was reduced, and replacement of yard and street gravity fed sewers was cancelled. GoG partly offset this by making \$1m additional funds available, but the scope of works completed is still much less than planned originally.	



3. Component 3: Consolidation and further improvement of GS&WC as the operating agency.

This component was effectively cancelled when an alternative management support contract was awarded by DFID. IDB have provided minor funding for short specialist training (e.g. procurement, non-revenue water), and have provided funding for counterpart engineering and other technical/management staff. The budget from IP (3) was later subsumed in the larger restructuring of the loan in Amendment #3.

Total cost of Component 3:

Counterpart: N/A

IDB: N/A

IDB Disbursement: % N/A

Classification: **U**

Key Output Indicators				
Planned Outputs			Outputs Achieved	
Baseline	Annual/Intermediate*	End of Project (E)	End of Project	
3.1. Collection Ratio	3.1B. 70%	3.1E 85%	3.1. 69% (June 2010)	
3.2. Coverage of O&M+D	3.2B*	3.2E 115%	3.2. 93% (June 2010)	
3.3. Metering Coverage	3.3B. 18%	3.3E 85%	3.3. Metering Coverage 49% (April 2010)	
* (not applicable)				
Explanation of differences between planned and actual outputs: The Project management Firm was not hired as planned, as DFID funded a management support contract. GWI performance did not improve as rapidly as expected. The Collection ratio has remained almost unchanged, although actual collections have risen four-fold over the period. Enforcement of payment has not had strong political support. Billings have risen very significantly since the new billing system was commissioned in 2007				
Restructuring. This component was effectively removed from IDB control when the DFID-funded management contract with STWI was implemented. Upon termination of the STWI contract, a fully local management team was in place at GWI and IDB worked closely with this team, and provided additional inputs to assist with capacity building.				
Summary Implementation Progress Classification:				
<div><input type="checkbox"/> Highly Satisfactory (HS)</div> <div><input checked="" type="checkbox"/> Satisfactory (S)</div> <div><input type="checkbox"/> Unsatisfactory(U)</div> <div><input type="checkbox"/> Very Unsatisfactory (VU)</div>				

d. Project Costs (in US\$000)

Category of Investment	Loan Amount	Amount Cancelled	Restructured Loan	% Difference
Engineering & Administration	2,748	1,198.7	1,549.3	(44)
Direct Costs	22,462	10,277	12,185	(46)
Construction Iron Removal Plants	2,760	(185)	2,945	+6
Rehab. of Distribution System	6,590	645.6	5,944.4	(10)
Installation of Meters	2,075	2,075	-	(100)
Installation of Trunk Mains	2,000	2,000	-	(100)
Rehab. of Sewerage System	6,180	4,860.1	1,319.9	(88)
Construction of Sludge Facility	800	3.70	796.3	(1)
Shelter Belt Rehabilitation	1,050	(94.6)	1,144.6	+8
Additional Treatment/Storage	950	950	-	(100)
Flood Preventative Measures	57	22.2	34.8	(39)
Concurrent Costs	575	185	390	(32)
External Audit	300	100	200	(33)
Environmental Management Plan	275	85	190	(31)
Unallocated	289	288.20	0.80	0
Capitalization Charges	926	-	635.7	(32)
Total	27,000	11,948.9	14,760.8	(45)

During 2006 and 2007, IDB restructured and reduced its portfolio value in Guyana as part of a wider program of debt relief. At that time the GT2 project was well behind schedule, and identified as one of the projects that should be reduced in value. The loan was reduced from USD27 million to USD14.7 million with Amending Contract #3. The restructured loan took account of actual expenditure already incurred, and available updated estimates/tender prices as far as possible, and so is a close match to out-turn costs. All out-turn costs of works actually completed are within 10% of original estimates.

IV. Project Implementation**a. Analysis of Critical Factors**

A summary of key issues that affected project implementation is presented below.

- **Initial weak donors co-ordination:** Closer co-ordination with other donors during the later stages of the design phase would have benefitted the project, considering the institutional changes planned for the sector.



- Institutional changes early on in project: In 2002, the newly formed GWI had many more issues to deal with than GS&WC, and merging with GUYWA, a weaker organization than GS&WC, increased the challenges.
- Appointment of STWI and their performance: STWI contract had some limitations, and some STWI staff were not well suited to the task. The expected performance was to some extent never achievable within the constraints of timeframes and available investment.
- Over-use of conditions precedent: Rigid implementation of the formal GoG/IDB contract did not provide the flexibility needed to respond to the changes of circumstances during the course of the project.
- Guyana Environment and GWI Capacity: Guyana has a general capacity problem resulting from high migration levels of qualified individuals. There were and are difficulties in finding and funding appropriate staff for GWI, especially at technical levels. Currently, GWI continues to suffer from understaffing. The current team, though enthusiastic and capable, has limited experience and is severely stretched.
- Financial Irregularities: The Head of Procurement and Chief Executive were dismissed in 2009 for financial irregularities. While no indicators suggests misuse of Bank funds, other donors briefly suspended funding to allow reviews of financial integrity and for action to be taken to reduce risks. The Bank also delayed some payments pending the outcome of the reviews.
- Procurement delays: The procedures adopted for awarding contracts did not deliver timely progress through the various procurement stages. An analysis of procurement processes is therefore recommended (the NPTAB, which took over from the Central Tender Board in 2005, has still to prove itself as a speedier process for review, approval and award of contracts).
- GWI financial status: When created, GWI financial and billing records as well as the billing systems and financial management software package were inadequate. It was not possible to provide all the financial data needed to satisfy conditions precedent. The IDB-funded Financial 2007 Review partly addressed these problems. Much improved billing and financial management systems are now in use. Further improvements will be ensured with the upcoming adoption of Oracle Financial Software Packages, financed through an IDB Technical Cooperation ("Financial and Institutional Strengthening of GWI" - ATN/SF-11904-GY).
- Political Will: The project set out to turn round the financial status of GS&WC/GWI. A key component of this is to use a tariff system that would enable an efficient organization to cover its costs. The issue has not been addressed properly yet. The 90% tariff increase recommended in the 2002 tariff study by KPMG did not materialize, and GWI has currently less autonomy than anticipated by the GUYWASP.
- Appointment of capable GWI staff: Several key positions remained vacant for long periods. The 2006 Joint Review of GWI (carried out by the IDB and the World Bank) highlighted the impact of vacant positions and other areas where delayed Board decisions, especially on staffing, had affected GWI.
- Appointment of specific IDB staff: The appointment in 2005 by IDB of a new dedicated staff member to oversee the project led to a much improved constructive relationship between GWI and IDB, which speeded up progress.
- Adoption of the Turnaround Plan as a strategic document: Following the termination of STWI's contract, the TAP was largely developed by the local management team, many of whom are still part of the team. The relative stability of this team and its strong 'buy-in' to the TAP has contributed significantly to the team cohesion and delivery of the TAP targets.
- Debt write off: In 2006, IDB and GoG agreed a major restructuring of the loan arrangements as part of a wider international debt write-off program. Several loans that had not performed well were reduced, and GT2 value was reduced from USD30m to USD16.4m (Amendatory Contract #3), and additional targets were introduced for GWI performance. The scope of work was reduced largely by removing planned upgrades to the yard and street sewers. The number of sewage pumping stations and sewage pumps was reduced, although additional funds from GoG allowed some of these to go ahead. There were also reductions in the scope of pipelines to be rehabilitated, and no meters were purchased, although the metering upgrades went ahead anyway using meters purchased through other donor programs.

- Procurement and Contract Administration Issues: All the main works have been subject to delays caused by procurement and contractual issues.¹

b. Borrower/Executing Agency Performance

Borrower/Executing Agency performance can be seen at two levels. There are high level issues that are common to many projects that affected GT2, and there are issues specific to GT2 and GWI.

At a high level, there has been a good working relationship between the Bank and GoG. The Bank is recognized as by far the biggest single donor agency in Guyana, with a long term track record. However, in 1999, GoG set out on a sector reform program, while at the same time working with IDB to develop a separate project. The lack of proper strategic coordination contributed setting the IDB program back by several years.

The main high level concern that affected the program has centered on procurement. The Central Tender Board was replaced by the National Procurement and Tender Administration Board (NPTAB) in 2005, which has yet to prove itself as a better and speedier service. Some of the delays appear to have resulted from un-necessarily stringent conditions or specifications in tender documents.

The system of award of contracts has not proved to be sufficiently robust to prevent spurious complaints being taken seriously. For example it took three tender procedures lasting almost 5 years and including a final 12 month delay before the contracts for the 2 iron removal plants were finally awarded in 2008.

GWI has had difficulties in satisfying the requirements regarding annual Audited Financial Statements. For most years until 2008 these were issued late and were substantially qualified. Delays in 2006 and 2008 led to the Bank issuing notice of intended suspension of disbursements, although in each case the matter was resolved in time. In 2008, the bank rejected the Auditor General's 'unqualified' AFS on the basis that such a statement was inconsistent with the detailed contents of the document. The problems were partly due to issues inherited from the predecessor organizations, and could not always be adequately addressed due to the absence of working financial management systems. As mentioned above, this is expected to improve thanks to the adoption of the Oracle Financial Software Packages as well as through ongoing training plans on internal controls.

The Board of GWI has a significant role on the overall performance of GWI. The 2006 joint review found that the Board may have contributed to GWI poor performance through not taking timely decisions and failing to appoint senior management staff promptly.

