

Document of
The World Bank

Report No: ICR00001863

IMPLEMENTATION COMPLETION AND RESULTS REPORT
(IDA-P088030)

ON A

GRANT

IN THE AMOUNT OF SDR 7.5 MILLION
(US\$ 11.3 MILLION EQUIVALENT)

TO THE

REPUBLIC OF GUYANA

FOR A

WATER SECTOR CONSOLIDATION PROJECT

SEPTEMBER 22, 2011

Urban, Water and Disaster Risk Management Department
Caribbean Country Management Unit
Latin America and Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective 05-10-11)

Currency Unit=
1.0 = US\$ 0.0049
US\$ 1.00 = GYD 206

FISCAL YEAR
January1 – December 31

ABBREVIATIONS AND ACRONYMS

CAS	Country Assistance Strategy
DFID	Department for International Development (U.K.)
GoG	Government of Guyana
GS&WC	Georgetown Sewerage and Water Commissioners
GUYWA	Guyana Water Authority
GWI	Guyana Water Incorporated
IDB	Inter-American Development Bank
IDA	International Development Association
MC	Management Contract
NRW	Non Revenue Water
O&M	Operations and Maintenance
PAD	Project Appraisal Document
PDO	Project Development Objectives
PIU	Project Implementation Unit
WTP	Water Treatment Plant

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Guyana
Water Sector Consolidation Project

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A. Basic Information			
Country:	Guyana	Project Name:	Guyana Water Sector Consolidation Project
Project ID:	P088030	L/C/TF Number(s):	IDA-H1800
ICR Date:	09/29/2011	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	GOVERNMENT OF GUYANA
Original Total Commitment:	XDR 7.50M	Disbursed Amount:	XDR 7.50M
Revised Amount:	XDR 7.50M		
Environmental Category: B			
Implementing Agencies: Guyana Water Inc. (GWI)			
Cofinanciers and Other External Partners:			

B. Key Dates				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	12/18/2003	Effectiveness:	01/25/2006	01/25/2006
Appraisal:	03/14/2005	Restructuring(s):		03/24/2010
Approval:	07/28/2005	Mid-term Review:	01/09/2008	02/01/2008
		Closing:	03/31/2010	03/31/2011

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Satisfactory
Risk to Development Outcome:	Substantial
Bank Performance:	Satisfactory
Borrower Performance:	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Satisfactory	Government:	Moderately Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory
Overall Bank Performance:	Satisfactory	Overall Borrower Performance:	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators			
Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	Yes	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Satisfactory		

D. Sector and Theme Codes		
	Original	Actual
Sector Code (as % of total Bank financing)		
Water supply	100	100
Theme Code (as % of total Bank financing)		
Administrative and civil service reform	33	33
Natural disaster management	17	17
Rural services and infrastructure	17	17
Urban services and housing for the poor	33	33

E. Bank Staff		
Positions	At ICR	At Approval
Vice President:	Pamela Cox	Pamela Cox
Country Director:	Francoise Clottes	Caroline D. Anstey
Sector Manager:	Guang Zhe Chen	John Henry Stein
Project Team Leader:	Patricia Lopez Martinez	Patricia Lopez Martinez
ICR Team Leader:	Patricia Lopez Martinez	
ICR Primary Author:	John Morton	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

The Project development objective is to support the achievement of sustainable universal access to safe and affordable water for the population of Guyana, especially the poor. This Project will also help to consolidate the water sector modernization and reform process supported by IDA and other donors in recent years. Specifically, the Project will:

- Provide access to treated water to over 48,000 people through the development of treatment facilities in the coastal water supply systems in regions 2, 3 and 5.

- Improve levels of service to low and medium income housing schemes already connected to the service.
- Provide the technical assistance needed to allow for the sustainable development of water resources in Guyana, and support the modernization and financial sustainability of GWI.
- Through the emergency component, provide funding to support recovery needs after the January 2005 floods.

Revised Project Development Objectives (as approved by original approving authority)

(a) PDO Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Provide water that meets national quality standards and an acceptable level of service to over 48,000 beneficiaries			
Value quantitative or Qualitative)	0	48,000		51,000
Date achieved	06/30/2005	03/30/2010		09/02/2011
Comments (incl. % achievement)	The water supply infrastructure was successfully built, servicing a population greater than the initial estimate of 48,000 with a level of service that can be considered adequate in the context of Guyana.			

(b) Intermediate Outcome Indicator(s)

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
Indicator 1 :	Pressure and continuity of water supply services for consumers in Project areas.			
Value (quantitative or Qualitative)	continuity: 0-12 hrs pressure: 4.15 m	continuity: 20-24 hrs pressure: > 7 m		Continuity: 16-24 hours Pressure: 5-7 m
Date achieved	06/30/2005	03/30/2010		09/02/2011
Comments (incl. % achievement)	The investments provided a significant improvement in the hours of service per day and pressure provided, at levels that can be considered adequate in the context of Guyana and only slightly lower than the targets envisioned at appraisal.			
Indicator 2 :	Reduction of non-revenue water in project areas			
Value (quantitative or Qualitative)	65-70%	25%		Not monitored
Date achieved	06/30/2005	03/30/2010		09/02/2011

Comments (incl. % achievement)	Not monitored systematically in the project area, System-wide estimates show a reduction from 60-65% to 53%.			
Indicator 3 :	Achieve universal metering in project area			
Value (quantitative or Qualitative)	0	100%		100%
Date achieved	06/30/2005	03/30/2010		09/02/2011
Comments (incl. % achievement)	All meters under the project were installed and the project areas are currently covered 100% by meters.			
Indicator 4 :	Strengthen design and project management capacity within GWI asset management team			
Value (quantitative or Qualitative)	not completed	completed		completed
Date achieved	06/30/2005	09/01/2005		09/02/2011
Comments (incl. % achievement)	There has been improved capacity in contract management, and construction supervision through works performed.			
Indicator 5 :	Improve customer satisfaction as a result of operational improvements			
Value (quantitative or Qualitative)	Not compliant with management contract for days to respond to compliants.	Compliant with management contract for days to respond to compliants.		Response to complaints improved over the time period.
Date achieved	06/30/2005	03/30/2010		09/02/2011
Comments (incl. % achievement)	The specific indicators in the PAD and Management Contract which related to GWIs response time to complaints and leaks were not monitored. However, nearly equivalent targets covering the same issue, monitored under the Turnaround Plan, were largely met.			
Indicator 6 :	Strengthen management, technical and monitoring capacity within GWI			
Value (quantitative or Qualitative)	NA	Development and execution of training program for GWI staff and Board.		Completed with corresponding improvements in technical capacity and monitoring.
Date achieved	06/30/2005	03/30/2010		09/02/2011
Comments (incl. % achievement)	The Project improved design and management capacity in GWI and established a system of monitoring that is used by the staff and Board.			

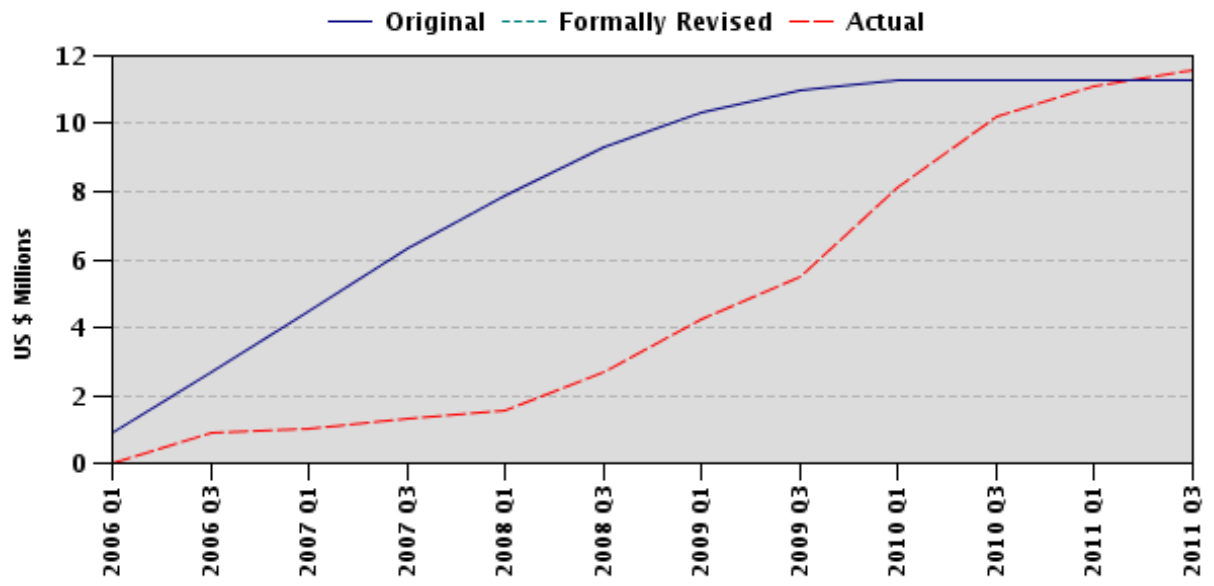
G. Ratings of Project Performance in ISRs

No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	03/30/2006	Satisfactory	Satisfactory	0.88
2	12/21/2006	Satisfactory	Moderately Satisfactory	1.17
3	06/13/2007	Satisfactory	Moderately Unsatisfactory	1.34
4	12/17/2007	Satisfactory	Moderately Unsatisfactory	1.77
5	04/18/2008	Moderately Satisfactory	Moderately Satisfactory	2.13
6	11/30/2008	Moderately Satisfactory	Moderately Satisfactory	4.24
7	06/10/2009	Moderately Unsatisfactory	Moderately Unsatisfactory	5.57
8	07/20/2009	Moderately Unsatisfactory	Moderately Unsatisfactory	7.15
9	02/16/2010	Moderately Satisfactory	Moderately Satisfactory	9.34
10	04/15/2010	Moderately Satisfactory	Moderately Satisfactory	10.21
11	02/26/2011	Satisfactory	Moderately Satisfactory	11.57

H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
03/24/2010	N	MS	MS	9.61	Extension of closing date.

