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**PROJECT PERFORMANCE ASSESSMENT REPORT**

**SENEGAL**

**LONG TERM WATER SECTOR PROJECT  
(LOAN NO. C3470)**

**SUPPORTING ACCESS TO ON-SITE SANITATION SERVICES THROUGH  
OUTPUT-BASED AID SCHEME  
(TF090466 AND TF090467)**

**February 19, 2015**

**IEG Public Sector Evaluation**  
*Independent Evaluation Group*

## Currency Equivalents (annual averages)

*Currency Unit (US\$)=Country Currency (West African Communauté Financière d'Afrique Franc or XOF)*

2001	US\$1.00	XOF733
2002	US\$1.00	XOF697
2003	US\$1.00	XOF581
2004	US\$1.00	XOF529
2005	US\$1.00	XOF527
2006	US\$1.00	XOF523
2007	US\$1.00	XOF480
2008	US\$1.00	XOF448
2009	US\$1.00	XOF472
2010	US\$1.00	XOF495
2011	US\$1.00	XOF507
2012	US\$1.00	XOF497
2013	US\$1.00	XOF475

## Abbreviations and Acronyms

AGETIP	<i>Agence d'Exécution des Travaux d'Intérêt Public</i>
EIRR	Economic internal rate of return
GPOBA	Global Partnership on Output-Based Aid
ICR	Implementation Completion and Results Report
IEG	Independent Evaluation Group
NGOs	Non-Governmental Organizations
ONAS	<i>Office National d'assainissement du Sénégal</i>
PCU	Project Coordinating Unit
PPAR	Project Performance Assessment Report
SDE	<i>La Sénégalaise des Eaux</i>
SONEES	<i>Société Nationale d'Exploitation des Eaux du Sénégal</i>
SONES	<i>Société Nationale des Eaux du Sénégal</i>
XOF	West African Communauté Financière d'Afrique Franc

## Fiscal Year

Government: January 1 –December 31

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This report was prepared by Ms Midori Makino and Mr. Nestor Ntungwanayo who assessed the project in May-June 2014. The report was peer reviewed by Smita Misra and panel reviewed by George T. Keith Pitman. Romyne Pereira provided administrative support.

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## Principal Ratings

### Senegal: Long Term Water Sector Project- P041528

	ICR*	ICR Review*	PPAR
Outcome	Highly Satisfactory	Satisfactory	Moderately Satisfactory
Risk to Development Outcome	Negligible to Low	Moderate	Substantial
Bank Performance	Highly Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Moderately Satisfactory

\* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEG product that seeks to independently verify the findings of the ICR.

### Senegal: Supporting Access to On-Site Sanitation Services through OBA Scheme-P102478

	ICR*	ICR Review*	PPAR
Outcome	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory
Risk to Development Outcome	Moderate	Moderate	High
Bank Performance	Moderately Satisfactory	Moderately Unsatisfactory	Moderately Unsatisfactory
Borrower Performance	Moderately Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory

\* The Implementation Completion Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEG product that seeks to independently verify the findings of the ICR.

## Key Staff Responsible

### Senegal: Long Term Water Sector Project

Project	Task Manager/Leader	Division Chief/ Sector Director	Country Director
Appraisal	Richard Verspyck	Letitia A. Obeng	John M. McIntire
Completion	Matar Fall	Inger Anderson	Habib M. Fetini

### Senegal: Supporting Access to On-Site Sanitation Services through OBA Scheme

Project	Task Manager/Leader	Division Chief/ Sector Director	Country Director
Appraisal	Sylvie Debomy	Eustache Ouayoro	Madani Tall
Completion	Matar Fall	Jamal Saghir	Vera Songwe

**IEG Mission: Improving World Bank Group development results through excellence in evaluation.**
**About this Report**

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEG annually assesses 20-25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEG staffs examine project files and other documents, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEG peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. The PPAR is also sent to the borrower for review. IEG incorporates both Bank and borrower comments as appropriate, and the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

**About the IEG Rating System for Public Sector Evaluations**

IEG's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEG evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEG website: <http://worldbank.org/ieg>).

**Outcome:** The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, and Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Risk to Development Outcome:** The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High, Significant, Moderate, Negligible to Low, Not Evaluable.

**Bank Performance:** The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

**Borrower Performance:** The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.



## Preface

This is a Project Performance Assessment Report (PPAR) of two projects in the water and sanitation sector of Senegal, supported by the World Bank: (i) the Long Term Water Sector Project which was approved in March 2001 and closed in June 2009; and (ii) Access to On-Site Sanitation Services through the Output-Based Aid (OBA) scheme, which was approved in July 2007 and closed in December 2011. The Long Term Water Sector Project cost US\$ 254.61 million and was supported by an International Development Association (IDA) credit of US\$146.12 million equivalent. The cost of the second project was US\$5.76 and this was funded in full by the Global Partnership for Output-Based Aid (GPOBA), which is a multi-donor partnership administered by the World Bank.<sup>1</sup>

The assessment is based on a review of all relevant documentation, interviews of Bank staff at headquarters and in the country office, and the findings of an Independent Evaluation Group (IEG) mission which visited Senegal from May 15 to May 30, 2014 to discuss performance with officials engaged with the projects, representatives of donors, staff of the Bank resident mission and other stakeholders. The list of persons met during the mission is attached in Annex E and their cooperation and assistance in preparing the report is gratefully acknowledged. The IEG mission also conducted a beneficiary survey for the on-site sanitation OBA project using mobile phone technology, results of which are used in the analysis and the details are attached as Annex C.

In addition to detailed assessments of the two operations using standard IEG methodology, the report includes a review of the World Bank's assistance in Senegal's water and sanitation sector since 1996. Lessons learned from the assessment and such long-term support will be used as inputs into IEG's forthcoming review of the World Bank Group's assistance to the water and sanitation sector.

Following IEG practice, copies of the draft report was sent to government officials and implementing agencies, and no comments were received.

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1. The GPOBA project was financed 50 percent by the United Kingdom Department for International Development and 50 percent by the Netherlands' Directorate General for International Cooperation.



## Summary

The two water and sanitation projects reviewed in this PPAR were both intended to consolidate the results achieved through an earlier World Bank operation supporting the sector in Senegal, but the projects differed in scope and coverage. The Long-Term Water Sector Project (2001-2009) was a large project costing US\$254.61 million financed by a consortium of donors, including the Bank. It aimed at strengthening the infrastructure and further promoting the reforms of the urban water sector. The GPOBA project was a small Trust Fund-supported project, costing US\$6.35 million that focused on the sanitation sub-sector only. It aimed at increasing the population's access to on-site sanitation facilities by replicating the institutional model piloted in the Long-Term Water Sector Project.

The objective of the Long Term Water Sector Project was to assist the Borrower in achieving sustainable improvements in the delivery of urban water and sanitation services in unserved and low-income areas of Dakar and secondary cities by: (i) supporting further institutional and regulatory reforms and policy enhancements; (ii) removing major water production and distribution capacity constraints with the help of private sector financing; (iii) supporting the rehabilitation of the sewerage networks and increasing the waste water treatment capacity; (iv) implementing a community-based program for promoting and developing on-site and semi-collective sanitation services; and (v) supporting the development of capacities of sector agencies, communities and households.

As a result of the project support, water production, storage, and distribution capacity increased steadily and project targets were exceeded in most cases. By the end of the project, the new water connections had reached 725,000 people in Dakar and 690,000 people in the secondary cities. Investments in social connections increased access to water supply by the low-income households from 50,000 in 2001 to 150,000 in 2009, and further to 250,000 by the end of 2012. The project has contributed to increasing the water supply coverage from 91 percent in 2004 to 97 percent of urban population at project closure in 2009, and to 99 percent at end-2013.

Most of the targets set at appraisal were met also for sanitation. With the extension of the sewerage networks, sewerage connections reached about 144,000 additional people, 92,000 of whom were in Dakar and 52,000 were in secondary urban areas. The project also provided a sustainable disposal solution for the effluents collected from septic tanks through construction and operation of septage treatment plants. The project supported the construction or rehabilitation of 66,000 individual facilities, 142 semi-collective equivalent systems, 16 public latrines, and 77 school sanitation blocks, and 3 vehicles to collect domestic sewerage sludge in Dakar. The peri-urban sanitation component provided 583,000 people with access to improved sanitation either through on-site facilities or through condominial systems.

