Document of

The World Bank

Report No: ICR00001361

IMPLEMENTATION COMPLETION AND RESULTS REPORT

(IDA-37710 and IDA-3771A)

ON A CREDIT IN THE AMOUNT OF SDR 45 MILLION

(US$61.5 MILLION EQUIVALENT) TO THE

UNITED REPUBLIC OF TANZANIA FOR A

DAR ES SALAAM WATER SUPPLY AND SANITATION PROJECT

May 31, 2011

Water and Urban Unit
Country Department AFCE1
Africa Regional Office

CURRENCY EQUIVALENTS
(Exchange Rate Effective May 1, 2011)
Currency Unit = Tanzania Shilling
US$ 1.00 = TSh 1,509

FISCAL YEAR
July 1 – June 30

Abbreviations and Acronyms

AfDB	African Development Bank
BGT	Biwater Gauff Tanzania Limited
CAS	Country Assistance Strategy
CLU	Community Liaison Unit
CSC	Construction Supervision Consultant
CWS	City Water Services
CWSSP	Community Water Supply and Sanitation Program
DAWASA	Dar es Salaam Water & Sewerage Authority (Implementing Agency)
DAWASCO	Dar es Salaam Water & Sewerage Company (Operator)
DCA	Development Credit Agreement
DWC	Delegated Capital Works
DWP	Delegated Works Program
DWSSP	Dar es Salaam Water Supply and Sanitation Project
EIB	European Investment Bank
EMP	Environmental Management Plan
EWURA	Energy and Water Utilities Regulatory Authority
FTCF	First Time Connection Fund
GOT	Government of the United Republic of Tanzania
IA	Implementing Agency
IBRD	International Bank for Reconstruction and Development /The World Bank
ICR	Implementation Completion Report
IDA	International Development Agency of the World Bank
IMF	International Monetary Fund
M&E	Monitoring and Evaluation
MCC	Millennium Challenge Corporation
MDG	Millennium Development Goals
Mld	Million Liters per Day
MOWI	Ministry of Water and Irrigation
MTR	Mid-term Review
NBS	National Bureau of Statistics
NDWP	Non-delegated Works Program

NGO	Non-Governmental Organization
NRW	Non-revenue Water
NWP	National Water Policy
O&M	Operation and Maintenance
PAD	Project Appraisal Document
PDO	Project Development Objective
POG	Priority Works Program
PPF	Project Preparation Facility
PPP	Public Private Partnership
PRSP	Poverty Reduction Strategy Paper
PSRC	Presidential Parastatal Sector Reform Commission
PWP	Priority Works Program
RAP	Resettlement Action Plan
SIPE	Supply and Installation of Plants and Equipments Contract
SM	Supervision Mission
TAS	Tanzania Assistance Strategy
UFW	Unaccounted for Water
USD	United States Dollars
USRP	Urban Sector Rehabilitation Project
WB	World Bank
WHO	World Health Organization
WRBWO	Wami/Ruvu Basin Water Office
WSDP	Water Sector Development Project
WSS	Water Supply and Sanitation
WTP	Water Treatment Plant
WUA	Water User Association

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UNITED REPUBLIC OF TANZANIA

Dar es Salaam Water Supply and Sanitation Project

Contents

Data sheet

A. Basic Information			
Country:	Tanzania	Project Name:	Dar es Salaam Water Supply and Sanitation Project
Project ID:	P059073	L/C/TF Number(s):	IDA-37710,IDA-3771A
ICR Date:	05/31/2011	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	GOT
Original Total Commitment:	XDR 45.0M	Disbursed Amount:	XDR 44.9M
Revised Amount:	XDR 44.9M		
Environmental Category: B			
Implementing Agencies: Dar es Salaam Water Supply & Sewerage Authority (DAWASA)			
Co-financiers and Other External Partners: **African Development Bank, European Investment Bank**			

B. Key Dates				
Process	**Date**	**Process**	**Original Date**	**Revised / Actual Date(s)**
Concept Review:	07/20/1998	Effectiveness:	07/31/2003	07/31/2003
Appraisal:	02/28/2003	Restructuring(s):		03/02/2006
Approval:	05/27/2003	Mid-term Review:		11/13/2006
		Closing:	12/31/2008	11/30/2010

C. Ratings Summary	
C.1 Performance Rating by ICR	
Outcomes:	Moderately Unsatisfactory
Risk to Development Outcome:	Significant
Bank Performance:	Moderately Unsatisfactory
Borrower Performance:	Moderately Unsatisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Unsatisfactory	Government:	Moderately Unsatisfactory
Quality of Supervision:	Moderately Satisfactory	Implementing Agency/Agencies:	Moderately Unsatisfactory
Overall Bank Performance:	Moderately Unsatisfactory	**Overall Borrower Performance:**	Moderately Unsatisfactory

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):	No	Quality at Entry (QEA):	Highly Satisfactory
Problem Project at any time (Yes/No):	Yes	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Moderately Unsatisfactory		

D. Sector and Theme Codes		
	Original	Actual
Sector Code (as % of total Bank financing)		
Central government administration	8	8
Sanitation	12	12
Sewerage	5	5
Sub-national government administration	15	15
Water supply	60	60
Theme Code (as % of total Bank financing)		
Access to urban services and housing	25	25
Infrastructure services for private sector development	25	25
Other financial and private sector development	13	13
Other human development	13	13
Pollution management and environmental health	24	24

E. Bank Staff		
Positions	At ICR	At Approval
Vice President:	Obiageli Katryn Ezekwesili	Callisto E. Madavo
Country Director:	John McIntire	Judy M. O'Connor
Sector Manager:	Junaid Kamal Ahmad	Jaime M. Biderman
Project Team Leader:	Rosemary Mukami Kariuki	Alain R. Locussol
ICR Team Leader:	Rosemary Mukami Kariuki	
ICR Primary Author:	Thelma A. Triche	

F. Results Framework Analysis

Project Development Objectives (from Project Appraisal Document)

The development objective of the project is to provide a reliable, affordable and sustainable water supply service and improve the sewerage and sanitation in the "Service Area" of the Dar es Salaam Water and Sewerage Authority (DAWASA) that includes Dar es Salaam and part of the Coast region.

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

Despite the restructuring of the project, the PDO remained the same. The changes were more to reflect the changed institutional arrangements, re-allocation of the credit proceeds to enhance the project sustainability and the extension of the closing date to make up for the slow start and the loss of momentum with the termination of the Lease contract.

(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 :	70% of the customers obtain 24 hour water supply service under adequate pressure.			
Value quantitative or Qualitative)	40%	70%		30% with 24 hours supply
Date achieved	06/30/2002	12/31/2009		11/30/2010
Comments (incl. % achievement)				
Indicator 2 :	Percentage of the water samples taken meet the water quality standards specified in the Lease Contract.			
Value quantitative or Qualitative)	20%	100%		99%
Date achieved	06/30/2002	12/31/2009		11/30/2010
Comments (incl. % achievement)				

(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 :	A life-line tariff for domestic customers is fully implemented.			
Value (quantitative or Qualitative)	55%	100%		100%
Date achieved	06/30/2002	12/31/2009		11/30/2010
Comments (incl. % achievement)	Only a small percentage of the target population benefited as many low income households relied on yard taps or kiosks or were served through borehole based networks.			
Indicator 2 :	% of Revenues from water & sewerage services that cover all O & M costs, & allow 10% contribution to the construction costs of the project.			
Value (quantitative or Qualitative)	55%	100%		65%
Date achieved	06/30/2002	12/31/2009		11/30/2010
Comments (incl. % achievement)				

G. Ratings of Project Performance in ISRs

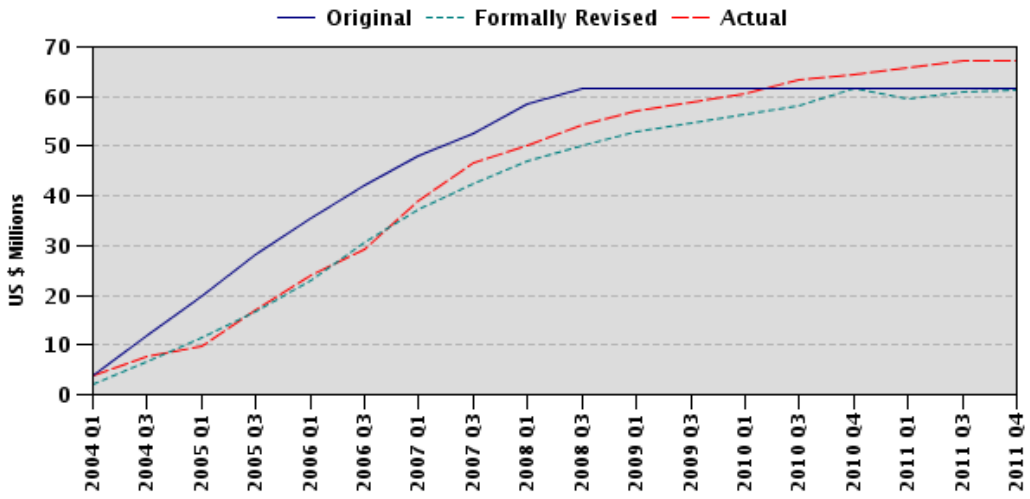
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	07/10/2003	Satisfactory	Satisfactory	0.00
2	01/05/2004	Satisfactory	Satisfactory	5.11
3	06/30/2004	Satisfactory	Satisfactory	9.45
4	11/10/2004	Satisfactory	Satisfactory	9.87
5	04/28/2005	Satisfactory	Satisfactory	17.00
6	07/14/2005	Moderately Satisfactory	Moderately Unsatisfactory	21.99
7	12/20/2005	Moderately Satisfactory	Moderately Unsatisfactory	25.25
8	03/17/2006	Moderately Satisfactory	Moderately Unsatisfactory	29.18
9	10/12/2006	Moderately Satisfactory	Moderately Unsatisfactory	39.03
10	04/19/2007	Satisfactory	Moderately Satisfactory	47.65
11	11/30/2007	Satisfactory	Moderately Satisfactory	52.70
12	01/17/2008	Moderately Satisfactory	Moderately Unsatisfactory	52.70
13	07/10/2008	Moderately Satisfactory	Moderately Unsatisfactory	56.37

14	02/06/2009	Moderately Satisfactory	Moderately Unsatisfactory	58.84
15	06/30/2009	Moderately Satisfactory	Moderately Satisfactory	60.67
16	11/30/2009	Moderately Satisfactory	Moderately Satisfactory	60.67
17	02/23/2010	Moderately Satisfactory	Moderately Satisfactory	63.49
18	05/25/2010	Moderately Satisfactory	Moderately Satisfactory	64.29
19	12/12/2010	Moderately Unsatisfactory	Moderately Satisfactory	67.21

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		
03/02/2006		MS	MU	29.18	Change in the scope of works under Components 1 and 5 and reallocation of funding for additional activities. Extension of Closing Date.
11/20/2009		MS	MS	60.67	Extension of Closing Date.
06/30/2010		MS	MS	64.29	Extension of Closing Date.

I. Disbursement Profile



1. Project Context, Development Objectives and Design

1.1 Context at Appraisal

(a) Country Background

1. In 1999, Tanzania was one of the world's poorest countries, with a per capita Gross National Income of about US$240. At this time, the country was rapidly urbanizing. According to the Government of Tanzania (GOT) one-third to half of the urban population lived in unplanned or squatter areas. In addition, the country was evolving from a one-party socialist state (from independence in 1961 until the mid 1980's) into a multi-party democracy. The country held its first national multi-party elections in 1994, following political and economic reforms introduced in the late 80s. The government introduced more economic reforms in the 1990s, including the restructuring of state-owned enterprises. Furthermore, following the establishment of a Presidential Parastatal Sector Reform Commission (PSRC) in 1993 — to manage the divestiture and privatization program—350 commercial entities were successfully divested and the GOT introduced private participation in infrastructure services. Considering the previous socialist model followed by the GOT, these reforms marked a remarkable change.

(b) Sector Background

2. The Dar es Salaam Water and Sewerage Authority (DAWASA) was created in 1997 with the mandate to provide piped water supply and sewerage services to the Dar es Salaam metropolitan area. Low tariffs, dilapidated infrastructure, and a lack of investment hampered DAWASA's efforts to improve services. Due to leaks, non-metered connections, and illegal usage in 2002 much of the water supplied could not be accounted for. While DAWASA reported that 70 percent of the households in Dar es Salaam had access to piped water (including water from standpipes or neighbor's taps), most areas had service for only a few hours several days per week. Less than 10 percent of the urban population was connected to a sewerage system. Most wastewater treatment facilities were not functioning and pit emptying services were inadequate. The city suffered from periodic outbreaks of cholera and other water-borne diseases.

3. In 2001/2002 the GOT laid the foundation for reform and public-private partnerships (PPP) in water services. A National Water Policy (NWP) was adopted calling for the development of an enabling environment for the delivery of reliable, sustainable and affordable services. The NWP also sought to introduce full cost recovery and financial autonomy. It endorsed independent and transparent regulation of services; emphasized the need to extend services to low-income households; and encouraged private sector participation and small-scale service providers. The GOT authorized DAWASA to appoint an operator under a concession or lease contract, effectively giving DAWASA the functions of an asset holding company. Later, the Energy and Water Utilities Regulatory Authority (EWURA) was created to regulate tariffs.

(c) Rationale for Bank Assistance

4. The Bank has actively supported PPP in water supply and sanitation operations in Africa for over two decades. In Tanzania the Bank supported broad program of parastatal reform and a specific lease contract for water supply and sewerage services in Dar es Salaam through the Public and Parastatal Sector Reform Project (Cr. 2507-TA) and the Privatization and Private

Sector Development Project (Cr. 3304-TA). In 2003 the Dar es Salaam Water Supply and Sanitation Project (DWSSP) became effective. Its purpose was to support a public-private partnership (PPP) and finance investments in infrastructure. Donors provided funds to support the project: AfDB (US$48 million), EIB (US$34 million), and IDA (US$61.5 million).

5. DWSSP was aligned with the government's Tanzania Assistance Strategy (TAS) and its Poverty Reduction Strategy Paper (PRSP) developed targets consistent with the Millennium Development Goals (MDG). The Country Assistance Strategy (CAS) which supported TAS focused on: adherence to macro stability, improved governance, increased poverty focus, and increased private sector participation in the economy.

1.2 Original Project Development Objectives (PDO) and Key Indicators (as approved)

(a) PDO

6. The original project development objective was to provide a "*reliable, affordable and sustainable water supply service and improve sewerage and sanitation in the service area of the Dar es Salaam Water and Sewerage Authority (DAWASA)*[1]". Project activities were therefore expected to improve public health in a city prone to outbreaks of cholera and other water-borne diseases, and support productive activities in Dar es Salaam.

(b) Key Performance Indicators

7. In the Development Credit Agreement (DCA) the following targets for outcome/impact indicators were set for the end of year five of the lease contract:

- 70 percent of customers to obtain 24 hour water supply service under adequate pressure;
- 100 percent of the water samples taken to meet the water quality standards specified in the lease contract;
- 80 percent of sewage collected to be treated;
- 95 percent of effluent samples to meet specified standards;
- A life-line tariff for domestic customers to be fully implemented;
- Revenues from water and sewerage services to cover all operations and maintenance costs, and to allow for a 10 percent contribution to the construction costs of the project.

8. The following targets were among the output indicators listed in the Project Appraisal Document (PAD)[2]:

[1] The Development Credit Agreement does not include the word "sewerage" in the PDO.
[2] The targets shown in boldface were included in Schedule 5 of the DCA.

- Production capacity guaranteed at 9,000 m3/d (Mtoni); 82,000 m3/d (Upper Ruvu) and 180,000 m3/d (Lower Ruvu) by year 2008;
- About 1,040 km of distribution pipes to be installed by year 2008;
- About 135,000 connections to be rehabilitated and metered by year 2008;
- About 35,000 additional residential connections to be installed by year 2008;
- At least 80% of new domestic water supply connections installed under the project to be financed from the "*First Time New Domestic Water Supply Connection Fund"* (New Connection Fund) by year 2008;
- About 250 new water kiosks to be built by 2008;
- 26,000 m3/day of collected sewage to be treated to specified standards before discharge into the environment by year 2008;
- About 50 community WSS schemes to be built and operated by year 2008;
- About 173,000 meters to installed by year 2008;
- UfW reduced to 35 percent by year 2008;
- Combined collection ratio of private and public water supply and sewerage bills to increase to 90 percent by year 2008;
- Water resource management and corresponding environmental assessment to be carried out by year 2007;
- Water supply feasibility study and preliminary design to be completed by year 2007;
- Strategic sanitation plan to be completed by year 2006;
- Sanitation feasibility study and preliminary design to be completed by year 2007;
- Urban WSS sector development strategy to be prepared by 2005.

1.3 Revised PDO (as approved by original approving authority) and Key Indicators

9. The project was restructured three times (in February 2006, 2009 and June 2010) to reflect changes in institutional arrangements and activities, but the PDO and key indicators were retained (see sections 1.6 and 1.7 below). During the Mid-Term Review, DAWASA and Dar es Salaam Water & Sewerage Company (Operator) (DAWASCO) requested the revision of several PDO key indicator targets as it was unlikely that they would be achieved. Revision of the output indicators for the number of meters to be installed and the total number of rehabilitated and new connections down to 100,000 would have been consistent with the reduced number of meters to be procured (100,000), however, no changes were made.

1.4 Main Beneficiaries

10. At appraisal it was estimated that at the end of the project 80 percent of the Dar es Salaam population would have access to piped water: 1.4 million people with access to direct connections, 1.3 million people with access to stand posts, and 170,000 people with access to water through community schemes. The projected 2008 population was 3.2 million.

11. Low-income communities would benefit from the project through the: (i) establishment of a New Connection Fund to finance small diameter domestic connections, (ii) densification and extension of the secondary distribution network to construct new connections and standposts, (iii) adoption of a lifeline tariff for the first five cubic meters per month for domestic customers, and (iv) the Community Water Supply and Sanitation Program (CWSSP) to construct water supply and sanitation schemes for 50 low-income communities not served by the main distribution network.

12. Improvements in services provided through direct water supply and sewerage connections were also expected to benefit institutional and commercial customers in Dar es Salaam.

1.5 Original Components (as approved)

(a) Component 1: Rehabilitation and extension of water supply facilities

13. Amount: US$106.05 million (IDA US$36.0 million), including:

- A Priority Works Program (PWP), to be implemented under contracts awarded to the Operator, for the (i) emergency rehabilitation of production units and transmission lines of the Supply and Installation of Plants and Equipments Contract (SIPE), and (ii) supply of 173,000 meters (POG);
- A Non-Delegated Works Program (NDWP), to be implemented by DAWASA, for the (i) rehabilitation of water production units, transmission lines, reservoirs and main distribution network, and (ii) construction of 58 km of main pipes and a reservoir;
- A Delegated Works Program (DWP), to be implemented by the Operator, for the rehabilitation and extension of secondary distribution pipes and connections;
- Services of a construction supervision consultant (CSC).

(b) Component 2: Rehabilitation and extension of wastewater facilities

14. Amount: US$22.4 million (IDA US$2.50 million), to be implemented by DAWASA, including:

- Rehabilitation of 140 km of existing sewers, 3,100 manholes, 15 waste water pumping stations, nine waste water stabilization ponds and an existing ocean outfall;
- Construction of 26 km of new sewers.

(c) Component 3: Community Water Supply and Sanitation Program

15. Amount: US$3.85 million (IDA US$2.25 million), to be implemented by DAWASA with the assistance of specialized NGOs, and consisting of grants to be awarded by DAWASA to about 50 beneficiary communities for:

- Water supply schemes in low income communities not served by the main network;
- On-site sanitation facilities and hygiene promotion;
- Community mobilization and training in the management of these schemes.

(d) Component 4: Institutional strengthening program

16. Amount: US$25 million (IDA US$13.95 million), including:

- A sub-loan of US$5 million to the Operator to help finance its initial operating costs;
- Technical assistance to DAWASA;
- Training of DAWASA and Ministry staff;
- Emergency operational equipment and repairs to be financed by DAWASA under the Lease Contract;
- Technical assistance to the Wami/Ruvu Basin Office.

(e) Component 5: Preparation of a medium term WSS development program

17. Amount: US$6.15 million (IDA US$5.65 million), including:

- Studies for the selection of the future water source and of the ground water capacity in the Service Area in association with a comprehensive regional environmental assessment;
- Feasibilities studies and designs of additional water supply facilities;
- Preparation of a strategic sanitation plan, feasibility studies, and designs;
- Preparation of a strategy for developing the urban WSS sector.

1.6 Revised Components

18. In March 2006 the following activities were made to Components 1, 4 and 5:

- Component 1: The number of meters to be procured was reduced to 100,000;
- Component 4: Funds were reallocated to provide a sub-loan to the Operator, allow training for staff, and introduce a new management information system;
- Component 5: Three new works sub-components were added: (i) Groundwater development, including the drilling of three deep boreholes to test the water quality and

capacity of a newly identified aquifer under Dar es Salaam; (ii) repair of a breach on the Ruvu River at Kidgozero; and (iii) construction of a waste management facility to handle solid waste for the city and sludge from the wastewater ponds.