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

1. The Guyana Water Sector Consolidation was initiated in response to a comprehensive Reform Program in the water sector, investment needs in the sector, and in the aftermath of severe flooding in the country. The core objective was to improve access and quality of water in three different urban and peri-urban areas of the country and support broader institutional strengthening activities.

2. **Water Sector Reform:** In 2000 Guyana embarked on a major and comprehensive Reform Program for the water and sanitation sector. Reforms were led by the GoG with the assistance of the donor community, with the goal of providing sustainable universal access to safe and affordable water for the population of Guyana. Reforms implemented before appraisal had facilitated a complete reorganization of the water and sanitation sector around three key principles and aspirations:

- A modern, efficient and customer-oriented utility
- Long-term financial sustainability
- A governance and institutional framework characterized by independent regulatory functions and a clear division of responsibilities

3. Key achievements of the Reform Program at the time of appraisal in 2005 included: (i) The establishment of a modern legal, regulatory and institutional framework under the Water and Sewerage Act of 2002; (ii) The creation of Guyana Water Inc (GWI) through the merger of the two water utilities, GS&WC and GUYWA in 2002 and (iii) The award of a performance-based “Management Contract” for five years to an international operator - Severn Trent Water International (STWI) in January 2003.

4. At the time of appraisal, achieving financial sustainability at GWI was a big challenge primarily due to high electricity costs, insufficient tariff levels, and overall modest revenue growth. As a result, the GoG had to extend operating subsidies of over US \$7.5 million in 2004 and 2005 to GWI.

5. **Investment Plan to Address Service Deficiencies:** At appraisal there were deficiencies in the quality and coverage of water supply services in Guyana. Major problems with the safety, continuity, and reliability of supply persisted both along the coastal strip (home to 90% of Guyana’s population) and in the severely under-serviced Hinterland region (which comprises over 95% of the land area). The lack of source water treatment in some of the areas serviced by GWI posed risk of bacteriological contamination. Most parts of the serviced areas - both in Georgetown and outside the capital -experienced low water pressure and intermittent supply. There was also a need to improve the operations, management, and level of service.

6. To respond to these needs GWI developed a Ten Year Investment Program as part of the May 2005 GWI Strategic Plan. The GWI Ten Year Investment Program outlined a comprehensive investment program to substantially improve access to safe and reliable water.

7. ***Flooding in Guyana:*** Beginning in late December 2004, exceptionally heavy rainfall in Guyana resulted in severe flooding within the coastal administrative regions of West Demerara/Essequibo Islands, Demerara/Mahaica, and Mahaica/West Berbice. These areas are inhabited by 75 percent of Guyana's population and include the capital city, Georgetown. The flooding along the coast, between the Demerara and Mahaica rivers, had seriously inhibited GWI's ability to supply potable water (approximately 164,000 people affected) and to dispose of wastewater in the affected areas. Immediately after the flooding occurred, IDA sent a team specialized in disaster management to conduct a preliminary needs assessment.

8. ***Water Sector Consolidation Project:*** The Water Consolidation Project was developed by taking advantage of IDA's experience in the water sector globally and in Guyana. The Water Consolidation Project was designed to respond to the need for further support of the sector reform, to develop GWI's capacity, and to provide funding for investment financing under the Ten Year Investment Program. Since the timing of the appraisal coincided with the 2005 floods, the Project design also incorporated adequate response to the associated impacts on water infrastructure. The Project was designed to provide \$10.1 million (out of the \$170 million needed in the Ten Year Investment Plan) of investments in water supply. Additionally, the Project would strategically leverage IDA engagement through the small institutional development component (US\$0.3 million) to remain engaged in the larger Reform agenda being pursued by GoG with support of the donor community that included more significant financing for institutional strengthening from IDB and DfID.

1.2 Original Project Development Objectives (PDO) and Key Indicators

9. The Project Development Objective was to support the achievement of sustainable universal access to safe and affordable water for the population of Guyana, especially the poor. This Project would also help to consolidate the water sector modernization and reform process supported by IDA and other donors in recent years. Specifically, the Project would:

- Provide access to treated water to over 48,000 people through the development of treatment facilities in the coastal water supply systems in regions 2, 3 and 5
- Improve levels of service to low and medium income housing schemes already connected to the service
- Provide the technical assistance needed for the sustainable development of water resources in Guyana, and support the modernization and financial sustainability of GWI
- Through the emergency component, provide funding to support recovery needs after the January 2005 floods

1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification

10. The PDO was not revised after appraisal.

1.4 Main Beneficiaries

11. The primary target group for the investment component comprised over 48,000 people living in urban and peri-urban areas in Regions 2, 3, and 5 that include low to middle income residents. Additional beneficiaries identified at appraisal included 164,000 people affected by the 2005 flood. GWI and its customers also would benefit from the institutional strengthening of the utility.

1.5 Original Components

12. The Project was designed to support the GoG's Program through a Specific Investment Grant to be implemented by GWI. GWI would have overall technical responsibility for the Project including procurement. The Grant would be divided into four components that included:

13. ***Component 1: Water Supply Infrastructure*** (US\$9.1 million of IDA financing, US\$1.0 million of government counterpart financing): This component was designed to finance infrastructure works including upgrading of raw water source, installation of water treatment facilities, upgrading of water transmission systems, and rehabilitation of the distribution systems in Division 1, Division 2, and Division 4 of GWI's operating zones (in GoG's administrative Regions 2, 3, and 5 respectively).

14. ***Component 2: Design, Project Management, and Supervision*** (US\$ 0.8 million of IDA financing, US\$0.1 million of government counterpart financing): This component was designed to finance staff, consultant services and equipment to strengthen the capacity of GWI and its Asset Development Team to execute, supervise, and monitor the results of the Project.

15. ***Component 3: Institutional Strengthening Component*** (US\$0.3 million of IDA financing, US\$.03 million of government counterpart financing): The component was designed to finance technical assistance architecture around the Management Contract. This was necessary to bring the needed specialized skills and expertise to support GWI and its Board of Directors to turn the company into a modern and efficient utility.

16. ***Component 4: Emergency Component*** (US\$ 1.1 million, 100% IDA financed given the Emergency nature of the intervention): Under this Component, the Project would finance the rehabilitation of water treatment plants, pumping stations (water and wastewater), and distribution systems damaged by the flooding. It would also finance minor capital works targeted at the distribution systems and small equipment repairs and replacements, household connection replacements, and other minor investments.

1.6 Revised Components

17. The components were not revised after appraisal of the project.

1.7 Other significant changes

18. The Project was restructured in order to extend the closing date from March 31, 2010 to March 31, 2011 to allow for extra time for completion of some of the outstanding works which could not be completed during the original project time period. This was caused by delays in the bidding process of the main treatment plant works and the termination of two other contracts (i.e. for well drilling and installation of pipes) due to underperformance by contractors and the subsequent need for re-contracting.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

19. The key project preparation and design considerations that impacted implementation and outcomes were:

20. ***Multi-donor commitment and long term strategic engagement with GoG and GWI:*** Given that GWI's Investment Program was designed to benefit from a multi-donor program, and the lack of donor coordination in the previous engagement was having an adverse impact on sector performance – donor commitment and cooperation was critical for the success of this Project. Thus this was an important element of the design as it provided strategic support to institutional change and capacity building at GWI and allowed the Project to have a more significant engagement with regard to GWI institutional strengthening that it otherwise would not have had under the very small (US\$0.3 million) institutional strengthening component.

21. ***Government Commitment:*** The long term engagement as part of the Reform Program emphasized that institutional strengthening and reform are key to not just improving water supply in Guyana but also for the investments to be successful and sustained. The Government was committed to the Ten Year Investment Program which was evident by the funds it was able to mobilize for a large portion of the medium term investments (US\$64 million of the required US\$74 million for the first 3 years) necessary for the Reform Program. The GoG was also committed to provide the required counterpart funding for this Project. This was important to the design as it demonstrated Government commitment and ownership.

22. ***Relationship to the Management Contract:*** At appraisal, the legal basis for infrastructure and institutional performance was the recently issued Management Contract and GWI's operating license. Some of the institutional and operational/infrastructure performance targets were therefore made consistent with the goals of the management contract. However the realism of these targets was questioned at appraisal and acknowledged as a risk that eventually affected the Project outcomes as measured by the indicators agreed at appraisal.

23. ***Planning, targeting, and design of investments:*** The needs of the sector and the targeted districts were thoroughly researched as part of the upstream work on the investment plan. This was done through community consultations and by identifying specific works under the Project. As a result the Project included investments that were anticipated to increase access to safe water in communities that needed it.

2.2 Implementation

24. The only formal restructuring undertaken for the Project resulted in a one-year extension on the closing date from March 2010 to March 2011.

25. In GWI's view, implementation delays, particularly early on in Project implementation, were attributed to extensive periods in the procurement processes, termination of some contracts and retendering. In addition, there were periods when construction materials were scarce or unavailable locally, which resulted in delay in construction completion;

26. However, there were series of important actions taken during the initial stages of implementation in response to challenges that were severely impeding the implementation of the project. In addition to issues inherent to implementing public works projects in Guyana (including time to complete procurement, quality of contractors and availability of construction materials), there were challenges related to capacity development and learning in financial and procurement management, and ongoing institutional issues within GWI that were causing delays and resulting in under-disbursement. Some of the issues in particular were:

- Weaknesses in the financial management system that included internal control problems related to contract management, failure of the accounting system, and understaffing in the Finance Department at GWI. Key management positions in GWI were left vacant for extended periods of one year or more, delaying decisions on contracts. The high turnover of staff in GWI also limited their capacity
- Agreed operating procedures of the Board and changes in its composition were slow to implement
- The 2006 election period affected the pace of decisions on contracts
- GWI's day to day operations were disrupted after the decision to terminate the Management Contract was taken

27. The actions taken in response to these issues were implemented over a period of several years in response to institutional and political changes by GoG and GWI, taking advantage of the institutional strengthening component already designed in the Project, recommendations during World Bank supervision missions, and strong donor coordination.