While the physical water and sanitation access exceeded the targets set at appraisal, their long-term sustainability is questionable. The public utilities have weak financial viability due primarily to the low water tariff for private connections, and lack of proper mechanisms to ensure maintenance of the sanitation system.

The Objective of the Access to On-Site Sanitation Services project through Output-Based Aid (OBA) Scheme (2009-2013) was to increase access to on-site sanitation for households living in the Dakar region in a sustainable manner.

The project delivered a total of 11,495 sanitation facilities, and 103,450 persons were provided with improved access to on-site sanitation in the Dakar region, reaching about 95 percent of the revised project target. According to the beneficiary survey conducted by IEG in May 2014, the impact on the living standards for the majority of beneficiaries was positive for all categories of facilities delivered. However, the sustainability of the facilities, in particular those (47 percent) connected to the semi-collective sanitation system is uncertain because of its poor maintenance.

## Ratings

The outcome of the Long-Term Water Sector Project is rated **moderately satisfactory**. The relevance of project objectives is rated high while the relevance of design is rated substantial. Efficacy was substantial for the objective related to the water supply, and modest for the objective related to the sanitation services. Project efficiency is rated as substantial. Investments accomplished in the water and sanitation sector remain economically sound five years after the completion of the project. Risk to Development Outcome is rated as **substantial** due to the uncertain sustainability of the water and sanitation services. Bank performance is rated **satisfactory** and the Borrower performance is rated **moderately satisfactory**. While the implementing agency performed well, the Government failed to ensure appropriate tariff adjustments, and to establish an effective oversight system of the sanitation sub-sector.

The overall outcome for the project supporting Access to On-Site Sanitation Services was rated as **moderately unsatisfactory**. The relevance of the project objective is rated **high** while relevance of design is rated **modest**. Both efficacy and efficiency are rated **modest**. Risk to Development Outcome is rated **high**, because of the institutional and financial weaknesses in the sector. Bank and Borrower performance are rated as **moderately unsatisfactory** because the key impediments related to the sustainability of sanitation facilities were not addressed in a timely manner. The borrower did not apply the lessons of a preceding project (the Long-Term Water Sector Project) to this operation, and a plethora of intermediaries worsened the conditions of project implementation.

## Lessons

1. **Premature cessation of donor engagement could lead to a loss of momentum for major sector reform.** The Government of Senegal had high ownership and adopted a strategy (1995 and 2005) in the water and sanitation sector, but this has recently waned. Through sustained commitment of IDA, the Bank was able to (i) play a catalytic role in leveraging investment funding from other donors; (ii) smooth friction and bring a cooperative spirit; and (iii) provide continuous support to the full execution of contractual and regulatory obligations. However, the IEG mission found that the Bank and the donor community have recently shifted their focus away from the relatively well performing urban water and sanitation, to the rural water and sanitation sector. As a result, the

Government slowed down on its reform agenda, as evidenced by the absence of an updated water sector policy and non-compliance of the lease contract with the private operator, thus potentially losing the momentum generated to sustain earlier reforms.

2. **Benefits of water investments may not be realized without adequate attention to sanitation.** Recognizing the existence of a comprehensive and integrated approach to sanitation, evidenced by Senegal's urban sanitation strategy which was based on the diversification of technologies, the assessment found that more resources and more attention were devoted to water production and distribution at the expense of the sanitation sub-sector in Senegal. This finding is reflected in the mismatch between the sanitation infrastructure and the country's needs, and the lack of solutions to set up sustainable approaches to manage public and semi-public sewerage networks and wastewater treatment plants. According to the interviews carried out during the IEG mission, the supply of increased urban water facilitated by the Bank's project had led to major pressure on the existing sewerage infrastructure. As the imbalance between the water and sanitation investments and reforms persists, sanitation conditions may worsen, leading to unhealthy conditions and increasing risks of water-borne diseases to the population that benefitted from water services.
  
3. **Raising tariffs only for one customer group may not be effective for ensuring long term sustainability.** Since 2006, the water tariff for the private consumers had been frozen by the Government in contradiction to the lease agreement prescribing annual water price adjustments in line with the inflation.<sup>2</sup> In contrast, while the tariffs increased for the public sector entities, the exploding bills were only partially paid by the government. As a result, arrears often accumulated and as a consequence, there were limited resources available to fund the sector's major financial needs. In the absence of steady tariff increases, the sector risks a declining quality of the infrastructure and services.
  
4. **Determining the right threshold of the beneficiary contribution is vital for the successful delivery of peri-urban sanitation services.** The peri-urban sanitation component faced serious start-up problems because the required household contribution was perceived to be too high, and the large-scale NGOs involved in outreach activities were not able to communicate and work efficiently with the beneficiaries. Modification of beneficiary contribution from 50 to 25 percent of the facility cost, and shifting of outreach responsibilities to community-based organizations increased beneficiary participation in the on-site and the semi-collective sanitation program.
  
5. **Complex management and institutional arrangements lead to implementation delays.** The procedures for Global Partnership for Output-Based Aid (GPOBA) were complex and implementation arrangements were cumbersome. Obstacles to rapid project implementation were not promptly identified and removed during trust fund negotiation and processing. The payment schedules mandated by the GPOBA approach were overly complex, and the Project Team took a long time to get used to the Trust Fund procedures, leading to delays in launching and implementing the project, and in proper establishment of sustainability enhancing measures. The lesson from this

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2. The mission was informed that the Government finally decided to increase the tariffs in September 2014.

experience is the importance of identifying the institutional issues early and simplifying the management and implementation arrangements to avoid delays in project implementation. It is also important to weigh the transaction costs associated with the funding size of GPOBA, and the institutional viability of such an approach compared to a larger project scale initiative like the approach taken in the Long-Term Water Sector Project that is more integrated with the government program.

Caroline Heider  
Director-General  
Evaluation

# 1. Background and Context

## Sector Background

1.1 Senegal's water and sanitation sector was run by a private French company (*La Générale des Eaux*) until the country gained its independence in 1960. The company was nationalized in 1971 whereby the assets were sold to a newly created state-owned utility (*Société Nationale d'Exploitation des Eaux du Sénégal* - SONEES). This utility was to be in charge of supplying water and sanitation services while the State was responsible for major capital expenditures and contracting for extension and major rehabilitation work. The utility supplied water to the capital city (Dakar with 30 percent of the total population), and 41 other secondary towns, but was soon plagued with problems arising from lack of autonomy from government, chronic water shortages in the capital city, and extreme inability to maintain and strengthen its assets.

1.2 Despite these difficulties, in 1983, the SONEES was given the responsibility for all aspects of water and sanitation services in urban areas. However, continued low tariffs, combined with difficulties in recovering unpaid bills from public and semi-public sectors, hampered SONEES' ability to function efficiently. By 1995, Dakar and other urban centers were experiencing serious water shortages and insufficient sanitation facilities, with only 54 percent of the urban population having access to water supply.

1.3 In the mid-1990s, the Government initiated a reform program for the urban water supply and sanitation sector whose goal was to improve the utility's autonomy and capability to deliver adequate water and sanitation services to urban and peri-urban populations. Accordingly, three new entities were created in 1995 to oversee the production, distribution, and the sanitation in urban areas: (i) the SONES (*Société Nationale des Eaux du Sénégal*), a State Asset Holding Company in charge of developing the water infrastructure in urban areas; (ii) the SDE (*La Sénégalaise des Eaux*), a private entity in charge of delivery of water services in urban areas; and (iii) the ONAS (*Office National d'Assainissement du Sénégal*), a public industrial and commercial entity aimed to oversee the management of sanitation. The institutional framework was underpinned by a financial model aimed at achieving a financial "equilibrium" or long-term financial sustainability of SONES.

1.4 In 1996, a ten-year lease for the period 1996-2006 was signed between the Government and the three stakeholders: (i) a concession contract between the Government and SONES to oversee the investments and manage all urban water assets; (ii) an affermage contract between the Government, SONES, and the SDE with regard to the production and distribution of water in urban areas; and (iii) two performance contracts, one between the Government and SONES, and another between SONES and SDE.