Overall, while there have been periods when the Borrower/Executing Agency performance would be/was classified as Unsatisfactory, by the end of the project there were sufficient positive aspects of performance to warrant a Satisfactory rating.

Borrower/Executing Agency			
<input type="checkbox"/> Highly Satisfactory (HS)	<input checked="" type="checkbox"/> Satisfactory (S)	<input type="checkbox"/> Unsatisfactory (U)	<input type="checkbox"/> Very Unsatisfactory (VU)

c. Bank Performance

Bank performance could have been stronger in the development stages of the program in that communications and coordination with the GoG and other donors did not identify the implications of the major institutional changes on the planned GT2. Also, the Bank at that time did not have dedicated water or institutional specialists attached at its Guyana office, which would have ensured a better harmonization with other programs.

Bank policy and practice towards management of programs at Country level evolved during the implementation of GT2. The situation regarding both co-ordinations with other donors and involvement with project partners improved markedly in 2005 with the appointment of a water sector specialist who

¹ The iron removal plants had to be tendered three times; the first two were not completed due to the poor quality of bidding documents, causing a 4-year delay. The final tender was suspended for about a year as the losing bidder protested against the award. One of the distribution upgrade contracts was also delayed by a year when the unsuccessful bidder protested against award. At the filters upgrade, the initial contract was terminated as they were unable to deliver the required works in the light of significant construction sector price increases in 2008 affecting the fixed price contract. The balance of contract was broken down into smaller packages, which may have saved on costs but required greater management inputs and oversight. GWI have administered the contracts strictly, and enforced liquidated damages clauses in several of these contracts.



collaborated closely with the GWI staff involved in the GT2 program to turn round the performance of the program.

Bank performance can be classified as poor/unsatisfactory in the early stages of the program. The Bank could have been more active in the preparations of GUYWASP and possibly paid insufficient attention to the institutional changes planned through this Sector Program and their possible impact on GT2. A PPMR of 2003 drew attention to the fact that it would have been preferable to review and postpone the planned project in the light of the institutional changes, which were known about in advance of the GoG signature of June 2000.

In the event, GT2 was not aligned well with GUYWASP, and some expectations that the Bank had of the Management Contract were not met. The effect was almost 5 years delay between signing of the Loan Contract in June 2000, and effective start of disbursement in 2005 following signing of the first Amendatory Contract.

These shortcomings were in due course recognized by the Bank, and from 2005 onwards there was a much better performance. As a result the overall Bank Performance is rated as Satisfactory, and would have been seen as Highly Satisfactory if considering only the period 2006 -2010. It is noted that the Borrower has rated the Bank's Performance as Highly Satisfactory. Almost all the staff at GWI who prepared the Borrowers evaluation are currently part of the Project team were not working for GWI before 2006, and may not have fully considered the earlier issues.

Bank Performance			
<input type="checkbox"/> Highly Satisfactory (HS)	<input checked="" type="checkbox"/> Satisfactory (S)	<input type="checkbox"/> Unsatisfactory (U)	<input type="checkbox"/> Very Unsatisfactory (VU)

V. Sustainability

Environmental sustainability is not a major issue for the specific equipment installed under the Water supply component of the project. The issue of most concern will be the disposal of the alum sludge produced by the Shelter Belt filters and discharged into the drainage canal to the Demerara River. Alum sludge is unsightly and should not be ingested. There is a similar issue with the iron oxide sludge that settles out in the lagoons at the iron removal plants. No plan has been prepared for ensuring environmentally satisfactory disposal of the sludge.

The immediate environmental impact of the sewage system upgrades can only be positive. The improved disposal of sewage will reduce the unhygienic situation of sewage overflows and reduce pollution in the surface water drainage trenches of Georgetown. The improvement should however be seen as a short term action to fix a very deficient system. In the longer term there are important issues of sustainability to address. While the new "Georgetown Sewerage Rehabilitation Program" (GY-L1025) will address a number of important issues, Guyana and Georgetown have not adopted a sanitation strategy, and this should be an urgent next step. There has been no conclusive study on the environmental impact.

In the longer term, sustainability of the Shelter Belt works needs to be reviewed as part of a long term strategic plan. In the 1999 GUYWASP diagnostic study it was considered that the use of surface water, with the high chemical and power costs and increasingly polluted source, would gradually be phased out in favor of groundwater, which would be pumped from beyond the city boundaries. It was expected that demand management (through metering) and reduced leakage would lead to reduced abstraction requirements. This high-level strategic review did not form part of the recent studies and investment plans.

a. **Analysis of Critical Factors**

GWI financial sustainability is currently assured by the payment of subventions by GoG. GWI has made significant progress in reducing the gap between operating costs and Billings/Collections. However, the expectation is that the gap will start to increase within the next 5 years if there is no change to tariffs. The present method does not provide incentives to GWI to perform more efficiently, and it effectively subsidizes all customers equally, both those that could afford to pay more and those who are less able. As richer customers tend to use more water, they are the chief beneficiaries of the subvention. A revised, harmonized tariff structure that addresses the needs and ability to pay of different consumer groups, and which provides adequate income to GWI to maintain a good standard of service, should be studied and implemented as part of improved financial sustainability.

Throughout the program period, IDB and other key donors have supported improvements to general and financial management at GWI. During the past 5 years, IDB has worked ever closer with GWI as a project

partner. There has been a gradual process of capacity building, and GWI has changed greatly for the better. However, the financial status is not yet secure, and GWI remains financially dependent on Government subvention.

b. Potential Risks

Technical. The majority of the facilities constructed have not yet been proven over a significant or in some cases any period of time.² Further monitoring (physical and operational) is recommended, since modifications may be needed to optimize performance. The recently approved “Georgetown Sewerage Rehabilitation Program” (GY-L1025) will complete a number of works on the sewerage system, re-assessing the status of some of the facilities constructed (e.g., sewerage pumping stations).

Operations and Maintenance. O&M in GWI is weak due to poor preventive maintenance programs for existing equipment, lack of asset management plans, and the current ‘firefighting’ approach to repairs. Within the “Georgetown Sewerage Rehabilitation Program” GWI will prepare a 5-year maintenance plan for the facilities constructed in the last 2 IDB operations, and will receive training in asset management and specifically in O&M.

HR and Institutional Capacity. As noted below, there are capacity concerns for GWI. It has taken several years to develop the current management team as a stable group. Several senior positions are still unfilled, or filled by on an acting basis. A key Manager, the Director CIPD left to go overseas. Others expressed the intent to do so if the opportunity arises. There are a number of key posts in IT, accounts, revenue, and where it would take considerable time to rebuild knowledge should the occupants move on. Retention of skilled and experienced staff, investment in training and staff should be a priority. The GI Board could play an important role in this sense, timely filling key vacant positions and embracing a business oriented approach.

c. Institutional Capacity

Institutional strengthening was a key component (DO3) of the project. Throughout the program period, IDB and other key donors have supported improvements to general and financial management at GWI. During the past 5 years, IDB has worked ever closer with GWI as a project partner. There has been a gradual process of capacity building, and GWI has improved greatly. However, the financial status is not yet secure, and GWI remains financially dependent on Government subvention to cover the deficit between revenue collection and O&M costs. Capacity in all areas is still stretched in terms of both numbers and skills, resulting in weak strategic development, and risks to the organization should key staff leave on a temporary or permanent basis.

GWI has suffered in the past from frequent changes in senior management. During the past 7 years, there have been 6 general managers, and 4 Ministers have had responsibility for water. However, since 2007 there has generally been a more stable regime. Most of the current leadership at GWI were part of GWI at the time of the development of the Turnaround Plan. There is a much improved sense of a management team running GWI now than in the past. This has enabled the organization to move on from the upheavals of early 2009 when the Chief Executive was dismissed, and there is a good sense of commitment among the senior staff.

GWI as an organization has changed hugely since its creation in 2002. It has moved forward into the modern day and makes substantial use of IT in much of its daily activities. However, as yet the improvements within GWI have yet to be translated into a similar level of improvements on the ground, in terms of substantial improvements to levels of service to the public.

More staff is needed to ensure proper implementation of all aspects of the metering program, and for such activities as leak repair, pipeline monitoring and inspection, and at least 50 such new staff is recommended. The number of Customers is estimated at 169,000, and the current establishment is 525. It is likely that an optimum staffing level for GWI will be around 750, i.e., around 4.5 staff per 1,000 customers. Recently there has been some significant additions to the payroll which now stands at about 625, up from 495 in 20. Where the benefits of hiring additional staff can be shown to exceed the costs, either directly (as in meter

² There may still be some issues/problems that emerge over the longer term that prevent full performance, e.g. the filters are not yet tested; the modification to Tucville plant has to be completed and tested; the sewage pumping stations already show signs of needing some modifications to prevent debris from overloading the pumps; and the iron removal plants have not yet provided long term reliable operation.



reading and revenue activities) or indirectly (in terms of improved service that leads to better revenue, or reduced maintenance costs) then such staff should be hired

Remuneration is still an issue for many GWI staff, and poses difficulties in attracting appropriate staff in key areas (such as IT). Succession planning, and relevant training is an area of weakness. GWI needs to develop the skills of its enthusiastic but relatively inexperienced managers, and overseas courses are often the best opportunity for this. Donors are supportive, but there have been frequent delays/refusals to approve proposed training by Cabinet. Less senior staff also needs to follow training programs as part of career and skills development. Staff numbers at GWI should reflect the need for significant numbers to be absent for training purposes.