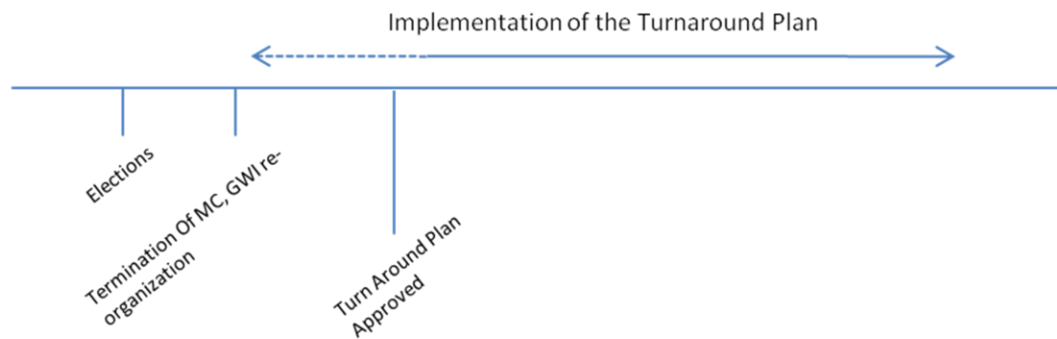
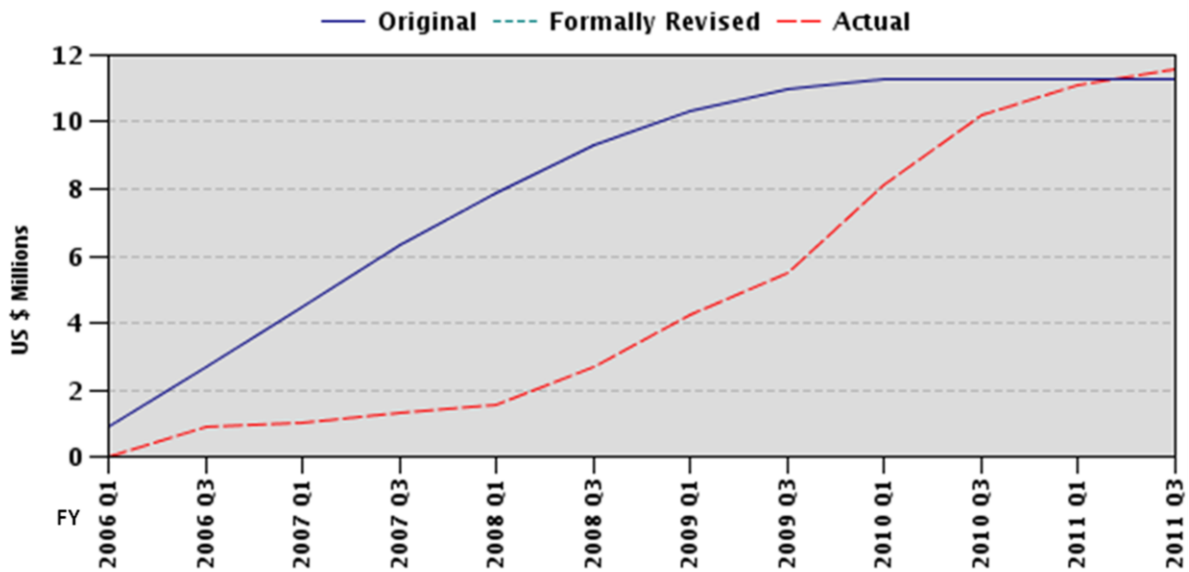


Fig 1: Key Events and Actions Taken to Increase Disbursement

28. From the onset GoG and GWI sought to address the delays, with support from the project supervision and the institutional strengthening components and in coordination with other donors. In January 2007 the GoG decided to terminate GWI’s 5-year Management Contract with Severn Trent Water International due to slow progress in achieving the contractual goals. After contract termination, GWI began managing the utility directly and in parallel, began its reorganization. Subsequently the engagement focused on GoG’s and GWI’s development through a coordinated engagement with the donor community and a “Turnaround Plan” that would define a vision for the future at GWI. The Turnaround Plan, eventually approved by the GoG by the end of 2007 was “broadly satisfactory to the Bank,” and targeted many of the issues that affected the satisfactory progress of the Project.

2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization

29. The original project design contained a series of outcome indicators to track the achievement of the Project Development Objective which was to provide the population, in the areas served by the investments, water supply that meets national water quality standards at an acceptable level of service. The indicators included targets for water quality, efficiency and continuity of the supply, non revenue water reduction, universal metering and improved customer satisfaction as a result of the Project infrastructure investments. It also included indicators for institutional development at GWI, project management for investments, overall management, and technical and monitoring capacity.

30. Several issues affected the application and measurement of these indicators during implementation:

31. ***Addition of Core Indicators:*** As part of the Multi-Donor Managing for Development Results agenda, a set of core indicators were established and applied to all water supply and sanitation projects. This resulted in the addition of 2 indicators to the Project (related to the number of water utilities supported and the piped household connections benefitting from rehabilitation).

32. ***Performance Indicators in the Changing Context of GWI Management:*** The specific target values for many of the Project indicators were adopted based on the criteria and performance required under the GWI Management Contract and Operating License which was the applicable legal and contractual arrangement at the time of appraisal. With the development of the Turnaround Plan an additional set of indicators were developed and accepted by the core donors (World Bank, IDB, and DFID) as a basis for continued sector support. The initial set of indicators were based on aspirations of the performance of the private sector Management Contract which were not realized, while the Turnaround Plan indicators were a more realistic consensus of the potential improvements GWI could make under the circumstances. The project indicators were however not formally changed. The indicators used in the ICR evaluation of the outcomes (Section 3.2) are the original project indicators. The Turnaround Plan indicators were discussed in the ICR (under the institutional strengthening section under “overarching themes, other outcomes and impacts”, section 3.5b) in light of the broader institutional strengthening achieved during this period as part of the multi-donor engagement.

33. ***Quality of Data and Capacity to Monitor:*** At the onset, the need to build monitoring capacity at GWI was acknowledged. Thus capacity building for this purpose was incorporated as part of the Project. In the first few years of the Project, data collection for the performance indicators was a fundamental issue. However significant progress was made on the quality and quantity of data collected on GWI performance in the last few years. Annual monitoring reports were produced and used as a reliable source of management information and regular internal management reporting at Board meetings. Although data quality has improved it remains to be a challenge, needing corrections, estimations and assumptions in certain cases to make effective

use of raw data and, basic data having limited accuracy. Non-revenue water in particular is not measured systematically and while estimates could be made at the system level, no accurate estimates or measurements were able to be made in the project areas.

2.4 Safeguard and Fiduciary Compliance

34. **Safeguards** Safeguard compliance was rated “satisfactory” throughout project implementation. Operational Policy 4.01 (Environmental Assessment) was the only safeguard triggered and the Project was classified as a “category B.” To that end, GWI, with support from the World Bank, completed “Environmental Guidelines for Construction Projects and Environmental Assessment” that established clear guidelines to protect the environment before, during, and after construction of proposed water projects. Consistent with these guidelines, Environmental Impact Assessments, which included consultations with key stakeholders and public disclosure, were completed in 2004 for the three water upgrade projects funded by the Bank. The overall Project created substantial positive environmental impact, and did not face any unusual environmental risks.

35. **Procurement:** The major contracts under the loan were a series of works associated with the design and construction of the treatment plants, well borings, transmission system, pumping stations, and repairs to the distribution system. Procurement suffered from delays partly due to difficulties in complying with World Bank procedures which was a result of the lack of familiarity and human resources constraints at GWI. Procurement was also delayed due to an investigation carried out after a protest was lodged by one of the losing bidders which after delays was not validated. Other procurement issues that were less directly related to compliance but contributed to delays include the termination of two contracts, late sub-contracting and technical, non-performance, cash flow and liquidity issues on the contractor’s end.

36. Although no major compliance concerns (that would prevent disbursements) were raised by the Independent Procurement Review conducted in 2009, the rating for procurement compliance was placed at “Moderately Satisfactory” at the time. This rating remained such until the end of the Project.

37. **Financial Management:** At the beginning of the project, financial management compliance was rated “Moderately Satisfactory”. This was due to GWI’s financial management systems having several structural gaps including weaknesses in internal control related to contract management oversight, accounting of customer payments, human resource capacity, and the incapability of GWI’s accounting and operating system to adapt to changes in accounting software.

38. A review by DFID’s Internal Audit Section in 2007 had reported internal weaknesses in GWI financial and management systems, and a list of recommended improvements and redirection of some funds to support these improvements. The list of measures to be applied was included in the Turnaround Plan adopted at the end of 2007.

39. Audits in 2008 raised concerns about GWI's ongoing financial management weaknesses and the slow pace of implementation of measures to rectify deficiencies and implement the actions outlined in the Turnaround Plan. In addition to these concerns allegations of corruption surfaced in early 2009, which prompted swift action from the GWI Board of Directors and led to termination of several staff contracts. An investigation report prepared by GWI's Board and GoG confirmed that no World Bank funds were affected by any of the alleged malpractices. GWI's inability to address these issues in a timely manner resulted in the "Moderately Unsatisfactory" rating for Financial Management.