1.7 Other significant changes

19. *First*, the selection of a Private Operator was a condition of project appraisal and the effectiveness of the lease contract a condition of credit effectiveness. When the lease contract with the Private Operator (City Water Services) was terminated in June 2005 (due to breach of contract), the government created a public company, DAWASCO, to take over operation of water supply and sewerage services. The project restructuring recognized this change in the implementation arrangements.

20. *Second*, DAWASCO's responsibility for implementing new DWP contracts was handed back to DAWASA, with the exception of the installation of customer connections, water kiosks and related elements that would be assigned from time to time.

21. *Third*, the closing date was extended from December 31, 2008, to December 31, 2009, to make up for the slow start and the loss of momentum caused by the termination of the lease contract. A second extension of six months was granted until June 30, 2010, and a third extension of five months until November 30, 2010.

22. *Fourth*, the proceeds of the IDA credit were reallocated to provide additional funds for Categories 1 (Works), 4 (Training) and 5 (Operating Costs of the Operator) by reducing funds for Categories 2 (Goods) and 3 (Consulting Services) and using funds in the Unallocated category. Retroactive financing was provided from Category 5 for emergency expenditures incurred by DAWASCO after the termination of the lease contract with the private Operator.

2. Key Factors Affecting Implementation and Outcomes

2.1 Project Preparation, Design and Quality at Entry

(a) Quality at Entry

23. During preparation, the Bank conducted a Quality at Entry Review which rated the Project *Highly Satisfactory*. The country context described above (section 1.1) and the GOT's role in leading the PPP reform appeared to provide a favorable environment for the engagement of a private operator to ensure financially sustainable services. The Bank's policy favored PPP as the most promising approach for improving the performance of services. The design of the project was ambitious in that it was premised on a professional private operator turning the utility around. The institutional, commercial and technical interventions were appropriate and most of the civil works were completed despite some delay. In addition, the Project Development Objectives were consistent with the CAS' objectives, the GOT's PRSP, and considered relevant to achieve the MDGs.

(b) Project Preparation

24. The process of selecting a private operator was complex, involving three tendering processes which took five years to conclude.

25. The preparation process began in 1997 after a British company Biwater International Ltd. approached the GOT with an unsolicited proposal. On the advice of the World Bank, the GOT opened up the bidding to other private operators. Saur, Vivendi and Northumbrian were also invited to submit bids. As there was a wide variation among the bids the Presidential Parastatal Restructuring Commission (PSRC) decided not to evaluate them.

26. In 1998 the PSRC decided to request a second round of bids for a lease contract, following a Bank-funded workshop on PPP options, and with the strong endorsement of the World Bank team. The selection process became contentious. Biwater alleged that the structuring of the lease contract and the bidding process favored the French firms and declined to submit a bid. Saur and Vivendi, both of which had expressed concerns about inadequate protection from risks, submitted bids containing qualifications. In May 2000 their bids were declared non-compliant.

27. A third tendering effort was undertaken. Saur, Vivendi and Biwater Gauff Tanzania Limited (BGT), a new partnership that did not meet the criteria, were pre-qualified. Upon reviewing the bid documents, DAWASA's financial advisor and the Bank recommended that, in the case of a bidder being a special purpose limited liability entity (i.e., the case of BGT), the performance guarantee should be provided by the parent company/majority shareholder. But this requirement was not incorporated into the final documents. Saur and Vivendi requested several amendments to deal with risks such as the lack of reliable baseline data and discretionary decisions of the regulator. When their requests were not accommodated these companies withdrew from the bidding process. Ultimately only BGT submitted a proposal. Although the Bank team expressed concern about the soundness of BGT's proposal, following a "*safe space*" review, the World Bank issued a "*no objection*" to the award of the contract. BGT and a Tanzanian investor subsequently created the operating company City Water Services Limited (CWS).

28. A ten-year Lease Contract was signed in February 2003 and CWS began operations in August 2003, coinciding with the effectiveness of the project. In hindsight, the project team's concerns were justified because the company encountered difficulties almost immediately, due primarily to its failure to manage operations, the DWP and PWP effectively. Risks identified by the other potential bidders also contributed to the private operator's failure (and subsequently plagued DAWASCO as well).

29. All other aspects of project preparation proceeded without incident, including the engagement of NGOs to assist with the preparation and implementation of the CWSSP.

(c) Lessons of earlier operations

30. The PAD did not draw lessons learned from previous projects in Tanzania as there was no relevant private sector project. Instead it drew lessons from other WB funded projects in West Africa involving private operators under lease contracts. On this basis the PAD highlighted the following criteria for success:

- The celebration of a Development Contract between the GOT and DAWASA;
- A commitment by the GOT to cause its agencies to pay water bills in a timely manner;
- Transfer of some responsibility for implementing the investment program to the Operator;
- A tariff structure that would allow access to piped water by low-income households;
- Stakeholder participation to build a strong consensus on the privatization of a key public service;
- Targeted programs for low-income communities that would not be served by the main piped system.

31. The attempt to apply these lessons had mixed outcomes:

- The lease contract entered into by the GOT and DAWASA did not adequately address risks;
- The lease contract incorporated measures to ensure the GOT paid its water bills;
- The lease contract was structured to allow the Operator to implement key parts of the investment program, but changes introduced shifted this responsibility between DAWASA and the Operator;
- Until 2005 tariffs were regulatory indexed to reflect inflation, and a lifeline tariff was introduced, however it had limited reach due to the low number of individual connections;
- During project preparation stakeholder consultation with sector actors and low-income communities was satisfactory, but the vested interests (commercial staff of the operator, tankers, etc.) that could undermine the speedy turnaround of commercial performance did not receive enough attention – especially given the suspected high levels of water theft;
- Pro-poor programs were established: to reach un-served areas (CWSSP with good results); to increase the density of kiosks (with poor results); and to improve affordability and access (lifeline tariffs and free connections).

(d) Risks

32. The PAD's identification of risks was broad, and included:

- The inexperience of DAWASA and EWURA;
- The failure of GOT agencies to pay water bills;
- The failure of the Regulator to adjust tariffs;
- DAWASA's weak capacity to implement construction projects.

33. While the overall risk was identified as "*substantial*" and mitigation measures were put in place, the severity of some risks was underestimated and, as a result, the associated risk mitigation measures were inadequate. For example, the risk that the operator would fail to perform was rated "*moderate*", and the impact of this potential failure on the achievement of project objectives was not identified. Improved operator performance was expected to "*free up*" unaccounted for water for redistribution to new customers. Despite concerns raised by DAWASA during project preparation, that production capacity would need to be increased before the 2010 estimate provided in the PAD, the Bank noted that measures to improve efficiency should precede augmentation of capacity.

34. The factors that undermined the lease contract with the private Operator and had a significant negative impact on the project were: (i) the difficult relationship between BGT and its local shareholder; (ii) the failure of the shareholders to contribute the equity necessary to keep CWS solvent; and, (iii) the Operator's failure to adopt and implement a successful turn-around strategy thereby improving access, increasing collections and reducing water losses.

35. Finally, the recommendation that the parent company should provide the performance guarantee was not adopted. Thus the GOT has been unable to collect US$5.6 million that it is owed by the now bankrupt CWS.

2.2 Implementation

(a) Components 1 and 2: Rehabilitation and extension of water supply and wastewater facilities

36. Two-thirds of total project funding (US$128m) was allocated to rehabilitate production, transmission, storage, distribution, wastewater collection and treatment facilities. Most of the major construction works were achieved by project closing. This is an important accomplishment in light of the project's difficult start. By the end of the project only two key activities (repair of the Kidogozero Breach and construction of a sludge facility) — added during the second restructuring — were not implemented.

- *PWP*. The start-up of the PWP lagged until January 2004 because CWS did not provide advance payment bonds in a timely manner. Further delays resulted when, after the termination of the CWS contract, the SIPE contract had to be reassigned to DAWASCO. The rehabilitation works, the delivery and installation of bulk meters, the creation of distribution zones, and district metering were not completed until mid-2010. This had an especially negative impact on operational performance, particularly reducing non-revenue water (NRW) and improving financial performance.

- *DWP*. Arrangements for implementation of the DWP were adjusted twice. Firstly, responsibility for implementing the DWP was transferred to DAWASA after technical auditors found that the strategy adopted by CWS was flawed (focused on installing pipes rather than rationalizing water supply). Secondly, the DWP was returned to the operator (DAWASCO) after the Mid-term Review (MTR) raised concerns about the need to ensure consistency in assignment of responsibility for operational improvements.

- *NDWP*. The rehabilitation of water supply assets and extension of wastewater facilities by DAWASA was completed without major problems despite delays in procurement, delivery of equipment and construction.

37. The MTR found that both DAWASA and DAWASCO needed to improve their capacity to plan and monitor implementation. Nevertheless the MTR rated implementation as "satisfactory" — and by the end of the project the works had substantially been completed. A significant number of indicators were also met (see Annex 2). However, new challenges, in the form of vandalism of new infrastructure and encroachment of human settlements (around the wastewater treatment ponds) emerged. DAWASA undertook several public awareness programs to involve the citizenry in protecting the water and wastewater system and by December 2009 the severity of these problems had decreased.

(b) Component 3: Community Water Supply and Sanitation Program

38. DAWASA's Community Liaison Unit (CLU) implemented the CWSSP, with the assistance of specialized NGOs. This was one of the most effectively managed and successful components of the project despite a slow start. By December 2010 DAWASA had completed 50 small water supply schemes and many of these were operational. As a result the original target was exceeded about 275,000 persons had access to the CWSSP's facilities. Water User Associations (WUAs) constructed some sanitation facilities, including three public toilets for local markets and promotional EcoSan latrines.

39. Implementation of the CWSSP encountered some difficulties but these were largely addressed by the project closing. In particular, the mobilization and formation of WUAs required a greater effort on the part of the NGOs; both DAWASA's and the NGOs' procurement procedures had to be aligned with those of the lenders; in addition, the completion of CWSSP facilities that relied on bulk water from DAWASCO was delayed— this resulted in frustration among potential users.

40. CWSSP schemes appeared to be financially sustainable as revenues collected from the WUAs were sufficient to cover operations, maintenance and expansion. The MTR acknowledged that the WUAs needed follow-up support to manage the systems effectively. During the last months of the project DAWASA engaged a consultant to provide technical assistance and training for WUAs. Also, DAWASCO established a pro-poor unit to provide technical support to off-network community-based schemes.

(c) Component 4: Institutional Strengthening Program

41. DAWASA implemented the institutional strengthening activities under this component and accomplished the technical assistance and training for its staff satisfactorily. However the Operator's critical role in implementing the major institutional changes required to deliver results was neglected. As a result training for CWS/DAWASCO's staff and the introduction of the MIS system came too late in the project and therefore had no significant impact.

42. The slow start-up and subsequent exit of CWS delayed implementation and dampened commercial and operational performance. Both CWS and DAWASCO's collections fell far short of projections— caused in part by the lag in installation of new connections and continued high levels of non-revenue water. Although DAWASA and DAWASCO agreed to accelerate the

cleanup of the customer data base to enable rationalization and metering of connections in line with the findings of the MTR, tariffs were also a problem. The regulator, EWURA, refused to approve the indexation of tariffs for three years (June 2006 to June 2009) — due in part to DAWASA and DAWASCO's failure to meet its conditions — and instead allowed the customer tariff to be restructured (2007/08) to give DAWASCO a higher percentage of the tariff revenues. Other problems encountered during implementation and highlighted in the MTR included vandalism of equipment provided to the Wami/Ruvu Basin Authority and the failure to control encroachment in the catchment area. These weaknesses in enforcement reduced inflows into the Mtoni water works by 61 percent.

(d) Component 5: Preparation of a medium term WSS development program

43. The completion of all key studies planned under this component contributed to updated sector plans and strategies, and to the exploration and development of deep water aquifers. For instance, the Kimbiji aquifer was discovered using innovative methods. The aquifer, with a potential yield of 200,000 cubic meters a day, will improve the availability of water for Dar es Salaam in the future.

44. The studies used data and information from oil and gas exploration work, combined with hydrogeological investigations, which include drilling of three test wells - at Mpiji (abandoned due to high salt content); Kimbiji (high quantity and quality); and Mpera (high water quantity and quality) to find these aquifers. The first phase development of the Kimbiji aquifer will be undertaken through a follow up operation (the Water Sector Development Project).

45. Following the MTR a new design for repair of the Kidogozero Breach (Ruvu River) had to be commissioned as previous attempts had failed.

2.3 Monitoring and Evaluation: Design, Implementation and Utilization

46. The monitoring and evaluation framework defined in the PAD relied on:

- Annual technical reports on performance with regard to key indicators to be prepared by the Operator;
- Quarterly reports on the implementation of construction programs, studies and technical assistance to be prepared by DAWASA;
- Tariff reviews and, before the end of the first five years of the Lease Contract, recommendations on the customer tariff and structure based on detailed willingness-to-pay studies and an analysis of the cost of the services;
- An MTR of project performance to be carried out by the financing agencies;
- An independent review of the implementation of: DAWASA's Development Contract; the Lease Contract; and Customer Contracts, all of which were carried out prior to the MTR.

47. This framework could have provided an adequate basis for monitoring project implementation but its application remained weak throughout the project. The monitoring of

technical and fiduciary aspects of the project (rehabilitation, capital works, and social and environmental covenants) was consistent, but project monitoring fell short in several respects:

- The collection and verification of data on operational performance and the survey of beneficiaries did not receive adequate attention;

- Efforts to enforce the lease and allow the restructuring of the DAWASA/DAWASCO arrangement were implemented late;

- Steps to monitor financial performance and achieve financial sustainability were ineffective.

48. While the issue of weak overall management capacity and the need for greater accountability was identified as a general short-coming, little attention was paid to improving data quality. In the final analysis, DAWASA (including CWS and DAWASCO) failed to ensure that a dynamic and coordinated approach to collecting and monitoring data on operational performance was in place. On its part, the GOT failed to take action on restructuring the DAWASA-DAWASCO relationship to improve accountability and strengthen performance.

49. The lack of good quality operational performance data was detrimental to the project because the establishment of internal systems for rigorous data collection, verification and analysis should have been a high priority for all actors. To some extent delays in cleaning up the customer data base and installing meters led to poor quality of data, however, it was also symptomatic of the dysfunctional relationship between DAWASA and DAWASCO.

50. Specific aspects of this weak monitoring and evaluation system include:

- Unavailability or inconsistency of data in Annual Technical Reports prepared by CWS and DAWASCO — the Auditors' report cited irregularities in the data reported by DAWASCO, but did not provide corrected data;

- DAWASA's Quarterly Reports varied in quality. Even though they provide sound information on the implementation of capital works and studies, they lacked clarity with respect to operational data. There were also inconsistencies between DAWASCO's and DAWASA's and EWURAs reports making it difficult to assess outcomes;

- The Tanzanian National Bureau of Statistics (NBS) was contracted to carry out a series of household surveys in the DAWASA service area to determine the impact of the DWSSP. There was no evidence that survey results were used by DAWASA or DAWASCO as inputs for the formulation of development and operational strategies, or by EWURA as a basis for evaluating tariff proposals. The document review conducted for this ICR also revealed that the survey was not tailored to DAWASA's or EWURA's needs and therefore did not include data on several crucial matters (e.g., volumes consumed and prices) or present it in a manner that could be used to report on indicators and targets.

2.4 Safeguard and Fiduciary Compliance

(a) Safeguards

51. The safeguards policies triggered for the project included (i) environmental assessment and (ii) involuntary resettlement. Both the Environmental Management Plan (EMP) and the Resettlement Action Plan (RAP) were in place at project start. During implementation, a number of issues were identified and most were addressed and resolved satisfactorily.

52. A persistent problem was the illegal discharge of industrial wastewater into the waste stabilization ponds below approved standards. In response, DAWASA served notice to the industries, disconnected the non-complying industries, and reported them to the National Environmental Management Council.

53. Another issue was the encroachment of human settlements near key water sources and around the waste stabilization ponds, due to the delayed fencing. DAWASA was unable to move the households that had settled close to the waste stabilization ponds outside the original boundaries set at the design stage. The fence was therefore built closer to the pond.

(b) Fiduciary Compliance

54. Procurement of works, goods and consultancy services was generally conducted satisfactorily by DAWASA. IDA and the other financiers (AfDB and EIB) followed their respective procurement guidelines for reviewing and clearing procurement documents for the activities each financed. While the process was slow in the beginning, it later picked up and eventually all procurement was carried out under the agreed procurement plans. These plans were updated several times to match implementation progress and changing needs. The last revision took into account the extension of the project completion date from December 31, 2009, to June 30, 2010, to allow completion of ongoing activities affected by slow or repeat procurement, particularly on some of the delegated works packages.

55. DAWASA developed and maintained acceptable financial management arrangements for the project including staffing, internal controls, accounting systems, policies and procedures, record keeping, budget and information systems, and funds flow arrangements. Project financial management issues that were identified during audits and supervision missions and in management letters were discussed and resolved satisfactorily. However, timely payment of counterpart contributions was problematic and this affected the pace of project implementation. For example in the financial year 2009/2010, the approved budget for counterpart funds was TSh 5.3 billion, but the amount received as of March 31, 2010, was TSh 876 million.

2.5 Post-completion Operation/Next Phase

56. The project design included several studies aimed at preparing for follow-on operations, with an emphasis on expanding production capacity, improving sanitation and protecting the environment. The studies resulted in (i) a water resource development plan and proposed water supply scheme; (ii) a sanitation improvement plan; and, (iii) a preliminary design and tender documents for a sludge management facility and sanitary landfill. The GOT plans to finance several follow-on activities as part of its Water Sector Development Program (WSDP). A

consultancy to prepare the Kidunda Dam Project and a comprehensive assessment of the Kimbiji Aquifer are being carried out with support from the ongoing IDA funded Water Supply Support Project (WSSP) project and the Norwegian government. The development of these two water resources will significantly improve the water available in Dar es Salaam and bring production capacity in line with population growth.

57. By December 2010, some minor adjustments in the lease contract between DAWASA and DAWASCO had been made. However, Bank's supervision missions had encouraged the GOT to undertake a more fundamental restructuring of the institutional framework governing the relationship between the asset holder DAWASA, and the operator DAWASCO. As the performance of DAWASCO is critical for the sustainability of investments financed under the project (see section 3.5), a more fundamental review of the institutional and policy framework will be required. In view of the substantial investments planned under the WSDP, the Bank should link any future assistance to more concrete actions to strengthen the policy and institutional environment, and improve commercial and operational performance.

3. Assessment of Outcomes

3.1 Relevance of Objectives, Design and Implementation

Rating: *Satisfactory*

58. The PDOs remain relevant to Tanzania's National Strategy for Growth and Reduction of Poverty (MKUKUTA I and II), the FY11 Joint Assistance Strategy for Tanzania (JAST), and the upcoming Country Assistance Strategy (CAS) FY12-15, all of which include access to improved water supply and sanitation as a key objective. The priorities that the project sought to address also remain relevant, but engaging a private operator is not considered a viable option at this time. Difficulties faced during preparatory and implementation phases, including failure by both the Bank and the GOT to act on key risks that were identified at various stages, are largely responsible for the modest achievement of project outcomes. One of the most successful components of the project was the CWSSP which had a positive outcome. Efforts to expand the CWSSP therefore continued after the project closed.

3.2 Achievement of Project Development Objectives

Rating: *Moderately Unsatisfactory*

59. The PDO — to provide "*reliable, affordable and sustainable*" water supply services, and improve sewerage and sanitation services in the area served by DAWASA — was partially met. Three of the five project outcome targets were achieved:

- First, the "*implementation of a life-line tariff for domestic customers*" was achieved, although this had a limited impact as only 17 percent of households had a house or yard connection in 2009 while 27 percent of households bought piped water from neighbors or kiosks and paid higher unit prices;

- Second, in 2009/10, the "*percentage of water samples in the distribution network that met standards*" reached 97 percent against a target of 100 percent and the number of samples meeting e-coli standards (not a PDO-specified indicator) reached 99 percent;

- Thirdly, by the end of the project, 100 "*percent of collected sewage was being treated*" and the volume was 46 percent more than the target.

60. The last two outcome targets were only partially met:

- Only 30 "*percent of DAWASCO's customers had 24/7 water supply*", compared to the target of 70 percent, due in part to inadequate supply and the high level of NRW which, at 53 percent, was higher than the output indicator target of 35 percent; and finally

- Revenue from services did not *"…cover all O&M costs and allow for a 10 percent contribution to the construction costs of the projec*t". The inadequacy of tariff revenues was of grave concern because the "*revenue improvement program*" failed to improve performance and it was clear that in order for the sector to breakeven (financially), collections needed to almost double in 2010. While an increase in tariffs in 2010 prevented the situation from worsening, EWURA's reluctance to allow regular inflation indexation is likely to pose a problem in future. Collections can be expected to reach the targets only after NRW is brought under control, and the number of active connections approaches the project target of 170,000, DAWASCO must therefore act in tandem to reduce rising core recurrent costs which are also a cause for concern. These can be addressed by taking the above steps — if costs were averaged over a larger number of active connections they would be manageable. Performance on standard indicators recently specified by the Sector Board, project development outcome indicators and project output indicators are presented in Annex 2.