There is a clear need to expand the workforce of GWI to allow a number of tasks that are presently not done effectively to be done better. A 2002 World Bank publication "A Water Scorecard: Setting performance targets for water utilities" notes that the mean staff ratio for developed countries is 2.1/1,000 customers, and those ratios of over 20 are found in some developing countries. Based on the top performing 25% developing countries, it suggests a target of 5 or less. On this basis, the present staffing level at GWI appears on the low side. Given the performance levels of GWI, the present staffing ratio suggests an understaffed organization rather than a highly efficient one. If a target of 4.5 employees/1,000 customers was in place, it would imply a total of 760 staff at GWI. The proportion of costs of staff relative to other operating costs (currently about 18%) suggests that staff numbers could be increased without impacting significantly on overall costs, and would most probably result in increased revenue or reduced operating costs that would pay for the extra staff several times over. An increase of say 125 staff from 495 to 620 would cost about G\$75m or about 2% of the annual budget.

Sustainability Classification **SU:**

<input type="checkbox"/> Highly Probable (HP)	<input checked="" type="checkbox"/> Probable (P)	<input type="checkbox"/> Low Probability (LP)	<input type="checkbox"/> Improbable (I)
---	--	---	---

VI. **Monitoring and Evaluation**

a. **Information on Results**

As part of the monitoring arrangements for the STWI Management Contract, an independent consultant (Halcrow) was appointed, funded by DFID. It was agreed at that time that the independent monitoring would also serve to meet the IDB requirement for independent monitoring of the GT2, with a separate report being issued to cover the specific IDB situation. Additional reports on the financial management of GWI were also prepared by Halcrow. A baseline report was prepared in 2004 (covering 2003 performance), with 4 further reviews carried out annually in 2005-2008. This arrangement was ended with the completion of the DFID water sector funding.

As already mentioned, in 2006 a 'joint' review of GWI was carried out by the IDB and the World Bank. In November 2009, another joint review was financed by the IDB and World Bank, to monitor progress against the Turnaround Plan and the specific indicators of individual project documentation.

Generally, there is poor confidence in the baseline data. The equipment and systems for accurately monitoring important criteria were not in place. This situation has gradually improved, and there is now a great deal of data available, although there are still some important gaps. Water quality data is sparse, and as 50% of consumers are still unmetered, the use of water by unmetered consumers (and hence estimates of losses/leakage, and non-revenue water) are still uncertain. GWI continue to address these issues through sampling techniques, and by installation of more meters, both at household level and bulk meters covering Districts as part of the DMA program. Key operating data (hours, power used, water abstracted) for all the pumping stations is collected monthly, and pressure readings are taken monthly for all Zones, at 3 locations for each pumping station (close, part way and at the end of each Zone). A large amount of operating and other institutional data is now published in the monthly Management Report to GWI Board. The new IDB program includes a much improved monitoring system that will benefit greatly from this reporting mechanism.

b. **Future Monitoring and Ex-Post Evaluation**

It is not proposed to carry out an Ex-Post Evaluation.

As most of the program works were only just completed at the time of preparation of this report, there has been no opportunity for longer term reliability to be assessed, and in some cases no operating experience has been obtained yet. It is strongly recommended that further monitoring of performance of all the new

facilities be carried out, preferably at 6, 12, and 24 months from the present review, i.e. in January and July 2011, and July 2012. In particular the following need review:

Iron removal plants - Review the longer term operating results, and the impact on iron level in Georgetown water. These works were commissioned in March 2010, but at the time of review some key elements were out of action and no long term consistent operating records were available. Energy efficiency (having the lowest energy needs was a key factor in the choice of plant) should be confirmed.

Shelter belt works – At the time of review, the filter refurbishment was largely complete, but other ancillary equipment such as pumps and motors not forming part of the refurbishment were out of action so the filters were not working. Review impact of refurbished filters on biological and physical quality of water once they are commissioned. Review chlorine residuals once hypochlorite plant is repaired and operating.

Sewage Pumping stations.- The pumping stations were undergoing final commissioning at the time of review, but no long term service experience had been gained. The effectiveness of new facilities will be assessed within the new Georgetown Sanitation Improvement Program.

Tucville septic tank sludge disposal facility. Review effectiveness of facility once current modifications to add agitators to assist flow of sludge are complete.

Future monitoring of GWI as an effective operating agency will be carried out as part of the monitoring arrangements for the new IDB operations. Assistance is being given to IDB as part of the present review to develop appropriate indicators. However, GWI should also develop internally a new strategic performance document similar to the Turnaround Plan, containing new targets and indicators.

VII. Lessons Learned

1. **Coordination with other donors:** The lack of effective co-ordination with World Bank and DFID during the design phase of the project led to delay and difficulties during the next five years. From 2003/4 onwards there was better co-ordination, and this has continued to develop through to the present.
2. **Common monitoring criteria:** It is confusing to have different sets of criteria against which to monitor performance. It is also a poor use of scarce partner organization resources for them to have to report separately to several different agencies. In the case of GWI, the operator's license provides a document that all agencies could relate back to unless there is specific concern.
3. **Use of conditions:** Conditions were initially rigidly set for starting each of the different stages of the project. However some of these conditions were based on assumptions that turned out to be not correct. Whilst there is a good case in some projects for conditions, there should also be scope for flexibility so that changing circumstances can be accommodated during the course of a project.
4. **Specialist staff:** In the early stages of the project IDB did not have specialist staff working on the project, and this can be seen in retrospect to have contributed to slow progress. The appointment of specialist staff from 2005 onwards led to better mutual understanding of concerns, engendered a much better sense of collaboration and partnership. The greater transaction costs of this approach are more than offset by savings from better progress and the better relationship between Donor and Borrower.
5. **Documentation:** The logical framework was not very specific. While there is further detail on indicators in the loan agreement, it would be preferable to have all such information in a 'tighter' logframe. Also, the logframe was never updated despite the major amendments to the Contract. The new IDB operations will benefit greatly from the new monitoring project reporting mechanisms set in place in 2009/2010.



Annex 1 Minutes from the Exit Workshop³

Minutes of Exit Workshop

IDB Georgetown Water and sewage system program 2.

Workshop held 16 June 2010 at Regency Suites Hotel, Georgetown

NB the proceedings were recorded on videotape for PR and record purposes.

1 Attendance – see Annex EW1: 40 persons representing IDB, GWI, Gog, MoF, Civil Society Organisations, University of Guyana, project beneficiaries attended.

2 Project Information Provided - see Annex EW2 for Draft Executive Summary from Evaluation Report

3 Group work - See Annex EW3 for details of tasks and Groups' reports back.

4. Opening Remarks - Minister Irfan Alli, Minister of Housing and Water

Minister Alli referred to the importance of the workshop as a means for self assessment of achievement. It is an important part of lesson learning for the future, recognising both the reasons for successes and for the challenges faced by the program. He referred to the 'Culture of Collaboration' that has existed between IDB and GWI over the past 5 years, and saw this as a key reason for recent successful completion of infrastructure.

5. Opening Remarks Mr Marco Nicola IDB Guyana Representative

Mr Nicola referred to the improved status of water supply indicators in Georgetown and Guyana, and to the specific indicators relating to the financial status of GWI and the improvements in leakage and pressures. He also referred to the good working relationship between IDB and the Gog, and noted that IDB plan to continue support to the water sector in Guyana through a new project presently under preparation, and due to start later in 2010.

6. Presentation by Mr Peter Smith See Annex EW2 and EW4.

7. Focus Group Discussions. Four Groups each with members from different stakeholder types (eg GWI, Civil Society etc) were asked to discuss, agree, and present results on the following 3 important program related issues:-

- a) Perceptions of the IDB program
- b) Importance of different aspects of GWI service
- c) Key points of different aspects water and sanitation policy

7(a) Main points presented about perceptions of the IDB program were:

- IDB has a good reputation in Guyana for support programs
- Water and Sanitation is rightly seen as a priority area for IDB support
- Program was managed adequately, but will it be sustainable?
- It was a timely, appropriate and welcome initiative.
- The support to sewerage is welcome as there is little other donor support.
- Public awareness was adequate in some areas. But in most areas, there was very little awareness other than occasional press articles.

³ Original signed can be found in IDBDocs#35421428



Ref.	Description	Ranking					
		Group 1	Group 2	Group 3	Group 4	Total score	Overall Rank
A	No sewage overflows in street.	5	6	2	5	18	5
B	Good quality of water	1	1	1	1	4	1
C	Reliable, accurate bills	6	5	3	4	18	5
D	Fixing leaks quickly	2	3	5	2	13	2
E	24 hour/day service for water	4	1	6	6	17	4
F	Pressure of water can reach to upper floor level	3	4	4	3	14	3
G	Add one other important feature of service you want from GWI.	Rapid response time to billing Complaints	Good customer service and customer relations	GWI should do septic tank emptying	At least water at 1m pressure everywhere		

- Expanding and new housing schemes around Georgetown point to the need for further investment in water and sanitation.
- Water is a number 1 priority
- Good use was made of available funds
- Other water sector infrastructure is also important, not just treatment plants.
- Should be more focus on leak fixing.

7(b) In order to gauge stakeholder priorities about water service, participants were asked to rate 6 aspects of GWI service in order of importance to their Group, and also to add one other aspect of service that they felt was important.

Importance of different aspects of GWI service (see table below)

The clear priority for the groups is water quality. At present over 90% of Georgetown residents use bottled water for drinking, but there is a demand for tap water that is drinkable. It was pointed out during later discussion, that ingress of polluted water into the distribution pipes can only be achieved by maintaining pressure in pipes on a 24/7 basis.