40. Subsequently, IDB funded activities to build capacity in financial management at GWI. Subsequent supervision missions concluded that while ongoing weaknesses remained, the progress made by GWI in addressing the issues was acceptable and that the deficiencies identified dealt primarily with issues of efficiency rather than compliance. With the significant progress made in GWI to resolve the weaknesses, the financial management rating was raised to "Moderately Satisfactory" in 2010, a rating that remained until the end of the project.

2.5 Post-completion Operation/Next Phase

41. Sustainability of the works will depend upon the system of operations and maintenance which is currently in place and being continuously improved on at GWI. Additional capacity is likely to be built as part of the continued investments in the sector through IDB and GWI funding. The sustainability of the institutional strengthening will depend on continued commitment by GoG and GWI to the Reform Program. The key principles of reform in the sector (modern, efficient and customer oriented utility, financial sustainability, clear responsibilities and regulatory independence) and the associated institutional strengthening goals for GWI have remained consistent throughout implementation. The Turnaround Plan has expired but will be replaced by a strategic plan currently being developed through IDB funding which is expected to follow the same basic principles outlined in the Reform Program. Additional investments are also planned through GWI funding and two projects funded by the IDB. One project will fund the construction of a water treatment and distribution plant in Linden to service over 50,000 people in the region. The other project will fund the renewal of sewers and sewage pumping stations in Georgetown.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

42. ***The Project was closely aligned to Guyana's Poverty Reduction Strategy and the Bank's Country Assistance Strategy for Guyana:*** This Project was initiated by the Government of Guyana as part of the water sector Reform Program. The GoG requested the World Bank support in 2004 to help Guyana reach its Millennium Development Goals and meet its Poverty Reduction Strategy targets. The Project was in line with the Country Assistance Strategy (CAS) for FY03-FY05 which focused on IDA's assistance to Guyana through a series of planned Poverty Reduction Support Credits, accompanied by a Public Sector Technical Assistance Credit. The January 2005 Emergency due to severe flooding that affected 75% of Guyana's population also exposed vulnerabilities in GWI's emergency response capability and required IDA's intervention in disaster management.

43. ***A shift in IDA's strategy in Guyana resulted in more selectivity in interventions:*** The Bank decided to assist Guyana in addressing its development challenges through a new CAS in 2009 with two main pillars: (i) strengthening environmental resilience and sustainability; and (ii) improving education quality and social safety nets. In addition to the alignment with Guyana's Poverty Reduction Strategy Paper the two pillars were chosen based on: (i) the GoG's request for Bank assistance in Forestry, Education, and Social Protection, and its emphasis and commitment to addressing the issues related to those sectors; (ii) ongoing engagement with the GoG on environmental resilience and education; and (iii) past achievements that would be sustained and continued during this CAS. Since this new strategy is highly selective, investments in water supply sector related projects were not considered a CAS priority going ahead.

44. ***GoG and GWI are focused on continuing support for the water and sanitation sector:*** The continued support to the water sector by the Government of Guyana is outlined in the Guyana's Ministry of Housing and Water 10-year strategy. The Strategy provides support to the development of water services through GWI. It specifically targets the improvement in access to safe water to 90% of the country's population and is also focused on reducing the disparity that exists in access to water in the coastal and hinterland regions. As part of this strategy GWI will continue its commitment to implementation of the goals of the Turnaround Plan to improve the quality and coverage of service, improve its financial sustainability, and implement a Hinterland Water Strategy to improve the access of safe water sources and sanitation to hinterland communities. IDB is funding two projects to increase coverage of the services across the country.

45. As a result of the close alignment of the PDO with Guyana's Reform Program, IDA's CAS at the time of Project appraisal, and the continued commitment of the GoG in the sector and project institutional goals, the ICR rates the relevance of the Project as "*High*".

3.2 Achievement of Project Development Objectives

46. The Project provided an important contribution to the goal of sustainable universal access to safe and affordable water for the population of Guyana. The Project had a significant impact with respect to the specific goals of increasing access in the Project area and supporting the recovery needs of the January 2005 floods. It achieved moderate impacts related to levels of service and the modernization and financial sustainability of GWI, having only met a portion of the targets for these goals.

47. ***Provide access to treated water to over 48,000 people through the development of treatment facilities:*** The water supply infrastructure was successfully built, servicing a population of 50,901 (11,718 piped household connections) which is greater than the initial estimate of 48,000. The facilities are operating and providing adequate water quality to these beneficiaries, none of which had access to piped treated water before the project. As in the process of upgrading the system a small number of new consumers were connected to the network, new connections to piped water was provided as part of the project to a small portion of the beneficiary population.

48. ***Improved levels of service:*** Some improvements in levels of service were achieved both in and out of the project areas. In the project areas, in addition to the water quality improvements, there is 100% metering and the investments provided a significant improvement in the hours of service per day and pressure provided, at levels that can be considered adequate in the context of Guyana and only slightly lower than the targets envisioned at appraisal. Outside the project area, the broader efforts by GWI supported by the project and other donors improved the quality, continuity, and pressure of the water supply significantly.

49. ***Assist in the sustainable development of water resources in Guyana and support modernization and financial sustainability of GWI:*** The Project assistance was designed to provide some targeted assistance to support the broader goal of turning the company into a modern and efficient utility. In accordance with the targets set in the PAD, the Project was able to strengthen design and project management capacity and enhance the utility's ability to implement investments, monitor and manage assets as evidenced by the realization of the investments and the establishment of a monitoring system. The training programs, the knowledge gained from the contractual consultants, and the hands on learning as a result of GWI management and design of the project works improved staff qualification and the knowledge of Board members. The Project also funded 3 engineers from GWI for a Master's program in Project Management in the University of Guyana, some of whom are currently working in senior management positions in GWI. Additionally, significant improvements in customer satisfaction (measured as responses to complaints) were observed during the implementation as a result of operational improvements under the Project.

50. ***Support Recovery needs after the January 2005 flood.*** The planned works for emergency recovery were completed and helped increase the overall quality of service in the affected areas. The Emergency Component was used to address the short term loss of water supply and sanitation to the affected population by primarily funding repairs and replacement of equipment damaged due to the floods. This included spare parts for over 20 sewage pumps,

pipng, submersible water well pumps, and electrical and mechanical components. The funds were also used to cover repairs to backhoe assigned to GWI’s operations department, construction of flood protection walls at all bore well locations in GWI’s Division 3 service area, and to carry out structural rehabilitations works in some of the regions serviced by GWI.

51. The Project was able to substantially achieve the primary objective of the project which were related to the increase in access to treated water. It also was able to respond successfully to the flood emergency and made significant progress in meeting the intermediate targets set out at appraisal for levels of service and institutional modernization. Considering these outcomes and the relative emphasis the project put on the development outcome related to access to treated water, the achievement of Project Development Objective is rated as “*Substantial*”.

3.3 Efficiency

52. Efficiency was assessed using a similar financial analysis done at appraisal, and updated to the conditions found at the end of project. Due to the challenges faced by GWI in terms of low tariffs and fee collection and the availability of donor funds for investments, in the medium term investments were envisioned to be funded partially or totally through grants. In this context, the analysis in the PAD assessed different combinations of grants provided for investments (% of grant funding) and levels of tariff increases as scenarios for potential financial outcomes (see table below). At appraisal, it was concluded that in order to make the project financially viable, there would be a need to be an additional increase in tariffs or a grant to partially finance investment.

Estimated Project Returns at Appraisal

Scenario	Estimated NPV at appraisal
A. No tariff change and no grant for investment.	-US\$6.28 million
B. No tariff change and 100% grant for investment	US\$2.07 million
C. 47% tariff increase and no grant for investment.	-US\$5.12 million

53. When looking at conditions at the end of the project the actual tariff increases (5% for metered customers, 10% for unmetered customers) and grant funding (100% through the IDA grant) ended up close to scenario B. Under these end of project conditions including the grant financing, a positive net present value was found. However, when considering the works as a grant equity investment (no grant financing assumed), the return on the investment is lower than the opportunity cost of capital, resulting in a negative net present value and an internal rate of return of 2%.

Project Returns at End of Project

Indicator	Value
NPV (100% grant)	US\$4.36 million
NPV (no grant)	-US\$5.45 million
IRR (no grant)	2%

Revenues and operational costs based on assumptions provided in Annex 3, Depreciation of 3.5% percent and 30 year operational life was used based on values of similar works.

54. Overall financial performance of the project using the grant financing mechanism therefore had a favorable return. However, true gains in efficiency of the investment would have relied upon increases in tariffs combined with the reduction of non-revenue water, both of which showed only limited progress under the project.

55. Considering the above and taking into account the additional economic benefits that were not valued (e.g., health, time and money saved) and its contribution to poverty reduction goals and improved living conditions through increased access to basic services, the rating for efficiency considered “*Modest*”.

3.4 Justification of Overall Outcome Rating

(combining relevance, achievement of PDOs, and efficiency)

56. Rating: Satisfactory.

57. The ICR rates the overall outcome of the Project as “Satisfactory” based on a “High” rating for relevance, “Substantial” rating for efficacy and “Modest” rating for efficiency. The Project supported a sector that was and still is important to the GoG during a challenging time in its evolution. It provided targeted investments that improved water quality, continuity and pressure to over 50,000 people in underserved areas that, with the grant financing, is resulting in a financial benefit to GWI and providing broader economic benefits to the serviced population.

3.5 Overarching Themes, Other Outcomes and Impacts

(a) Poverty Impacts, Gender Aspects, and Social Development

58. The Project was designed to ensure the supply of water, improve flow rates and pressures, and improve the quality of water to over 50,000 people in the target communities which included predominantly low to middle income groups. At the time of appraisal none of the target communities received treated water and as a result faced health risks associated with the use of untreated sources or spent time and money boiling or purchasing water of unknown quality from vendors. The project thus was able to reduce the health risks and time and money used for obtaining water. The emergency recovery component also helped restore service in the aftermath of the floods which affected the poor significantly.