3.3 Efficiency

Rating: *Unsatisfactory*

61. The project's efficiency is rated *unsatisfactory* based on the data available. This rating takes into consideration noticeable inconsistencies in data. For example, the household survey indicated piped water coverage of close to 54 percent in 2009[3], while DAWASCO/DAWASA reported 81 percent coverage, and EWURA reported 82 percent coverage. Problems with data availability and accuracy plagued the project from the beginning and no solid baseline was established. As a result, it was not possible to use the economic parameters laid out in the appraisal document to assess the project's economic efficiency. The lack of sound data to use in assessing project performance obscures the picture of what has been achieved in terms of expansion of the customer base, changes in the composition of the customer base, and actual revenues collected by the different consumer categories, among other possible achievements.

[3] It is unclear what definitions of piped water are used by DAWASA, EWURA and NBS. For example under the CWSSP, 2,000 households and 496 kiosks were connected through "small independent piped networks" that relied on boreholes. DAWASA and EWURA may have included the statistics from these borehole based piped water supplies in their data on piped water supply.

62. The analysis prepared at appraisal assumed that a large part of the project's benefits would be for households using stand posts or kiosks. These consumers would benefit from time savings due to closer proximity of water supply. Those that would gain access through a household connection would also benefit from household expenditure savings as a result of the introduction of a lifeline rate. It is unlikely that the lifeline rate has had a major impact on household expenditure on water due to the fact that most connections appear to have relatively high consumption levels. DAWASCO data shows that average consumption per active connection is about 50 m^3 per month, which is believed to be due to a high degree of water sharing among neighbors. Similarly, the number of kiosks served from DAWASCO's network increased from 115 in 2006 to 195 in 2009 (although DAWASCO indicates that this rose to 294 by project closing)[4]. Furthermore the very limited number of kiosks resulted in households' relying on neighbors, and data in this respect does not allow an estimation of time savings. Finally, changes in the water vendor market have been marginal. The proportion of the population depending on mobile vendors decreased from 9.9 percent in 2006 to 8.4 percent in 2009, and the effect in absolute terms was very small.

63. The original economic analysis was based on conducting a financial analysis and adding (or subtracting) the benefits (or losses) described above. These benefits appear to have been minimal, and the results of the financial analysis conducted at ICR stage further illustrate the weak position of the implementing agency at the close of the project. Analysis of the with-project cash flow shows net operating revenues growing steadily worse, and the net present value is negative.

64. Unit cost efficiency was also analyzed with the following results:

- The water supply component was US$106 million (without contingencies) at project appraisal and at project closing. During appraisal, it was estimated that 685,000 people would benefit from new connections (35,000 connections, 250 new kiosks) and another 2 million people from improved services (rehabilitation of 100,000 connections and 1,000 kiosks) – resulting in a unit cost of US$39 per capita[5]. At the close of the project, the total number of people benefitting from new connections was 416,290, (from 12,029 connections at an average of 10 people per connection and 296 kiosks at 1,000 people per kiosk) and 275,000 served through CWSSP; and the number of people with access to improved services (consumers receiving service daily) was 1,000,000 (100,000 rehabilitated connections) resulting in a unit cost of US$62 per capita (or 1,691,290 people served)[6].

- The project also spent more than US$22 million on sewerage improvements. The benefits from this component are hard to assess, because the data on the number of incremental sewerage connections also shows large inconsistencies. DAWASA reports show an increase of 11,000 new sewer connections between 2006 and 2009, which would

[4] This increase may be the result of adding CWSSP kiosks which were installed by DAWASA rather than DAWASCO.
[5] CWS declared moribund all connections without water or with illegal connections bringing down the total number of connections at the start to 53,832.
[6] Most of the original 1,000 stand posts or kiosks were either abandoned, shut down, or converted into domestic connections.

translate to a cost of US$2,000 per connection. Although this is a high cost, especially when benchmarked against the cost of such service elsewhere in the world, the outputs exceed what was expected in the PAD (to increase sewerage connections from 3,000 to 5,400). Other sources show very little improvement in the number of sewerage connections (such as the EWURA data).

- The Community Water Supply and Sanitation Program was estimated to cost US$3.85 million while providing 170,000 people with services, which at appraisal resulted in a per capita cost of US$23. Benefits from this component have been positive and are continuing to increase. DAWASCO reported 65,000 beneficiaries in 2009 with an actual cost per capita of US$59, but by the end of the project, a census carried out by DAWASA showed that 275,000 had benefited – a per capita cost of about US$14. The exact number of beneficiaries from the CWSSP requires further verification, because the population in the CWSSP areas has increased significantly. DAWASA is currently planning a second census that will establish the impact of the project.

65. As some of the project benefits remain to be realized (20,000 connections are being installed by DAWASA with fittings purchased through the project), and the initial data as well as the data collected by the different agencies during implementation was deficient, the overall high unit costs for the different project components suggest that the project has not used its resources efficiently.

3.4 Justification of Overall Outcome Rating

Rating: *Moderately Unsatisfactory*

Relevance: *Satisfactory*

Achievement of PDOs: *Moderately Unsatisfactory*

Efficiency: *Unsatisfactory*

66. Overall, the project remains relevant, and the priorities identified in the PAD are highlighted in relevant policy documents of the GOT. The modest achievement of the PDO is explained by a number of challenges faced during implementation, including (i) difficulties encountered in engaging an operator with the capacity to turn around operational performance; (ii) a supply side constraint made worse by rapid population growth and worsening NRW; and, (iii) the weak financial performance that resulted from insufficient revenues, low tariffs, and mounting debt. Based on these factors, the project outcome is rated ***Moderately Unsatisfactory***. This outcome could have been prevented by more proactive decision making at various stages of the project, on the part of the Bank and the government. The social, economic, financial impacts of the project were far less than expected. The sector still has some distance to go before fully achieving desired outcomes.

3.5 Overarching Themes, Other Outcomes and Impacts

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

67. The project promoted: (i) the improvement and expansion of services for the poor through the adoption of a lifeline water supply tariff for the first five cubic meters of domestic consumption; (ii) the establishment of the First Time Connection Fund (FTCF) to finance free new small-diameter domestic connections; and (iii) the CWSSP to build water supply and sanitation schemes in communities that could not be served by the main networks in the near future. The lifeline tariff was established prior to effectiveness of the project and has been applied since then. However, as mentioned above, it benefitted a small percentage of the population who have direct access to a house or yard connection. Using the FTCF initially proved to be impractical because of restrictions set at appraisal on the type of households that could benefit[7]. The criteria were relaxed in 2007, but this had no impact on the project, because all new connections made under the DCW (which was completed in 2010) were provided free of charge to all users. The fund remains in a separate account, and DAWASCO started to use it under revised rules established in late 2010.

68. The CWSSP established a foundation for further improvements and expanded services in un-served, low-income communities. In fact, expansion of the CWSSP began before the project ended as the CLU also rehabilitated 35 existing schemes that had been built under an earlier IDA-funded Urban Sector Rehabilitation Project (USRP). Further expansion was hampered by limited funding and therefore DAWASA worked with DAWASCO regarding the possibility of using the 5 percent contribution from communities to establish a fund for further expansion of the program. Sustainability of the schemes depends on effective management by the WUAs. This need will be addressed by a new pro-poor unit that was created in DAWASCO, which, in addition to providing oversight of off-network community water schemes, will ensure the proper operation of kiosks and will promote social connections.

(b) Institutional Change/Strengthening

69. The project sought to improve services by engaging a private operator. Institutional changes therefore focused on the Operator, including credit arrangements, the lease contract, and staffing. It also focused on the role of, and relationship between, DAWASA and the Operator.

The Collapse of the Lease Contract with CWS

70. In preparation for the award of a lease contract to a private operator DAWASA was restructured as an asset holding company. All operating staff and responsibility for operations were transferred to the private operator – CWS. But CWS failed to meet its obligations and its performance was inadequate:

- Its shareholders did not inject the full amount of their agreed equity contributions;

[7] While the criterion set at appraisal was for households with less than 4 taps in the house to get a free connection, the application of this criterion proved difficult due to household and living patterns that were at odds with this. Many households with 3 taps in the house are considered non-poor.

- A new billing software system was not completed until March 2005, and it turned out to be faulty, leading to the system's subsequent replacement;

- Prior to its termination, CWS's average monthly collections in 2004/05 were 48 percent lower than projected and 21 percent lower than DAWASA's had been in 2002/03;

- CWS could not collect US$1.5 million despite the GOT's guarantee to pay, because many bills were disputed and could not be verified due to a lack of information about the location of connections and the lack of metering;

- CWS did not regularly pay the rental fee to DAWASA, periodically withheld Lessor Tariff collections to pay its own operating costs, and misappropriated First Time New Domestic Water Supply Connection funds;

- The number of connections rehabilitated with meters installed was less than one quarter of the targets for the first two years of the contract;

- The delegated works strategy developed by CWS was found to be flawed by the technical auditors because it focused on installing pipes rather than rationalizing the supply of water;

- CWS failed to develop the base values for key performance indicators specified in the lease contract during the enhanced monitoring period and did not submit reports on operational performance in a timely manner.

71. From August 2004 until May 2005, the GOT, DAWASA and CWS attempted to renegotiate the contract. The services of a mediator were funded by the IDA credit, but the parties did not reach an agreement. On May 12, 2005, DAWASA called CWS's performance bond in its entirety. After CWS failed to reinstate the performance guarantee within the period required, DAWASA served a notice of termination of the contract on May 25, 2005. CWS claimed that the notice of termination was invalid and thus would not agree to an early termination. On June 1, 2005, CWS's three British managers were deported. A few days earlier the GOT had created a new public operating company, the Dar es Salaam Water and Sewerage Corporation (DAWASCO), which assumed management of the services that same day.

The resumption of operations under DAWASCO

72. Following the departure of the private operator the services were leased to DAWASCO. The lease contract framework was retained as the operation by DAWASCO (a public operator) was seen as a temporary arrangement until the selection of a new private operator. But the public opinion did not favor a similar contractual arrangement as there was significant disappointment with PPP in infrastructure in Tanzania. Thus, installing a public operator to undertake the core functions of provided by the private operator was the preferred solution for the near to medium term. Under the circumstances it was unlikely that a new private operator would be interested in such a contract.

73. The transfer of the lease from a private to public operator was not straightforward as many of the assumptions of the lease contract were only valid for a private operator. Under the new framework – both entities were owned by the GOT; their boards were appointed by the

Minister of Water and Irrigation without any framework for accountability; and their CEOs were appointed by the president or the minister rather than a board of directors. This framework undermined the principal-agent relationship that was essential for ensuring the accountability of both entities. DAWASCO's lease contract was similar to that of CWS. But, in practice, DAWASCO was not required to execute a performance bond and the financial penalties for non-compliance with the performance targets were not enforced. The MTR highlighted the need to improve monitoring, to return oversight of DWP to DAWASCO, to improve planning and coordination capacity in both DAWASA and DAWASCO, and to restructure and strengthen DAWASCO's O&M and management capacity. But for the transfer of DWP none of these recommendations were implemented. During the first three years of the contract, DAWASCO did not achieve its annual targets, and DAWASA was unable to oversee DAWASCO as they both reported directly to the same authority.

74. These institutional arrangements were the subject of the multi-stakeholder "*Conference on the Institutional and Management Framework for Dar es Salaam Water Supply"* held in December 2009 (see Annex 6). Following the workshop, the World Bank mission recommended immediate actions, including:

- The review of the institutional arrangements to allow an enforceable principal-agent relationship;
- Considering the option of transferring the responsibility for bulk water supply to DAWASA and allowing DAWASCO to buy water in bulk and distribute it;
- Entering into several short-term output-based service contracts to address key water production, treatment and transmission issues;
- Restructuring DAWASCO into several semi-autonomous geographical units;
- Outsourcing DAWASCO activities - such as non-revenue water (NRW) reduction, cleaning up the customer data base, and extension of distribution networks to un-served areas; and
- Making cost estimates and financing plans (including the need for external financing) for the proposed contracts within 12 months.

75. Most of these recommendations were not implemented. Only the first action was completed when the project closed in December 2010.

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

Regulation

76. The GOT created an independent regulator as part of its strategy to promote private participation in water services. An independent regulator is not necessarily compatible with a lease contract model unless the regulator incorporates the provisions of the lease contract into the regulatory framework ex-post, or its terms are designed to be consistent with a pre-existing regulatory regime. Neither condition was met in this case and regulatory conflicts per se did not arise during the tenure of the private operator. EWURA started operating after the private

operator had departed. Prior to that, the Minister acted as the Interim Regulator and made decisions on the basis of the lease contract terms.

77. EWURA did not approve annual tariff indexations. Instead it treated requests for indexation as periodic tariff revisions, for which the criteria are more stringent. Thus tariffs were not indexed for three years (2006, 2007, and 2008). EWURA's refusal to adjust tariffs was contrary to expectations that considered indexation to be guaranteed by the lease contract. The failure to index tariffs contributed to the poor financial performance of the services between 2006 and 2009, and compromised the GOT's commitment to ensure financial viability. Also, DAWASA and DAWASCO were required to meet criteria for which no other entity was holding them accountable, which improved their accountability but did not resolve the principal-agent issues discussed above.

3.6 Assessment of Risk to Development Outcome

Rating: *Significant*

78. The events that could threaten the achievement and sustainability of development outcomes, and impact the estimated likelihood of these outcomes occurring are listed below:

Risk	Likelihood	Impact
Failure to introduce a principal-agent relationship between DAWASA and DAWASCO that promotes the accountability of both entities	S	H
Failure to develop accurate and efficient systems for reporting, auditing, monitoring, and using operational performance data	S	H
Failure of DAWASA and DAWASCO to meet conditions for tariff increases and for EWURA to allow regular inflation adjustments	S	H
Failure to rebalance DAWASA-DAWASCO sharing of tariff revenues	M	S
Failure to maintain high capacity utilization at the treatment plants and produce consistently high quality water	M	S
Failure to reduce NRW to a reasonable level	S	H
Failure of DAWASCO to increase active connections to about 130,000 and increase collected revenues by 68 percent in the next year	S	H
Continued encroachment at wastewater stabilization ponds and failure to control vandalism of equipment and meters	M	M
Failure to adjust loan terms, schedule, and amount of debt owed to the GOT	M	S
Ineffective management, monitoring, and expansion of CWSSP schemes	M	S
Failure to develop affordable and accessible water supply kiosks	M	S

Note: Risk rating: H (High), S (Significant), M (Moderate), N (Negligible to Low)

3.7 Assessment of Bank and Borrower Performance

(a) Bank Performance

Bank Performance in Ensuring Quality at Entry

Rating: *Moderately Unsatisfactory*

79. In the 90s the Bank encouraged the engagement of private operators in water supply services. In Tanzania, the Bank and the IMF had urged the GOT to engage a private operator for several years, and the GOT was eager to do so. When the GOT was approached by a private operator to provide water supply services, the Bank advised it to open this up to bidders in a transparent and competitive manner. It was in this strongly pro-private sector environment that project preparation began. The preparation team invested significant resources in supporting the GOT's effort to choose an operator, relying heavily on experience with private operators in west African countries where lease contracts had been successful and the signing of the Lease Contract was a condition of project approval. These experiences helped the team to identify potential challenges and risks, however the financial loss that the GOT could incur in the event of the operator's default was not identified as a risk in the PAD and PSRC, and its transaction advisors did not act on the recommendation that the parent company of the bidder be required to provide the performance bond. The risk that EWURA would not allow annual tariff adjustments to reflect inflation was considered to be modest but this was underestimated.

80. The Bank's preparation team had concerns about the selection process, and the selected private operator's technical capacity and financial viability. It recognized that the Lease Contract did not provide protection against some risks identified by other bidders. The Bank nevertheless raised no objection to the bid documents and subsequently to the contract. In hindsight, the warning signs that emerged during preparation appear more obvious than they did at the time. If these had been recognized, the Bank might have suspended preparation and reassessed the proposed project at an early stage. It is worth mentioning that Bank management was aware of the difficulties encountered by the project team and was very supportive of the team throughout the process.

81. The capital investment strategy and the CWSSP were well-designed. The investment components emphasized emergency rehabilitation works, reducing NRW, and increasing connections in the early years, followed by limited expansion works. Procurement documents for the works were ready when financing for the project became effective. A detailed matrix of project outcome and output indicators linked to project components was developed. More emphasis could have been placed on the importance of rigorous beneficiary impact surveys and willingness to pay studies as tools for measuring the impact of the Project and for planning. For example, their profile would have been enhanced had they been listed as project output indicators.

Quality of Supervision

Rating: *Moderately Satisfactory*

82. The Bank performed reasonably well regarding the overall implementation of rehabilitation works and capital investments, ensuring fiduciary compliance and building DAWASA's capacity to manage the project. But it faced challenges ensuring environmental and social compliance and creating M&E capacity. The Bank team also ensured a smooth transition of the activities supported under Component 5 which are currently being implemented under WSDP. The Bank team was also pro-active in advising and guiding DAWASA and MOWI's attempts to resolve the crisis and renegotiate the contract with CWS. However, given the dysfunctional nature of the institutional arrangements that emerged, it should have taken a stronger stance with regard to restructuring the DAWASA/DAWASCO arrangement — for example, declining to extend the closing date until this was done. The government's slow action to ensure adequate arrangements for successful operation of the water supply affected the performance of DAWASCO, and this reflected negatively on the project outputs.

Justification of Rating for Overall Bank Performance

Rating: *Moderately Unsatisfactory*

83. The mixed but disappointing outcome of the project was due not to the failure of individual staff members but to institutional factors that favored pushing forward with the project despite conditions that were likely to compromise success. The actions taken were not sufficient to reverse poor performance or improve sustainability of outcomes.

(b) Borrower Performance

Government Performance

Rating: *Moderately Unsatisfactory*

84. During the preparation phase, the GOT was keen to attract a private operator and pushed hard to create the conditions for PPP. However, perhaps as a result of its lack of prior experience with PPP, it failed to recognize that the difficult conditions in Dar es Salaam required a more experienced private operator and posed significant risks to bidders. The PRSC did not take heed of the Bank's advice in this regard. It is likely that more than one bid would have been submitted had PSRC been more responsive to bidders' requests for risks to be addressed in the draft contract. It also did not accept the recommendation that the parent company provide the performance guarantee — it is unclear if Biwater objected or whether PSRC may not have recognized the risk.

85. In many respects, the GOT's performance during project implementation was *satisfactory*. It took a number of important actions that were important for the success of the project. While the private operator was in place, tariffs were indexed annually — although EWURA subsequently refused to allow annual indexation of tariffs from 2006 – 2009. After the private operator was terminated, the GOT injected TSh 2.0 billion in equity, contributed to the retrenchment of DAWASCO staff, rescheduled DAWASA's debt service until 2010/2011, and honored its commitment to ensure that government entities paid water bills – though both

operator's inability to verify the amounts consumed made it difficult to take advantage of this commitment.

86. But the GOT's actions on other critical issues were unsatisfactory. First, the failure to establish an effective principal-agent relationship between DAWASA and DAWASCO weakened overall project performance. This was the most serious shortcoming, because it undermined the accountability of the two entities, the achievement of project outcomes, and the long-term sustainability of the services. At project closing, the legal revisions necessary to restructure the relationship had not been implemented. Second, EWURA's actions contributed to the poor financial performance of DAWASCO and the failure to achieve project outcomes. However, their position regarding the indexation of tariffs was consistent with their legislation and regulations (which was upheld by the Tanzanian Fair Competition Tribunal). EWURA's decisions revealed an inconsistency between the regulatory framework and the project that will need to be taken into account in future operations[8]. Third, on one occasion, the GOT did not take planned steps to ensure compliance with safeguards - allowing the construction of houses within 20 meters of the fences around the stabilization ponds, despite recommendations of the Bank team. A directive from the Prime Minister that no house be pulled down meant that these houses remain closer to the ponds than desirable— posing possible safety and health risks. Finally, the GOT's decision not to accept DAWASA's proposal to convert the CWS sub-loan into equity, reduce the interest rate from 11.5 to 5 percent, and provide further deferment of debt repayment for three more years until July 2013 will have a significant impact on project sustainability.

Implementing Agency or Agencies Performance

Rating: *Moderately Unsatisfactory*

87. The implementing agency, DAWASA, was ultimately responsible for its own performance and that of its contractors, initially CWS and later DAWASCO. DAWASA's positive accomplishments included successful completion of all capital works within budget, and taking satisfactory action to address many of the issues that were identified jointly with the Bank, including procurement and contract management issues, and the need to develop an in-house planning capacity. Secondly, DAWASA's role in implementation of CWSSP was also positive, and most issues that arose were effectively resolved. Thirdly, studies aimed at the development of future water sources and identification of medium-term capital works program were also completed on time, and the introduction of the EDAMS network asset and modeling systems was a major step forward— providing a good foundation for improving the management of the network.

88. Areas where DAWASA's performance could have improved were (i) the timeliness of completion of capital works and bulk metering, (ii) more systematic and effective management of operational performance data, (iii) more rigorous supervision of NBS household surveys, (iv) and, more decisive and timely action with regard to resettlement and encroachers within stabilization pond boundaries. In addition, DAWASAs relationship with DAWASCO was difficult to manage, because the principal-agent problem was not solved. Despite the lack of effective oversight, DAWASCO's positive accomplishments included the downsizing of staff numbers, creation of

[8] As the lease contract was designed before EWURA had been created, its establishment introduced new challenges that had not been anticipated earlier.

performance incentives for managers and staff, and the decentralization of commercial operations. Although collection efficiency (collected amount as a percentage of amount billed) eventually reached an acceptable level, the very low amounts billed and collected created serious problems. By project closing, collections amounted to only 60 percent of the target in 2009/10 and NRW, at 53 percent, remained unacceptably high. DAWASCO finally began to pay Rental Fees to DAWASA regularly in March 2009, but its prior failure to pay accrued fees caused the latter to require subsidies from the GOT.