1.5 This institutional framework was supported by the Bank through the Senegal Water Project (1995-2004) costing US\$290 million, which was co-financed by other donors including the French Agency for Development, and the European Investment

Bank. Key achievements of this project were: (i) the creation of a public-private partnership framework driven by the basic concepts of accountability, autonomy, and incentives; (ii) improved coverage of water services in Dakar region, from 79 percent in 1996 to 87 percent in 2003 and reduction in unaccounted for water from 31.5 percent in 1996 to 20 percent in 2003; (iii) adoption of adequate monitoring and regulatory tools; and (iv) a new tariff structure and annual tariff increase which strengthened the financial viability of the water sector.

## **Remaining Challenges**

1.6 Despite the significant investments and reforms that were implemented under the Bank-supported Senegal Water Project, the sector continued to face sustainability issues. Although water distribution, operation, and cost recovery exhibited significant improvement, the water resources were not sustainable since the water was pumped from over-exploited fossil aquifers, and some of these fossil aquifers were contaminated by salt water intrusion and therefore had to be closed. The increasing demand was not likely to be met with the existing production volume due to the ever growing Dakar population and that of other expanding urban centers. In addition, billing arrears were increasing to about US\$ 4.5 million or five percent of the annual turnover of the sector in June 2003, reflecting the worsening financial viability for the sector.

1.7 The sewerage facilities were aging and needed to be replaced or repaired. Construction was concentrated in the administrative and commercial section of Dakar, with limited sewerage connection to the rest of the city. Moreover, the leakage of untreated water into open spaces increased pollution. According to the 1996 willingness-to-pay study, 64 percent of the population was not satisfied with their sanitation facilities, rating them from fair (44 percent) to poor (20 percent). With regards to on-site sanitation, there was a limited technology menu and neither hygiene education nor a demand-driven approach was tested. The sector's poor management capacity at the utility and community-level made it difficult also to increase sanitation coverage especially in Greater Dakar and peri-urban areas and to carry out proper maintenance.

1.8 Concerning drainage, existing facilities were often clogged and inadequately maintained, and therefore constituted breeding grounds for mosquitoes and snails, respectively responsible for malaria and bilharzia. The main sanitation problem was the high level of environment pollution, arising from weak capacity of the installed wastewater treatment plant and clogged drainage facilities, as those facilities were old and needed to be replaced or rehabilitated. The key constraint to expanding the sewerage system was the high costs for connecting to the sewerage system, which were beyond the financial capacity of most low-income households.

1.9 To respond to these challenges faced by the sector, the Bank started preparing two projects; (i) the Long Term Water Sector Project; and (ii) the Access to On-Site Sanitation Services Through Output-Based Aid Scheme. The intention was to consolidate the results achieved during the water and sanitation reform agenda supported by the previous projects funded by the Bank and the donor community.



## 2. Long Term Water Sector Project (2001-2009)

### Objectives, Design, and Relevance

#### OBJECTIVES

2.1 The objectives of the project are to assist the borrower in achieving sustainable improvements in the delivery of urban water and sanitation services in unserved and low-income areas of Dakar and secondary cities by: (i) supporting further institutional and regulatory reforms and policy enhancements, thus consolidating and building on achievements of the then ongoing Water Sector Project; (ii) removing major water production and distribution capacity constraints with the help of private sector financing; (iii) supporting the rehabilitation of the sewerage networks and increasing the waste water treatment capacity; (iv) implementing a community-based program for promoting and developing on-site and semi-collective sanitation services; and (v) supporting the development of capacities of sector agencies, communities and households [Development Credit Agreement, Schedule 2, para 1].

2.2 Project Development Objective statements in the Development Credit Agreement and in the Project Appraisal Document were identical, with a slight difference under the fourth activity, whereby the wording in the Development Credit Agreement emphasized the promotion of on-site and semi-collective sanitation services.

#### COMPONENTS

2.3 The project comprised seven components as summarized below:

(i) **Urban Water Supply for Dakar (appraisal estimate: US\$117.62 million, actual cost: US\$122.42 million).** This component was intended to increase production and transmission capacity and the number of water service connections; to restructure Dakar's water distribution network; and to increase water storage capacity.

(ii) **Urban Water Supply for Secondary Cities (appraisal estimate: US\$11.69 million, actual cost: US\$13.58 million).** This component aimed to expand and reinforce the distribution networks in Kaolack, St. Louis and Tambacounda as well as the production and storage capacity; and provide water service connections and standpipes in those centers.

(iii) **Sewerage and Drainage (appraisal estimate: US\$70.17 million, actual cost: US\$58.92 million).** This component was to map the sewerage network in Dakar; provide sewerage connections in Dakar, St. Louis, Louga, and Kaolack; rehabilitate and expand treatment facilities in Dakar and the same secondary towns; and improve drainage facilities in Triangle Sud in Dakar.

(iv) **Peri-urban Sanitation Subprojects (appraisal estimate: US\$29.28 million, actual cost: US\$39.09 million).** This component was intended to provide grants to communities and households in the peri-urban areas of Dakar to improve their sanitation facilities

through the construction of household latrines; and the construction of semi-collective sanitation systems.

(v) **Water Resources Management (appraisal estimate: US\$8.57 million, actual cost: US\$9.94 million).** The goal of this component was to provide technical assistance to the regulatory functions of water central administration; develop monitoring systems for water quality and groundwater abstraction; construct small water retention structures; and rehabilitate dykes and gates around the Guiers Lake.

(vi) **Environmental Management (appraisal estimate: US\$1.55 million, actual cost: 1.78 million).** This component was to support the development and execution of the Lake Management Plan; the establishment of the Environmental Mitigation Committee and the Lake Management Commission; the rehabilitation of ecological conditions in the Ndiael; and the preparation of rehabilitation studies for the Baie de Hann.

(vii) **Institutional Strengthening and Capacity Building (appraisal estimate: US\$8 million, actual cost: US\$8.21 million).** This component was intended to increase the efficiency of public entities involved in the water and sewerage sector by strengthening their capacity for planning and management; restructure the sector's institutional and regulatory framework; and develop the capacity of small private and community enterprises to respond to the demand for services in urban and peri-urban areas.

## RELEVANCE

2.4 Relevance of the objectives is rated as **high**. The objectives were aligned with the Bank's 1998 Country Assistance Strategy which aimed at reducing poverty and improving the living conditions of the population, including the creation of gainful employment opportunities. This was based on a two-pronged approach: (i) supporting policies and programs aimed at more rapid and sustained growth; and (ii) ensuring social sustainability of the programs. The project aimed at removing the infrastructure bottleneck for growth, and at ensuring social sustainability of basic services in urban, peri-urban and small town areas through a demand-responsive approach and a socially-acceptable cost recovery policy. The 2007 Country Assistance Strategy continued to focus on improving the quality of life through better management of natural resources and access to water and sanitation through (i) reducing environment health-related diseases in children; (ii) improving the implementation of environmental regulations with a focus on the highly polluted areas of Dakar as the result of uncontrolled industrial activities; and (iii) reaching Millennium Development Goals in terms of access to water and sanitation services by 2015, with a special focus on rural areas. Project objectives remain relevant to the current Country Partnership Strategy (2013-2017) whose second pillar, improving service delivery, includes increased access to water and sanitation service in selected rural and urban areas.

2.5 The objectives are also consistent with the Government's key policy papers. In its 2000 Letter of Sector Development Policy, the Government reiterated its commitment to the water sector reforms and to the operational and financial autonomy of the sector. The urban water sub-sector aimed to reach financial equilibrium, while the financial viability of the service providers had to be strengthened, and an institutional study was to be

carried out to improve the legal and regulatory framework. The Government intended to initiate the development of a national urban sanitation strategy involving all stakeholders, which would aim to achieve: (i) demand-responsive and participatory approaches to the delivery of services that would reach peri-urban households; (ii) maintaining the actual capacity of the sewerage system by rehabilitating the facilities; (iii) increasing the connection rate; and (iv) reducing pollution loads by expanding waste water and septage treatment capacity. Finally, the Government emphasized the need to deepen the integrated management of water resources, to provide the department in charge with adequate financial and organizational means, and to improve the environmental sustainability of the sector.<sup>3</sup>

2.6 The objectives remained relevant throughout the project implementation period as the 2005 Government Policy letter continued to: (i) support effective implementation of the management plan and institutional framework for the resource management of the Lake Guiers water; (ii) further strengthen the financial, human, and technical resources of the Directorate in charge of water resources planning to enable it play its role of water resource monitoring, enforcement and control; (iii) move ahead with the reform agenda on the urban water and sanitation front with the implementation of the "second generation" reforms and the strengthening of the technical infrastructure to cope with rising demand, improve and extend the quality of service; (iv) preserve the financial equilibrium in the urban water sector reached in December 2003; and (v) the implementation of targeted actions to fight against poverty.