(b) Institutional Change/Strengthening

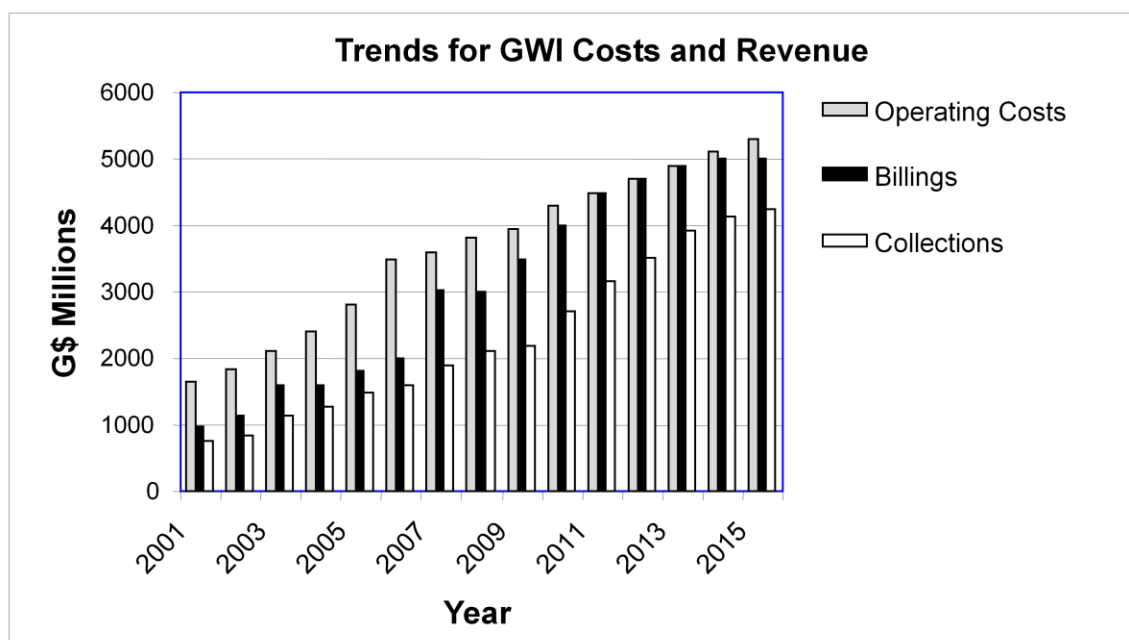
59. The broader sector strengthening and reform of GoG and GWI were supported to some extent by the small activities financed under the project’s institutional strengthening component but more substantively by the dialogue through a joint effort with the other donors who had more significant financing targeted at sector reform and strengthening. This engagement was developed during preparation and designed into the project as a means of providing coordinated and sustained support for these themes. During this time GWI has been able to realize significant improvements with regard to institutional strengthening and levels of service (see table below) and some improvements in its financial situation.

60. When benchmarking the improvements against the targets set in the Turnaround Plan (provided in Annex 5), GWI has been able to meet or nearly meet those related to water quality, customer satisfaction and financial ratios. Other targets related to accounting, operations, human resources and non revenue water reduction have not been met, although significant improvements have been achieved.

	Progress	Current Status
Institutional Strengthening		
Meter management	Installed meters have doubled since 2001.	60,000 (35%) metered connections 45,000 registered and used for billing (25% of active customers). Rejections/tampering: 15% Meter readings used for billing: 27%
Customer relations	Significant improvements with regard to response to complaints and monitoring of repairs.	Challenge related to complaints on billing estimates persist.
Asset management	Capital Investment and Planning Department is staffed with committed professionals. There has been improved capacity in contract management, and construction supervision through works performed.	Procurement and contract management remains a difficult issue in Guyana. Operational repairs and maintenance take firefighting approach with little preventive maintenance.
Human resources	Moved from unstable management with many unfilled positions and high turnover of staff to a more stable management group. Staff numbers have increased since 2005.	Much of management group largely in place since Turnaround Plan was agreed. Unfilled vacancies remain high. Turnover of staff in operations and the low remuneration remain issues.
Monitoring	Moved from a situation with little or no data or system to collect and use it to regular collection of data with monthly monitoring reports used by the Board.	Full set of operational, customer, billing, metering data still not regularly available and rely on estimations. Non revenue water measurements are not systematically undertaken.
Service Levels		
Water Pressure and Continuity	Investments in infrastructure have increased water pressure from the baseline of 2m average and 0-12 hours per day for a significant portion of the population.	Pressure: 51% of population > 7 meters Continuity: 94% of population > 16 hours.
Water quality	Major treatment works have been implemented under the IDB, World Bank, JICA, and GoG funding increasing quantity of treated water.	17 of 110 sources and 55% of water produced undergo treatment that meet or close to meeting national standards with adequate residual chlorine present. Infiltration of contaminated surface water through leaks when pipes not pressurized remains a problem
Financial Status		
Non Revenue water	Reduced from 60-65% to 53% since 2005 (not measured systematically rather numbers based on estimations).	System wide non-revenue water: 53% Physical losses: 40%. Billings: 70%. (not measured systematically rather numbers based on estimations).
Billings and Collection	Total billings has doubled in monetary terms since 2005 and tripled since 2001. Domestic sector billings and collections have expanded significantly.	Modern billing system in place. Collection ratio is at 70% and total billings cover 170,000 customers.

	Progress	Current Status
	% collection has remained constant	
Costs and revenues	Since 2001 revenues have gone up 5 fold with improvements in billing coverage.	Billings have reached a level almost equivalent to operating costs which are higher than customer revenues requiring a continued reliance on GoG subsidies.

61. Among the many goals of institutional strengthening, the achievement of financial sustainability independent of government subsidies was part of the policy dialogue, Reform Program and was a large area of focus for IDB and DFID related projects. Revenues have increased significantly primarily through increased billing coverage and efficiency but less than anticipated due to the fact that tariff increases were not realized. At the same time costs have increased primarily due to the related costs of providing the improved level and coverage of service including new housing schemes that were not anticipated and a significant increase in electricity prices. To reach financial sustainability it is anticipated that both further improvements in non-revenue water (leakage reduction, reducing illegal connections and improved billing and collections) and significant tariff increases will be needed.



(c) Other Unintended Outcomes and Impacts (positive or negative)

62. On the positive side the Bank was able to provide and finance specialized advice to GWI during the supervision of the construction of the Water Treatment Plants. The contract used for the construction, which was designed as a turnkey contract (allowing for alternative designs to be proposed by bidders and the consideration of expected O&M costs of the infrastructure as part of the bid evaluation) was very innovative in the context of Guyana and allowed for the provision of adequate technology characterized by relatively simple and non-expensive operation.

3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops (optional for Core ICR, required for ILI, details in annexes)

4. Assessment of Risk to Development Outcome

63. Rating: Significant¹

64. ***Provide Access to treated water to over 48,000 people through the development of treatment facilities:*** The risk of the investments not being able to continue providing water of adequate quality to the targeted population depends on the proper operation and maintenance of the facilities and the acceptance by the population and operation of the metering system. GWI is challenged by lack of easy access to spare parts and high turnover of operators and acceptance of the use of the meters by the population. Systems are however in place to respond to deficiencies in operation and metering performance. Thus the risk of the investments not being able to continue providing the desirable water quality to the targeted population is considered low to moderate.

65. ***Improved levels of service:*** As part of its corporate strategy GWI intends to ensure that the levels of service throughout their entire system that have been achieved are not just maintained but also increased. The risk to ensuring this continuous improvement at the corporate level relate to being able to expand infrastructure investments and surmount the technical, administrative and financial challenges associated with the operation of the investments. While the systems are in place and institutional commitment for the improvements continue, the technical challenges of ensuring system wide improvements combined with the institutional and financial challenges described below makes the risk to the outcome of improved levels of service moderate to significant.

66. ***Support to the modernization and financial sustainability of GWI:*** The risk to the goal of GWI being a modern and efficient organization that is independent of government subsidies are considered significant due to the still high political intervention in GWI management and tariff setting and institutional challenges associated with the modernization program and the fact that without tariff increases and non revenue water reduction, it is likely that GWI will continue to be dependent on GoG subsidies.

67. **Modernization of GWI:** The risks associated with the modernization of GWI relate to its continued role as a water company under the current arrangements and the risk that the capacity gains cannot be sustained. Since the consolidation of water companies and the formation of GWI, the major institutional change has been the termination of the Management Contract by GoG. Since that time there has been continued commitment to the basic institutional model and goals of the reform. However, with the upcoming need to develop a new strategic plan to replace the Turnaround Plan and renew GWI's license, the upcoming national elections, and the

¹ The risks were considered as a composite of the likelihood of the risk and the impact of the risk if it was realized.

continued dependence of GWI on GoG financially, there is a significant risk to the operation of GWI as a water company as envisioned under the Reform Program. The challenges of retention of qualified staff and the long term vacancies in appointed positions persist and represent another risk to this outcome.

68. **Financial Viability of GWI:** The financial viability of GWI was one of the key sector issues that was highlighted at appraisal and continues to be a challenge. GWI is still financially dependent on government subsidies due to increases in power prices and the continued high non revenue water due to gaps in metering and leakage. GWI has continued to be committed to reaching financial viability through efforts to improve metering and billing and reduce non-revenue water. To reach this stage in the medium term, the program on non revenue water and metering needs to be accelerated and/or tariffs need to be increased. While GWI is going in the right direction, considering the level of the technical and administrative challenges and the need for unpopular tariff increases, the risk to this development outcome is considered high.