Justification of Rating for Overall Borrower Performance

Rating: *Moderately Unsatisfactory*

89. The performance of both the GOT and the implementation agency was rated moderately unsatisfactory. This reflects the mixed experience with respect to capital works, which were satisfactorily implemented (with some delays), and the inadequate performance and failure to take action to promote financial sustainability and accountability. These actions are likely to contribute to deterioration of the positive achievements with regard to several outcome and output targets.

3.8 Lessons Learned

(a) Examine a wider range of factors affecting success

90. During project preparation and implementation there is a natural tendency to focus on the factors that are most visible. These include the institutional framework, the identification and design of rehabilitation and capital works, procurement matters, and environmental and social safeguards. Less attention is paid to factors that could undermine successful implementation. However, as this experience shows, the least visible conditions can significantly affect improvements in operational and commercial performance.

(b) Take the concerns of a range of qualified potential bidders into account

91. Borrowers need to be diligent in assessing the market and developing strategies for attracting qualified bidders. PSRC's failure to accommodate concerns of experienced potential bidders regarding risks that had not been adequately mitigated. As a result two bidders withdrew from the competition. The remaining bidder (Biwater's) ability to deliver results was overestimated and it was ultimately unable to overcome the challenges it faced. The concerns of other bidders therefore appear to have been justified, and failure to take them into account affected the success of the project.

(c) Withdraw or change course when project related issues cannot be resolved satisfactorily

92. Perhaps the World Bank should have been more willing to withdraw from supporting the transaction and the project when the selection process did not progress in a constructive and transparent manner and afterwards, when the conditions to improve performance were not created. Likewise, the GOT should have taken more timely action to adapt the lease contract and straighten out the institutional arrangements between DAWASA and DAWASCO when it became apparent that the lack of a principal-agent relationship was problematic.

(d) Develop contingency plans in event of termination of the private operator's contract

93. Before the private operator's contract was terminated in Dar es Salaam, little thought was given to a contingency plan. Under duress, the GOT took emergency action to establish a public operator to take over immediately. Although this action ensured the continued provision of services in the short term, the arrangement was not adapted to circumstance and proved to be a sub-optimal solution. Proposals for improving the institutional framework were developed five years after the private operator's contract was terminated. Although the possibility of contract termination is always acknowledged in legal documents, the practical follow-up steps are rarely given much thought in advance. Developing guidelines that could be followed in the event of a collapse of a contract might pay off in the longer term. Such guidelines should address not only short-term emergency actions but also subsequent steps to establish sustainable medium-term solutions.

(e) Develop rigorous systems and processes for reporting, monitoring, and collecting performance data

94. The development of coordinated systems for monitoring, verifying, and using operational and commercial data for strategic direction was underemphasized. DAWASA, DAWASCO, EWURA, MOWI needed access to such data, as well as the financing agencies that support the services. But information was scattered, inconsistent, and was barely used for strategic planning and monitoring. Systems and processes for defining, measuring, recording, and verifying information need to be developed early in project implementation. Implementing entities should be required to develop strategic planning capacity and processes based on reliable information. Credible data and plans for addressing shortcomings will help to avoid embarrassing criticism by other well-meaning development partners.

(f) Ensure relevance and standard definitions of performance indicators

95. Some of the project outcome and output indicators did not reflect the highest priorities and there were definitional problems. For example, the indicator that 70 percent of customers would have access to piped water 24 hours per day was not meaningful when only 17 percent of households have a piped water connection. A more relevant indicator might have been the percentage of households (or population) with access to improved water services 24 hours per day, including boreholes, kiosks and yard taps. The Bank (Sector Board) has already taken steps to establish and define standard indicators that address this issue. In addition, performance targets that become unachievable during the course of a project should be revised. Otherwise, targets are irrelevant and performance monitoring may be either neglected or meaningless.

(g) Ensure consistency of contract terms and the regulatory framework

96. It was assumed that the independent regulator would honor the provisions of the lease contract with regards to annual indexation of tariff. In addition, DAWASA's Memorandum of Understanding with MOWI did not specify tariff rules and procedures at all. Instead, it referred to the lease contract, leaving DAWASA somewhat vulnerable in this regard. Such situations need to be foreseen and taken into account in designing projects and contracts (whether with private or public entities). One solution is for the regulator and other key actors to develop a consensus on tariff priorities and policies so that all entities support the tariff provisions of contracts. If the regulator cannot be bound in that way, contracts should include provisions for

compensating the affected entities (asset holder, operator, etc.) for regulatory decisions that are not consistent with the relevant terms of their contracts.

(h) Ensure the effectiveness of performance bonds

97. The fact that DAWASA was unable to call part of CWS' performance bond came as a surprise and resulted in a delay in holding the Operator accountable and financial losses for the GOT. The transaction advisors should have caught and remedied this flaw. In addition, the feasibility of requiring the parent company of a limited liability private operator to provide a performance bond or another protective mechanism needs to be examined, especially when World Bank or IDA funds will be on-lent to the private operator. As noted earlier, after the transfer of the lease contract from CWS to DAWASCO, no performance bond was required – because of DAWASCO's status as a public entity.

(i) Use surveys to guide operational strategies and plan future interventions

98. While surveys of beneficiaries were foreseen as a key component of the project's M&E framework, rigorous surveys were not carried out. Better results might have been obtained if more details had been specified in the PAD and if the completion of the surveys had been included in the output indicators. The participation of contracted professionals may be necessary to promote rigor while building the capacity of the national agency. The results of such surveys should be examined by supervision mission and their implications discussed with the government and Implementing Agencies.

3.9 Comments on Issues Raised by Borrower, Implementing Agencies and Partners

(a) Borrower/implementing agencies

99. DAWASA's ICR provides a more positive outlook of the project than this ICR, primarily because it assesses performance from a technical perspective and therefore gives more weight to the completion of important rehabilitation and construction works that were completed during the project and constituted a significant portion of loan proceeds. DAWASA had reservations from the start that (under the conditions prevailing at the start of the project) the Operator could turn around the utilities performance enough to ensure sufficient water supply until 2008 when the project was expected to close. When the CWS contract failed DAWASA requested a change to the PDOs to reflect more modest expectations for DAWASCO, however, this change was not made. As noted above, the PDO should have been adjusted to take these concerns into account.

(b) Co-financiers

100. Comments received from the AfDB are detailed in a separate Project Completion Report (PCR) which is attached as Annex 8.

101. Overall, AfDB perceived the performance of the government to have been *moderately unsatisfactory* as tariff indexing was observed during the time that the private Operator was in place but as the Private Operator left the GOT abandoned tariff indexing. This lack of political will to support the project had and continues to have a profound effect on cash flows for

DAWASCO and DAWASA. In addition, the audit reports for the project have consistently shown that there is poor performance by the two Implementing Agencies (IAs). No action has ever been taken by the GOT to address implicit management challenges at both IAs. In addition, the performance of implementing agencies is considered to have been unsatisfactory, because both DAWASA and DAWASCO have audited financial statements which reflect operating costs that are higher than gross revenues. In fact, the trend has been that these operating costs continue to rise while revenues remain flat. It is of grave concern that gross water revenues should continue to be flat while metering and therefore billing has been increasing. More worrying is the seeming inability of management to keep operating costs in line with revenues. Thus, DAWASCO is unable to meet operation and maintenance costs, and is not sustainable even in the short-term. Furthermore, DAWASA will not be able to meet its long repayment obligations.

102. Regarding its unaccounted for water (UFW), which was 57 percent in 2009, DAWASA and DAWASCO have for the past several years been unable to give a breakdown in terms of how much of the water was lost due to the following: illegitimate or illegal connections, leaks, disconnections. In fact, DAWASCO, even at the end of the project, is still unable to present a clean database of its connected customers. These kinds of challenges are expected at the beginning of the project, not at the end. Finally, in the past three or so years, the recommendations to DAWASA and DAWASCO management especially on financial management have been the same. However, minimal action, if any, has been taken, either by the IAs, management, or the GOT, by way of corrective measures on the matters raised by the financiers.

103. Finally, the financiers could, with the benefit of hindsight, at some stage or other, have taken measures to stop the poor project performance. Perhaps one option could have been to suspend disbursements until corrective steps were taken.

Annex 1. Project Costs and Financing

1. Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Rehabilitation and extension of water supply	106.05	106.94	100
Rehabilitation and extension of sewerage and waste water	22.40	19.83	88
Community water supply and sanitation	3.85	3.85	100
Institutional strengthening	25.00	33.54	135
Preparation of a medium term WSS development program	6.15	4.41	72
PPF REFINANCING	1.15	1.14	100
Total Baseline Cost	164.60	169.71	103
Physical Contingencies			
Price Contingencies			
Total Project Costs	164.60	169.71	103
Front-end fee PPF			
Front-end fee IBRD			

2. Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
African Development Bank	Parallel	57.36	50.54	88
Borrower		12.60	12.60	100
EC: European Investment Bank	Parallel	34.00	34	100
International Development Association (IDA)		61.50	67.21	109
Foreign Private Commercial Sources (unidentified)	Parallel	8.50	8.50	100

Annex 2. Project Outcomes and Outputs by Component

Indicators Specified by the Sector Board (Not included in the PAD)			
Indicators	**Target**	**2009/10**	**Comments**
Population with access to improved water[9]	None	2.8 million (83%)	Percentage reported by NBS Survey of Nov. 2009 applied to population of 3.4 million[10]
Population with improved sanitation[11]	None	476,000 (14%)	Percentage reported by NBS Survey of Nov. 2009 applied to population of 3.4 million
Population connected to sewer and with flush toilets	None	119,000 (3.5%)	Percentage reported by NBS Survey of Nov. 2009 applied to population of 3.4 million
PDO Outcome/Impact Indicators (included in the PAD and/or DCA)			
Indicators	**Target**	**2009/10**	**Comments**
Percentage of DAWASCO customers with 24-hour water supply service under adequate pressure during last six months	70	30	Data from DAWASCO. Numbers are consistent with NBS 2009 survey.
Percentage of water samples in distribution that meet standards specified in the Lease Contract (annual)	95	96.9	Reported by DAWASCO
Percentage of sewage collected that is treated prior to disposal (annual)	80	100	
Percentage of effluent samples that meet specified standards (annual)	95	83	
Life-line tariff for domestic customers	Implemented	Implemented	Only a small percentage of the population benefited.
Percentage of Capex covered by internal cash generation over last three years	>10%	20%	
PDO Outputs by Component (included in the PAD and/or DCA)			
Indicators	Target	2009/10	Comments
1. Water supply facilities rehabilitated and extended			
Capacity Utilization at 180,000 m3/day (Lower Ruvu), 82,000 m3/day (Upper Ruvu), and 9,000 m3/day (Mtoni)	100	99	Excludes Mtoni where there is inadequate water at the source.

[9] Improved water includes water from piped service, boreholes and protected wells, and which is available in house, yard or from a kiosk, but not from mobile vendors or bottled water.

[10] The Dar es Salaam population estimate for 2009/10 is a linear interpolation of the "medium" population projections presented in DAWASA, Water Supply Improvement Plan, Final Report (by Dr. Ahmed Abdel Warith Consulting Engineers), June 2008. The PAD anticipated that the end of project population would be 3.2 million and 80% or 2.56 million would have been reached.

[11] Improved sanitation is defined as a flush/pour-flush toilet emptying into one of the following: a piped sewer system, septic tank or pit latrine, VIP latrine, pit latrine with slab or a composting toilet.

Kilometers of distribution pipes installed	1,040	1,571	
Combined number of new connections (35,000) and connections rehabilitated and metered (135,000)	170,000	112,329	In June 2010. Targets are combined as separate data are not available.
Percentage of new domestic water supply connections that serve low-income households	80	n.a.	Unknown
New water kiosks built	250	294[12]	Some rely on tanker water.
2. Sewerage and wastewater facilities rehabilitated and extended			
Volume of collected sewage treated to specified standards before discharge into environment	26,000 m3/day	38,000 m3/day	
Non-revenue water as a percentage of total produced	35	53	
3. Community water supply and sanitation program			
Community WSS schemes built and operating	50	60	50 WS and 10 sanitation
Population served by CWWSP	170,000	275,000	
4. Technical, commercial and financial capacity			
Active water supply accounts		100,992	Not a PAD indicator
Active sewerage accounts (estimated)		20,000	Not a PAD indicator
Percentage of connections that are metered	100	83	
Percentage of bills based on meter readings	100	79	
Amount collected as percentage of amount billed	90	79	
Operating ratio		64	Not an indicator listed in PAD
5. Post-completion and Preparation for Future Projects			
Water resources management and environmental assessment	Complete	Complete	Further studies funded under WSDP
Future water supply feasibility study and preliminary design	Complete	Complete	
Strategic sanitation plan	Completed	Complete	
Sanitation feasibility study and preliminary design	Completed	Complete	Implementation under WSDP
Urban WSS sector development strategy	Completed	Complete	
Workshop on Institutional and Management Framework for DAWASA, followed by decision/action to improve the DAWASA/DAWASCO relationship	Complete	Partially complete	Required revisions to DAWASA regulations cannot be effected until DAWASA Act is revised. The Act is being reviewed.

[12] Excludes 469 kiosks built under CWSSP program (supplied by boreholes)

Annex 3. Economic and Financial Analysis

1. Financial Analysis

As part of the ICR exercise, a review of the financial performance of the water supply operator (DAWASCO) was undertaken. A full review of the financial performance of DAWASCO and DAWASA relative to the projections of the PAD was not undertaken, simply because too many assumptions of the original analysis were no longer applicable. A few of the original assumptions are noted here:

- The original analysis was built around a 10-year lease of the water supply assets to a private sector operator. As discussed elsewhere, the lease was abandoned early in the Project.
- Original financial projections were based on 1999/2000 information, which itself was not considered reliable.
- Projections were also based in part on the bid of the selected leaseholder.
- Project investments during the first two years of the Project were critical to the institutions' financial turnaround, including US$30 million to reduce UFW to be completed by Year 2.
- Reductions in UFW were to enable a growing customer base; improved collections – reaching 90 percent of billings by year 5 – were to underpin cash generation and the accumulation of reserves.

Tariffs were to be indexed annually to inflation

The original projections indicated financial viability for both the asset holder (DAWASA) and the operator. Negative operational cash flows were projected for the first three years, but cash flows would turn positive beyond year four. Owner's equity was projected to stay positive throughout the period of analysis. Most importantly, projections showed that profits would contribute to cash reserves that would be sufficient to pay debt service.

As detailed in this ICR, serious problems resulted in (i) the breakdown of the lease agreement between DAWASA and the operator and the subsequent takeover of management of the operator; (ii) consequent delays in the implementation of management and operational reforms; and (iii) delays in the implementation of key system investments. Other deviations from the assumptions – such as the regulator not approving tariff indexing for several years – contributed to operational and financial performance far below expectations. A few key comparisons (Table A3.1) illustrate the gap:

Table A3.1

('000 TSh)	2008 Projected	2009 Projected	2008 Actual	2009 Actual
UFW	35%	35%		53%
Active Connections	137,957	146,457	63,537	100,992
Operating Revenue	40,565,790	40,574,000	18,557,860	24,417,018

Summary of Operator Financial Performance

The following provides a brief overview of the financial performance of the operator over the last several years. In contrast to original projections, the operator has suffered operating and net losses each of the years reviewed. This has been due to a number of operational factors – most importantly, continued high water losses, and the related inability to sufficiently increase the underlying customer base due to water unavailability. That said, an additional key factor, somewhat beyond the control of the operator (although linked to its inability to improve its operational performance), was the lack of indexing of revenues over several years. Only for fiscal year 2010 did the regulator allow an increase in tariffs reflecting cumulative inflation over the previous three years.

Table A3.2: DAWASCO Financial Overview, 2007 – 2010

In TSh '000	June 30, 2007	June 30, 2008	June 30, 2009	June 30, 2010
Water and Sewerage Charges	17,916,221	18,557,860	24,417,018**	33,150,501**
Government Grant	3,000,000	2,000,000	3,155,107	1,200,000
Total Income*	22,346,724	21,415,220	28,717,510	35,265,881
Operating Expenses	30,793,181	29,335,674	33,764,773	30,282,763
DAWASA charges	**	**	5,453,777	7,123,594
Operating Losses	(8,446,407)	(7,920,454)	(11,422,559)	(3,379,854)
Financing Costs	999,399	1,206,392	1,256,851	1,396,076
Net Losses	(9,445,806)	(9,126,846)	(12,679,410)	(4,775,930)

* Reflects additional miscellaneous income.

** Not reflected in financial statements until FY 2009. Water and sewerage charges for FY 2007 and 2008 reflect charges net of charges from DAWASA, while water and sewerage charges for FY 2009 and 2010 reflect gross water and sewerage charges.

While the above figures (Table A3.2) reflect operational results, DAWASCO has done worse on a cash basis, reflecting weaker-than-expected collections. DAWASCO's net trade receivables (i.e., after write-offs for uncollectible debt) have increased each of the last three years, from TSh 4.4 billion at end FY 2008, to TSh 7.1 billion at end FY 2010. More concerning, however, has been significantly higher increases in DAWASCO's trade payables. These have increased from TSh 5.7 billion at end FY 2007 to TSh 28.2 billion at end FY 2010 – a TSh 22.5 billion increase over a three-year period, which reflects expenses that exceed revenues and poor collections of billings. Accumulated losses for DAWASCO now stand at TSh 33.5 billion; shareholders' equity is now a negative TSh 31.5 billion.

DAWASCO and DAWASA are expected to begin repaying interest and principal on their borrowings from international financial institutions next year; debt service next year is expected to be over TSh 20 billion, declining by about TSh 1 billion each year after that. Given DAWASCO's financial performance, and the fact that DAWASA's available income is wholly reliant on DAWASCO's performance, it is clear that there is simply no possibility of the debt being successfully serviced under current conditions. A declaration of bankruptcy isn't possible and the government will have to take on the debt service until the utility is able to generate sufficient revenues.

2. Economic Analysis

Re-creating the economic analysis of the PAD will not be attempted for a number of reasons:

The quality of data was an issue during appraisal. The analysis assumed that a large part of the project's benefits would be for households using kiosks (hereinafter referred to as kiosks). The latter group of kiosk consumers would benefit from time savings and household expenditure savings (due to the introduction of a lifeline rate). Yet, the household survey that was published at the time of appraisal noted that most households using piped water depended on their neighbors in supplying this water, while the number of kiosk users was very small.

The availability and quality of data is still a major issue. Different sources of data (DAWASCO, household surveys carried out by the National Bureau of Statistics (NBS), and the Energy and Water Utilities Regulating Authority (EWURA)) are inconsistent, and it is therefore impossible to reconcile the data in different parts of the PAD. For example, the original economic model could not be used, because there is little actual data to complete it, — the economic analysis was based on a large number of assumptions regarding amongst others the actual water use by different consumer categories and the prices of water from different sources.

The lack of reliable data makes it extremely difficult to get a clear picture of what the Project has achieved in terms of expansion of the customer base, changes in the composition of the customer base, actual revenues collected by the different consumer categories and the like.

For example, in the case of DAWASCO coverage, the household survey conducted by NBS in Dar es Salaam states that piped water coverage is close to 54 percent in 2009[13], compared to 81 percent as presented by DAWASCO/DAWASA and 82 percent by EWURA[14]. Even though the numbers provided by DAWASCO and EWURA are close, the number of residential connections is not very consistent with these coverage rates unless every single household provides water to at least 3-4 households. Yet, the household surveys that were undertaken as part of the Project do not provide evidence for such high levels of connections being shared. In the 2009 household survey for instance, it was found that only 15 percent of customers share their connections with their neighbors– with most of the sharing of connections linked to landlords providing water to their renters through a single connection.

(a) Beneficiaries of the Project

The immediate outcome of the Project was to provide a "reliable, affordable and sustainable water supply service and improve sewerage and sanitation in the service area of the Dar es Salaam Water and Sewerage Authority (DAWASA)". It was assumed that the reduction of non revenue water from 58 percent in 2003 to 35 percent in 2008 and the introduction of boreholes (CWSSP) for those far from the network would provide the incremental water that would enable the utility to expand its services. It was assumed that the Project would improve:

[13] It is unclear whether definitions of piped water used by DAWASA, EWURA and NBS are consistent. For example under the CWSSP, 1700 households and 496 kiosks were connected through small piped networks that relied on boreholes. DAWASA may have included borehole based piped water supplies in their piped water supply statistics.

[14] EWURA's definition does not refer to piped water.

- The quality and reliability of services to 100,000 connections serving about 1 million people and 1,000 kiosks serving another 1 million residents;
- The expansion of the service to 385,000 people through direct connections, 300,000 people through kiosks, and 170,000 through the community water supply and sanitation services;
- Lead to a more equitable service by allowing direct access to piped water currently relying on neighbors or vendors;
- Improve revenue collection; and
- Introduce more efficient pricing.