2.7 Relevance of design is rated as **substantial** because of a strong results chain linking objectives and expected outcomes with appropriate components and outputs. The objective of improving the delivery of urban water services was to be achieved through the two urban water supply components and related investments in removing the constraints, and in targeting Dakar and the secondary cities, as well as the water resources management component. The objective of improving the delivery of sanitation services was to be achieved through peri-urban sanitation component and sewerage and drainage components. The project also included institutional strengthening, capacity building, and environmental management activities to enhance the sustainability of the improvements made in both water and sanitation services.

## MONITORING AND EVALUATION

2.8 **Design:** Project Monitoring and Evaluation was facilitated by the quality of the results matrix that had quantifiable indicators, as well as the good collaboration between the teams of the Bank and the Borrower. Monitoring and evaluation arrangements included the following: (i) the Project Coordination Unit (PCU) was tasked to collect and consolidate information from the various executing agencies, and to prepare monitoring and evaluation reports and indicators, (ii) supervision missions by IDA and other donors had to conduct explicit assessments of the action plans supported by the project, including field visits to closely monitor development impacts, and (iii) annual reviews of

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3. Letter of Sector Development Policy , Water and Sanitation, Dakar, 2000.

the outcome of the financial model of the urban water supply subsector had to be carried out jointly by the key domestic stakeholders as they determined annual tariff increases. Finally, the PCU was tasked to organize a mid-term review with all stakeholders thirty months after the credit effectiveness.

**2.9 Implementation and Utilization:** The PCU effectively carried out monitoring and reporting. Results of these activities triggered detailed recommendations to the Government and executing agencies. Beyond monitoring project performances, the project results were used in the preparation of the Bank's new project: the *National Water and Sanitation Millennium Program* prepared to achieve the Millennium Development Goals. Finally, the updated financial model was used as a reference in the negotiations of the extension of the lease contract.

## **Implementation**

2.10 The project was approved on March 6, 2001 and closed on June 30, 2009, one and a half year later than the original schedule to allow time for the additional works to be executed.

### **IMPLEMENTATION EXPERIENCE**

2.11 The PCU, located in the Ministry of Water and Sanitation and set up in 1998 to oversee almost all donor-financed projects in the sector, was selected to manage the Long-Term Water Sector Project. SONES, the asset holding company, and SDE, the private operator implemented the water components, and ONAS, the national sanitation office, oversaw the implementation of the sanitation components with help from other public agencies. The beneficiaries developed their subprojects with the assistance of local non-government organizations and community-based organizations. The Management and planning unit for water resources recruited consultants to carry out studies and training under the water resources management component, while the Ministry of Environment managed the components and activities supporting the environment management plan.

2.12 ONAS and SONES carried out the financial management of their respective components, while the PCU was in charge of project financial management on behalf of other implementing units and retained the financial accountability for the project. A project execution manual, which provided the necessary guidelines for all implementing agencies, was prepared and reviewed with the Government during the appraisal mission, and was adhered to during project implementation.

### **PROJECT COSTS**

2.13 The actual project cost was US\$254.61 million, only slightly higher than the appraisal estimate of US\$248.4 million. Parallel funding was provided by bilateral and multilateral donors, and other private commercial sources as detailed in the table 1 below.

*Table 1: Project Financing*

<b>Donors/Creditors</b>	<b>Planned in \$ million</b>	<b>Actual in US\$ million</b>
International Development Agency	125.00	146.21
African Development Bank	16.62	16.15
European Investment Bank	17.22	14.82
Agence Française de Développement	29.20	7.69
Kreditanstalt für Wiederaufbau	12.43	13.75
Nordic Development Fund	16.91	20.16
Swedish International Development Agency	0.18	-
United Nations Development Program	0.10	-
Private commercial sources	18.00	21.72
Borrower	2.48	7.42
Société Nationale des Eaux du Sénégal	1,60	1.71
Local communities	8.70	4.98
Project Preparation Fund refinancing	1.50	0.00
<b>Total</b>	<b>248.4</b>	<b>254.61</b>

*Source:* ICR

2.14 The IDA credit increased from US\$125.00 million, estimated at appraisal, to US\$146.21 million, due principally to West African *Communauté Financière d'Afrique* Franc (XOF) appreciation against the dollar, and an increase in Borrower contribution from US\$2.48 million to US\$7.42 million. In addition SONES contributed US\$1.71 million against US\$1.60 million planned; conversely local communities contributed US\$4.98 million or 57 percent of the planned US\$8.7 million.

2.15 A mid-term review in January 2005 made recommendations to re-allocate project savings from urban water and the drainage and sewerage components to finance additional works for Dakar water production systems. This included the doubling of the water treatment plant (65,000 m<sup>3</sup>/d) and the expansion of the list of secondary urban centers eligible for water works. In addition, several activities had to be modified to take into account the actual availability of parallel funding from other sources. These changes did not require Board approval and were authorized by the Regional Vice President.

#### **SAFEGUARDS AND FIDUCIARY COMPLIANCE**

2.16 The project was classified as a Category A under OB/BP 4.01- (Environment Assessment) requiring a full assessment of social and environment project impacts. An Environmental Assessment was completed in May 1999 and identified three major project impacts on the environment: (i) positive impacts on underground water resources with a reduction of exploitation of the most fragile among them; (ii) increased use of water from the Guiers Lake which would require careful management of the lake as well as consideration of social and environmental issues; and (iii) positive improvements of hygiene conditions and health of populations in the greater Dakar area, following increased access to water and sanitation services and hygiene education.

2.17 An environmental management plan was agreed upon between the Bank and the Government, and an Environmental Mitigation Monitoring committee was created and tasked to monitor the implementation of the Environmental Management Plan, and the performance of the private operator in complying with the environmental requirements. Ex-post assessments of the execution of the Environmental Management Plan found that mitigation measures were carried out and that social safeguards were complied with. Mitigation measures related to the environmental impact of the wastewater generated by the project were also efficient.

2.18 A review of the financial management systems of project implementing entities was carried out before project launch and concluded (i) that SONES and the PCU met the Bank's minimum financial requirements, but required improvements in budget monitoring; and (ii) that ONAS did not have in place an adequate project financial management system that could provide accurate and timely Project Management Reports. As a condition of effectiveness, ONAS had to reorganize its financial and accounting department and establish a satisfactory financial management system, and the PCU had to hire a financial management specialist.

2.19 Performance of the accounting, financial management, and procurement systems was overall satisfactory during project implementation as confirmed by ex-post Bank assessments completed in 2009.