There is little overall prioritization among other features, with fixing leaks quickly and good water pressure being the next most important to the Groups.

7(c) Groups responded to key points about the following 4 policy issues as under

- Tariffs/Metering/Billing (Financial matters)
- Water Quality issues
- Sewage Disposal
- Level of Service

Financial matters

- Current charges are OK
- Would pay more for a Much better (100% improved) service
- Meters are accepted and important, but must be reliable and accurate, not affected by iron deposits etc. and must not reduce pressure.



- Current bills level are acceptable. People would pay more for a reliable service such as that provided by the telecoms sector.

Water Quality

- GWI should provide good quality water as a matter of course
- The current low price for water is appropriate for the current poor quality
- There should be treatment plants throughout Guyana so that everyone has access to good quality water
- Fixing leaks to prevent contamination by ingress of polluted water should be a priority

Sewage Disposal

- GWI is the best placed organization to perform this function.
- No extension of sewerage should be done, septic tanks are adequate.
- Septic tanks are not well managed, EPA, GWI and other specialists should do more to educate population about correct management of septic tanks
- Sewage disposal charges should be pro rata to water bills, suggest 25% of water bill for domestic customers and 60% of water bill for commercial customers.

Level of Service

- 24 hr service might be too costly, 2 x 4hour periods of supply (sufficient to refill household storage tank is adequate.)
- GWI should do more outreach programs to determine Level of Service problems and address these.
- Large leaks should be fixed within 24 hours, others addressed immediately



Annex EW1 - Attendance at Exit Workshop

List of Participants

Senior Government Officials Mr. Irfaan Ali, Minister of Housing and Water
Mr. Zulfikar Ally, Senior Planner, Ministry of Finance

IDB Officials: Mr. Marco Nicola, Resident Representative
Mr. David Ochoa, International Financial Specialist
Mr. Naveen Jainauth Umrao, Local Financial Specialist
Mr. Marcello Basani, Water and Sanitation Specialist
Mr. Richard Raghoo, Local Procurement Specialist
Mr. Kevin Bonnet, Civil Society Coordinator
Ms. Leticia Ramjag, Operations Analyst

Representatives of Participating Institutions:

Ministry of Finance Mrs. Ronette Hetsberger-Murray, Economic & Fin. Analyst
Ms. Shellon Luke, Economic & Fin. Analyst

Guyana Water Officials Mr. Yuri Chandisingh, Chief Executive Officer
Mr. Ramchand Jailal, Program Manager
Mr. Ravin Paltoo, Finance Director

Mr. Dudistir Gookul, Project Engineer
Mr. Anil Ramnath, Project Engineer
Ms. Anandai Ramsaywack, Admin. Asst.
Mr. Timothy Austin, Public Relations Officer
Ms. Lavern Fredericks, Communications Asst.
Ms. Onika Holder, Executive Asst.
Mr. Rensforde Joseph, Sanitation Manager
Ms. Savitree Jetoo, Scientific Services Manager
Ms. Telisha Whyte, Asst. PRO

University of Guyana Dr. Anthony De Freitas, Public Health Consultant
Ms. Marlene Cox, Director, O.R.M.P.

Others:

Shirley Marques, Pattensen Village
Joan Frank, Pattensen Village
Denise Mollyneux, Pattensen Village
Olga Harris, Pattensen Village
Norma James, Section C, Sophia
Eddie Celtus
Oswald Ellis, Pattensen Village
Sabrina Bacchus, Pattensen Village
Stella Ogle, Pattensen Village
Bridget Kellman, Liliendaal
Waveney Ames, Liliendaal
Juanita Hinds, Liliendaal
Michael Singh, Basic Needs Trust Fund
Colin Marks, Pattensen

Final Evaluation Consultant Mr. Peter Smith



Annex EW2 – Project Information Provided

Final Evaluation

Guyana LO-1047/SF-GY GEORGETOWN WATER SUPPLY & SEWER SYSTEM II

Executive Summary

1 The IDB-funded Georgetown Water Supply and Sewer System 2 (GT2) program has successfully delivered a broad package of infrastructure to improve the water supply and sanitation status of Georgetown. Early indications are that the facilities will be effective, but it is too early to assess their longer term performance, as most of them were only commissioned very recently, and some are still under commissioning. The program will probably achieve most of its revised objectives.

Background

2 The program, initially valued at USD30m, originated as a follow on from the previous IDB Remedial Maintenance Program (1993-2002) which supported GS&WC in water and sanitation issues. Georgetown 2 originated in 1998, and was designed to continue support to GS&WC through a threefold program comprising:

- ◆ Further improvement of availability and quality of potable water and reliability of the system
- ◆ Improvement in the performance of the sewerage system
- ◆ Consolidation and further improvement of GS&WC as the operating agency

3 Key water supply and sewerage improvement activities were:

- ◆ Refurbishment of Shelter Belt Works
- ◆ Replacement of Distribution Mains in Zones W1, W2, W4, W14
- ◆ 16,800 Metering and Service Connections
- ◆ Iron Removal Plants at Sophia and Central Ruimveldt
- ◆ New Sewage pumps
- ◆ Modifications of old Pumping Station
- ◆ Septic Tank sludge reception works
- ◆ Upgrading of Yard and Street Sewers

4 Performance of the operating agency was to be measured in terms of:

- ◆ Reduced physical losses from 70% to 55%
- ◆ Metering increase from 20% to 50% Georgetown customers.
- ◆ Coverage of O&M+depreciation costs to increase to 100 -115% in 2000-2003, thereafter a net income of USD\$450,000 pa by 2005
- ◆ Increase in Revenue Collected from 77% to 86% of Billings.

Changes to original program

5 There were major changes to the program in 2004 and 2008. The original plan to support GS&WC had to be amended with the formation of GWI as a nationwide water supply organization in 2003. This delayed the date for first disbursement. The legal contract between IDB and GoG was invalidated by this institutional change, which delayed the start of the program, until an Amendatory Contract (#1) was signed in 2004, reconceptualizing the original three-stage approach of the operation and granting an extension of the disbursement period for an additional five years (up to 2010). Weak capacity at GWI led to further delay, so that there was little spend until 2005. Another Amendatory Contract (#2) was then signed in May 2006, to change the procurement arrangements (without affecting project scope, timeframes or budget).

6 In 2006-2007, IDB and GoG agreed a major restructuring of the loan arrangements as part of a wider international debt write-off program. As part of this, several loans that had not performed well were reduced, including the GT2. The program value was reduced from



USD30m to USD16.4m in a third Amendment to the original Contract Amendatory Contract (#3), signed in 2008. At the same time the timeframe for the program was extended to 2010, and additional targets were introduced for GWI performance.

7 The scope of work was reduced largely by removing planned upgrades to the yard and street sewers. The number of sewage pumping stations and sewage pumps was reduced, although additional funds from GoG allowed some of these to go ahead. There were also reductions in the scope of pipelines to be rehabilitated, and no meters were purchased, although the metering upgrades went ahead anyway using meters purchased through other donor programs.

Main activities

8 The major infrastructure outputs of the program have been
GWI Shelter Belt Works

- ◆ 10 Filters Refurbished
- ◆ Sludge Holding Tank constructed
- ◆ Chlorine system replaced
- ◆ Asbestos cement sheeting removal and replacement completed

Other water works

- ◆ Central Ruimveldt – 12Ml/d Iron Removal Plant
- ◆ Sophia – 12Ml/d Iron Removal Plan
- ◆ Distribution System – Zones W2, W4, W14 approx 120km pipes
- ◆ 11,000 Metering and Service Connections
- ◆ Purchase of equipment - Dataloggers, ground microphones

Sewage Disposal system

- ◆ 28 New Submersible Sewage Pumps (50% paid by GoG)
- ◆ Purchase of Sewer pipes and fittings
- ◆ 15 Sewage Pumping Stations Modified
- ◆ Tucville Septic Tank sludge Receiving Station and 3.5 km link pumping main

Results

9 The Final Evaluation Report will record the successes (and reasons for success) of the program, but concentrates more on the weaknesses, as it is in learning the lessons of these weaknesses that there is most to be gained for the future.

10 Although there is still scope for significant further improvement to levels of service, the general performance of GWI has improved markedly during the 10 years lifespan of the program. In Georgetown:

- ◆ leakage has dropped from 70% to an estimated 45%
- ◆ average pressures have risen to from around 1m to 3.5m
- ◆ Metering has increased from 20% to 50% of connections
- ◆ And Non-Revenue water has dropped nationally from a peak of about 70% to a current estimate of 53%.
- ◆ Billings are almost 100% of operating cost
- ◆ Revenue collected in Georgetown is about G\$1bn, up from G\$260 million in 1999.

Lessons learned and Comments

11 Data on performance is greatly improved in most respects, in terms of reliability and quantity, but much baseline data from the start of the program has to be considered as estimated rather than accurate.

12 Throughout the program period, IDB and other key donors have supported improvements to general and financial management at GWI. During the past 5 years, IDB has worked ever closer with GWI as a project partner. There has been a gradual process of capacity building, and GWI has changed greatly for the better during this time. However, the financial



status is not yet secure, and GWI remains financially dependent on Government subvention to cover the deficit between revenue collection and O&M costs. Capacity in all areas is stretched in terms of both numbers and skills, resulting in weak strategic development, and risks to the organization should key staff leave on a temporary or permanent basis.