69. **Support Recovery needs after the January 2005 flood:** As these are works designed as a short term measure to rehabilitate the water infrastructure to the levels of operation that existed before the flooding and that goal was achieved, there is negligible risk to this outcome.

5. Assessment of Bank and Borrower Performance

5.1 Bank Performance

(a) Bank Performance in Ensuring Quality at Entry

70. The ICR rates Bank performance during preparation as “*Moderately Satisfactory*”. The Project design took advantage of the experience from a previous World Bank investment project and was developed to support a pre-existing a Reform Program and Ten Year Development Plan. Therefore it was a thoroughly prepared project with strong Government ownership that was able to identify the critical risks. It developed mitigation measures, taking advantage of targeted technical assistance and institutional building components. The design incorporated adequate flexibility with solid donor coordination which proved to be essential in reacting to challenges during implementation.

71. The shortcomings relate to the overstated targets for GWI operational indicators, an optimistic approach to the likelihood of identified risks materializing, and underestimation of the effect of capacity issues on the project schedule. These can be considered moderate due to the impact on the project outcomes and delay in implementation.

(b) Quality of Supervision

72. The ICR rates Quality of Supervision as “*Satisfactory*”. The Project began with a series of challenges related to implementation pace, procurement, financial management and broader institutional issues. Strong supervision during this time was crucial to assisting both the Project

and more broadly the institutional development of GWI. Minor shortcomings relate to the limited formal supervision in later years at a time when the Project was largely on track to completion within the extended time period and when arrangements for specialized consultant advisory and supervision support were used to more directly assist the construction and operation process.

73. The fact that the target values for the indicators associated with intermediate objectives were not changed during implementation represents a missed opportunity to have a formal restructuring of the project to reflect the target values that were being pursued by GWI through their turnaround plan. Although such a modification may have enabled the Project to better meet the institutional indicators, these shortcomings are considered to be mostly formal and its impact in the project outcomes is negligible. For these reasons, overall quality of supervision is considered *satisfactory*.

(c) Justification of Rating for Overall Bank Performance

74. The ICR rates the overall Bank performance as “*Satisfactory*” given that Bank performance during preparation has been rated “Moderately Satisfactory” and during implementation has been rated as “Satisfactory”.

5.2 Borrower Performance

(a) Government Performance

75. The ICR rates the overall Government performance as “*Moderately Satisfactory*”. At appraisal, GoG was committed to the water and sanitation sector Reform Program and had taken key steps towards its implementation which included creation of GWI, awarding of the Management Contract, and securing funding under the Ten Year Investment Program. The GoG also took proactive steps to develop a new direction for GWI subsequent to the termination of the Management Contract. The key shortcomings were related to the inability to maintain continuity in appointments in GWI and its Board, and delays in contractual decisions during the national elections. These can be considered moderate due to the project delays and the impacts on the institutional development goals of the project.

(b) Implementing Agency or Agencies Performance

76. The ICR rates the overall Implementing Agency performance as “Satisfactory”. GWI performance under the Project was clearly split into two distinct phases. During the first part of implementation, the Project faced significant delays and inefficiencies related to contract management and oversight, accounting systems, human resource capacity and prolonged vacancies, among other issues. In the later stage of implementation, as a result of a series of proactive actions on project specific issues and the development of the Turnaround Plan to help address more systematic issues, GWI was able to overcome many of the challenges and complete the Project with only one year delay. Minor shortcomings relate to the delays, lack of pro activity in pursuing tariff increases and lingering issues related to financial management and procurement compliance.

(c) Justification of Rating for Overall Borrower Performance

77. The ICR rates the overall Borrower performance as “Satisfactory” taking into account the proactive response to challenges in the project and the relative importance of the above shortcomings in achieving the development objectives.

6. Lessons Learned

78. ***Donor coordination proved instrumental in the policy reform and institutional strengthening agenda:*** The Project benefited from the coordination of several donors. There was a consensus on the policy Reform Program and institutional strengthening agenda. The effectiveness of the coordination is particularly noteworthy during the early stages of the Project. The combination of a consistent message and complementary efforts on the same issues were instrumental in, supporting the Turnaround Plan, and in addressing procurement and financial management capacity constraints.

79. ***Early and thorough engagement is important to successful sector reform programs:*** Reform programs such as this that are crucial to the performance of investments, require long term engagement. The Project benefited from a more than 10 year Bank engagement in the sector through the previous investment project and the extended period of engagement in developing the reform agenda. This ensured a well designed project grounded on well developed institutional and regulatory reform.

80. ***Government ownership was key to sustaining sector reform and improvements within GWI:*** The long term and productive involvement of the government on the water sector reform also enabled high government and ownership at the time of appraisal which was able to be sustained during implementation. Even if the Government decided to give the Management Contract an early termination, it remained engaged in dialogue with the main donors and GWI and there was high support at the highest levels for the agreed turnaround plan which proved invaluable to sustaining the improvements achieved and maintaining the principles of the reforms throughout this crucial time in the development of the sector, even if the management contract tool for GWI was discarded by the Government at the time.

81. ***Targets should be based on realistic expectations rather than aspirations:*** The targets set at the beginning of the Project mirrored the Management Contract and GWI license obligations which had been approved fairly recently and that had been developed based on assumptions on what, through the involvement of a private contractor, was thought to be possible. This resulted in institutional, financial and non-revenue water reduction targets that ultimately were overstated when considered the technical and operational reality on the ground and the structural overarching institutional obstacles. The indicators and goals of similar projects can benefit from a more realistic assessment of the impact of the level of maturity of a water company in reaching financial and institutional development targets. For non-revenue water reduction, there are significant technical and administrative challenges to undertake a program of leakage reduction; installation, operation and maintenance of meters; and improved billing and

collection. Thus targets should realistically reflect the context and cultures of a particular country, the condition of its infrastructure and administrative capabilities of the water utility.

82. ***Continuity and quality of human resources in Guyana should be addressed as part of design in projects in Guyana:*** Implementation was affected by challenges in recruiting and maintaining quality staff experienced by GWI during the Project hampered the continuity in the Project team and management. As this challenge in the medium term may be expected in Guyana more generally, in future projects in the country, a system should be in place to ensure institutional memory is maintained and succession plans or backup arrangements are in place for key positions vacated.

7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners

(a) Borrower/implementing agencies

The comments are provided in Annex 5 and were considered in the finalization of the document.

(b) Cofinanciers

The comments are provided in Annex 6 and were considered in the finalization of the document.

(c) Other partners and stakeholders *(e.g. NGOs/private sector/civil society)*

The comments are provided in Annex 6 and were considered in the finalization of the document.

Annex 1. Project Costs and Financing

(a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Component 1: Water Supply Infrastructure	9.10	9.10	100
Component 2: Design, Project Management, and Supervision	0.80	0.80	100
Component 3: Institutional Strengthening Component	0.30	0.30	100
Component 4: Emergency Component	1.10	1.10	100
Total Baseline Cost	11.30	11.30	100
Physical Contingencies	-	-	-
Price Contingencies	-	-	-
Total Project Costs	11.30	11.30	100
Total Financing Required	11.30	11.30	100

(b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower	Government	1.10	1.10	100
IDA	Grant	11.30	11.30	100

Annex 2. Outputs by Component

Indicator	Baseline	Target	Actual
Project Development Objective Indicators			
Provide water that meets national quality standards and an acceptable level of service to approximately 48,000 beneficiaries	0	48,000	50,901 people benefitted from the interventions with improvements in quality of service.
Intermediate Results Indicators			
Pressure and continuity of water supply services for consumers in Project areas as an indicator of improved level of service	Continuity: 0-12 hours Pressure: 4.15m pressure	Continuity: 20-24 hours Pressure: >7 m	Continuity: 16-24 hours Pressure: 5-7 m
Reduction of non-revenue water in Project areas	60-65%	25%	Data not available at level project area (53% for entire system)
Number of water utilities that the Project is supporting	0	1	1
Piped household water connections that are benefiting from rehabilitation works undertaken by the Project	0	12,000	11,718
Achieve universal metering in the Project area.	0	100%	100%
Strengthen design and Project management capacity within GWIs Asset Development Team	NA	ADT is adequately staffed to perform its functions	Completed for CIPD (unit that replaced ADT unit).
Improve customer satisfaction as a result of operational improvements.	NA	Compliance with MC targets for days to respond to complaints.	Response to complaints has improved significantly.
Strengthen management, technical and monitoring capacity within GWI.	NA	Development and execution of a training program for GWI staff and Board	Completed with corresponding improvements in technical capacity and monitoring.

Annex 3. Economic and Financial Analysis

This section takes as basis the financial analysis presented in the PAD, which considered the proposed investment under several possible extremes of scenario as seen at the time of the PAD. A review of the assumptions and other PAD data was carried out in the light of the scenarios considered at appraisal and the actual scenario that was realized at the time of project closure.

ASSUMPTIONS

Population: Data from the 2002 census was used in the PAD, with projections to 2024 which were 117.8% of 2002 figures. No new census data is available, but it is known that trends for the 3 Regions of the project are for continued growth, and for the purposes of this report, current populations are estimated as 108% of 2002 census data.

The new plants serve sections of 3 out of the 5 operating Divisions of GWI. Total current population served is estimated at 51,000, 23% of the total population of the 3 Regions/Divisions.

Average household size: This was estimated as the total population divided by the number of recorded customers of GW1. GWI has 173,850 recorded customers (March 2011 mgt. report). It is suggested by staff that some of these are still ‘ghost’ accounts and the real figure may be taken as 170,000.

The 2011 population of the coastal strip of Guyana is estimated based on the assumptions above as 725,000.