## **Achievement of Objectives**

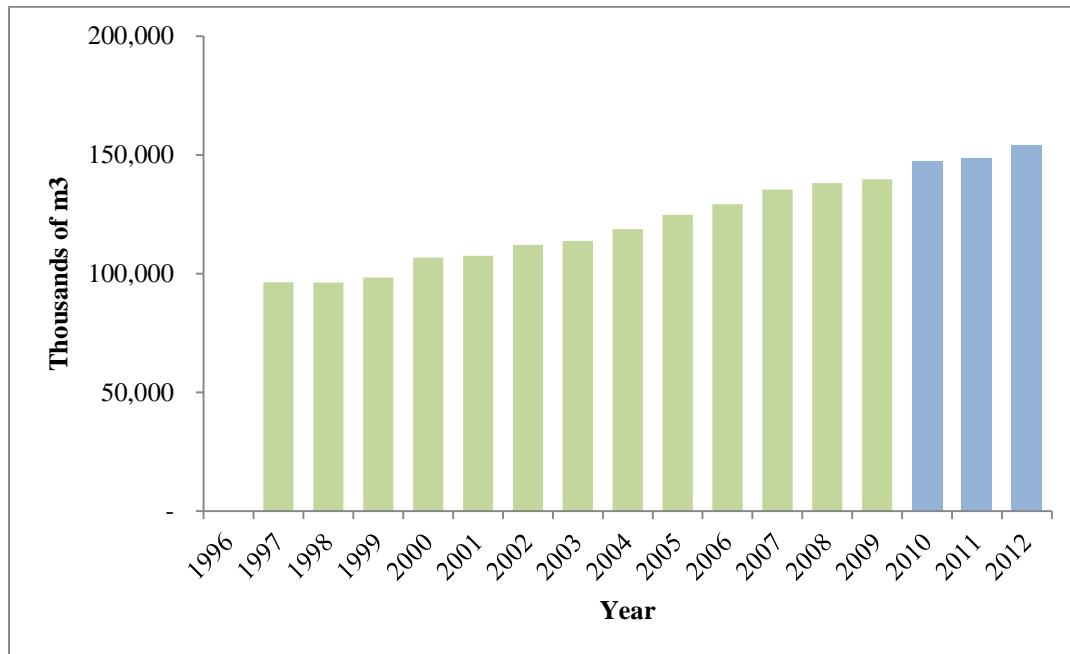
### **Objective 1: To Assist The Borrower in Achieving Sustainable Improvements in the Delivery Of Water Services in Unserved and Low Income Areas Of Dakar and Secondary Cities. Rated *Substantial***

2.20 To achieve this objective, the project intended to improve the coverage, reliability, quality, affordability, sustainability of water supply services in unserved and low income areas of Dakar and secondary cities through: (i) removing major water production and distribution capacity constraints with the help of private sector financing, (ii) supporting further institutional and regulatory reforms and policy enhancements, and (iii) supporting the development of capacities of sector agencies.

## **OUTPUTS**

### **(i) Removal of Major Constraints to Water Production and Distribution Capacity**

2.21 The project helped to double the water treatment capacity at the Keur Momar Sarr plant (to 65,000 m<sup>3</sup>/day), constructed a 70-km pipe and replaced 22-km of transmission pipes, rehabilitated a 5,000 m<sup>3</sup> reservoir, and extended the distribution networks by 46 km. The 26 percent increase in total production volume over the period 2001-07 continued to increase after project closure as illustrated by the blue columns in the figure 1 below.

**Figure 1: The Volume of Water Production Increased<sup>4</sup>**

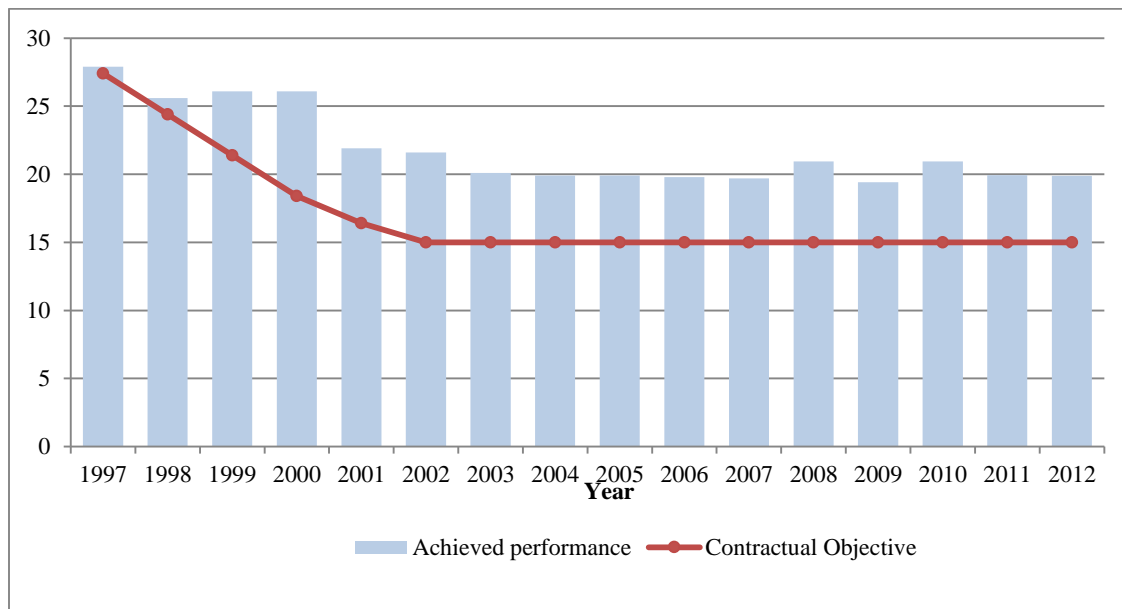
*Source:* SDE

2.22 The project helped extend the distribution networks by 343 km in Tambacounda, Saint-Louis, Kolda, Bambey and Mbacké. As a result, 46,546 social connections and 70 standpipes in Dakar and 51,174 connections and 97 standpipes were constructed in the secondary cities.

2.23 Rehabilitation and replacements of networks, connections and meters have contributed to improved performance of the water distribution network in Dakar.<sup>5</sup> Unaccounted-for-water decreased steadily from 27.4 percent in 1997 to the lowest level of 19.4 percent in 2009 (see figure 2 below). Despite the improvements made, the contractual objective has not been met mainly because of the gap between the needs of replacement investment and maintenance, and the implementation of planned investments.

4. The graph shows the evolution of the total water production supervised by SDE, which comprises the Keur Momar Sarr plant, the Nghnit plant, and all boreholes and pumping stations.

5. Unaccounted-for-water reflects the percentage of the water that is not accounted for in comparison to the water produced in a year. When water is produced, a portion is not accounted for or paid for, because of water leak during distribution, or poor billing and collection. In Senegal the performance target was to reduce it to 15 percent, but current performance is around 20 percent.

**Figure 2: Unaccounted-for-Water (percent)**

Source: SDE

### **(ii) Institutional and Regulatory Reforms and Policy Enhancements**

2.24 The Government's Water and Sanitation Policy Document was adopted by the Government in 2005, and was endorsed by the donor community. The studies supported under the project were completed in the context of the Government's Water and Sanitation Millennium Program, and the results led to the enactment of the Water and Sanitation Public Service Act that was adopted in 2008.

2.25 Performance contracts, which initially only applied to the *Sénégalaise des Eaux* (SDE), were extended to ONAS and SONES. The relationship between partners in the water sector has evolved over time, and at the time of IEG mission, a new extension of five years was being agreed upon.

### **(iii) Development of Sector Agency Capacity**

2.26 The project supported a series of studies, training and communication activities aimed to better understand and manage the water and sanitation sector in Senegal. The key studies were on; (i) decision-making instruments in support of the integration of water supply systems to be used by SONES; (ii) medium-term expenditure framework for rural water and sanitation; and (iii) the management of storm water.

2.27 Training supported under the project were along the following themes; (i) audit of projects, advanced financial management, hydraulic pumping and distribution, training on techniques for water desalination of sea water; (ii) accounting and procurement; (iii) management of human resources and payroll; and (iv) optimization of energy consumption in water factories and maintenance of electrical installations in water plants.



2.28 Three-quarters of the standpipes installed by the project were managed by individual private operators, while the remainder was managed according to a public or associative model. In some cases, managers were employees of individuals or associations and received remuneration.

2.29 Communication activities covered: (i) promotion of sewer connections, management and conservation of water resources and investment; and (ii) production of leaflets, pamphlets, films, TV and radio broadcasts related to the changes occurring in the water and sanitation sector.