13 Mainly due to large increases in power prices, operating costs of G\$4bn are now 2½ times what they were 10 years ago. However, Billings (expected to reach G\$4bn in 2010) and revenue collected (G\$2.7bn expected in 2010) are both 4 times what they were then; the gap between costs and revenue is closing. Billings now equal operating costs, although the ratio of collection to billings remains unchanged at about 70%. Nationally for 2010, revenue collected up to May, G\$1.35bn, is on track to exceed the G\$2.7bn target. About 37% of this revenue is collected in Georgetown. All donor programs have supported the improvements, and the IDB GT2 program has been a significant part of this especially in Georgetown.

14 There is limited scope for further improvements in billings, which are likely to peak within 5 years at about G\$5bn once meter coverage reaches around 75%, allowing for tariff harmonization and changes to billing practices within the current approved tariff. Collections may struggle to reach the 85% collection ratio target. Operating costs will rise regularly with inflation, unless there is a major reduction in electricity costs. In the long term there should be reductions in operating costs once leakage and wastage are reduced through effectively managed metering, and leak repair. The medium term outlook is for a continued shortfall in revenue collected vs. operating costs, implying that a continued subvention from Government and/or a tariff changes. The major cause of shortfall is due to high use by unmetered customers who pay at a low fixed rate tariff.

15 Key to further improvements will be to continue to focus on reductions in Non-Revenue Water, through the metering programs and leakage/wastage reduction, and further improvements to the service connections and distribution networks.

16 The recent successes of the Georgetown program are tempered by the early stage delays and changes to the original program. Initially valued at \$30m, it was revised to deliver a reduced scope of works valued at 55% of that amount. There was a delay of almost 5 years from 2000 to 2005 in the effective start date. There were several causes of delay. The first 2½ years' delay from mid-2000 to end-2002 was due to changes in of the institutional arrangements including the merging of the original project partner, GS&WC, with GUYWA to form GWI. This required an amendment to the GT2 program contract which took a further 20 months. The management and staffing arrangements at GWI at that time were inadequate and it took a further 6 months before an effective start could be made in 2005. Communications and coordination between GoG and IDB and other donor programs should have been better and could have prevented these issues.

17 The poor program performance during this first 5 years was an important factor in the IDB/GoG decision to reduce the allocation to the water program at the time when the IDB Guyana program was restructured as part of a debt write-off. However, now that greater capacity and stability exists at GWI, most of these reductions are expected to be taken forward in new programs currently being developed by IDG and GoG/GWI, and likely to start within the next 6 months.

18 During 2005 - 8 there was reasonable progress, but a further series of delays during the procurement and contract award procedures slowed this down. Eventually all these issues were resolved, and since 2008 the program has moved forward well, and completed all the currently planned expenditure and infrastructure. The fact that a large amount of the original scope of works has been completed despite the revision to the program funds, and despite price rises due to delays in implementation, indicates that in general good value for money has been achieved. The commitment, enthusiasm and ability of the GWI staff in overcoming these challenges during implementation is recognized.



19 The current GWI management team has mostly been in place for 3 years or more – a much more stable regime than previously. The present team developed the 2007 Turnaround Plan and have 'bought-in' to this as an achievable strategic document supported by IDB and other donors.

20 There is a risk that the capacity built up during the recent program may dissipate as key team members move on. There is still a big job to do at GWI, some staff would be difficult to replace and would take a great deal of institutional knowledge and know-how if they left. Most departments within GWI need additional staff to be able to deliver their tasks efficiently and effectively. Further development of staff capacity in quality and quantity is essential for the continued health of GWI. Training is still a neglected area at GWI



Annex EW3 Powerpoint presentation by P Smith


 **Exit Workshop - Georgetown II Water and Sanitation Program** 

♦ **Exit Workshop**

♦ **Purpose**

- ♦ Present Findings of Evaluation Study
- ♦ Consult with wider Stakeholders
- ♦ Listen to and Record Feedback
- ♦ Discussion Groups to comment / make suggestions
- ♦ Include Feedback and Comments in Final Evaluation Report
- ♦ Learn Lessons
- ♦ Make recommendations based on Lessons

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 1

 **Exit Workshop - Georgetown II Water and Sanitation Program** 

♦ **Presentation By Peter Smith**

- ♦ Independent Water Sector Specialist, contracted by IDB to Evaluate Georgetown 2 program
- ♦ Guyana visits 1993, 2002,
- ♦ Full time 2003-2006, GWI programs, Advisor to Minister Baksh , sector co-ordinator
- ♦ Regular visits 2006-2010, monitor GWI programs
- ♦ Worked for DFID, also shorter assignments for PAHO (Guyana sanitation strategy), World Bank , IDB (monitoring and Evaluation)

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 2

 **Exit Workshop - Georgetown II Water and Sanitation Program** 

♦ **Background to GT2 Program**

- ♦ GS&WC Georgetown I program 1993 – 2002

Three-part Program Purpose

- 1 Further upgrades to water supply essential
- 2 Sewage disposal system failing
- 3 Institutional Support, Financial Management, Design, Procurement, and Construction

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 3

 **Exit Workshop - Georgetown II Water and Sanitation Program** 

- ♦ Original Approved Amount - USD 27,000,000
+ from GoG USD 3,000,000
30,000,000
- ♦ Current IDB Amount - USD 14,760,800
- ♦ Cancelled Amount - USD 12,239,200 (2006 revision)
- ♦ Disbursed to Date USD 14,776,800 (100% spend)
- ♦ GoG Amount (12.3%) - USD 2,100,000 Plus G\$40m (USD 200k) for extra sewage pumps

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 4

 **Exit Workshop - Georgetown II Water and Sanitation Program** 

♦ **Improvements to Water Supply**

- ♦ Refurbishment of Shelter Belt Works
- ♦ Replacement of Distribution Mains
- ♦ Metering and Service Connections
- ♦ Iron Removal Plants

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 5

 **Exit Workshop - Georgetown II Water and Sanitation Program** 

♦ **Improvements to Sewage Disposal**

- ♦ New Sewage pumps
- ♦ Modifications of old Pumping Stations
- ♦ Septic Tank sludge reception works
- ♦ Upgrading of Yard and Street Sewers

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 6



Exit Workshop - Georgetown II Water and Sanitation Program

- Consolidation and Further Improvement of GS&WC as the Operating Agency
- Project Management Firm
 - Design, Procurement, and Supervision
 - Reduced Leakage
 - Increased Metering
 - Increased Revenue

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 7

Exit Workshop - Georgetown II Water and Sanitation Program

- Program Overview(1) The plus side
 - Successful implementation of (revised scope) infrastructure package
 - Improvements to GWI organizational Capacity and better performance against all indicators
 - GWI achieve most of targets set in 2007 turnaround plan and 2007 Amended Contract
 - Solid partnership between IDB and GWI/GoG

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 8

Georgetown II Water and Sanitation Program

- Project Overview (2) The down side
 - Poor co-ordination at design stage between IDB, GoG, and other donors
 - Severe early delays, other delays during implementation. Finish 5 years later than plan
 - Revised scope of works ~ 57% of original budget

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 9

Exit Workshop - Georgetown II Water and Sanitation Program

- Timeframes
 - Planned June 2000 – June 2005
 - Actual June 2000 – June 2010
 - Negligible spend until 2005

Annual Disbursement

Year	Annual Disbursement (\$ million)
2000	0.0
2001	0.0
2002	0.0
2003	0.0
2004	0.0
2005	0.0
2006	1.0
2007	2.0
2008	2.5
2009	3.0
2010	3.5

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 10

Exit Workshop - Georgetown II Water and Sanitation Program

- Reasons for delayed Start:
 - Merger of GS&WC with GUYWA to form GWI
 - Management Contract (STWI) did not deliver as planned and was eventually terminated
 - Procurement and Contract Award problems
 - Technical Capacity at GWI

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 11

Exit Workshop - Georgetown II Water and Sanitation Program

Map of Georgetown: Showing 17 Zones, Bore Holes & Treatment Plants.

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 12

Exit Workshop - Georgetown II Water and Sanitation Program

- ◆ Main Works Completed - Water Supply (1)
 - ◆ Shelter Belt
 - ◆ 10 Filters Refurbished
 - ◆ Sludge Holding Tank constructed
 - ◆ Chlorine system replaced
 - ◆ Asbestos cement sheeting removal and replacement completed

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 13

Exit Workshop - Georgetown II Water and Sanitation Program

- ◆ Main Works Completed - Water Supply (2)
 - ◆ Central Ruimveldt – 12MI/d Iron Removal Plant
 - ◆ Sophia – 12MI/d Iron Removal Plant
 - ◆ Distribution System – Zones W2, W4, W14
 - ◆ Metering and Service Connections
 - ◆ Purchase of equipment – Data-loggers, ground microphones

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 14

Exit Workshop - Georgetown II Water and Sanitation Program

- ◆ Main Works Completed – Sewage System
 - ◆ 28 New Submersible Sewage Pumps (50% paid by GoG)
 - ◆ Purchase of Sewer pipes and fittings
 - ◆ 15 Sewage Pumping Stations Modified
 - ◆ Tucville Septic Tank sludge Receiving Station and 3.5 km link pumping main

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 15

Exit Workshop - Georgetown II Water and Sanitation Program

- ◆ Progress and Performance (1) - Water
 - ◆ All planned works are substantially and successfully completed.
 - ◆ Iron Removal Plants Commissioned, handed over and being operated by GWI
 - ◆ Over 120km new Distribution systems, in operation for more than a year
 - ◆ Filters awaiting funds for refurbishing backwash, air scour systems

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 16

Before and After - Improvements in Pressure at Georgetown during the past year since completion of distribution pipelines and service connections

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 22

Exit Workshop - Georgetown II Water and Sanitation Program

- ◆ Progress and Performance (2) Sewage works
 - ◆ 2 (of 15) Sewage Pumping Stations operational, others being commissioned this week.
 - ◆ Tucville works complete, but not able to receive septic tank sludge, awaiting agitator
 - ◆ 13 sewage pumps, sewers, valves etc purchased for future installation under other funding

29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 23



Exit Workshop - Georgetown II Water and Sanitation Program



Plant Performance

- Too soon to tell for the iron removal plants, still in immediate post-commissioning period, subject to teething troubles, no long term performance records yet
- Too soon to tell for the sewage pumping stations. Only 2 commissioned so far, others being commissioned this week. Minor modifications to deal with rags, large debris, etc will be needed.