Average household size (persons served per GWI connection is estimated at $725,000/170,000 =$

	Division 1 (Region 2)	Division 2 (Region 3)	Division 4 (Region 5)	Total
Estimated 2010 population	52,238	110,073	56,506	218,817
Beneficiary population 2002	15,888	18,978	12,265	47,131
Estimated 2010 beneficiary population (%)	17,159 (32.8%)	20,496 (18.6%)	13,246 (23.4%)	50,901 (23.3%)
Estimated number of 2010 beneficiary connections (hhlds). NB all are metered.	4,028	4,811	3,109	11,718

Item	PAD assumption	End of Project																					
Investment Costs	Include final designs, project preparation, physical contingencies and supervision. "With" and "without" project scenarios included connection costs generated from population growth, but only the "with" project scenario included the connection costs generated from larger coverage, when applicable. The "with" project scenario also included all project costs plus replacement costs of meters and electromechanical equipment.	<table border="0"> <tr> <td><u>Actual costs</u> (ref FMR)</td> <td><u>US\$ Million</u></td> </tr> <tr> <td>PPF</td> <td>0.244</td> </tr> <tr> <td>Works</td> <td>9.306</td> </tr> <tr> <td>Consultants (design/Supervision)</td> <td><u>0.913</u></td> </tr> <tr> <td>TOTAL</td> <td>10.46</td> </tr> </table>	<u>Actual costs</u> (ref FMR)	<u>US\$ Million</u>	PPF	0.244	Works	9.306	Consultants (design/Supervision)	<u>0.913</u>	TOTAL	10.46											
<u>Actual costs</u> (ref FMR)	<u>US\$ Million</u>																						
PPF	0.244																						
Works	9.306																						
Consultants (design/Supervision)	<u>0.913</u>																						
TOTAL	10.46																						
Operation and maintenance (O&M):	Includes the cost of labor, chemicals, power, and all administrative costs. O&M costs for the "without" project scenario were based on current unit costs. O&M costs for the "with" project scenario included all the operating costs generated with the Project and efficiency gains that were expected to be achieved. Labor costs were calculated as the number of employees per 1,000 water connections (labor productivity) times the number of connections times the average cost per employee. Chemical and energy costs were calculated based on projected volume of water produced and unit costs. Other costs were calculated as percentage of direct costs.	<p>2010 Operational costs – labor, chemicals, power, admin. were G\$3.29bn (\$16.4M)</p> <p>Water produced across all GWI was approx. 110Mm³</p> <p>Overall unit cost \$0.15/m³</p> <p>Unit costs of treatment at works in client tests:</p> <table border="0"> <tr> <td>Lima (\$0.057)</td> <td>G\$11.34</td> </tr> <tr> <td>Vergenoegen (\$0.061)</td> <td>G\$12.12</td> </tr> <tr> <td>Cotton Tree</td> <td>G\$12.61 (\$0.63)</td> </tr> </table>	Lima (\$0.057)	G\$11.34	Vergenoegen (\$0.061)	G\$12.12	Cotton Tree	G\$12.61 (\$0.63)															
Lima (\$0.057)	G\$11.34																						
Vergenoegen (\$0.061)	G\$12.12																						
Cotton Tree	G\$12.61 (\$0.63)																						
Opportunity costs of raw water	Assumed equal to zero.	Assumed equal to zero.																					
Per capita water consumption	Calculated as the weighted average of the current consumption of metered and non-metered households. GWI estimated the consumption for each division in the "without" and "with" project situation. In Division 1 the consumption per capita per day was 59 liters in the "without" project, and 120 l/cap/d in the "with" project situation. In Division 2 and 4 the consumption was estimated as 120 l/cap/day in both situations.	Monitoring and sampling done since 2005 suggest much higher rates of usage, especially in Divisions 2 and 4, where it is estimated to be in the range 225 – 250 litres/cap/day																					
Water billed for metered customers	Calculated as the volume of water billed times the tariffs. For non-metered customers it is calculated as number of connections times the flat fee charged to these customers. Current tariff for metered customers is G\$ 37 (US\$ 0.20/m ³), and for non-metered customers the monthly fixed bill is G\$428 (US\$2.39).	<p>Non-metered customers tariff is G\$8,900/yr = G\$741 (\$3.70)</p> <p>Estimated Project area Metered Billings 2010</p> <table border="0"> <tr> <td>Division 1</td> <td>67,002,000</td> <td></td> </tr> <tr> <td></td> <td>(\$335,000)</td> <td></td> </tr> <tr> <td>Division 2</td> <td>86,997,466</td> <td></td> </tr> <tr> <td></td> <td>(\$434,987)</td> <td></td> </tr> <tr> <td>Division 3</td> <td>67,709,950</td> <td></td> </tr> <tr> <td></td> <td>(\$338,549)</td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td>(\$1,108,536)</td> </tr> </table>	Division 1	67,002,000			(\$335,000)		Division 2	86,997,466			(\$434,987)		Division 3	67,709,950			(\$338,549)		Total		(\$1,108,536)
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Collected Revenue	Billed revenue times billing rate, times collection of billing rate. The targets to be reached in each subproject are: billing rate of at least 90% (up from current 60% in Division 1, and 68% in Division 4) and collection of billing rate 90% (up from 85% in Division 1, 35% in Division 2, and 73% in Division	<table border="0"> <tr> <td>Billing Rate (estimated)</td> <td>>90%</td> </tr> <tr> <td>Collection rate</td> <td>0.75</td> </tr> </table> <p>Collected revenue Division 1</p>	Billing Rate (estimated)	>90%	Collection rate	0.75																	
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	4).	Division 2 Division 3
Non-revenue water	Defined as volume of water not billed over volume of water supplied is projected according to targets on the Project. NRW was projected to reach 25% in all areas of the Project, from current values of around 59%.	NRW was estimated at 75% in 2005 Halcrow review. TAP target for 2011 was 50%. Estimated as 53% in 2010. Due to 100% metering, distribution system improvements at project areas NRW is very probably 45% or lower, Metering is 100% in project areas.

Billings and Collections: While there is data on running costs broken down by Division and by pumping station/treatment plant, the billings and collections are only broken down by Division. For the purposes of this report, comparison is made of data for 2005 and 2010, being the years immediately prior to start of project and the last complete year to date, during which the new plants have been in full operation since about July, and in partial operation during the previous 6 months. Billings and collections have both increased significantly since 2005. For GWI as a whole the data are:

Year	2005 (ref. Halcrow Audit)	2010 (ref GWI Dec. 2010 management report)
Billings (G\$)	1,804,710,625	3,710,748,527
Collection (G\$)	1,475,345,198	2,841,801,082
Collection ratio	81.7%	76.6%

NB Collection ratios are approximate due to collection lagging behind respective billings, and subject to adjustments. The long term collection ratio has been of the order of 75 – 82 % throughout the last 10 years.

Since the beginning of the project there was a 10% increase in tariff for unmetered consumers and a 5% increase for metered consumers, which was implemented in July 2005. The overall actual tariff increase since 2005 has been approximately 8%. The principal reason for the improved figures of both billing and collection is most probably the introduction of a new billing system in 2007. The increase in numbers of metered accounts from about 25% to the present figure of 39% has also been a significant factor.

	Division 1	Division 2	Division 4
No. 'active' Metered Accounts (Dec 2010 Mgt. Report draft)	7,038	7,232	4,811
Collection 2010	213,445,844	292,945,984	189,550,197
2010 Metered a/c billings (Dec 2010 Mgt Report)	131,152,507	139,671,443	135,578,995
Annual Revenue/metered a/c	17,309	20,192	40,338
Estimate of Metered accounts in project area Project area Population/4.26	4,028	4,811	3,109
Estimated Revenue G\$ Revenue/metered a/c x no. accts.	67,002,000 (\$335,000)	97,143,712 (\$485,718)	125,410,842 (\$627,054)

NB1. Due to removal of meters by some customers, 2011 numbers are in some cases lower than in 2010, eg Division 4 has seen a drop in metered accounts of 1,328 in the past 12 months. NB2 It is not currently possible to disaggregate collections from metered and unmetered customers.

The range of revenue per metered account considers the fact that many Division 1 customers make significant use of rain water harvesting to reduce their GWI water consumption and charges, whereas in Division 4 there is (currently) considerable use made of GWI water for small scale farming. This also is the reason why many meters have been removed by customers.

Financial Analysis: The *Financial* viability of each of the projects was appraised by measuring its flows of costs and benefits in market prices, which focus the evaluation on the subgroup of the population directly affected by the Project. Benefits are assumed equal to the estimated flow of financial revenues. That is, financial benefits are defined as equal to tariffs times estimated consumption, times collection rate.

The PAD considered 2 extreme scenarios and one 'base' scenario which was expected to be close to the end of project scenario.

- A. No tariff change and no grant for investment.
- B. No tariff change and 100% grant for investments.
- C. 47% tariff increase and 100% grant for investments (base case)

Estimated Project Returns at Appraisal

Scenario	Estimated NPV at appraisal
A.	-US\$6.28 million
B.	US\$2.07 million
C.	-US\$5.12 million

The end of project scenario is much closer to scenario B than to the base case, as the tariff has increased by only a small amount (5% for metered customers, 10% for unmetered customers).

The annual financial benefit derived from the customers served by the 3 plants can be estimated in several ways, with results as under based on 2010 performance, based on the actual revenue collections from metered customers in the project service areas of each Division.

Division 1	G\$67,002,000	\$335,000
Division 2	G\$97,143,712	\$485,718
Division 4	G\$125,410,842	\$627,054
Total		\$1,447,772

Operating costs are \$0.15/m³, and current consumption is averaged at 235l/c/d by 50,900 persons, so annual costs of supply to the target population is **\$654,892 per year**. Net revenues of **\$792,880** per year are generated. Considering the project investments as a grant (100% grant financed investments using the IDA grant) with a project life of 30 years and depreciation of 3.5% (based on values for similar water treatment investments) it had a positive net present value. However, when considered as an equity investment (no grant financing), the return on the investment is lower than the opportunity cost of capital, resulting in a negative net present value and an internal rate of return of 2%.