## **OUTCOMES**

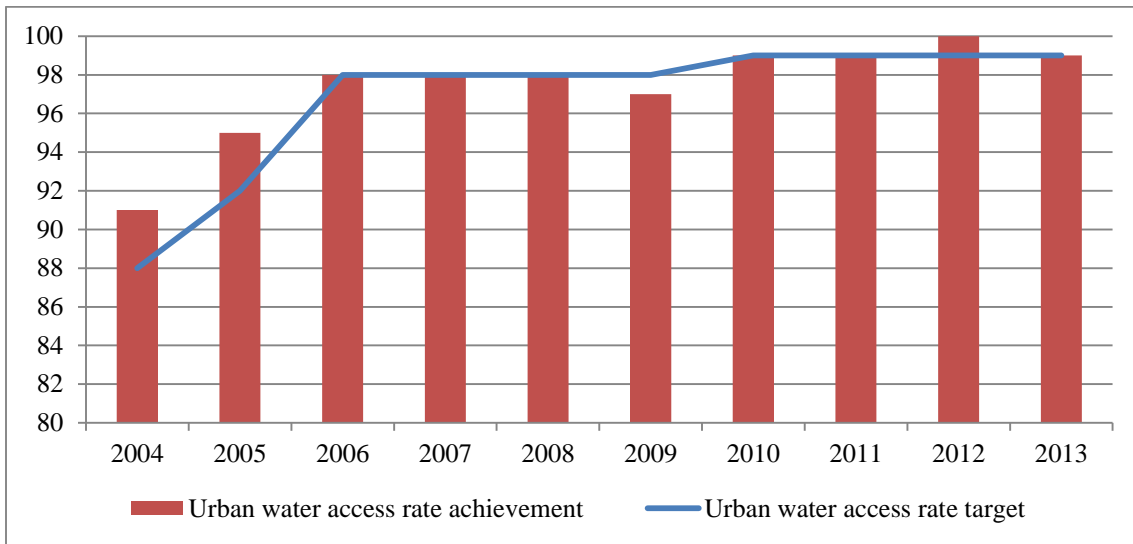
2.30 Project outcomes are assessed against the set objectives, using the following key outcome indicators; coverage, reliability, quality, affordability, and sustainability of water supply services in unserved and low income areas of Dakar and secondary cities.

- **Coverage**

2.31 Coverage of population with improved access to water in urban areas increased from 90 percent in 2001 to 98 percent in 2008 at the end of the project, and to 99 percent in 2014 (see figure 3). The program did not distinguish the unserved population from the rest, so it is difficult to assess whether the new connections targeted the unserved population.

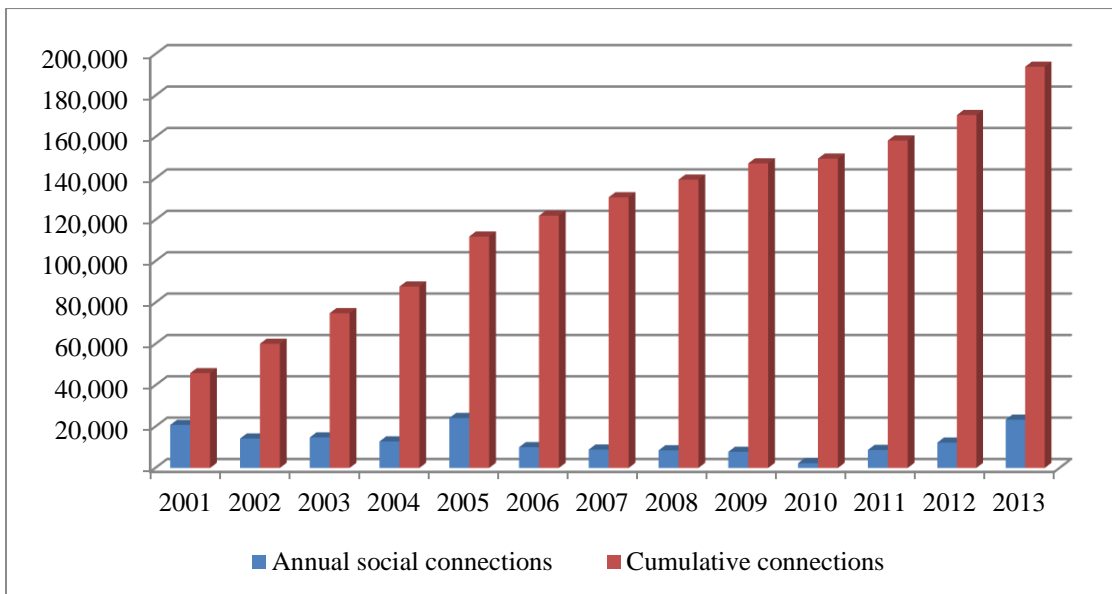
2.32 In terms of the number of people, 1,415,000 (target 1,000,000) gained improved access and most (96.5 percent) of these people had private connections. In Dakar, 725,000 people gained access to water connections but the target of reaching 800,000 people was not met because the appraisal forecasts overestimated the population growth. For other urban areas, the target of 200,000 people was exceeded by more than three times, reaching 690,000 people.

2.33 The total number of beneficiaries increased by 26 percent during the project period, between 2004 and 2009 and the trend was sustained after project closing as it had increased by 35 percent by end 2013 compared to the 2004 situation.

**Figure 3: Urban water access rate (percent)**

Source: SONES

2.34 In Dakar, social connections which benefitted low-income households increased threefold from 50,000 in 2001 to 150,000 at project closure in 2009. The growth continued beyond project closure as illustrated in figure 4 below, and by the end of 2013, there were more than 190,000 social connections.

**Figure 4: Social connections (number of households)**

Source: SONES

2.35 In the peri-urban areas of Dakar and other secondary centers, 98,000 people participated in the social connection program. This activity accounted for about 69 percent of all project beneficiaries. The project's social connection program subsidized

the connection cost at 80 percent on a first-come first served basis. All households in secondary areas qualified for the social connection program, while in Dakar, only low-income neighborhoods were qualified. Social connections were implemented primarily in Dakar (44 percent of total) and Thies (19 percent of total), but were also promoted in secondary cities like Kaolack and St-Louis (9 percent of total for each), as well as in the smaller cities of Louga (6 percent), Ziguinchor (5 percent), Diuorbel (5 percent), and Tamba (3 percent).

- **Reliability**

2.36 There was significant progress towards eliminating intermittent supply of water services in the greater Dakar area. Currently, 99 percent of the population is benefiting from 24-hour a day, 7 days a week water supply service in the capital city of Dakar. This is a significant improvement compared to 80.2 percent at the start of the previous Bank-funded Senegal Water Project (1995-2004), and the baseline of 91 percent at the start of the Long Term Water Sector Project.

- **Quality**

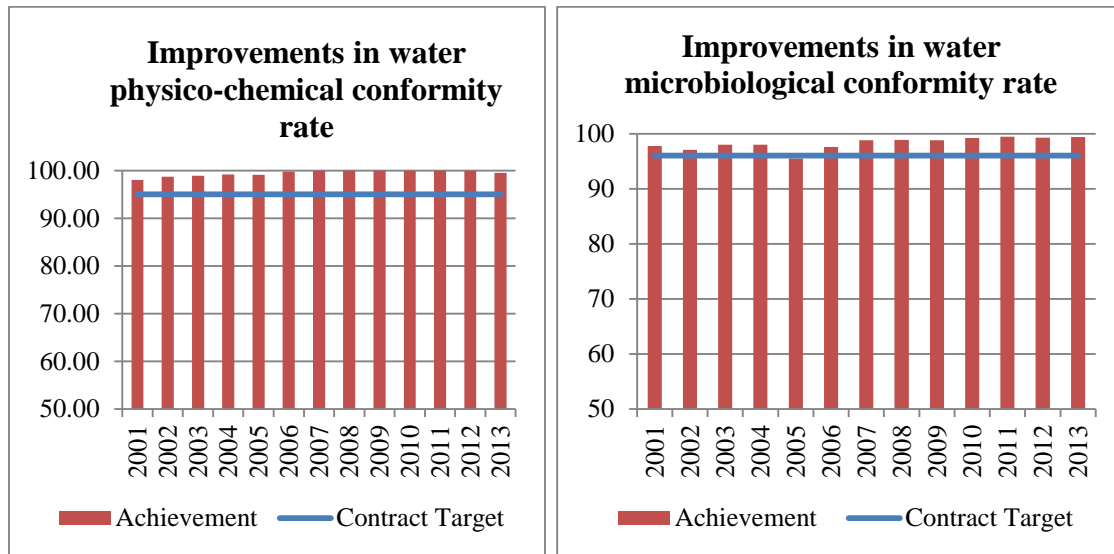
2.37 In addition to reliability, the quality of water distributed increased steadily during project implementation and beyond. As illustrated in figure 5 below, water physico-chemical and microbiological conformity rates remained above the contractual norm for the entire period of project life.