29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com

26



Exit Workshop - Georgetown II Water and Sanitation Program



- Tucville Sludge reception plant. Not operating yet, (except for local sewage)- needs modification
- Shelter Belt Filters not yet commissioned, other plant items (backwash, air scour) need to be repaired
- Distribution pipes – in use over 12 months, no significant concerns, good results
- Meters & Service connections working well, as seen by pressure improvements, revenue.



29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com

27



Exit Workshop - Georgetown II Water and Sanitation Program



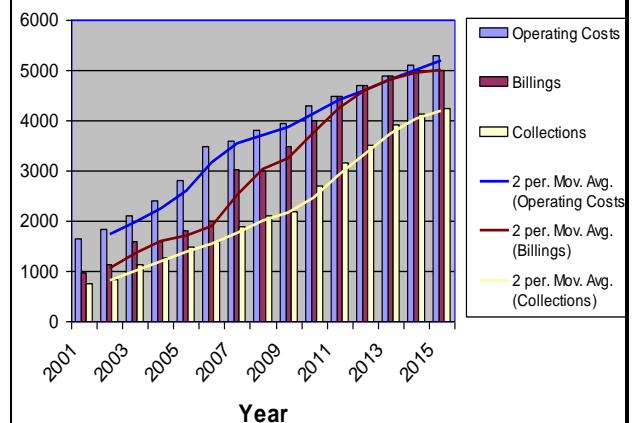
- Consolidation and Further Improvement of GS&WC as the Operating Agency
- Capacity Building
- Financial Management
- Procurement and contract supervision



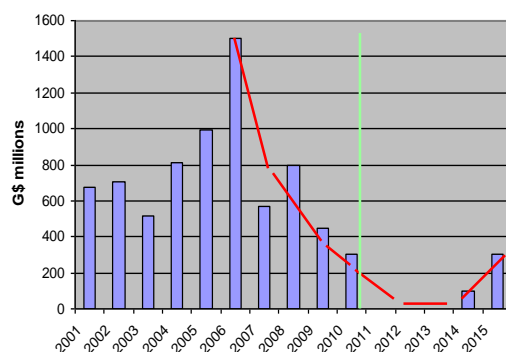
29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com

28

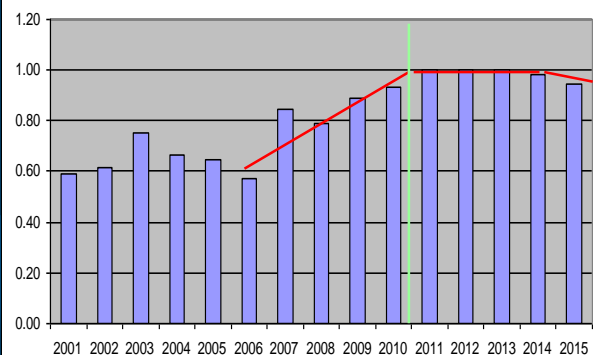
Trends for Costs and Revenue




Operating Costs minus Billings




Billings/Op.Costs








Exit Workshop - Georgetown II Water and Sanitation Program




- ◆ Group Work after Refreshment break
- ◆ Intentions –
 - ◆ To gather wider stakeholder views on the project, GWI, and water sector policy
 - ◆ To learn more lessons about program performance from users
 - ◆ To get general feedback for inclusion in the report




29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 32




Exit Workshop - Georgetown II Water and Sanitation Program




- ◆ Group Work

- 1 Views on the IDB program
- 2 Views on GWI Service
- 3 Views on policy regarding different aspects of water sector

Enter the Group's views, these will be included in the Project Completion Report.




29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 33



Exit Workshop - Georgetown II Water and Sanitation Program



- ◆ Thank you for Listening
- ◆ Thanks to GWI management and staff, and others consulted, for time and data provided
- ◆ Thanks to Board and Minister for encouraging open access to GWI Staff and documentation
- ◆ Thanks to IDB staff for support, and open access to IDB documentation




29-Sep-10 Peter Smith Water & Development Ltd. petergsmith@aol.com 34

Annex EW4 – Group Work tasks

IDB - Georgetown Water and Sewage System 2 Exit Workshop, 16 June 2010

Group Discussion Tasks

Choose a spokesperson for your Group, who will record the discussion and make a short verbal presentation of the conclusions to the workshop.

1 About the IDB Georgetown 2 Program

What is the Group's view about the IDB support to Water and Sanitation in Georgetown? How much did you know about the project? Is this the best use of IDB funds, or are other sectors more important? Do you have a view on how effectively the program was managed? Write down the Groups 3 main viewpoints on the attached sheet.

2 GWI Service

Rate the following aspects of GWI service in order of priority from your Group's point of view. Fill in the attached sheet.

- A No sewage overflows in street.
- B Good quality of water
- C Reliable, accurate bills
- D Fixing leaks quickly
- E 24 hour/day service for water
- F Pressure of water can reach to upper floor level
- G Add one other important feature of service you want from GWI.

3 Water/Sanitation policy issues

Group 1 Discuss the issues linked to TARIFF, METERING and BILLING. Is water expensive? Would you pay more for a better service.? Are your bills reasonable. Has a meter been a benefit or not? Write down 4 key points on the attached sheet.

Group 2 Discuss issues of WATER QUALITY. Eg What quality of water should GWI provide. Should it be treated at all? Does it cost too much.? Write down 4 key points on the attached sheet.

Group 3 Discuss the SEWAGE DISPOSAL system in Georgetown. Is GWI the best operator? Should the sewers be extended to other areas? Who should pay, and how much?

Group 4 Discuss the LEVEL OF SERVICE you think GWI should provide, for the current tariff. How many hours per day? What pressure? What response time to faults?



Three Main point about IDB Program

1	
2	
3	

Importance of different aspects of GWI service

Reference	Description	Rating (1 to 7)
A	No sewage overflows in street.	
B	Good quality of water	
C	Reliable, accurate bills	
D	Fixing leaks quickly	
E	24 hour/day service for water	
F	Pressure of water can reach to upper floor level	
G	Add one other important feature of service you want from GWI.	


Four key points about the Group's Water policy issue

1	
2	
3	
4	



Annex 2 – Borrower's Evaluation⁴

Page 1 of 3

 Inter-American Development Bank Project Completion Report –2010 PCR Borrower's Evaluation	
Project Name: Georgetown Water Supply and Sewerage Programme II	
Executing Agency(ies): Guyana Water Incorporated	
Borrower: Government of Guyana	
Date of Project Approval: December 1, 1999	Date of Contract Effectiveness: June 14, 2000
Date of Borrower Evaluation: June 07, 2010	Expected Date of Exit Workshop: June 16, 2010

Borrower Project Performance Ratings

Probability on Achieving its Development Objective(s):

[**Y**] Highly Probable (HP) [] Probable (P) [] Low Probability (LP) [] Improbable (I)

Project Implementation:

[] Highly Satisfactory (HS) [**Y**] Satisfactory (S) [] Unsatisfactory (US) [] Very Unsatisfactory (VU)

Sustainability of Project Results:

[**Y**] Highly Probable (HP) [] Probable(P) [] Low Probability (LP) [] Improbable (I)

Comments:

The project has indeed resulted in the achievement of the development objectives which include the improvement of water quality and sanitation services in Georgetown. The initial slow implementation of the project during the first half of the duration resulted in delays in commencement of some of the major contracts. However, the contracts were subsequently awarded in the second half of the programme and the results has yielded continuous improvement in the water and sanitation services.

A 5-Year maintenance plan is being prepared which will be accepted by the Operations Department and immediately implemented. The annual budget will include the Operation and Maintenance activities as per the plan.

⁴ Original signed can be found in IDBDocs#35421513



Borrower Performance During Project Preparation

Please rate your own performance during Project Preparation:

☒ Highly Satisfactory (HS) ☐ Satisfactory(S) ☐ Unsatisfactory (US) ☐ Very Unsatisfactory (VU)

Comments:

The Project Preparation phase is rated as Highly Satisfactory since it resulted in acquisition of the Loan in order to fund the investment required to achieve the development objectives in Georgetown.

Borrower Performance During Project Execution

Please rate your own performance during Project Execution:

☐ Highly Satisfactory (HS) ☒ Satisfactory(S) ☐ Unsatisfactory (US) ☐ Very Unsatisfactory (VU)

Comments:

The performance of the initial Project Execution Unit is rated as Satisfactory since the projects were moved to higher stages in implementation. However, the performance of the existing Project Team is rated as Highly Satisfactory since the projects have been successfully taken to completion stage, given a number of technical and financial challenges that were encountered. Overall, the performance of the Project Team is rated as Satisfactory and there is room for further improvement.