Table A3.3 provides a breakdown of the beneficiaries that the NBS survey reports as having benefited from the project. It shows that by 2009, 257,000 people gained direct access starting in 2006, while the number of people benefiting from access to kiosks increased by 31,000. As such, an additional 288,000 people were reported to have benefited between 2006 and 2009[15]. Yet, as other NGOs also provided funds to DAWASA and DAWASCO and private boreholes were also sunk, it is not clear how far the Bank Project can attribute these improvements to its actions. At the same time, there was a decline in service provision through neighbors (155,000 people), vendors (11,000 people), and others (67,000 people), totaling 233,000 people benefiting from more equitable services.

Table A3.3: Beneficiaries of the Project ('000 inhabitants)

Indicators	**2006**	**2009**	**Change between 2006 and 2009**
Population	***2806***	***3207***	***401***
House Connections	152	160	108
Yard Connections	149	298	149
Neighbors	976	821	(155)
Kiosks	20	51	31
Vendors	278	269	(9)
Others	93	26	(67)
Total served with piped water	1668	1725	57

Note: It is not clear whether CWSSP beneficiaries are included in these statistics.
Reference: National Bureau of Statistics, 2006 and 2009 Surveys

Improvements in the quality and reliability of service were mixed. The percentage of DAWASCO customers with a 24-hour water supply service under adequate pressure declined. However, the number of people with improved reliability (as measured by service being available at least on a daily basis) increased for people with access to house connections (from 39.6 percent in 2006 to 66.9 percent in 2009 – or 114,000 people), but declined for people depending on yard connections (from 44.9 percent in 2006 to 37.3 percent in 2009. In absolute numbers, there was still an increase in the number of people (44,000 people) benefiting from daily water supply. The

[15] These data may not adequately account for the CWSSP water supplies which added another 275,000 customers through 50 schemes in areas that did not have access to the network.

quality of water supply exceeded the target (95%) as measured by the percentage of water samples in distribution that meet standards specified in the Lease Contract on an annual basis. By 2009, 96.9% were meeting these standards compared to 70 percent in 2003/04.

With the progress made in improving services as documented between the household surveys in 2006 (baseline survey) and 2009, it appears that the targets set in the PAD were only partially met through a combination of borehole (CWSSP) and DAWASCO services. These targets were partially met due to various factors, particularly the limited availability of water available for distribution.

3. Economic Analysis during Project Appraisal

Replicating the economic analysis as laid out in the PAD is not possible with the data currently available. Essentially, most of the information that needs to be included in the analysis can either not be supplied, or if there is some data available, it cannot be verified.

The economic analysis assumed a set of benefits including (i) household expenditure savings by existing and new domestic customers; (ii) household expenditure savings by existing and new kiosk customers; (iii) time savings from not having to spend time fetching water; and (iv) adjusted for the losses sustained by water vendors and by connected households selling water to their neighbors.

(a) Household Expenditure Savings for Domestic Consumers

The idea was that the introduction of a lifeline rate for domestic customers in combination with inflation indexed tariffs would result in household expenditure savings for households. The lifeline rate has been introduced, but it is unlikely that this has had a big impact on household expenditure on water due to the fact that most connections are likely to have relatively high consumption levels. The average consumption per connection based on DAWASCO data (and assuming active connections only) is about 50 cum per month, because neighbors often shared taps. As such, the savings that resulted from the small lifeline block of 5 cum per month is relatively limited — most of the households targeted by this lifeline tariff consumed above this level.

(b) Time Savings

There has been a reduction in the number of people relying on neighbors. Yet, most of the time savings benefits were related to kiosk users who would benefit from more kiosks that would reduce the time needed to haul water. According to the NBS survey, the number of kiosks served from DAWASCO's network increased from 115 in 2006 to 195 in 2009. Yet, according to DAWASCO, the number of kiosks was 295 in 2009 (of which 80 percent were functioning)[16]. In view of the very limited number of kiosk users, time savings are largely a function of households relying on neighbors. While these are hard to calculate – because it depends on how far the neighbor lives from the household with a connection -- it is likely that the distance to a neighbor's

[16] This increase may be the result of adding CWSSP kiosks which were installed by DAWASA rather than DAWASCO.

yard is shorter than to a kiosk. None of the two household surveys provide any details on the actual time spent hauling by households depending on neighbor water.

(c) Changes in the Water Vendor Market

The changes in the water vendor market have been marginal. Although the proportion of the population depending on mobile vendors decreased from 9.9 percent in 2006 to 8.4 percent in 2009, the effect in absolute terms was very small. Water vendors saw a decline in their customer base of only 9,000 people. Hence, the loss in market share is minimal – as they lost less than 3 percent of their customer base between 2006 and 2009.

4. Results

Because of the inherent problems in replicating the economic analysis under these circumstances, it is suggested that the economic analysis as calculated during Project appraisal should not be replicated. This analysis was based on conducting a financial analysis and adding (or subtracting) the benefits (losses) that were described above. As these benefits (losses) are likely to have been minimal, we are left with the results of the financial analysis. However, the results of the financial analysis which assesses the cash flow with the Project and without the Project shows that the net operating revenues are growing steadily worse and the net present value is negative.

Unit cost efficiency

The Project's total cost, including contingencies, was estimated at US$164 million, of which US$106 million was allocated for water supply; (ii) US$22.4 for wastewater/sewerage; (iii) US$3.85 for community water supply; and (iv) US$31 million for institutional strengthening.

The water supply component was US$106 million (without contingencies) at Project appraisal, and at the end of implementation. During appraisal, it was estimated that 685,000 people would benefit from new connections (35,000 connections, 250 new kiosks) and another 2 million people from improved services (rehabilitation of 100,000 connections and 1,000 kiosks) – resulting in a unit cost of US$39 per capita[17]. At the close of the project, the total number of people benefitting from new connections was 416,290, (from 12,029 connections at an average of 10 people per connection and 296 kiosks at 1,000 people per kiosk) and 275,000 served through CWSSP; and the number of people with access to improved services (consumers receiving service daily) was 1,000,000 (100,000 rehabilitated connections) resulting in a per capita cost of US$62 (or 1,691,290 people served)[18].

The Project also spent more than US$22 million on wastewater/sewerage improvements. The benefits from this component are hard to assess as the data on the number of incremental sewerage connections also shows large inconsistencies. DAWASA reports show an increase of 11,000 new sewer connections (and assuming that the wastewater from all these new connections is collected and treated) between 2006 and 2009, which would translate to a cost of US$2,000 per

[17] CWS declared moribund all connections without water or with illegal connections bringing down the total number of connections at the start to 53,832.

[18] Most of the original 1,000 standposts or kiosks were either abandoned, shut down or converted into domestic connections.

connection. Although this is a high cost, especially when benchmarked against the cost of such service elsewhere in the world, the outputs exceed what was expected in the PAD (increase sewerage connections from 3,000 to 5,400). Other sources show very little improvement in the number of sewerage connections (such as the EWURA data).

The Community Water Supply and Sanitation Program was estimated to cost US$3.85 million while providing 170,000 people with services, which at appraisal resulted in a per capita cost of US$23. Benefits from this component have been positive and are continuing to increase. DAWASCO reported 65,000 beneficiaries in 2009, or an actual cost per capita is US$59, but by the end of the Project a census carried out by DAWASA showed that 275,000 had benefited – a per capita cost of about US$14. The exact number of beneficiaries from the CWSSP requires further verification as the population in the CWSSP areas has increased significantly. DAWASA is currently planning a second census that will establish the impact of the project.

In conclusion, the economic benefits are unclear as some of the Project benefits remain to be realized (e.g. 20,000 connections are still being installed by DAWASA with fittings purchased through the Project), and the data available at the start as well as that collected by the different agencies during implementation was deficient. The overall high unit costs for the different Project components suggest that it has not been very efficient in using its resources.

Annex 4. Bank Lending and Implementation Support/Supervision Processes

1. Task Team members

Names	Title	Unit	Responsibility/ Speciality
Lending			
Alain Locussol	Lead Water Specialist	AFTUW	
Supervision/ICR			
Francis Ato Brown	Sector Manager/former TTL	MENWR	Task Team Leader
Midori Makino	Lead Water Specialist/former TTL	IEG	Task Team Leader
R. Mukami Kariuki	Sector Leader	AFTUW	Task Team Leader
Solomon Alemu	Consultant	AFTUW	Engineer
Devendra Bajgain	Operations Officer	AFTUW	Training Capacity Development
Jeffrey John Delmon	Senior Infrastructure Specialist	FEUFG	Private Sector
Bella Lelouma Diallo	Sr Financial Management Specialist	AFTFM	Financial Management
Fook Chuan Eng	Sr. Financial Analyst	SASDU	Financial Analysis
Serigne Omar Fye	Consultant	AFTH2–HIS	Environmental Safeguards
Wambui G. Gichuri	Principal Regional Team Leader	ETWAF	Economist
Naima A Hasci	Sr. Social Scientist	AFTCS	Social Safeguards
Eric G. Haythorne	Consultant	QAG	Quality Assurance
Rafik Fatehali Hirji	Sr. Water Resources Spec.	ETWWA	Water Resource Management
Muthoni W. Kaniaru	Sr. Counsel	LEGFI	Lawyer
Jane A. N. Kibbassa	Environmental Spec.	AFTEN	Environmental Safeguards
England Rogasian Maasamba	Program Assistant	AFCE1	Support
Midori Makino	Sr. Financial Analyst	AFTUW	Finance and Economics
Rehema Mercy Mashayo	E T Temporary	AFCE1	Support
Donald Herrings Mphande	Sr Financial Management Specialist	AFTFM	Financial Management
Vedasto Rwechungura	Consultant	COCPO	Private Sector
Mercy Mataro Sabai	Sr. Financial Management Specialist	AFTFM	Financial Management
Donald Mneney	Sr. Procurement Specialist	AFTPC	Procurement
Gisbert Kinyero	Procurement Specialist	AFTPC	Procurement

2. 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		
FY98		3.44
FY99		224.27
FY00		139.71
FY01		63.49
FY02		157.98
FY03		265.86
FY04		0
FY05		0
FY06		0
FY07		0
FY08		0
Total:		854.75
Supervision/ICR		
FY98		0
FY99		0.14
FY00		0
FY01		0
FY02		0
FY03		2.07
FY04		153.97
FY05		155.95
FY06		159.3
FY07		268.33
FY08		164.73
FY09		217.5
FY10		274.9
Total:		**1,396.89**

Annex 5. Beneficiary Survey Results – 2009 NBS Survey

1. Executive Summary

(a) Objective of the 2009 Follow-up Survey

The main objective of the 2009 Follow-up Survey is to assess the impact of the Dar es Salaam Water Supply and Sanitation Project aimed at improving service delivery to different parts of the city commonly known as DAWASA Service Areas especially for the low income community after the completion of the 2006 Baseline Survey.

(b) Coverage of the Study

The survey covered the DAWASA Service Area in Dar es Salaam City as well as Kibaha and Bagamoyo districts in Pwani region. According to the 2002 Population and Housing Census projections, the DAWASA Service Area has a population size of 3.2 million in year 2009 compared to 2.7 million people in 2006. The areas covered in this study are attached in Appendix1.

(c) Sample Design

A scientific multi-stage (statistical) sample was designed to draw up 67 Primary Sampling Units (PSUs) from the DAWASA service area. These PSUs are drawn from the 2002 Population and Housing Census sample frame. The selection was distributed proportionally to the size of the population that is served by DAWASA in Dar es Salaam, and Coast regions. In each selected sampling unit (also referred to as cluster) all households that reside inside the geographical boundaries of each cluster were listed exhaustively.

All listed households were given equal chance of being selected and a representative sample of 23 households was drawn from each cluster. Thus, a total number of 1,541 households were selected. This sample is expected to provide estimates at district and regional levels.

(d) Survey Instruments

In the 2009 Follow up Survey, a household questionnaire was designed to solicit information from the selected households. The questionnaire was more less the same to the one which was used in 2006 Baseline Survey. The household questionnaire was modified to suit the information sought by the client. Later on, the survey questionnaires were translated from English into Kiswahili to ease data collection exercise. The household Questionnaire is attached as Appendix II. Also, Global Positioning System (GPS) machines were used to record the interviewed household coordinates.

2. Findings

Household Characteristics

The survey interviewed a total of 1519 Households in all selected clusters (67) in DAWASA Service Area. Majority of selected households were from Kinondoni district (619 households)

followed by Temeke (417) and Ilala (368). Pwani region had 115 households of which 69 were selected from Kibaha district and 46 households in Bagamoyo district.

Results show that 80.8 percent of the selected households are headed by males and only 19.2 percent are headed by females. At the district level, Kinondoni recorded the highest proportion of households that are headed by females (19.4 percent) followed by Ilala (18.8 percent) and Temeke (18.2 percent). Bagamoyo has the lowest proportion of female headed households (13 percent).

Results show that the selected households had more females (51.1 percent) than males (48.9 percent), representing a sex ratio of 95.5. This means that for every 100 females there are about 96 males. About 30 percent of the survey population is comprised of those under 15 years old, those aged between 15 and 59 years were 65.1 percent and only 5.3 percent were aged people aged 60 years and above.

(a) Socio-Economic Profile

Level of Education

Results indicate that 53.3 percent of the household members have primary education, 21.8 percent have secondary education and about four percent have university education. The proportion of the population without education accounts for about four percent. Results also show that there were a significant percentage of persons who did not indicate their level of education attained (10.2 percent).

Employment Status

The data show that 32.7 percent of the survey population in the working age group (15-59) were self employed followed by students (32.1 percent) while unemployed persons accounted for 12.8 percent. Other groups namely employed or permanent workers accounted for 11.7 percent of the survey population and 5.5 percent were casual workers.

Income Level of the Households

Results show that 32.5 percent of households have earnings between TShs 100,000 and TSh 299,999, followed by those earning between TSh 60,000 and TSh 99,999 (25.7 percent). Households which are earning less than TSh 60,000 accounted for 17.3 percent and 10.9 percent are earning between TSh 300,000 and 499,999. About four percent of households are earning between TSh 500,000 and 699,999 and 4.2 percent of households are earning TSh 700,000 or more.

Ownership of Assets

A substantial proportion of households in DAWASA Service Area own houses (46.7 percent), 42.3 percent own land or plot, while those who hire land or plot account for 11.5 percent.

3. Water Source and Supply

(a) Basic Information

Within DAWASA service area, about nine percent of households have water sources located within their premises (in-house), 11.3 percent of households have their water sources located in their plots/yard and 51.1 percent were getting their water from neighbors' yard/plot. When this is compared with the 2006 results, the proportion of households which have their water sources located in-house increased by about three percent and slightly more than two percent among households with sources based in own plot/yard but declined among households using sources located in neighbors' plot/yard from 53.9 observed in 2006 to 51.1percent in 2009.

About seven percent of households within DAWASA service area are using water from kiosks, 5.7 percent have access to water provided by institutions and water vendors continue to play an important role in providing water to 13.2 percent of the survey households.

(b) Piped Water

The 2009 Follow-up Survey is the second after the first 2006 Baseline Survey that was conducted in 2006. Results show that 53.8 percent of the households in the DAWASA Service Area were using piped water. The 2006 Baseline Survey showed that the proportion of households which were using piped water (59.6 percent) was much higher than that observed in the 2009 Follow-up Survey. In Dar es Salaam, 51.4 percent of the survey households are using piped water as revealed in the 2009 survey. This shows a decline in the proportion of households when it is compared with those in 2006 (57.9 percent). A similar pattern is also observed in the survey districts. This decline is possibly due to development of new settlements in some of the selected clusters.

In-House Piped Water

Results show that there is a sizeable increase from about ten percent of households with in-house water facility observed in the 2006 Baseline Survey to 15.1 percent revealed in the 2009 survey. In Dar es Salaam, the proportion of households with in-house water facility increased from 10.2 percent in 2006 Baseline Survey to 14.3 percent in 2009.

At district level, the proportion of households with in- house water facilities increased during the 2006/2009 period. In Kinondoni district, the proportion of households with in-house water facility increased from 10.3 percent in 2006 to 15.8 percent in 2009. Kibaha recorded the highest increase of households with in-house piped water in their houses from about six percent in 2006 Baseline Survey to 27.5 percent in 2009.

Overall, about 85 percent of households in DAWASA Service Area, with in house water facilities, use it for their own consumption and only 15 percent share with other households. Most in-house water connections are within 50 metres from the main water pipe. Ilala is the only exception where about six percent of the water connections are more than 1,000 metres away from the main water pipes.

Status of Water Connections

In assessing the working condition of in-house water connections, results show that there is a decline from 97.7 percent observed in the 2006 Baseline Survey to 92.9 percent of households in DAWASA Service Area in the 2009 Follow-up Survey. Analysis by district shows that all districts reported fairly above 80 percent of households that had their connections working.

Availability of In-House Piped Water

Within DAWASA Service Area, 66.9 percent of households with in-house piped water were getting water daily, about nine percent get water once in two to three days while 11.9 percent responded that availability of water in households was unpredictable. At District level, 73.4 percent of households in Kinondoni with in-house piped water connections get water daily, 5.1 percent get once in 2-3 days and 10.1 percent of such households stated that availability of water is unpredictable. In Ilala District, 80.0 percent get water daily, 13.3 percent get water more than once a week and 6.7 percent are not sure on when they would get water. In Temeke, for categories of households getting water daily and once in two to three days constituted about 40.0 percent each.

Availability of in-house piped water on a daily basis has increased from 39.5 percent in 2006 to 66.9 percent in 2009. Conversely, unpredictability of water flows declined to 11.9 percent from 20.9 percent of households that was recorded in 2006.

On the duration of water flow, results show that, overall, 79.7 percent of households within the DAWASA Service Area (which were getting water whether daily or occasionally) were getting water for six or more hours, about five percent were getting water for a period between four and five hours, and five percent indicated that the flow was unpredictable. These results indicate a significant increase in availability of water among households that get water for 6 or more hours whereby the proportion of households increased from 60.5 percent recorded in 2006 to 79.7 percent in 2009. The proportion of households that reported that the flow was unpredictable has declined considerably from 15.1 percent recorded in 2006 to five percent of households in 2009.

Water Meter Connections

Results from the survey reveal that 85.7 percent of households which reported to have in-house piped water connections in DAWASA Service Area were fitted with water meters. At district level, while Kinondoni had the highest proportion of households fitted with water meters (90.5 percent), 68.8 percent and 50.0 percent of households in Ilala and Temeke districts respectively had their water connections fitted with water meters. Regarding the working status of the fitted water meters, 98.1 percent of households with fitted water meters reported them to be in working condition. Water meter connections in DAWASA Service Area have increased significantly from 55.7 percent in 2006 to 85.7 percent of households in 2009.

Overall, 67.6 percent of the households in DAWASA Service Area reported that their meters were last read less than one month before the survey. However, less than one percent of households reported that their meters have never been read before the survey.

Water Bills

About 90 percent of households indicated that they do receive water bills but 6.3 percent do not get water bills. Proportions of households receiving water bills increased from 84.1 percent that was recorded in the 2006 Baseline Survey to 89.7 percent in 2009. For households which receive water bills, the majority of households (92.0 percent) get their water bills every month, while the remainder s of households get their water bills after every three months. Overall, there has been an increase in the proportion of households which receive water bills on monthly basis from 87.8 percent in 2006 to 92.0 percent in 2009.

On payment of water bills, 65.5 percent of households within DAWASA Service Area paid for their bills within a month prior to the survey, 25.7 percent paid between one and two months, about five percent paid within three or more months and about four percent of these households were not sure whether the water bills were paid or not. Most customers who usually receive water bills are paying their bills at the Utility Office (91.3 percent), a small proportion of customers (2.4 percent) are paying for their water bills to Community representatives and 3.2 percent to water bill collectors.

In-Yard Piped Water

Results show that, within the whole DAWASA Service Area, the proportion of households with in-yard piped water increased from 5.3 percent observed in the 2006 Baseline Survey to 9.3 percent in the 2009 survey. Likewise, the proportion of households in Dar es Salaam has increased from 4.9 percent in 2006 to 9.3 percent in 2009.

Water Connections

Among households with in-yard piped water in DAWASA Service Area, 94.3 percent of the households have their water connections working. A similar proportion was observed in Dar es Salaam. Pwani recorded a slightly higher proportion of households with water connections that are working (95.5 percent) compared to those observed in Dar es Salaam. Regarding households whose water connections were not functioning, about five percent of households in Pwani were disconnected for non-payment of water bills. About three percent within DAWASA Service Area and two percent in Dar es Salaam had their water connections not working for non-payment of water bills.

Availability of In-Yard Piped Water

About 99 percent of all survey households with in-yard piped water within DAWASA Service Area, 99.2 percent of Dar es Salaam households and all households in Pwani were getting water. On regularity of flow of water, 37.3 percent in DAWASA Service Area, 35.7 percent in Dar es Salaam and 47.6 percent of households in Pwani were getting water daily. The proportion of households that are getting water daily appears to be much lower than that observed among households with in-house piped water (66.9 percent). About 17 percent of households in DAWASA Service Area, 14 percent in Dar es Salaam and 33.3 percent in Pwani revealed that flow of water into their in-yard water taps was unpredictable. These results show that provision of water on a daily basis has declined from 44.9 percent recorded in 2006 to 37.3 percent in 2009.