2.38 Water quality in the suburbs of Dakar was also confirmed to be of high level by the results of a survey conducted annually by SDE. The beneficiaries reported an improvement in water quality from a satisfactory rate of 65 percent of respondents in 2008 to 97 percent in 2013. Accordingly, the number of claims on water quality issues filed by the customers has also been decreasing over time.

- **Affordability**

2.39 Senegal has adopted an increasing block tariff system, starting with a subsidized “social tariff” for those consuming lower quantities of water (up to 20 m<sup>3</sup> in 60 days), a regular tariff for those consuming between 21 and 100 m<sup>3</sup>, and finally a dissuasive tariff for those consuming above 100 m<sup>3</sup>. Starting 2002, the regular and dissuasive tariffs were changed to stand at between 21 and 40 m<sup>3</sup>, and above 40m<sup>3</sup> respectively. This block tariff system was designed to allow cross-subsidization from those consumers in the higher tariff blocks to the lower income category of consumers. There is also a specific tariff category for industry and government clients, with the Government water tariff averaging more than three times the social tariff in 2014.

2.40 The IEG mission could not find any data that showed the evolution of affordability, based on the customers’ actual disposable income compared to the baseline level. However, the project helped enhance the affordability of water services for low income categories by providing social connections which subsidized 80 percent of the total connection cost on a first-come first-served basis. Affordability did not worsen over time because the Government froze the water tariffs during 2004-2014.

**Figure 5: Water quality – water samples meeting contractual norms (percent)**

- **Sustainability**

2.41 Infrastructure funded by the project contributed to increased water production and distribution, and reduction in unaccounted for water. However, lack of adequate funding has contributed to the delay by SONES in stepping up the contractual program of rehabilitating the water treatment plants and distribution networks.<sup>6</sup> In order to improve or at least sustain the level of unaccounted for water at 20 percent, there is an immediate need to replace 12,000 connections, as well as 60 kilometers of 100 mm pipes. The amendments to the lease agreement in 2013 identified SDE as the key institution to take care of the above replacement activities.

2.42 Water tariffs were adjusted annually during the period 1997-2003, and this led to improved financial situation of the three water and sanitation entities, SONES, ONAS and SDE. From 2004 however, the tariff for the private consumer was frozen for political reasons, while the tariff for the public sector was adjusted intermittently. The frozen tariff did not only benefit the low income population, but also the middle and high income groups. There were insufficient tariff revenues from the private consumers, and the arrears from the public sector accumulated, even though they were occasionally cleared. While SONES did manage to maintain a positive cash balance throughout the implementation period, covering the operations maintenance expenses, debt service, and capital expenditures, the frozen tariff strained the financial situation for both SONES and ONAS. SDE's financial situation was not affected as badly because its expenses, including the fees paid to the asset holding companies, remained stable. The long overdue tariff increase that finally took place in September 2014 (see box 1 below) is likely to have some positive impact on the sector's financial situation. However, the Government subsidy remains built into the water tariffs system, as the tariff for the public sector is on average more than three times larger than the tariff for the private consumers.

6. SDE, Annual Report, 2013.

### **Box 1: Salient features of the new water tariff issued by the Government in September 2014**

- After more than a decade of frozen water price, a new tariff increase for the private consumers became effective in September 2014.
- There was a 4 percent increase on the social tariff and a 9 percent increase on all other categories of consumers. This will not only contribute to the financial equilibrium for the sector, but also reduce the Government's water bills by 4.5%, representing an annual saving of 865 million XOF.
- The sanitation surcharge (collected through the water bill in urban towns equipped with sewerage systems) will increase by 23 percent (from 52.25 XOF/m<sup>3</sup> to 64.27 XOF/m<sup>3</sup>) to allow ONAS to cover its operation costs without asking for a 1.2 billion XOF increase in subsidy.
- The Government subsidy to the private consumer will continue to be built in the tariff structure, and this will continue to have impact on the public finance, and the amount of arrears that the treasury will have to clear each fiscal year.

*Source:* Ministry of Water and Sanitation, Senegal

### **IMPACTS**

2.43 A Government report prepared two years before project completion in 2007 found that the vast majority (79 percent) of households acknowledged positive impacts related to the water reform.<sup>7</sup> These impacts were primarily the availability of water in the household and the neighborhood (respectively 94 percent and 78 percent), shorter time in fetching water (81 percent and 54 percent, respectively), lower water costs for households (40 percent), and at the neighborhood level (15 percent), better hygiene (32 percent for households) and the end of water-sharing conflicts at the neighborhood level (15 percent).

2.44 The health situation in the districts surveyed had also improved significantly, from the status in 1995 when the water-related diseases were the leading causes of morbidity. Due to the high subsidy for house connections, the proportion of households using the standpipe decreased from 17.1 percent to 8.2 percent during the same period, and the use of open wells were also down from 3.9 percent to 1 percent. Some minor negative impacts raised by the beneficiaries were related to poor water quality, high water tariffs, inadequate billing system, and the disappearance or bad location of some standpipes.

2.45 The IEG mission found that the improvements in water quality and customer satisfaction have been maintained over time. According to the 2013 SDE's annual report, the water quality was as follows: (i) the bacteriological quality compliance rate reached 99 percent against a contractual rate of 96 percent; (ii) the physico-chemical quality complied was 99 percent against a contractual rate of 95 percent; (iii) the customer satisfaction rate in the suburbs of Dakar reached 97 percent in 2013; and (iv) the presence of chlorine residual in the network was 99 percent. The improved quality perceived by

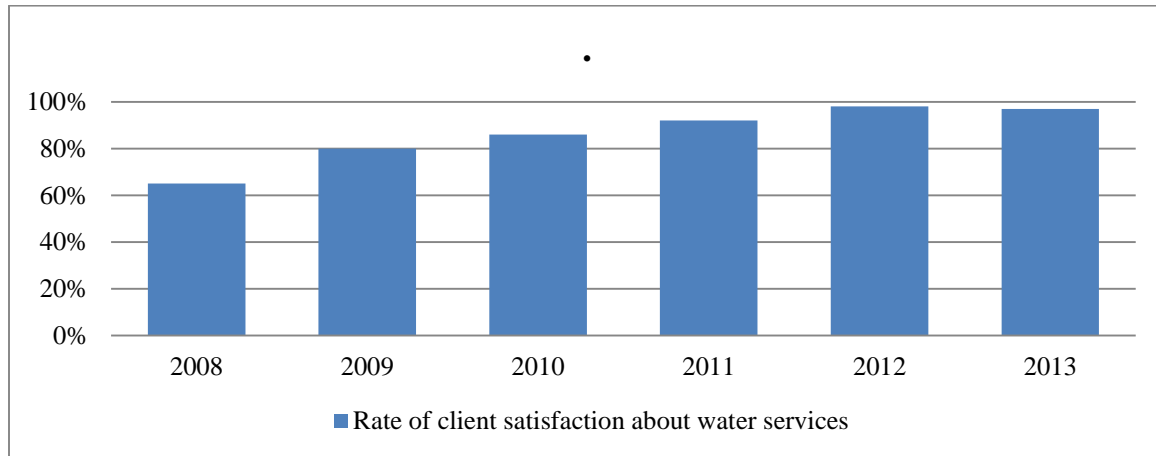
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7. Etude sur l'impact de la réforme du secteur de l'hydraulique urbaine sur l'alimentation en eau potable des populations défavorisées des quartiers périphériques de Dakar, Dakar, June 2007.

customers was confirmed by the observed decline in the number of complaints relating to the quality of water.

2.46 Figure 6 shows the trend of satisfaction of the customer panel in the suburbs of Dakar over the period 2008-2013, derived from an annual survey conducted by SDE on client satisfaction.

**Figure 6: Evolution of client satisfaction in the Dakar suburbs (2008-13) (% of surveyed clients)**



Source: SDE

**Objective 2: To assist the Borrower in achieving Sustainable Improvements in the Delivery of Sanitation Services in Unserved and Low Income Areas of Dakar and Secondary Cities. Rated *Modest***

2.47 The project aimed to improve the coverage and sustainability of sanitation services in low income areas of Dakar and secondary cities through: (i) supporting the rehabilitation of sewerage networks and increasing the waste water treatment capacity; (ii) implementing a community-based program for promoting and developing of onsite and semi-collective sanitation services; (iii) supporting further institutional and regulatory reforms and policy enhancements; and (iv) supporting the development of capacities of sector agencies, communities and households.