Bank Performance During Project Preparation

Please rate the Bank's performance during project preparation. Factors to be considered include the extent to which the Bank facilitated a participatory project design, proposed adequate technical solutions to the problems identified, and responded to the needs of the Borrower (timeliness, selection of instrument type).

☒ [Y] Highly Satisfactory (HS) ☐ [] Satisfactory(S) ☐ [] Unsatisfactory (US) ☐ [] Very Unsatisfactory (VU)

Comments:

The Bank was very supportive to the Project Team in the Project Preparation stage in order for the loan to be accepted. In addition, adequate technical support was provided to finalise the major contracts in order for the awards to be made. It is clear that sufficient technical comments and solutions were contributed to the successful preparation of the projects and in a timely manner.

Bank Performance During Project Supervision

Please rate the Bank's overall performance during project supervision. Factors to be considered include technical assistance (including informal and formal training) to Executing Agency, timeliness of Bank response and the Bank's flexibility to respond to emergency situations during project implementation.

☒ [Y] Highly Satisfactory (HS) ☐ [] Satisfactory(S) ☐ [] Unsatisfactory (US) ☐ [] Very Unsatisfactory (VU)

Comments:

The Bank's overall performance is highly rated since excessive technical assistance was provided when necessary and this resulted in more sustainable projects. In addition, timely feedbacks were received during project implementation in cases where there were changes in contract scope or variations. Additionally, the Bank conducted numerous essential visits to the project sites which enabled the team to provide timely feedbacks consistent with GWI requests .

Additional Suggestions for Improving Bank Performance

Altogether, the Bank's performance has been rated as Excellent since full support was received during project preparation and implementation.



GUYANA

GEORGETOWN WATER SUPPLY AND SEWERAGE REHABILITATION PROGRAM II (GY-0054)

PROCUREMENT

PROCUREMENT PLAN		Financing (US\$ million)				
Number	Goods procurement and construction	IDB	LOCAL	TOTAL COST	METHOD	PUBLICATION (quarter/year)
1	Project Management Firm	3.5	0	3.5	ICB	Q1/Y1
2	Supply and construction, works in Stage A: -construction of Central Ruimveldt iron removal plant -rehabilitation and sectorization of zones W1, W2 & W4 -installation of meters in zones W1, W2 & W4 -rehabilitation of sewerage pumping station	5.61	0	5.61	ICB	Q3/Y1
3	Final Design, works in Stage B	0.25	0	0.25	ICB	Q2/Y2
4	Supply and construction, works in Stage B: -construction Sophia iron removal plant -rehabilitation of zone W14 and sectorization of the remaining zones -installation of water trunk mains -installation of meters in zones W14, W3, W7, W8, W12 & W13	5.375	2.040	7.415	ICB	Q4/Y2
5	Final Design, works in Stage C	0.25	0	0.25	ICB	Q2/Y3
6	Supply and construction, works in Stage C: -rehabilitation of the sewer system -construction of a sludge pretreatment facility	4.760	0	4.760	ICB	Q4/Y3

LCB Local competitive bidding

ICB International competitive bidding

Annex 3 Logical Frameworks and Procurement Plan (June 2000)

Narrative Summary	Indicators	Means of Verification	Risks/Assumptions
GOAL To improve the sanitary conditions of the population in Georgetown and reduce the current level of environmental degradation through an improvement in the quality of water supply and sewerage services	Incidence of water borne diseases	Health Indicators	
PURPOSE 1. Further improvement of availability and quality of potable water and reliability of the system 2. Improvement in the performance of the sewerage system 3. Consolidation and further improvement of GS&WC as the operating agency	The image of GS&WC as an operating agency has improved and changes in the quality of service reflect in an increase of collections	Focus groups and other customer surveys	Other factors affecting health conditions do not worsen, like for example the collection and disposal of solid waste.
PURPOSE (1) Further improvement of availability and quality of potable water and reliability of the system			
OUTPUTS <ul style="list-style-type: none"> Quality of the water supplied to customers is improved. Pressures in the distribution system have increased. There is a more efficient use of available water 	<ul style="list-style-type: none"> Iron content in water treated by the iron removal facilities has been reduced to 0.5mg/l Average pressure in the system has increased to 10 psi (NB 10 psi = 6.7m water) Physical losses have been reduced from 70% to 55% 	<ul style="list-style-type: none"> Monitoring program based on sampling and lab analysis GS&WC operating reports GS&WC operating reports 	GS&WC operates the new system efficiently and effectively
ACTIVITIES <ul style="list-style-type: none"> Construction of iron removal plants in two production sites Installation of 7650m of water trunk mains. Rehabilitation of four zones of the distribution system Sectorization of the distribution system Installation of 16,800 meters 	BUDGET IN MILLIONS OF US\$ <ul style="list-style-type: none"> Central Ruimveldt: US\$0.9m Sophia: US\$0.9 Agricola: US\$0.3; Turkeyen: US\$0.6 Zone W1: US\$1.0; W2: US\$1.9 W4:US\$1.2; W14: US\$1.5 Sectorization: \$0.4 Meters: US\$1.8 	Semi-annual reports and financial statements of the program	Tender calls for construction of proposed works are successful and construction quality is satisfactory

Narrative Summary	Indicators	Means of Verification	Risks/Assumptions
PURPOSE (2) . Improvement of the performance of the sewerage system			
OUTPUTS <ul style="list-style-type: none"> Blockages in the sewerage system have been reduced Sludge from septic tanks is disposed of properly 	<ul style="list-style-type: none"> All pumping stations are working normally and there are no more spillovers of sewage There is no more discharge of sludge in drainage ditches or sewage pumping stations 	<ul style="list-style-type: none"> GS&WC operating reports and complaints from customers Visual inspection of current problem areas 	GS&WC operates the new system efficiently and effectively
ACTIVITIES <ul style="list-style-type: none"> Rehabilitation of the sewer system Construction of a sludge pre-treatment facility 	BUDGET IN MILLIONS OF US\$ <ul style="list-style-type: none"> Pumping stations US\$ 2.6; Yard sewers: US\$2.7; Street sewers US\$1.3 Sludge pre-treatment facility US\$0.8 	Semi-annual reports and financial statements of the program	Tender calls for construction of proposed works are successful and construction quality is satisfactory
PURPOSE (3) Consolidation and further improvement of GS&WC as the operating agency			
OUTPUTS <ul style="list-style-type: none"> GS&WC operating efficiency has been improved GS&WC financial situation has improved 	<ul style="list-style-type: none"> Physical losses have reduced from 70% to 55% by the end of the program. Metering has increased from 14% to 50% of customers Coverage of O&M+D is 100% in 2000, 104% in 2002, and 115% in 2003, and thereafter; a net income of US\$100,000 is generated in 2002 and US\$450,000 in 2003 and thereafter; collections have increased from 77% to 86% 	<ul style="list-style-type: none"> GS&WC operating reports GS&WC financial statements and collection reports 	The project management firm has the means and the incentives to achieve the agreed benchmark, and GS&WC provides adequate counterpart personnel
ACTIVITIES <ul style="list-style-type: none"> Contracting of a Project management Firm 	BUDGET IN MILLIONS OF US\$ <ul style="list-style-type: none"> Project Management Firm: US\$3.5m 	Semi-annual reports and financial statements of the program	Tender calls for selection of firms are successful and services provided by those firms are adequate.

Annex 4 Evolution of Project indicators

#	Indicator	Baseline	Original Contract					After Amendatory Contract #1				After Amendatory Contract #3
			2000	2001	2002	2003	2004	Stage 1	Stage 2	Stage 3	End of Program	Expected at end of program
1	Coverage of Operating Expenses (in %) Calculated as: Revenues from tariffs divided by O&M + Dep. Cost	69%	100%	101%	104%	115%	115%	69%	85%	100%	110%	70%
2	Coverage of Operating Expenses (in %) Calculated as: Revenues from tariffs divided by O&M	47%										80%
3	Coverage of Operating Expenses (in %) Calculated as: Revenues from tariffs plus Government Grant divided by O&M + Dep. Cost	80%										100%
4	Net Income (in millions of Gs)	-56	0.0	3.7	18.6	77.5	77.7	-56	50	150	300	50
5	Collections (in %) Calculated as: Collections divided by Billing	70%	79%	83%	85%	86%	86%	70%	80%	85%	85%	80%
6	Coverage of metering (%) - Georgetown Calculated as: Customers billed on metered basis divided by total customers	20	29%	46%	59%	72%	85%	20%	50%	80%	85%	50
7	Physical Losses (in %) - Georgetown Calculated as 1- volume of water supplied to customers divided by volume of water produced	70	66%	63%	60%	57%	55%	70%	60%	50%	45%	60
8	Quality of Service – Georgetown Level of iron (mg/l) Average of three largest sources	1.5						1.5	0.6	0.55	0.5	0.5
9	Quality of Service – Georgetown Total Coliform (CFU)	8										2
10	Continuity of Service – Georgetown Hours of water delivery/day at 2m pressure	3						3	17	20	24	20
11	Sewage Disposal Efficiency – Georgetown Hours of operation of sewage pumps divided by total hours	46%										70%

Annex 5 IDB Guyana: Future Operations in Water and Sanitation

GY-L1025: Georgetown Sanitation Improvement Program

Borrower: Co-operative Republic of Guyana	
Executing Agency: Guyana Water Incorporated (GWI)	
Source (US\$)	Amount
IDB (OC)	US\$ 4,750,000
IDB (FSO)	US\$ 4,750,000
Local	US\$ 500,000
Total	US\$ 10,000,000
Approval	October 2010

Project Rationale

The need for investments in the water and sanitation sector in Guyana is extensive. While the water sector has received more consistent support from the Bank, the sewerage system in Georgetown has been somehow neglected (as mentioned above, Amendatory Contract #3 cut back the resources of GT2 originally allocated for the improvement of the Georgetown sewerage system). This has resulted in a series of accidents, notably on July 11, 2010, when there was a rupture in a section of the ring main which damaged the pavement of the road above; and on July 20, 2010, when a break in a sewer line occurred in the center of town. These accidents have inconvenienced the population, and increased health and environmental risks. In consultation with the GOG, it was decided to address this emergency situation with a much needed rehabilitation intervention of key assets of the Georgetown's sewerage system, which covers a densely populated area thriving with markets and businesses.