Project Returns at End of Project

Indicator	value
NPV (100% grant)	US\$4.36 million
NPV (no grant)	-US\$5.45 million
IRR (no grant)	2%

Annex 4. Bank Lending and Implementation Support/Supervision Processes

Task Team members

Names	Title	Unit	Responsibility/ Specialty
Lending			
Patricia Lopez Martinez	Senior Infrastructure Specialist	LCSFW	Task Team Leader
TaimurSamad	Urban Specialist	LCSFU	
Bill Peacock	Engineer (consultant)		Project Engineer
Emmanuel Njomo	Financial Management Specialist	LCOAA	Financial Management
Guido Paolucci	Procurement Specialist	LCOPR	Procurement
Judith Morroy	Procurement Analyst	LCOPR	Procurement
Patricia E. Macgowan	Sr. Procurement Specialist	LCOPR	Procurement
Catherine Abreu Rojas	Procurement Analyst	LCOPR	Procurement
Enzo de Laurentis	Sr. Procurement Specialist	LCOPR	Procurement
Alejandro Deeb	Safeguards Specialist	LCSEN	Safeguards
Judith Lisasny	Social Specialst	LCSEO	Social issues
FabiolaAltimari	Legal Specialist	LEGLA	Lawyer
Edward Daoud	Senior Disbursement Officer	LOAG1	Disbursement
HilarionBruneau	Senior Disbursement Officer	LOAG1	Disbursement
Luz Gonzalez	Economic and Financial Specialist	Cons	Economic and Financial analysis
Alain Locussol	Lead Water and Sanitation Specialist	SASEI	Peer Reviewer
Judy Baker	Senior Economist	TUDDR	Peer Reviewer
Ventura Bengoechea	Lead Water and Sanitation Specialist	LCSFW	Water and Sanitation
John Stein	Sector Manager	LCSFW	Sector Manager
Charles Feinstein	Sector Leader	LCSFP	Sector Leader

Supervision/ICR

Patricia Lopez	Senior Infrastructure Specialist	LCSUW	Task Team Leader
Patricia H. de Baquero	Senior Procurement Specialist	MNAPR	Procurement
Greg J. Browder	Lead Water and Sanitation Spec	LCSUW	Technical
Philippe Huc	Sr Water & Sanitation Spec.	MNSW A	Technical
SamanKarunaratne	Finance Analyst	CTRDM	Financial Management
Emmanuel N. Njomo	Consultant	AFTFM	Financial Management

Navid Rahimi	Junior Professional Associate	LCSUW	Technical/project management
Luis Tineo	Senior Infrastructure Specialist	GPOBA	Technical
Evelyn Villatoro	Senior Procurement Specialist	EAPPR	Procurement
Tamara Amoroso Whalen	Operations Analyst	LCCGY	Project Management
Yao Wottor	Senior Procurement Specialist	LCSPT	Procurement
John Morton	Senior Urban Environment Specialist	LCSUW	ICR
Valerie Santos	Senior Urban Specialist	LCSUW	ICR
Chiropriya Dasgupta	Consultant	LCSUW	ICR
Peter Smith	Engineer (Consultant)		Technical/ Institutional

(b) Staff Time and Cost

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant costs)
Lending		
FY04		83.11
FY05		151.53
FY06		15.87
FY07		0.00
FY08		0.00
Total:		250.51
Supervision/ICR		
FY04		0.00
FY05		0.00
FY06		97.67
FY07		76.27
FY08		94.09
Total:		268.03

Annex 5. Summary of Borrower's ICR and/or Comments on Draft ICR

1. A draft ICR was shared with GWI and Permanent Secretary of Ministry of Housing and Water and discussed with them in Georgetown on September 7, 2011. Further comments were received from GWI in writing. The main comments received are the following:
 - In GWI's view, implementation delays, particularly early on in Project implementation, were attributed to extensive periods in the procurement processes, termination of some contracts and retendering. In addition, there were periods when construction materials were scarce or unavailable locally, which resulted in delay in construction completion;
 - The project was initiated very well by the respective parties and there are some lessons learnt that have benefitted GWI which are as follow.
 - (i) Close coordination with the Bank, GOG, GWI and the consultants resulted in the successful completion of the Project
 - (ii) It was a good approach for the GWI to employ individual consultants under the Project, which resulted in significant cost savings. In addition, this approach resulted in strengthening of GWI Institutional capacity, which is presently benefitting the organization. Presently, there are several persons at GWI that received training that are working in senior management positions within the organization.
 - In GWI's view, lack of financial sustainability at GWI should be attributed to the expansion in GWI's service areas and the improved service provided which has resulted in an increase in operating costs; Increase in electricity costs and machinery usage to meet demands has also contributed to greater operating costs. It is acknowledged that collection rates need to be improved and NRW needs to be reduced;
 - GWI acknowledges that the targets set out in the Management Contract and specifically for this Project were ambitious. The unanticipated demands due to new housing schemes played a major role in not meeting the expected operational targets;
 - The Government recently released the progress report on the MDG goals. Water related targets have not just been met but have also played a critical role towards the Health and Education goals, something which should be considered in the discussion and rating of the PDO related to efficiency;
 - GWI has anticipated the risks to maintaining current levels of service and has a system in place and commitment to improving levels of service;
 - GWI acknowledged the benefits received from having an external consultant engaged by the Bank to help supervise works and operations in the later part of the project. The training provided by the consultant played an important role in institutional strengthening and capacity building. Thus the limited formal presence of Bank supervision during the later period of the Project was not considered to be inadequate by GWI;

- Tariff reviews should be initiated by GWI and approved by PUC and should not be considered a GoG shortcoming;
- Collaboration between consultants, GoG, GWI, and donors led to contractual consultants being employed full time at GWI which helped build capacity of the teams.
- GWI acknowledged the Project contribution in building capacity and expertise to produce its infrastructure designs in house which also helps in cost reduction.

GWI Self-Assessment Data of the Turnaround Plan Indicators, December 2010

Measured Parameter	Description	2008		2009		2010	
		Target	Actual	Target	Actual	Target	Actual
Water Quality	% treated water samples with residual chlorine	80%	24%	80%	80%	80%	82%
	% treated water samples negative for coliform	100%	88%	100%	85%	100%	93%
	% of required samples collected	90%	85%	90%	93%	95%	93%
Accounts	Number of accounts physically verified under NRW	155,891	152,497				
	% accounts metered	25%	28.5%	40.7%	34.5%	51.4%	35.0%
	Number of Metered Customers		47,113	67,553	58,033	86,780	59,593
Billings	Un-metered accounts billed	100	77.51%	100	72.50%	100%	83.0%
	Volumetric bills issued (based on readings)	60%	41%	60%	27%	60%	N/A
Collections	Collections (Monthly Avg.)	167M	135.5	256M	184.9	228.1	236.0
Leak repairs	Large leaks repaired/Large leaks reported	75.00%	42.38%	85.0%	96.9%	90%	97.8%
Queries/problem resolution	Queries per 1000 customers (only OP3,OP4,OP5 queries from Hi Affinity)	0.25	0.26	0.25	0.20	0.25	2.12
Electricity Use	Energy Consumed / Water Produced		0.306		0.344	0.300	0.347
Liquidity	Current Ratio [current assets divided by current liabilities]	2	3.7	2	2.8	2	1.9
Activity	Accounts payable GYD (excluding GPL & taxes)	200	267	200	419	200	909
Human Resources	Number of Employees Departed		71		64	-	68
	Number of Employees Recruited		65		92	23	59

Annex 6. Comments of Co financiers and Other Partners/Stakeholders

A draft ICR was shared with representatives of JICA, IDB, DfiD and the European Commission and presented in a meeting in Georgetown on September 6, 2011. The following comments were received.

- **IDB has further engagements in the water sector in Guyana and is concerned about the absence of donor coordination going ahead:** As the donor involvement is decreasing in this sector, the donor leverage is also decreasing which is proving to be a challenge for existing donors in Guyana. IDB has two water sector infrastructure projects in the pipeline and TA for corporate governance and is concerned about the lack of involvement of multiple donors with GWI going ahead since it proved to be critical to the success of this Project and other donor funded projects.
- **Further Bank engagement with GWI:** IDB plans to support climate change related projects at GWI and would like the Bank to explore similar projects at GWI since it is related to the Bank's CAS for Guyana and also technical assistance, advisory or regional training opportunities for GWI.
- **GWI needs a new strategic direction since the Turnaround Plan ended in 2010:** A key concern to sustainability is the lack of a replacement to the Turnaround plan. IDB is funding the study to develop a strategic plan that hopes to fill this gap.
- **2011 elections could set back the progress achieved:** With the elections being scheduled for later this year, political influence has increased which is limiting GWI and can hamper the progress made on institutional strengthening and financial sustainability.
- **Financial sustainability and human resource constraints are the two key challenges observed by JICA in the water sector in Guyana:** Having supported the construction of two water treatment plants in Guyana, JICA has observed that financial sustainability and high turnover of staff at GWI are challenges that need to be addressed to ensure sustainability of investments.

Annex 7. List of Supporting Documents

Bank Staff Assessments

- World Bank (2005), Project Appraisal Document on a Proposed Grant in the Amount of US \$11.3 million to the Republic of Guyana for a Water Sector Consolidation Project
- World Bank (to 2011), Implementation Status and Results (ISR) Reports

Other

- Monitoring and Evaluation of GWI's performance measured against the Turnaround Plan Indicators, World Bank and IDB Benchmarks (2010)
- GWI Turnaround Plan (2007)