On how long water is flowing in a day, within DAWASA service area, the proportion of households that were getting water for 24 hours accounted for 32 percent of all households, this being almost the same as that observed in the 2006 survey (32.5 percent). About 27 percent of households were getting water for more than six hours, 14 percent are getting water between four hours but less than six hours, 13.3 percent were getting water between two hours but less than four hours and only four percent of the households were getting water for less than two hours.

The problems or obstacles that were affecting accessibility of in-yard piped water were listed as follows: About 53 percent of households in DAWASA Service Area and 54.9 percent in Dar es Salaam revealed that they had low water pressure, 19.2 percent and 18.8 percent respectively said it was being controlled by the landlord owning the in-yard water tap and 13.2 percent in DAWASA Service Area and the same proportion in Dar es Salaam reported that there were too many users. Among respondents who indicated that water supply is affected by low water pressure, 11.5 percent of the households in DAWASA Service Area used water pumps, about 10 percent of the households in Dar es Salaam used pumps while a quarter of households in Pwani had to use pumps to increase water pressure.

Water Meter Connections

About 80 percent of households in DAWASA Service Area have water meters, and 84.6 percent of households in Dar es Salaam and 50 percent in Pwani have their water taps fitted with water meters. On whether the fitted water meters were working, 95.2 percent of households in DAWASA Service Area, 94.8 percent of households in Dar es Salaam and all water taps fitted with water meters in Pwani were in good working condition. The results show that there is a remarkable improvement on the proportion of households with water meters fitted to their in-yard water taps. The proportion of households with water meters has increased from 39.2 percent recorded in 2006 to about 80 percent of households in 2009. However, the proportion of households with meters that are working has declined slightly from 96.8 percent in 2006 to 95.2 percent in 2009.

On when their meters were read for the last time, 42.5 percent of households in DAWASA Service Area, 41.3 percent in Dar es Salaam and 54.5 percent of households in Pwani had their meters read less than a month ago. About 21 percent of households in DAWASA Service Area and 21.1 percent in Dar es Salaam had their meters read between one month and two months ago and 16.7 percent of households in DAWASA Service Area and 18.3 percent in Dar es Salaam indicated that their water meters have never been read.

Water Bills

Among survey households that have in-yard water points, 48 percent of households (landlords) in DAWASA Service Area, 48.5 percent in Dar es Salaam and 45.5 percent in Pwani owned in-yard water points. About 79 percent of landlords in DAWASA Service Area who are running in-yard water taps are paying their bills at Utility Offices, 2.6 percent to a Community representative and another 2.6 percent to a water bill collector.

On whether landlords were selling water to their neighbors, 17.1 percent of landlords said that they were selling water to other households. Regarding other areas, 18.2 percent of landlords in Dar es Salaam and 10 percent in Kibaha were selling water to other households. At the district level, Temeke recorded the highest proportion of households (landlords) which were selling water

(28.6 percent), followed by Kinondoni (17.3 percent) and Ilala and Kibaha (14.3 percent each). In Bagamoyo, there are no landlords who are selling water to other households.

Among households (landlords) which are selling water to other households, 30.8 percent of households in DAWASA Service Area and 33.3 percent in Dar es Salaam were supplying water to less than five households. About 54 percent of households in DAWASA Service Area and 58.3 percent in Dar es Salaam were supplying water to 5-9 other households. Landlords who were selling water to 10-14 households (DAWASA Service Area) constituted about 15.4 percent.

Regarding households not owning in-yard water sources, within DAWASA Service Area, 26.8 percent of households are paying for water from in-yard taps by sharing in paying their bills monthly. Households which were paying their water bills as part of their house rent constitute about five percent, 18.3 percent are paying a flat rate to their landlords and 35.4 percent are using their own means to settle their water requirements. The 2006 Baseline Survey results show that 28 percent of households in the DAWASA Service Area were sharing in paying their monthly bills, 20 percent were paying their water bills to their landlords, about five percent were paying their bills as part of their house rents and 47.2 percent of households had their own means of settling their water bills. Majority of households (65.9 percent) in DAWASA Service Area, not owning in-yard water taps, were paying on average more than T. Shillings 1,100.

On non-payment of water bills, about five percent of the household respondents using in-yard water in DAWASA Service Area said no retaliatory measures would be taken against them, 62.2 percent thought that they would be barred from getting water from the in-yard tap, 8.5 percent would be evicted from the house where they are staying and 18.3 percent did not know what would happen to them if they do not pay water bills. Results observed in the 2006 survey show that 81.9 percent of households would be barred from using the service, about six percent would be evicted from the house where they are staying and 7.1 percent of households said no action would be taken against them if they do not pay their water bills.

Piped Water in Neighbor's House/Yard

Within DAWASA Service Area, utilization of piped water from the households' neighborhood has declined from 58.3 percent that was observed in the 2006 Baseline Survey to 47.6 percent in 2009 survey.

Payment of Water Bills

Within DAWASA Service Area, majority of households (91.6 percent) which get water from neighborhood sources are charged per bucket, 2.4 percent are paying for water on a monthly basis and about two percent are paying for water as part of their house rents.

As a follow up to methods used in paying for water bills, within the DAWASA Service Area, about five percent of households did not know the amount that they are supposed to pay, seven percent are paying less than T. Shillings 700 per month, less than one percent are paying between T. Shillings 500 and 1,100 per month and 87 percent of households are paying more than T. Shillings 1,100 per month.

For households which do not pay their water bills, about 82 percent reported that they would be barred from using the neighborhood water tap, 6.5 percent said nothing would happen and 8.4

percent do not know what would happen to them. Those who indicated unspecified action constitute about three percent.

On whether households are satisfied with the way they were paying their water bills, 48 percent felt the arrangement which was being used in paying water bills was fair, 32.3 percent were satisfied with the arrangement and 19.8 percent of households felt the arrangement was poor.

(c) Water from Kiosks

About two percent of all surveyed households within the DAWASA Service Area have access to kiosks as their source of water. Dar es Salaam recorded a similar proportion of households that is using kiosks as source of water (1.7 percent). No kiosks were observed in Pwani Area.

When one looks at the share of kiosks as source of piped water, about three percent of households in DAWASA Service Area which use piped water have access to kiosks as their source of water. This shows that there has been an increase of the proportion of households which are using piped water in kiosks compared to that observed in the 2006 survey (1.2 percent). Results also show that Dar es Salaam recorded about three percent of such households. At the district level, Kinondoni has the highest proportion of households with access to kiosks (4.1 percent), followed by Temeke (1.7 percent) and Ilala (1.1 percent).

Availability of Water at Kiosks

Availability of water at kiosks depends on the duration during which they remain open. Within DAWASA Service Area, less than one percent of the households reported that kiosks were open for less than five hours and 24.5 percent had kiosks open between five and nine hours. Majority of households (59.8 percent) reported that kiosks remain open for 10-14 hours a day, 13 percent reported that kiosks open for 15-19 hours and only 2.2 percent of households said that kiosks remain open between 20 and 24 hours. This appears to differ with the situation that was observed during the 2006 Baseline Survey whereby 52.6 percent of households in DAWASA Service Area said that kiosks were being left open for a period between 10 and 14 hours and 34.1 percent revealed that kiosks were open for a period between 15 and 19 hours.

Congestion at Kiosks

On congestion of people waiting to get water from kiosks, results show that 48.9 percent said congestion sometimes happens, 32.6 percent of the households felt that congestion at kiosks happens seldom, 11.4 percent indicated that congestion is usually there while about seven percent said that there is no congestion of people who are waiting to draw water from kiosks. Results from the 2006 survey show that 33.5 percent said that sometimes there is congestion, 17.9 percent of the households in DAWASA Service Area said that seldom there were congestion, 38.7 percent of households said that usually there is congestion and about 10 percent of the households said there is no congestion of people waiting to get water at the kiosks.

(d) Provision of Water by Institutions

Faith-based institutions and other institutions such as schools have been providing water to the neighboring households. About six percent of total households interviewed indicated accessing water from institutions. Sources of water obtained from these institutions are largely from

boreholes (60.4 percent) followed by protected wells which constitute about 25.6 percent. Piped water contributed about 12.8 percent of water supplied by institutions.

About 90 percent of households which get water from institutions pay for it. In comparison with the 2006 Baseline Survey, there is a slight increase of households which get water from institutions from about five percent in 2006 to about six percent in 2009.

(e) Water Vendors

Survey results indicate that 13.2 percent of households were supplied with water from water vendors. On whether households knew source of the water they were buying from vendors, majority of the respondents (52.1 percent) said that they were getting water drawn from piped water taps; 26.8 percent were getting water from boreholes while 13.2 percent did not know the source of the water.

Analysis from both the 2006 Baseline Survey and the 2009 Follow-up Survey reveals that there is a remarkable decline in the number of households that use services of water vendors. It declined from 17.2 percent recorded in 2006 to 13.2 percent in 2009[19].

(f) Boreholes

Boreholes are ranked the second major source of water in the DAWASA Service Area, accounting for 37.3 percent after piped water. About 62 percent of the households in DAWASA Service Area are getting water from boreholes located in neighbors' yard/plot, followed by kiosks (12.0 percent), Institutions (9.2 percent) and from water vendors by 7.9 percent. Very few households (4.1 percent) are getting water from boreholes which are located in the in-yard.

Households in Temeke district whose source of water is boreholes constituted 61.2 percent, those of Ilala 59.0 percent, Kinondoni 12.8 and Bagamoyo 32.6 percent. No boreholes were observed in Kibaha.

Results from the 2009 survey show that there has been an increase of people accessing water from boreholes (37.3 percent) compared to 26.2 percent recorded during the 2006 Baseline Survey. The results clearly show the importance of boreholes to many households in the DAWASA Service Area.

(g) Wells

In many parts of DAWASA Service Area, some households also get water from outlets such as "wells" which may be either deep or shallow, depending on the economic capability of the owners. Households that reported using water from wells as their main source of water accounted for about five percent from protected wells and about one percent from unprotected wells within DAWASA Service Area. Water from unprotected wells is normally considered unsafe and this may cause water borne related diseases to households.

[19] The figures in the main report are 9.9 percent in 2006 to 8.4 percent in 2009.

(h) Water Borne Related Diseases

The notion of water borne related diseases was analyzed to determine the extent of these diseases. This enquiry related to two weeks preceding the survey. The water borne related diseases referred to are diarrhea or dysentery, birharziasis, cholera and typhoid. Analysis of the study population revealed that 2.7 percent of the study population were infected with water-borne related diseases; Temeke recorded the highest proportion of cases on water borne related diseases (3.6 percent), followed by Ilala and Bagamoyo (2.9 percent each) and Kinondoni (2.1 percent). Kibaha reported to have less than one percent of the population who were infected with water borne related diseases during the two weeks period preceding the survey.

On individual water borne related diseases, diarrhea/dysentery and typhoid were found to be the most serious health problems that affected mainly the districts within Dar es Salaam region. Among cases that were reported, 50.3 percent were cases about diarrhea or dysentery and typhoid constituted 47.4 percent of all cases reported on water borne related diseases. A similar pattern is observed in Kinondoni, Ilala and Temeke districts. The results of the 2006 Baseline Survey revealed nearly the same trend as that observed in 2009.

(i) Perception of Households on Water Quality

On perception of households about the quality of water, about 45 percent of households regarded water as safe, 36.6 percent were undecided while 15.9 percent considered water unsafe for their daily use.

(j) Water Storage and Investments

Water Storage

Water storage is widely practiced by households mainly to meet future demand for water caused by irregularity of water supply. Survey results show that majority of households (87.6 percent) in the survey area had water storage facilities in their homes.

Among households within DAWASA Service Area which are storing water for future use, 12.4 percent are storing water that can last for less than two days. Majority of households (70.5 percent) have the capacity to store water for 2-5 days. Most households in the districts have the capacity to store water for 2-5 days.

Various types and sizes of storage facilities are used by households such as jerry cans/buckets, drums and overhead, underground and surface tanks to store water. More than three quarters of the households (77.8 percent) in the survey area use jerry cans/buckets to store water and about 10.5 percent of households are using drums.

Investments in Water Storage Facility

With erratic supply of potable water in many households in the DAWASA Service Area, households have taken deliberate steps of acquiring water storage facilities for their usage when there is no supply of water. Results show that nearly half of the households (48.5 percent) in the survey area had invested in the development of water storage system within one year period prior to the survey.

4. Sanitation and Sewerage

The 2009 Follow-up Survey results show that among all surveyed households in DAWASA Service Area, 53.2 percent of the households are using ordinary pit latrines, a notable decrease when it is compared with the 2006 Baseline Survey (70.2 percent) and 19.1 percent of households are using flush toilets (2006: 12.9 percent). Similarly, 17.9 percent are using Ventilated Improved Pit Latrines (VIP) compared to 11.8 percent recorded in the 2006 Baseline Survey.

(a) Improved Pit Latrines

A considerable number of households within the DAWASA Service Area (40.8 percent) have put cement slabs on the floors of their pit latrines in a bid to improve the quality of the toilets. In addition, 20.7 percent of households have put up durable shelters to their pit latrines. Apart from the above two methods of improving the quality of pit latrines, 22.0 percent of households in the survey area lined or stabilized their pit latrines.

Some households have made changes on the floor of their pit latrines in a bid to improve the quality of the toilets. Improvements made include building a cement slab constituting 40.8 percent of households compared to 38.2 percent observed in 2006. About 22 percent of households with pit latrines have put up lined/stabilized pit compared to almost the same proportion of such households (22.5 percent) observed in the 2006 Baseline Survey and households that improved their latrines by putting up durable shelters to their pit latrines comprised of 20.7 percent compared to 23.1 percent recorded in the 2006 Baseline Survey. Households that did not take any action to improve their pit latrines accounted for 13.2 percent compared to 12.6 from the 2006 Baseline Survey.

(b) Sharing Toilet Facilities

Results show that 37.4 percent of households interviewed in the DAWASA Service Area do not share toilet facilities with other households. However, 28.9 percent share with 2-4 households, 22.8 percent share toilet facility with 5-7 households and about 11 percent share with eight or more households. Compared to 2006 Baseline Survey, there is an increase of households that do not share toilets from 33.4 percent to 37.4 percent recorded in 2009. However, there is a decrease of about five percent of households that share toilets with 2-4 households, another decrease of 11.6 percent for toilets shared by 5-7 households, but a slight increase of 0.5 percent of households that share toilets with eight or more households between 2006 and 2009.

(c) Maintenance of toilet facilities

Survey results reveal that toilet facilities which are maintained by landlords constitute 65.9 percent of households with toilet facility in the DAWASA Service Area. This shows that the proportion of landlords maintaining their toilet facilities has increased from 49.6 percent recorded in 2006 to 65.9 percent observed in the 2009 survey. Households sharing toilet facilities in 2009 constituted about 18.7 percent compared to 31.4 percent reported in the 2006 Baseline Survey. Households maintaining their own toilets (individual households) comprised of 14.4 percent (2006 Baseline Survey) against 18.4 recorded in the 2009 Follow-up Survey.

(d) Disposal of Excreta

Results show that pit latrine is the most used method to dispose excreta accounting for 64.9 percent of households in DAWASA Service Area compared to 79.2 percent that was reported in the 2006 Baseline Survey. It is followed by those disposing excreta using septic tanks which account for 27.9 percent of households against 16.9 percent reported in the 2006 Baseline Survey, indicating a substantial increase of households using this method. The use of public sewage appears to have increased from about three percent observed in the 2006 Baseline Survey to 5.4 percent of households recorded in the 2009 Follow-up Survey. Although the use of public sewerage has increased, this is still low probably because it is not well established in many parts of Dar es Salaam City.

(e) Duration of Filling Pit Latrines

The survey results show that 72.5 percent of households with pit latrines in the DAWASA Service Area reported that their pit latrines never fill up and 16.9 percent of households do not know how much time it takes for their toilets to fill up. However, about 5 percent indicated that their toilets were taking less than 12 months to fill up and 4.5 percent said that it was taking between 12 and 24 months. Only 1.4 percent of households said that their pit latrines would take 25 months or more to fill up.

(f) Washing Hands after Use of Toilet Facility

People's attitude and behavior on hygiene was measured by asking them whether they were washing hands after going to the toilet. Survey results show that 95.6 percent of the respondents in DAWASA Service Area wash their hands after coming from the toilet compared to 97.4 percent reported in the 2006 Baseline Survey. Out of those who reported to wash their hands, 80.2 percent wash their hands with soap and water. This is lower than that observed in 2006 (87.8 percent). Respondents who wash their hands with water only constitute 15.3 percent and respondents who do not wash their hands at all after going to the toilet account for 3.6 percent. Respondents who were washing hands with water only in the 2006 Baseline Survey were 9.5 percent and those who were not washing their hands after using the toilet were only 1.4 percent.

Annex 6. Stakeholder Workshop Report and Results

Conference on Institutional and Management Models for Dar es Salaam Water Supply and Sanitation Services, December 2009

1. Summary

The conference organized by DAWASA took place on December 10 and 11 in Dar es Salaam. It was opened by His Excellency Prof. Mark Mwandosya, Minister of Water and Irrigation (MOWI) and attended by about 60 participants. The conference agenda is attached to this. In support to the conference, the Bank made available to participants hard copies of a series of short "P-Notes" and PPIAF "Gridlines" available on the Bank Water and PPIAF websites related to topics discussed during the conference. There were presentations on lessons from Global experience, models from regional utilities, perspectives of national agencies (e.g. EWURA), and recommendations from consultants studies on institutional arrangements for DAWASA and DAWASCO.

In discussions with the Bank team, the Minister clarified that the government is expecting the conference to come up with concrete proposals for reform that can be implemented within the short term – 6 months, medium term - 18 months, and long term - 36 months to improve its performance. It was noted that in the short to medium term it will be unlikely to introduce legislative changes, so the range of options proposed should take this into account.

2. Presentation of the Current Institutional Arrangement

In her presentation of the initial findings of the case study she is preparing for the Bank, Ms. T. Triche (World Bank consultant) first summarized the recent evolution of the institutional arrangement and of the performance of the water supply and sanitation (WSS) in Dar es Salaam since the late 1990s. Despite regularly increasing number of active water accounts and of bill collected, cash revenues from operations are still insufficient to cover the combined operating costs of DAWASCO and DAWASA. In 2008/09 only about 44% of the water produced generated a cash revenue. A significant reduction of non-revenue water (NRW) will not be possible until after all bulk water meters are installed early in 2010. The case study clearly identifies two key issues to be addressed in the near future:

The lack of accountability of the Boards of Directors (BOD) and management teams of both DAWASA and DAWASCO for results laid out in the legal agreements that underpin the current service delivery arrangement; and

The lack of enforcement of contractual obligations between DAWASCO and its customers (non-payment of water bills and theft of water are still very high), DAWASA and DAWASCO under the Lease contract and DAWASA and MOWI under the Performance contract.

The CEOs of DAWASA and DAWSACO are appointed or nominated by the Minister, MOWI rather than by their respective BODs. As a result, DAWASCO's accountability to DAWASA for implementation of the Lease contract is undermined. The replacement of the private Operator CWS by a public corporation DAWASCO has resulted in a somewhat dysfunctional accountability framework.

Dr. S. Temu (University of Dar es Salaam) in her institutional review of the water supply sector in Dar es Salaam supported the findings presented by Thelma Triche. She highlighted the fact that: (i) DAWASA did not appoint DAWASCO as Operator under the Lease contract; and (ii) because the BOD of DAWASA and DAWASCO are appointed by the Minister, MOWI it is difficult for DAWASA to enforce the contract. She emphasized the need for clarity in principal-agent relationships among the partners involved in the lease contract. She noted in particular that key performance targets under the Lease have not been met and there is no possibility of holding DAWASCO – which did not post a performance guarantee and is not exposed to penalties in case of non performance – accountable.

3. Presentations on Public-Private Partnership Options

Mr. A. Locussol (World Bank consultant) presented the findings of recent World Bank research on the performance of PPP in WSS with a special focus on Western and Central Africa. The Dar es Salaam accountability framework centered on a Lease contract between an asset holding company and a professional operator was modeled after some of the schemes successfully implemented in this region (Senegal, Niger). It even includes an additional enhancement of the accountability framework by clearly separating the functions of policy formulation (that remains with the MOWI) and of economic regulation (that was transferred to the independent EWURA).

Mr. Miguel Alves (FIPAG, Mozambique) presented the delegated management arrangement implemented in Maputo (lease contract between the asset agency, FIPAG, and an international operator), four largest cities (management contract) and nine additional cities (enhanced technical assistance) and its accomplishment so far with regards to key performance indicators. Though the lease contract encountered serious difficulties in the early years, and the lead private operator withdrew, the government and remaining private operator (Aguas de Portugal) renegotiated the contract and have persevered in its implementation. The accountability framework is also of interest. A Stakeholders' Forum that includes representatives of the municipalities and domestic and private consumers, nominates members of FIPAG's Board of Directors, with final appointment by the Minister. The CEO is appointed by the Board. This framework ensures that the CEO is accountable to the Board which, in turn, is accountable to the municipalities and customers. The lease contract operator is directly accountable to FIPAG. In the other cities, managing directors of the services are recruited and appointed under performance contracts with FIPAG. It is worth noting that performance did not improve as quickly as originally expected but improvements are now being achieved.