Objective and Components

The proposed program aims to: (i) improve the operational performance of the Georgetown sewerage system through the reconstruction of its most critical components; (ii) strengthen GWI operational and financial performance by improving asset management and decreasing energy consumption; and (iii) limit the transmission of the water-related diseases lymphatic filariasis and intestinal helminthiasis. It is proposed that the program be comprised of four components as outlined below:

- **Component 1: Rehabilitation of Georgetown's Sewerage System:** This component will include: (i) complete replacement of the 5.5 Km sewerage ring main in Georgetown, including the necessary allowances for the future connection to a wastewater treatment facility; (ii) replacement of delivery mains; (iii) purchase and installation of additional pumps for the 24 existing pumping stations, to ensure adequate pressure and operational reliability, and improvement of the electrical connection to the grid; (iv) assessment and emergency rehabilitation of street sewers in selected areas; and (v) purchase of maintenance and operating equipment.
- **Component 2: Institutional Strengthening of GWI:** This component will address the need to strengthen GWI's Wastewater Management Division and an Energy Efficiency Group, and will include: (i) development of an asset management implementation strategy, focusing mainly on operation and maintenance of physical assets; (ii) knowledge transfer and staff training programs; and (iii) public awareness campaigns.
- **Component 3: Energy Efficiency Pilot Project:** This component will include: (i) purchase of portable measuring equipment; (ii) replacement of inefficient pumping equipment and



operational improvements of electric motors in 12 selected locations; and (iii) hydraulic efficiency modeling of two distribution systems.

- Component 4: Prevalence Reduction in Water Related Diseases: The component will address the need to eliminate NTDs and will include: (i) mapping exercises; (ii) Mass Drug Administration activities (Diethylcarbamacin and Albendazole) in Region 4; (iii) community mobilization; (v) monitoring activities; and (iv) project management activities.

RG-X1011 "Caribbean Regional Fund for Wastewater Management Project"

The Bank's involvement in the Guyana sanitation sector is complemented by RG-X1011 "Caribbean Regional Fund for Wastewater Management Project" (CReW). Under the CReW, financed by the Global Environment Facility (GEF), the Bank is partnering with the United Nations Environment Programme (UNEP) to implement pilots in different countries, with the goal of mobilizing investments in wastewater management in the wider Caribbean region. Guyana has been selected as one of the pilot locations whereby \$3 million is allocated for a National Revolving Fund for Wastewater Management (NFWM). Individual wastewater projects would be funded through the NFWM, based on financially sustainable principles, impact to the coastal waters that feed into the Caribbean Sea, and with engagement from both the public and private sector entities. The first generation of wastewater projects is expected to be identified in 2011.

GY-L1036: Linden Water Supply Rehabilitation Program (pipeline 2011)

Borrower: Co-operative Republic of Guyana	
Executing Agency: Guyana Water Incorporated (GWI)	
Source (US\$)	Amount
IDB (tentative)	US\$ 12,000,000
Local	To be defined
Total	To be defined
Suggestive date approval	June 2011

Project Rationale

Located about 100 km inland from the Guyana's Atlantic coast and with a population of approximately 35,000 inhabitants, Linden is the second largest town in Guyana. The problems in the Linden water supply network are somehow amplified by the unsuitable system design, with head-works designed to pump peak flow directly into the distribution network, leading to pressure surges and to the adoption of large diameter pipes, both causes of higher losses. Other problems include: (i) discontinuity in water supply with an average of 8 hours/day of service, (ii) pressure as low as 1 m in many areas of the network; (iii) poor quality of water supplied, often below standards; (iv) high generalized water losses in the network (up to 85% in some areas), with consequential waste of energy and water resources.

Objective and Components

The general objective of the proposed operation is to improve efficiency, quality and sustainability of the potable water services provided in Linden. The specific objectives are to: (i) optimize the performance of the system; (ii) reduce the level of NRW; (iii) strengthen GWI performance in terms of operation and maintenance practices. It is proposed that the program be comprised of three components as outlined below:

- Component 1: Optimization of the water supply system: Based on the recommendations from the ongoing ATN/OC-11805, this component will finance the works and activities required to improve the hydraulic performance and the quality of the water supply system in Linden. The



component may include: (i) the construction of two large reservoirs (both completed by a smaller elevated tank) aimed to ensure water supply continuity and better pressure in the distribution network; (ii) the construction of two new treatment plants to ensure the correct quality standards to the water provided.

- Component 2: NRW Program: This component will finance activities to reduce the level of NRW in Linden. It will include: (i) development of a NRW management program to address, monitor and control physical and commercial losses; (ii) installation of micro-meters; (iii) system sectorization and rehabilitation of part of the network.
- Component 3: Institutional strengthening of GWI: This component will address the institutional strengthening needs of GWI in Linden. Some of the potential activities under this component might include: (i) capacity building on operation and maintenance; (ii) public awareness campaigns.



Annex 6 Principal persons met/consulted, and field visits

A Bharatt	GWJ Head of Internal Audit
A Gafoor	GWJ Director Capital Investment and Planning
C Chan	GWJ Monitoring and Evaluation
C Garzon Lopez	IDB Washington Water & Sanitation specialist
C Niles	GWJ Divisional Manager, Georgetown
D Dewar	Former Dep GM, GS&WC, ex-project manager GWJ
D Gookul	GWJ Engineer (IDB Sanitation)
E Aaron	GWJ National Head of Revenue
E McGarrell	Permanent Secretary, MoHW
F Luisi	Hydea Consultant on next phase of IDB support
G Doris	GWJ Director of Human Resources
G Santucci	Hydea Consultant on next phase IDB support
G Valentini	World Bank Res. Rep., Guyana
H Burton	IDB Washington Water & Sanitation specialist
Hon Irfaan Ali	Minister for Housing and Water
J Codette	GWJ Head of Operations
J Colston	IDB Social Protection & Health Division
J Ragnauth	GWJ Billings manager
J Ram	GWJ Financial Accountant
J Thomas	Customer Services Manager
M Basani	IDB Water & Sanitation Specialist, Guyana office
M Chase	GWJ acting Head of IT
M Nicola	IDB Resident representative, Guyana
M Singh	GWJ Management Accountant
M Small	GWJ key accounts manager
N Niles	GWJ Director of Corporate Services
O Bissoon	GWJ Engineer CIPD (NRW)
O Browne	GWJ IDB/World Bank project engineer
R Dookhoo	Deputy Chairman, GWJ Board of Directors
R Jailal	GWJ, IDB/World Bank Project manager
R Paltoo	GWJ Director of Finance
R Rajnarine	Former Head, GUYWA and ex IDB project manager
R Joseph	GWJ head of Sanitation
S Jettoo	GWJ head of Scientific Services
X Grau (Telecon)	IDB Water & Sanitation Specialist, DR
Y Chandisingh	GWJ Chief Executive

Attendees at the Exit workshop (see separate list in Annex 1)

Site staff at Central Ruimveldt and Sophia Iron Removal Plants

Field visits to Central Ruimveldt and Sophia Iron Removal plants

Field Visits to New Sewage Pumping stations and Tucville Septic tank Sludge disposal works, and Sea outfall



Annex 7 Bibliography/Key Documents reviewed and referred to

NB data is too large to attach in detail to the report.

1. IDB Loan Contract for GT2
2. PPMR's for GT2
3. IDB Semi –Annual Report June 2009
4. Amendatory Contracts # 1 and 3 for GT2
5. IDB project disbursement records for GT2
6. GWI Monthly Management/Board reports for January 2008 – April 2010
7. University of Guyana reports on Health indicators –baseline and April 2010 update
8. Presentations to GWI Board on TAP achievement and future investment strategy
9. Detailed water quality reports by Division Jan 2008 0 October 2009
10. Detailed reports of small and large leaks reported and repaired 2008 -2009
11. Detailed billing and revenue collection records 2008 – 2010
12. Metered accounts details
13. Annual Monitoring of GWI reports by Halcrow Consultants 2004-8
14. Database verification exercise monthly reports 2008 – 2009
15. IDB/Ram & MacRae 2008 Review of GWI Finances
16. Analysis of GWI Financial Performance for 2009 (internal GWI doc.)
17. GWI Internal Audit report for 2009
18. GWI Audited Financial Statement for 2008
19. Level of service maps for all Divisions 2005 – 2010
20. DFID documents for Management Contract
21. GUYWASP Project Memorandum
22. JICA April 2010 report on asset management for GWI
23. Annual independent reviews of GWI by Halcrow consultants 2003-2007#
24. Independent reviews of GWI Financial and Accounting procedures by Halcrow consultants 2004 and 2007