Mr. Alves emphasized the importance of: (i) setting realistic goals and the existence of a mechanism to adjust goals as the situation evolves; (ii) the management of political, social, professional and financial expectations; (iii) the development of firm strategies and flexible tactics and the authority to make decisions by both the asset holder and the operator; and (iv) the selection of the right people to lead the partners.

Mr. P. Omutia (WSC, Nairobi, Kenya) presented extension of distribution systems in low income communities of Nairobi, Kenya implemented in partnership with several local NGOs.

In his presentation of the comprehensive review of PPP options for DAWASCO, Prof. J. Katima (University of Dar es Salaam) confirmed that the Government has not ruled out the possibility of involving the private sector in the provision of the WSS service in Dar es Salaam. The review identifies not less than 12 options that could possibly be considered ranging from stock market

flotation to simple technical assistance. While options aimed at raising financing cannot realistically be envisaged for a WSS sector that does not even cover its operating costs, the review identifies several "lower end" options, such as Service contracts, that do not transfer management of the utility to a private partner but that could be implemented within the current framework while limiting both the "visibility" of the PPP and the risks transferred to the private partners.

In his presentation, Mr. J. Moss (Aquafied) explained the need for rebuilding a positive perception among international private operators that Tanzania is a country where business can be normally carried out after the protracted bidding period and the abrupt termination of the CWS Lease contract. He emphasized that a PPP is a partnership and that if one of its partners sinks the partnership inevitably collapses. He also emphasized that any new PPP envisaged by the Government, even lower end options, should be designed after consultation with potential professional partners.

4. Presentations on Public Sector Options

Dr. S. Mugisha (NWSC, Uganda) presented the key ingredients of the turnaround of the Ugandan public water supply utility NWSC during the last 10 years: empowerment and increased accountability of staff at all levels through an innovative internal contracting arrangement between the BOD and the CEO and the CEO and each manager. He also noted that good practice in contracting requires: clarity of (i) obligations, roles and responsibilities of both parties; (ii) performance indicators to be monitored, targets to be achieved and monitoring framework; (iii) incentives, bonuses and penalties; and (iv) dispute resolution mechanisms are as essential for internal contracting as for public-private contracting.

5. Presentations on the Economic Regulation of the WSS Service and Service to the Poor

After a rapid introduction by Mr. A. Locussol of the rationale for economic regulation, key principles to be followed by a performing Regulator, key objectives to be pursued by WSS tariff setting and designing of subsidies that do reach those who need them, Eng. M. Mutegeki (EWURA) presented the mandate and activities of the Regulatory Body EWURA since it started operations in 2006. EWURA has so far reviewed applications by DAWASA and DAWASCO for automatic indexation of the Operator and Lessor tariffs, as provided for in the Lease and Performance contracts – and by extension in the Licenses – and customer complaints. Eng. Mutegeki highlighted: (i) the difficulties encountered for enforcing compliance with the terms of a Lease contract implemented by two public companies to which sanctions and penalties cannot be applied; (ii) the need for adjusting performance targets to better reflect the actual situation; and (iii) the difficulty to do it in the absence of credible data.

Eng W. Malima (UNICEF) presented the achievement and challenges of the community water supply and sanitation activities implemented in parallel to, but coordinated with, the ongoing rehabilitation and extension of the water distribution and sewer networks.

6. Discussions on the Way Forward

Group discussions that followed the presentations were organized by Mr. C. Sayi (PS, MOWI, chairman of the conference) and Mr. J. Rugumyamheto (facilitator of the conference) around four main themes:

- Institutional options;
- Governance and accountability;
- Financial incentives and regulatory framework; and
- Performance improvement

Although it is often difficult to structure such group discussions and to focus recommendations to be formulated in a very short period of time, the four groups identified some common themes that could guide the way forward.

Institutional options

In her presentation, Dr. S. Temu had summarized the key features of six possible institutional arrangements after consulting with a limited number of stakeholders and focused on two options that she believes would be acceptable and could easily be implemented:

Retain the current arrangement with a public DAWASA as asset holder/infrastructure developer and DAWASCO as public operator both ensuring with DAWASCO reporting to DAWASA rather de facto reporting to MOWI;

Retain DAWASA as asset holder/infrastructure developer and split DAWASCO into several public distribution companies under contract with DAWASA that would see its role extended to that of bulk water supplier.

Group discussions highlighted the need for establishing a "principal/agent" relation between DAWASA and DAWASCO, as provided for in the DAWASA Act, initially worded for a public-private partnership. This would require a legal review of the existing texts and in particular of the Government Notice that created DAWASCO under the Corporation Act. Participants recommended that this should be done by March, 31 2010. Group discussions did not cover, however, other options such as the merging of DAWASA and DAWASCO into a single WSS utility company or the split of DAWASCO into several smaller water distribution companies under contract with a DAWASA acting as asset holder and bulk water supplier probably because of the lack of time and guidance to frame their discussions.

Governance and accountability

All groups highlighted the need for increasing the accountability of DAWASA and DAWASCO BOD and management teams; one option for DAWASA would be to enter into a performance based contract (PBC) with the Government (MOWI, MOF) and set achievable (SMART) targets. Similarly, groups suggested that PBC should be entered into by DAWASCO and specialized contractors for specific tasks such as NRW reduction. There were mentions of the need for pursuing DAWASCO decentralization and for developing anti-corruption plans by both public entities.

Financial incentives and regulatory framework

No group mentioned the need for adjusting compensation packages of DAWASA and DAWASCO staff but all referred to financial incentives to encourage improved performance. Interestingly, "emotional" incentives were identified as necessary, suggesting that proper motivation of staff by charismatic managers may be a missing element. One group mentioned the need for designing the WSS tariff with the objective of protecting the water source.

Performance improvement

Group discussions suggested that so far little emphasis has been put on customers. Large customers which could generate a significant share of the revenues should be paid special attention. On the other hand arrangements should be sought with community based organizations for bulk water supply in lower income areas or informal neighborhoods where demand for residential connections is limited and extension of distribution network difficult. Group discussions also highlighted the need for: (i) rapidly improving commercial operations (meter reading, bill distribution and collection); (ii) pressurizing distribution networks or in case of non permanent service, supplying water at fixed hours so that customers can adapt their consumption pattern; and (iii) regulating the tanker "industry". Several groups emphasized the need for setting "realistic" performance targets.

Suggestions of the World Bank Mission

The Mission, as many participants to the conference, believes that the current Lease contract arrangement is dysfunctional. Even if existing legal texts are amended to re-establish the principal/agent relation between DAWASA and DAWASCO it is doubtful that the Lease contract will ever perform successfully because the main driver for compliance with contractual terms, i.e., the obligation for generating a profit will still be lacking or be pretty weak. If the Government does not wish to consider introducing private interests in DAWASCO in the short and medium terms, the Mission believes that a mechanism for clarifying the relationship between DAWASA and DAWASCO needs to be established to reach service delivery targets, ensure clear lines of accountability, and improve contract enforcement. The Government should take note of the recipes that worked well in Uganda, i.e., appointment of a dynamic management team on market terms and strict enforcement of internal individual contractual obligations; Kenya, Mozambique and other countries in the region. The Government should continue to refine and improve the model and prepare a longer term plan that includes provision for two more in depth reviews as a basis for reforms in 18 and 36 months.

The Mission, as many participants to the conference, understands that the Government wishes to: (i) limit amendments to the current legal framework to the strict minimum in the short and medium term; but (ii) nevertheless improve its overall performance. In which case, the Mission would suggest that the following options be considered:

- The principal/agent relation between DAWASA and DAWASCO should be established:
    - Within 3 months: a legal review should be carried out to establish practical options available;

- Within 6 months: institutional arrangements should be amended to allow an enforceable principal/agent relation.

- The role of DAWASA should be extended to include bulk water supply: DAWASA should take over from DAWASCO the operation of the production plants and transmission lines up to the bulk water meters.

    - Within 6 months: the outline of a bulk water supply contract, guaranteeing quantities of water delivered at reservoirs and specifying rules governing the bulk water tariff would be set, revised and indexed, should be prepared and reviewed by EWURA;

    - Within 12 months: a bulk water supply contract should be signed by DAWASA and DAWASCO and approved by EWURA.

- DAWASA should be encouraged to consider short-term "output based service contracts" with professional companies to address some of the key issues the water production/transmission function is currently faced with, in particular: (i) the proper operation of the recently rehabilitated treatment plants; and (ii) the high level of losses on the Upper and Lower Ruvu transmission lines.

    - Within 6 months: DAWASA should outline an "outsourcing" plan;

    - Within 18 months: Service contractors should be mobilized after a proper and transparent selection process.

- The role of DAWASCO should be limited to that of water distribution and wastewater collection and treatment; as mentioned above, the bulk water supply agreement with DAWASA should be signed within 12 months.

- DAWASCO should be encouraged to consider the possibility of strengthening its delegated water distribution and wastewater collection/treatment operations, including possibly restructuring into several semi-autonomous geographical units. DAWASCO should also be encouraged to consider short-term output-based service contracts with professional companies to address the many issues the water distribution function is faced with, in particular: (i) reduction of NRW within "district metered areas – DMA"; (ii) the identification and regularization of existing customers; and (iii) the extension of distribution networks to un-served areas where demand for connections has been clearly identified.

    - Within 6 months, DAWASCO should outline "delegation" and "outsourcing" plans;

    - Within 12 months, DAWASA and DAWASCO should agree on a workable implementation arrangement for construction activities to be carried out by DAWASCO on the water distribution and wastewater networks (similar to the former delegated work program);

- Within 18 months, DAWASCO should have mobilized a first batch of service contractors.

- DAWASA and DAWASCO should prepare cost estimates and financing plans for the above proposed contracts.

    - Within 12 months DAWASA and DAWASCO should clarify if external financing is needed for OBSC.

Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR

FINAL EVALUATION OF DAR ES SALAAM WATER AND SEWERAGE REHABILITATION PROJECT (DWSSP)

IMPLEMENTATION COMPLETION AND RESULTS

(IDA CR 3771-TA)

FINAL

June 2010

1. Summary of Project Costs at Start

The total base cost for the Dar Es Salaam Water Supply and Sewerage rehabilitation Project (DWSSP) was estimated at 169.71 million including US$1.14 million to reimburse IDA for Project preparation funds. The estimated cost for each major Project component is shown in the table below.

Summary of Project Costs

	Original Estimate (US$ Million)	Current Estimate (US$ Million)	Percentage
Rehabilitation and Extension of Water Supply Facilities	106.05	106.94	63.0%
Rehabilitation and Extension of Wastewater Facilities	22.40	19.83	11.7%
Community Water Supply and Sanitation Program	3.85	3.85	2.3%
Institutional Strengthening	25.00	33.54	19.8%
Future Studies	6.15	4.41	2.6%
PPF Refinancing	1.15	1.14	0.7%
	164.60	169.71	100.0%

2. Assessment of Development Objectives and Design and Quality at Entry

Dar es Salaam city and the townships of Kibaha and Bagamoyo were experiencing poor water and sanitation services due to aged infrastructures, low investments and high demand supply gap from existing surface sources. People were sometimes forced to use unsafe water sources or pay

exorbitant fees to water vendors. Also due to lack of adequate and functioning sanitation services there were repeated cases of cholera outbreaks.

Thus the main objective of this Project was to improve provision of water and sanitation services to be more reliable, affordable and preparation of strategic masterplans for future sustainability. This objective was to be accomplished through: (a) rehabilitation and limited expansion of the existing water and sewerage infrastructures, (b) carrying out feasibility studies for developing of new water sources, preparation of water supply and sanitation expansion strategic master plans (c) introduction of public private partnership in the operation of water and sewerage services, (d) establishment of a regulatory framework, (e) introducing a life line tariff, (f) capacity building, (g) charging service tariff that cover all operation and maintenance costs plus 10% contribution to counterpart funds for future investments.

The DWSSP comprised of four major components as follows:-

Water and Sewerage Capital Improvement Program: To rehabilitate/upgrade and limited expansion of the existing Water Supply and Sanitation systems and hence improving the availability of water and collection and treatment of sewage for protection of public health and the environment.

Community Water Supply and Sanitation Project (CWSSP) – To assist low-income communities to have better access to water supply & sanitation.

Institutional Strengthening of DAWASA/MOWI/WRBWO/EWURA in order to improve overall water resources and supply management.

Strategic Studies for Future Investments: Involved evaluation of Future Water Sources, Water Supply and Sewerage Expansion Strategic Master planning.

During the midterm review in December, 2006 the project's original objectives were not revised. However the following issues were emphasized in order to ensure timely achievement of the original objectives as follows, (a) that the operator (DAWASCO) must speed up customer survey and data base clean up to ensure that more customers are identified and billed, (b) must speed up connection rationalization and metering, (c) increased efforts to speed up delegated works implementation, (d) DAWASA must assist DAWASCO to improve its institutional capacity, (e) DAWASA and DAWASCO to form a joint recovery team to ensure more revenue collection to reach Ts.2.5 billion by June, 2009 and (f) lastly the Project completion date to be extended by two years to December, 2009.

In December, 2009 the final evaluation mission was satisfied that most of the components were substantially completed except for few a delegated works contracts namely, Part 2E and 3A and 3B. Overall program delivery was 98%. The borrower and implementation agent requested for additional time extension of six months to June, 2010 in order to finish the remaining works. Components with unused funds were reallocated to other agreed activities including training of operator staff, buying of extra customer meters, procurement of pumps for Upper and Lower Ruvu treatment works and permanent repair of the Kidogozero breach works.

3. Achievement of Objectives and Outputs

Overall Outcome: *Satisfactory*

The original Project objective is still consistent with GOT's water and sanitation policy and millennium challenge targets of ensuring sustainable and affordable water and sanitation services to all sections of our society.

DAWASA employed the National Bureau of Statistics (NBS) as an independent agent to conduct impartial evaluation of its outcomes to measure achievement of the Project objectives. A baseline survey was conducted in June 2006 and a follow up one in December 2009. The surveys revealed that services have improved tremendously although some objectives have not fully achieved. For example frequency of water availability in the household on daily basis increased from 39.5 to 66.9 percent from 2006 to 2009 against 70 percent of household with 24 hours supply. Also there has been notable health improvement following reduction of water related deceases.

Eight sewerage systems which were almost none functioning have rehabilitated including all oxidation ponds, pumping stations and consumer connections at Kariakoo. The sewer connection increased from 10,000 to 14,000 by the end of Project period.

Strategic master plans for water sources and sewerage have been developed and medium term works for sources, water supply and sewerage systems expansion will be implemented through water sector development programs (WSDP) from next fiscal year 2010.

When the Project is measured against these goals, in general the following have been achieved:

- Low-income communities have better access to water supply & sanitation
- Water supply is stable and there is improvement in collection and treatment of sewage.
- Improved public health by reduction of cholera occurrence
- Improved institutional and capacity building
- Improved economic condition as a result of improved water supply to industries and households

4. Major Factors Affecting Implementation and Outcome

The Project implementation faced a number of constraints which were outside the control of the GOT or the Implementing Agency. These constraints included the following (i) failure of the private operator; (ii) works delays due to problems outside contractors'/consultants' control; (iii) delays of financiers approvals; (iv) incomplete customer inventory and poor commercial performance on part of DAWASCO.

During implementation of the project, DAWASA was forced to terminate the private operator, City Water Services Limited (CWSL) for material breach of the lease contract less than two years after they started work. This had a big effect on the progress especially implementation of the delegated capital works (DCW) and the priority work projects including SIPE and POG which were under the operator.

The performance of the second operator has also been below expectations, since they have not been able to attain the lease targets especially in the case of revenue collection. This has affected the liquidity of DAWASA making it unable to meet its financial obligations including debt servicing and maintaining minimum cash requirement.

Assessment of Outcome Targets and Risks: The three anticipated risks were (a) Inexperience of DAWASA in monitoring the performance of the operator and in dealing with requests to adjust the terms of Lease Contract of the Operator Tariff to reflect changing conditions. DAWASA successfully managed all issues regarding Operator supervision and timely application of Tariff indexation to the regulator. (b) Inexperience of EWURA in monitoring performance of the various actors (GOT, DAWASA, the Operator or the customers) and in appraising requests for Customer and Operator Tariffs adjustments. During the period EWURA fairly managed and monitored various actors' interests. (c) "Capture" of EWURA by one stakeholder (GOT, DAWASA, the Operator or the customers). EWURA has strived gradually to become independent from influence of its key stakeholders.

The original outcome targets for the Project were:

To ensure by the end of the Project about 70% of customers obtain 24 hour water supply under adequate pressure. Percentage of customers receiving 24 ours supply is currently estimated at 30%. This percentage excludes the Non Revenue Water loss which is estimated at 55%. Furthermore about 70.5 of surveyed households had water storages enough for more than two to five days. Therefore generally the Project has been a success if Project had enough scope to reduce physical losses, which means more water could be available with adequate pressure to reach customers with more supply hours. (b) To ensure that 100% of water samples meet quality standards specified under the lease contract by the end of project. Actual water quality was 95% by December, 2009. This was attributed to contamination of water due to burst pipes thus leading to low residual chlorine in the distribution system. (c) To ensure 80% of collected sewage is treated and 95% of effluent samples meet quality standards specified in the lease contract.

Wastewater effluent quality parameters surpassed targets except for BoD which was 80% as at December, 2009. This was due to slow maturity rate as a result of newly rehabilitated ponds and illegal industrial chemical dumping. These industries have been served with notices to comply with required standards or face disconnection. (d) To fully implement a life-line tariff for domestic customers. Due to complexity of identifying poor households and customers drawing water from public taps, consuming up to 5 cubic meters per month are charged Operator Tariff only. (e) To ensure that revenues meet operations and maintenance costs plus 10% contribution to capital investments. The financial sustainability objective has not been fully attained because of low revenue collection by the operator.

5. Outcome Implementation of Project Components

(a) Component 1: Rehabilitation and Extension of Water Supply Facilities

Amount USD 106.05 PAD; 99,122,514 Actual millions

Rating: *Satisfactory*

This component involved (a) rehabilitation of the three Water Treatment facilities of Upper Ruvu, Lower Ruvu and Mtoni plants. The aim was to bring back to their original installed capacities of 90 Mld, 182Mld and 9Mld per day respectively. These works were successfully completed and production attained 96% of original objective of 272Mld. This is partly attributed to low flows from Kizinga river which is the water source for Mtoni Treatment plant. (b) Rehabilitation of transmission mains and primary distribution mains. This component which involved replacement of weak sections in the transmission mains, washouts and air valves, installation of bulk meters and laying of primary distribution mains to improve bulk supply within the city. There are major improvements in water distribution within the city, about 1475km of primary secondary and tertiary of pipes were laid, and including a total of 135,000 connections were rehabilitated and metered. In addition 69 bulk water meters were installed in various parts of the system to enhance NRW monitoring and management.

(b) Component 2: Sewerage and Waste Water Rehabilitation and Extension

Amount USD 22.4 millions PAD, 18,051,976 Actual

Rating: *Satisfactory*

The component involved rehabilitation and limited expansion of the all sewerage systems within the city. Major sewerage works have been successfully implemented with almost all components 100% completed except for relocation problems at Kurasini and Vingunguti ponds. All waste stabilization ponds are operational, sewage collection and pumping stations have been rehabilitated and limited coverage expansion within Kariakoo area implemented. Operator has been equipped with new operation and maintenance tools, plants and equipments. The incidences of sewer blockage and overflows have dramatically been reduced and timely unblocking is taking place. The number of sewer connection increased from 10,000 to 23,873 by April, 2010.

(c) Component 3: Community Water Supply and Sanitation Program (CWSSP)

Amount USD 3,850,000 PAD, Actual 1,813,010

Rating: *Highly Satisfactory*

A total of 42 CWSS Projects were constructed by December, 2009 against target of 50. About 698 public kiosks were built in this project, 301 under DCW and 397 under CWSSP. Currently 42 community water and sanitation projects are operational and 11 more will be completed by the end of the project. These together with USRP community projects also rehabilitated in this Project are serving more than 406,000 families including the low income groups plus around 1884 household connections against the project target of 120,000. Communities have benefitted from improved water supply and sanitation services and through DAWASA assistance some of Water User Associations (WUAs) have been able to expand these systems through savings and therefore reaching lower income people.

(d) Component 4: Technical, Commercial and Financial Institutional and Capacity Reform

Amount: 25,000,000 million USD PAD, Actual 22,400,990

Rating: *Satisfactory*

This component was meant to build capacities of both MOWI/DAWASA/WRBWO/ EWURA/DAWASCO through training, supply and installation of equipments requisite for water resources management. The component was successfully implemented. However training of DAWASCO's (the operator) staff which was not part of the programme had to be undertaken in view of the termination of the private operator City Water Services (CWL). This was delayed because the new public operator needed time first to right size the company.

Support to Wami Ruvu Basin Water Office which included rehabilitation of 29 river gauging stations and 6 weather gauging stations was successfully implemented. The support has helped the basin to start data hydrological collection after a 10 years period of stations breakdown.

(e) Component 5: Future Water Sources and Supply Studies

Amount USD 6,150,000 PAD, Actual 5,192,360 million USD

Rating: *Highly Satisfactory*

Studies for future water sources were successfully conducted whereby about 26 surface and groundwater options were evaluated against technical, environmental, social and economic viability. The study which was completed in 2007, recommended two most efficient sources out of the rest and these were regulation of Ruvu River by building a dam at Kidunda and development of the newly found deep groundwater aquifer on the southern part of the city. The two sources have been earmarked for development under WSDP from next financial year 2010/11. Thirty deep production wells will be developed in two phases and the first phase of twenty wells scheduled to be operational by 2013. This source is estimated to add about 390,000 cubic meters and the first phase will add 260,000 cubic meters per day.

Two strategic master plans for extension of water supply and sewerage systems to cover the unserved areas were also successfully developed. The proposed medium term works will be implemented between 2010 and 2015, which will see coverage increase from the current 70% and 10% to 90% and 30% for water and sewerage services respectively. However this will depend on availability of funds currently estimated in our three years rolling plan at 360.97 million USD for implementation of medium term sources and water and sewerage network expansion.

6. Overall Evaluation of the Project's Outcomes by Borrower/ Implementing Agency

The project performance and results are considered to be satisfactory. The borrower and implementing agency and other stakeholders successfully implemented their obligations except for the operator. Capital investments programs have been successfully implemented within budget and time. Capacity building was successfully implemented with regulatory institution in place, training and equipments procured for all intended purposes. New water sources have been

found and medium term works identified and their procurement is according to plan. Issues raised in the last evaluation mission including environmental and social, operator's commercial performance will be sorted out before the closure of the project.

7. Bank/Co-financiers Evaluation of the Project

The December, 2009 evaluation mission rated the project as marginally satisfactory. This was due to marginal commercial performance of the operator. To ensure project sustainability the GOT and DAWASA are undertaking several measures to ensure commercial viability including (a) revising of the DAWASA Act of 2001 in order to amend it to enable creation of Principal Agent relationship between DAWASA and DAWASCO (the Operator), (b)revising the Water Supply and Sanitation Act, 2009 to amend regulations governing customers compliance to bills payment and WSS infrastructure protection. These measures are aimed at improving compliance of the operator; improve bills payment, to discourage vandalism of WSS infrastructures and dumping of toxic industrial waste to the newly rehabilitated oxidation ponds.

8. Assessment of the Project's Prospects and Sustainability

(a) Short Term Sustainability

The current revenue collections cover only 65% of OPEX and 10% of CAPEX. This has caused low achievement rating of the project.

In view of this the GOT, DAWASA and DAWASCO are implementing the several measures to ensure short term sustainability, (a) Decentralization of DAWASCO operations to areas and signing of performance contracts. This will enhance performance through performance targets, in which area managers and staff will be compensated or sanctioned for poor performance. It is expected that they will put more efforts to collect revenue by identifying illegal connections, inactive accounts, timely meter reading and bills delivery, and disconnecting of non paying customers. (b) The GOT is in the process of amending the water and sanitation act to make it more stringent to nonpayment of bills, illegal dumping of toxic waste to sewerage systems and tempering or theft of water and sewerage works appurtenances. The review also intends to shorten the prosecution process of the culprits, (c) to ensure short term liquidity for DAWASA, the GOT agreed to suspend loan repayment for one year up to July, 2010 and efforts are still being made so that the $6 million extended to CWL is written off, (d) DAWASA has completed installation of system input meters in all water production plants and bulk zonal meters to strengthen NRW management.

(b) Long Term Sustainability

The long term sustainability of Dar es salaam water supply and sewerage services looks very bright after realization of the following interventions results, (a) currently DAWASA and DAWASCO through the leadership of EWURA and MOWI are working together to review the lease agreement to reflect changes on the ground and accommodate the lessons learned over the first phase. This is expected to harmonize performance and accountability of both parties, (b) secondly DAWASA through technical assistance from MCC is undertaking major tariff review and willingness to pay studies. These are important inputs for the next tariff review application, which will take into consideration all O&M of the regulated assets plus 15% to cover

capital investments cost and customers' ability into the balance, (c) if all goes well the two immediate capital investment support programs under the WSDP and MCC are expected to increase our sources production capacities and network coverage.

The following outcomes are expected from those projects including additional 90,000 cubic meters of water will be added into the system after completion of Lower Ruvu, a duplicate 1400mm transmission main from Lower Ruvu will be installed to increase the carrying capacity and act as a fall back in case of old pipe burst and additional 62,328 more customers will be connected all by 2012/13. Furthermore in the same program NRW will be reduced from current estimated level of 55% to 35% this will bring in more revenues and reduce physical losses. Construction of the Kidunda dam and development of groundwater at Kimbiji and Mpera supported by WSDP will allow network expansion to the southern part of the city which is not being served by Upper and Lower Ruvu plants.

9. Lessons Learned

DWSSP delayed implementation because of late funding made its expected outcomes to be less noticeable due to growth in demand for services.

For better results sequencing of DCW packages should have started from transmission corridors. This would have reduced NRW along the transmission mains and thus enabling more water to reach the Terminal and Kimara reservoirs.

Community water and sanitation projects must be free from political interference.

Through implementation of this project DAWASA has gained more experience in areas of project management, strategic planning, benchmarking and dealing with various stakeholders.

10. List of supporting documents/references

- DWSSP Project Appraisal Document (April, 2003)
- DWSSP Mid-Term Review Report (June, 2006)
- Beneficiary Survey Baseline Report, (NBS, 2006)
- Future Water Sources Development Master plan (Norconsult, July 2007)
- Sanitation Improvement Plan (AAW, June 2008)
- Water Supply Improvement Plan (AAW, June 2008)
- The Economic Survey Report- 2007 (MoFEA, 2008)
- DWSSP Quarterly Progress Report, (DAWASA May, 2009)
- DAWASCO Annual Technical Report, (November 2009)
- Beneficiary Survey Follow up Report, (NBS Dec, 2009)

Annex 8. Comments of Co-financiers and Other Partners/Stakeholders

(*The full report is available on file – this section provides some of the key highlights of the AfDB report*).

PROJECT: Dar es Salaam Water Supply and Sanitation Project

COUNTRY: Tanzania

PROJECT COMPLETION REPORT

Program Completion Team	Team Leader: Team Members: Sector Manager: Res. Rep: Sector Director: Regional Director:	Sabas Marandu Geoffrey Shoo Sering B. Jallow Prajesh Bhakta (OIC) Ali Kies Diarietou Gaye	Water & San. Eng., TZFO Financial Expert, Consultant OWAS.2 TZFO OWAS & AWF OREA
Peer Reviewers		Boniface Aleobua John Sifuma	Principal Sanitation Engineer (OWAS.2) Water and Sanitation Specialist (KEFO)

October 2010

A: Project Data and Key Dates

The tables below show key project data, i.e. (i) project basic information (ii) key dates (iii) ratings for project outcomes, Bank performance and Client's performance (iv) Bank Staff responsible for the project.

A1. Basic Information

PROJECT / LOAN NUMBER	PROJECT NAME	COUNTRY	PCR Date
2100155006772 (Loan) 2100155001742 (Grant)	Dar es Salaam Water Supply and Sanitation Project	Tanzania	October 2010
LENDING INSTRUMENTS		**SECTOR**	**ENVIRONMENTAL CLASSIFICATION**
Loan and Grant		OWAS	Category 1
ORIGINAL COMMITMENT	**AMOUNT CANCELLED**	**AMOUNT DISBURSED**	**PERCENT DISBURSED**
UA 36. 94 million. – Loan	UA 4,121,362.54	UA 32,818,637.46	88.84
UA 1.31 million. – TAF Grant	UA 142,054.24	UA 1,167,945.76	89.16
CLIENT	**EXECUTING AGENCY**	**CO-FINANCERS AND OTHER EXTERNAL PARTNERS**	
United Republic of Tanzania	Dar es Salaam Water and Sewerage Authority	Government of Tanzania (USD12 mill.); World Bank (USD European Investment Bank (USD 34 mill.); Private Operator Equity (USD 8.5 mill.)	

A2. Key Dates

CONCEPT REVIEW	APPRAISAL	APPROVAL	SIGNATURE	RESTRUCTURING(S)
Pre-appraisal - 06.09.1997	16.04.2001	17.12.2001	29.05.2002	March 2006

	ORIGINAL DATE	RESTRUCTURED DATE	ACTUAL DATE	DIFFERENCE IN MONTHS [Actual – original /restructured]
EFFECTIVENESS	14.04.2004	N/A	14.04.2004	0
MID-TERM REVIEW	11.11.2006	N/A	11.11.2006	N/A
CLOSING	31.12.2007	31.12.2009	30.06.2010	- 30

A3. Ratings Summary

CRITERIA	SUB-CRITERIA	RATING
PROJECT OUTCOME	Achievement of Outputs	3
	Achievement of Outcomes	2
	Timeliness	2
	OVERALL PROJECT OUTCOME	2
BANK PERFORMANCE	Design and Readiness	3
	Supervision	3
	OVERALL BANK PERFORMANCE	3
CLIENT PERFORMANCE	Design and Readiness	3
	Implementation	3
	OVERALL CLIENT PERFORMANCE	3

A4. Responsible Bank Staff

POSITIONS	AT APPROVAL	AT COMPLETION
COUNTRY DIRECTOR		D. GAYE
SECTOR DIRECTOR	K. MTEGHA	A. KIES
SECTOR MANAGER	G. MBESHERUBUSA	S. B. JALLOW
PROJECT TEAM LEADER	K. KHOTLE	P. DZIMIRI
PCR TEAM LEADER	N/A	S. MARANDU

Selected Key Lessons

H.0 General

The scheduled rehabilitation works were effectively implemented and successfully managed by DAWASA; together with the community water supply and sanitation program, institutional capacity building and studies for future expansion. Under the studies, new deep ground water aquifers were identified in the southern part of the city and three 400 – 500 m test boreholes were drilled to verify the water quality, which was found to be acceptable. Furthermore, whilst at the start of the project, there were no functioning bulk meters in the system and only about 3% of customers were metered, at the end of the project bulk meters had been installed together with more than 100,000 customer meters.

However, the primary target of the project design, i.e. upgrading commercial operations and enhancing the financial situation of the Utility to cover operation and maintenance (O&M) costs, service long term debt and contribute to capital investment was not achieved after failure and termination of the private operator (City Water Ltd) in June 2005. Five years after appointment of a public operator (DAWASCO), revenue collection has not improved to the required level. It was envisaged in the Project Implementation Manual that commercial operations would be upgraded and non revenue water would be reduced to specified levels, however at the end of the project non revenue water is still very high and revenue collection does not still meet operational costs.

While numerous lessons are apparent, three selected ones are discussed below in relation to the failed lease, reliable database and non – revenue water.

H.1 *Due to the poor baseline data and the dire condition of the assets, a lower risk delegated management contract was, potentially, a more prudent PPP preparatory step prior to a lease, as suggested by an AfDB pre-appraisal mission in September 1997. Replication of successful PPP models from other regional settings should fully take into account local characteristics and conditions.*

An AfDB pre-appraisal mission comprising Mr. Jallow, Mr. Khotle and Ms. Wang, which visited Tanzania from 27 August to 6 September1997 was informed of the Government's intention to introduce PPP in the form of a joint venture (JV), as advertised in July 1997. The mission was of the opinion that a low risk PPP in the form of delegated management would be a better starting option due to the vast information gap and the poor condition of the assets. It was however not possible for the mission to discuss this option with Government in detail, because of prevailing consultations on the proposed joint venture. The Bank therefore gave its opinion to the Government and requested to be updated on the progress and outcome of the JV pre-qualification process. A comparison of various forms of PPPs including joint venture, lease and management contract, is shown in Annex 6.

Eventually, the Government abandoned the proposed JV option. While it had been expected that JV partners would bring in the required capital financing, none of the four international companies which submitted substantive proposals (Biwater UK, Saur France, Vivendi France and Northumbrian UK) were ready to secure the required capital investment. In June 1998, the Government sought the assistance of a Transaction Advisor, (Seven Trent Water International) to assist in the PPP process. A workshop on the various options for PPP was also conducted. It was eventually decided to request bids for a lease contract.

The lease contract with a private operator was signed in February 2003 but was terminated after only two years of operation, due to breach of contract. The Dar es Salaam lease was based on a successful model introduced in Senegal in 1996, and adopted in Niger in 2001. However, the Senegalese population has a strong tradition of paying their water bills and the collection ratio was good when the Senegal lease started. In contrast, the Dar es Salaam lease was ineffective, and its enforcement by the Asset Holding Authority (AHA), was difficult.

After termination of the private operator, a public operator was appointed and there was a smooth transition of operations. Given the failed lease, the Government indicated that it would like to pause and review the unsuccessful transaction before going forward with the next attempt at public-private partnership; which was accepted by a majority of the financiers. Based on the views of a representative from the International Federation of Water Operators during the operators' roundtable organized by the Government in December 2009, it was unlikely that the Government could have embarked on a quick attempt at another public-private partnership, immediately after the failed lease, taking into account the acrimonious way in which it ended.

Although the PPP process was open to all international water operators, only four international professional partners submitted substantive proposals. Furthermore, at the final round of bidding for the lease, only one bid was received. As discussed in the second lesson below, the lack of reliable baseline data led to a lease which was not sufficiently conclusive financially and commercially. A management contract could have been a better starting option which could have been "rolled into" a lease at the appropriate time.

It is also to be noted that at project appraisal, the prevailing experience on successful WSS PPPs in Africa was limited. It is only in the 1990s and 2000s that major efforts were made to introduce substantive private sector participation in the water sector in Africa, including in Ivory Coast (where previous contracts were consolidated into a lease in 1987), Senegal and South Africa in 1996, Gabon in 1997 and Niger in 2001.

Due to weaknesses in various PPPs in Tanzania during the 1990s and early 2000s, a PPP policy was formulated in November 2009, followed by a corresponding legal and institutional framework through enactment of the Tanzania PPP Act of 18 June 2010, which includes rules, guidelines and procedures governing PPP procurement, development and implementation.

H.2 Reliable baseline data is crucial in the formulation of complex contracts such as major WSS leases, including, accurate customer data, reliable network data including flows and system losses, correct billing and collection records etc; its implications should not be underestimated

Historically, there was little accurate data collected on flows in the Dar es Salaam system. Thus, at the start of the project, there was no reliable operational data on which to establish effective performance criteria for many of the major parameters of the lease contract, which significantly compromised its effectiveness. Performance targets are of limited use, without reliable baseline data, together with effective reporting and monitoring mechanisms.

During the last stage of the lease bidding process, two of the three pre-qualified bidders did not submit a bid because of the risk levels they perceived, including lack of reliable baseline data. Bidders had been asked to bid only on the operator tariff. Other conditions remained identical for all bidders including: (i) initial equity contribution to the capital of the Operator, (ii) financial support to the Operator's start-up activities, and (iii) fees for managing program works assigned to the Operator. A guiding minimum operator tariff was specified in the bid, and accepted by the only bidder who submitted a bid.

The tariff was a key driver of the lease financial model, to ensure recovery of operating costs together with requirements for servicing of debts and returns to shareholders. However, it was contingent on the volume of water available for billing, which in turn depended on the quantities of the existing system losses that could be recovered by the rehabilitation.

The lack of a comprehensive and accurate customer data base together with poor data on the flows in the system meant that the Operator tariff was established on the basis of information that was not sufficiently solid. Furthermore, although rehabilitation measures were part of the project, there was uncertainty in predicting their immediate operational impact.

It was also difficult to establish realistic time frames for achieving some of the key project indicators because of the uncertainty in the baseline data. For example, it was envisaged that at the end of the five 5 years original project time frame, 70% of customers would obtain 24 hour water supply service under adequate pressure. Currently, only about 25% of customers are getting reliable water supply. The target was optimistic considering that its attainment depended largely on the quantities of the existing system losses that could be recovered by the rehabilitation as there were no additional sources scheduled in the first 5 years.

H.3 Reduction of non revenue water requires special dedicated effort.

Reduction of non revenue water (NRW) is still a major challenge for the financial sustainability of the project. NRW is the difference between the amount of water put into the distribution system and that billed to consumers. It comprises leakage, theft and improper billing. At the start of the project, in 2003, NRW was estimated above 50%. At present (2010) NRW is still estimated above 50%. In its edition of 4th December 2010, the Tanzania "Daily News" reported that the Minister for Water urged the Operator (DAWASCO) to reduce NRW after he carried out a field survey of Bahari beach area on 2nd December 2010 and locating 15 areas with water leakages which have lasted for a long period.

The Regulator reported in its 2008/2009 report that among the urban water authorities in Tanzania, the Dar es Salaam operator (DAWASCO) is the overall least performer in NRW management. The Regulator recommends that NRW should be less than 20%. Furthermore, the operator's collection efficiency is at 77 % on current bills, without considering arrears in respect of previous months. The collection efficiency should be more than 95%. In their 2008/2009 audit report, the auditors noted that the operator is unable to quantify how much of NRW has been lost through leakages or to identify individuals who have not been billed for their consumption.

One of the major lessons that the public operator (DAWASCO) learned from the failed private operator lease is that a reliable customer database is paramount for effective NRW and customer management together with billing efficiency. Accordingly, immediately after takeover in 2006, DAWASCO with support from the Uganda National Water and Sewerage Corporation, embarked on a major effort to improve the customer information data base including linkage to a GIS system. However, after an initial promising start, progress slowed down. In discussions with the new DAWASCO CEO (appointed in June 2010) the PCR mission was informed that the exercise has now been revamped and is scheduled for completion early next year.

It essential that the effort to establish a reliable customer information database be completed as a matter of priority and effective strategies of reducing non revenue water are worked out and implemented.

Project Ratings Summary

All working scores are auto-generated by the computer from the relevant section in the PCR. The overall scores and sub-scores for project design and supervision/implementation are to be entered by the author.

CRITERIA	SUB-CRITERIA	WORKING SCORE
PROJECT OUTCOMES	**OUTPUTS, OUTCOMES AND TIMELINESS**	
	Achievement of Outputs	**3**
	Achievement of Outcomes	**2**
	Timeliness	**2**
	OVERALL PROJECT OUTCOME SCORE	**2**
BANK PERFORMANCE	**DESIGN AND READINESS**	
	Project Objectives are relevant to country development priorities.	4
	Project Objectives could in principle be achieved with the inputs in the expected time frame.	2
	Project Objectives are consistent with the Bank's country or regional strategy	4
	Project Objectives are consistent with the Bank's corporate priorities	4
	The log frame presents a logical causal chain for achieving the project development objectives.	4
	The log frame expresses objectives and outcomes in a way that is measurable and quantifiable.	4
	The log frame states the risks and key assumptions.	2
	Project complexity is matched with country capacity and political commitment.	4
	Project design includes adequate risk analysis.	1

	Project procurement, financial management, monitoring and/or other systems are based on those already in use by government and/or other partners.	3
	Responsibilities for project implementation are clearly defined.	4
	Implementation documents (e.g. specifications, design, and procurement) are ready at appraisal.	4
	Monitoring indicators and monitoring plan were agreed upon during design	2
	Baseline data were available or were collected during design	1
	DESIGN AND READINESS SCORE	**3**
	SUPERVISION	
	Bank enforced environmental safeguards	3
	Bank enforced fiduciary safeguards	3
	Bank enforced project covenants	3
	Bank provided quality supervision in the form of skills mix provided and practicality of solutions.	3
	Bank provided quality management oversight.	3
	PCR was delivered on a timely basis	4
	SUPERVISION SCORE	**3**
	OVERALL BANK PERFORMANCE SCORE	**3**
	DESIGN AND READINESS	
	Responsibilities for project implementation are clearly defined.	4
	Implementation documents (e.g. specifications, design, procurement) are ready at appraisal.	4
	Monitoring plan / indicators are agreed upon and baseline data are available or being collected.	2
	DESIGN AND READINESS SCORE	**3**
BORROWER PERFORMANCE	**IMPLEMENTATION**	
	Client complied with environmental safeguards	2
	Client complied with fiduciary safeguards	3
	Client complied with project covenants	3
	Client was responsive to Bank supervision findings and recommendations.	3
	Client collected and used monitoring information for decision-making.	2
	IMPLEMENTATION SCORE	**3**
	OVERALL CLIENT PERFORMANCE SCORE	**3**

Annex 9. List of Supporting Documents

1. Project Appraisal Document, April 2003
2. Project Restructuring Memorandum, March 2006
3. Supervision Mission Aide Memoires
4. Mid-Term Review Report, December 2006
5. Implementation Status and Results Reports
6. Lease Contract between DAWASA and CWS, 2003
7. Lease Contract between DAWASA and DAWASCO, 2005
8. DAWASA Quarterly Reports
9. DAWASCO Technical Reports
10. Water Supply Improvement Plan Final Report, June 2008
11. Baseline Survey on Impact Assessment of the DWSSP [2006] Report, December 2008
12. Follow-Up Survey on Impact Assessment of the DWSSP 2009, Report, May 2010
13. Draft Report - Strengthening pro-poor targeting of investments by African utilities in urban water and sanitation – the role of the International Development Association of the World Bank, Case studies from Burkina Faso, Ghana and Tanzania. (commissioned by Overseas Development Institute and SOAS University of London, implemented by WaterAid), July 2010

TANZANIA

- SELECTED CITIES AND TOWNS
- PROVINCE CAPITALS
- NATIONAL CAPITAL
- RIVERS
- MAIN ROADS
- RAILROADS
- PROVINCE BOUNDARIES
- INTERNATIONAL BOUNDARIES

NOVEMBER 2007