## OUTPUTS

### (i) Rehabilitation of Sewerage Networks and Increasing the Waste Water Treatment Capacity

2.48 At project completion, the sewerage network was extended by 130 km, and new 9,194 new sewerage connections had been made in Dakar, against 8,800 planned, and 5,256 connections had been made in the secondary town against 5,000 planned at project appraisal. However, the increased water volume which was materialized through investments in water production and distribution led to major pressure on the existing sewerage infrastructure.

2.49 The rate of wastewater treatment, which is the ratio between the volumes of waste water treated, and the volume of waste water collected in a given perimeter, increased substantially from 19 percent in 2004 and reached 49 percent in 2013, but remained below the contractual target of 53 percent set by the Government.

2.50 The “ratio of depollution”, which compares the organic pollution eliminated by the wastewater treatment, against the total pollution generated by residents and collected by the public sewerage system, also increased steadily, from 13 percent in 2004 to reach 37 percent in 2013 (slightly below the contractual target of 38 percent). While wastewater performance fell below the contractual targets, its level exceeds the level achieved elsewhere in sub-Saharan Africa.

2.51 The number of additional people with access to sewerage connection increased by 144,000, exceeding the target of 140,000. There were 92,000 beneficiaries in Dakar (target 90,000) and 52,000 in secondary urban areas (target 50,000). The additional volume of sewage collected and treated in project areas was 11,745 m<sup>3</sup>/day (target 10,000 m<sup>3</sup>/day). The project also provided a sustainable disposal solution for the effluents collected from septic tanks with the construction and successful operation of septage treatment plants.

#### **(ii) Community-Based Program for Promoting and Developing Onsite and Semi-Collective Sanitation Services**

2.52 There was construction or rehabilitation of 66,000 individual sanitation facilities (target of 60,000), 142 semi-collective equivalent systems (target of 160), 16 public latrines, 77 school sanitation blocks (target of 70), and 3 vehicles to empty domestic sewerage sludge in Dakar. Construction of semi-collective systems fell short of the target, because of the specific nature of the facility that requires the support of participants and the set-up of an adequate management scheme.

2.53 Three activities were cancelled: (i) a contract for the construction of ocean outfall at Camberene treatment plant was terminated early, and the works were completed with donor’s support (French Development Agency and African Development Bank) and Government’s budget; (ii) the construction of 3 septage treatment facilities could not be completed within project deadline, and were planned to be funded by the successor project; and (iii) the construction of drainage infrastructure at Triangle Sud in Dakar was taken over by the Government, and work was duly completed thereafter.

#### **(iii) Further Institutional and Regulatory Reforms and Policy Enhancements**

2.54 The following four institutions were either created or strengthened for on-site and semi-collective systems:

- **National Office of Urban Sanitation (ONAS)** whose role is to oversee the urban sanitation system and to define the roles and build the capacity of the agencies responsible for operation and maintenance of the sewerage networks and sanitation systems in the urban areas.

- **52 Local Management Communities** which were established to monitor and maintain the semi-collective networks.
- **Small and Medium Sized Enterprises** to maintain and manage the sewerage system constructed by ONAS in order to meet the criteria of a healthy environment, cost-effective management and financial sustainability of the system. The financial resources to cover the costs were supposed to come from the monthly contribution of households and a subsidy from the commune, but the project did little to support these enterprises, and support from the commune and the households was very limited.
- **Beneficiary population.** A comprehensive Information, Education and Communication program explaining the sanitation alternatives available for households, reached out to about 743,000 people, against a targeted of 400,000, as well as 30 counties, two rural communities and urban district. As a result, ONAS received more than 149,000 applications for individual sanitation facilities (at project closure, about 45 percent of these requests had already been attended).

#### **(iv) Capacity Development of Sector Agencies, Communities, and Households**

2.55 The project supported capacity-building of the main stakeholders with a total of 3,777 experts in soft and technical areas of onsite sanitation<sup>8</sup>. Achievements included: (i) 1,754 people trained in Participatory Hygiene And Sanitation Transformation including community management; (ii) 1,800 people in Technology of on-site sanitation facilities; (iii) 123 people on sanitation technology for the Semi Collective sub-sector; and (iv) 100 people on the management of sludge in collaboration with a private company.

2.56 Non-government organizations (NGOs) and community-based organizations conducted 2.2 million activities from 2002 to 2008 and exceeded the planned level of 1.4 million activities. Furthermore, 2,104 outreach activities were organized by the Local Steering Committees and a strong involvement of women through the revolving credit system for the acquisition of washtubs. Regarding education and hygiene promotion, 2.4 times the project target population has been reached by the Information, Education, and Communication's programs.

2.57 Neighborhood delegates, as well as NGOs and consumer associations played a key role in connecting local communities and the municipal authorities, or SONES / SDE to convey information to households.

#### **OUTCOMES**

2.58 Project outcomes are assessed on coverage and sustainability of sanitation services in unserved and low income areas of Dakar and secondary cities.

- **Coverage**

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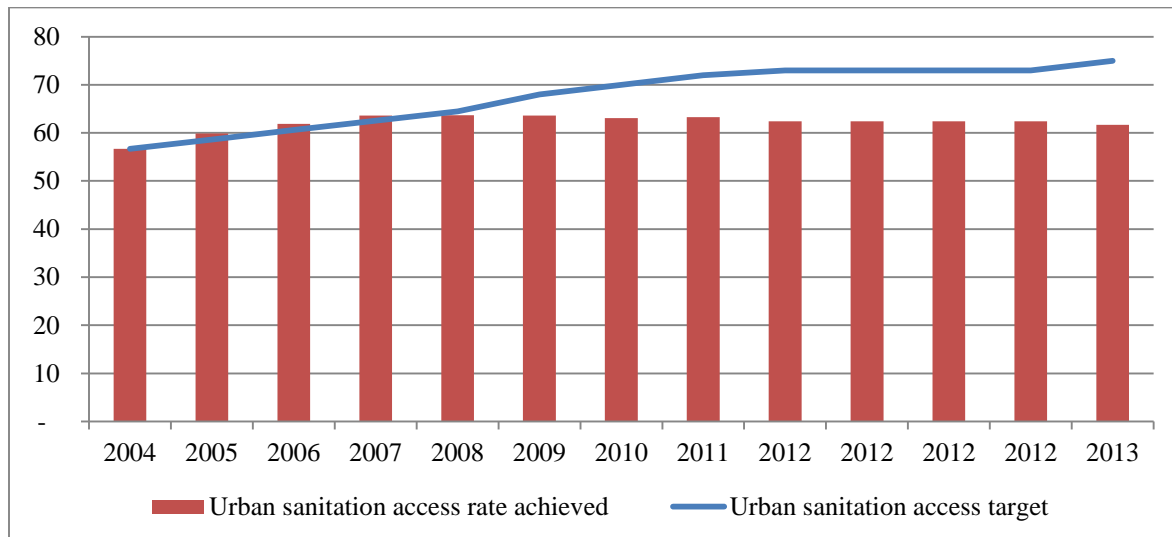
8. Bilan du Programme d'assainissement des quartiers périurbains de Dakar , ONAS, 2009.



2.59 The number of additional people with access to sewerage connection increased by 144,000 (target 140,000). There were 92,000 beneficiaries in Dakar (target 90,000) and 52,000 in secondary urban areas (target 50,000). A community-based program for developing on-site and semi-collective sanitation services greatly exceeded targets. The peri-urban sanitation component provided 583,000 people (target 400,000) with access to improved sanitation either through on-site facilities (526,000 people) or through condominial systems (57,000 people).

2.60 While slow, access to sanitation services has been growing steadily during 2004-2008, as the ratio jumped from 57 percent of the Dakar population up to 62 percent. But subsequently the increased slowed down to below the target levels (see figure 7 below), principally because of elevated costs of sanitation infrastructure, and most importantly, due to the freezing of the sanitation tariff since 2004.

**Figure 7: Urban sanitation access (percentage)**



Source: ONAS

- **Sustainability**

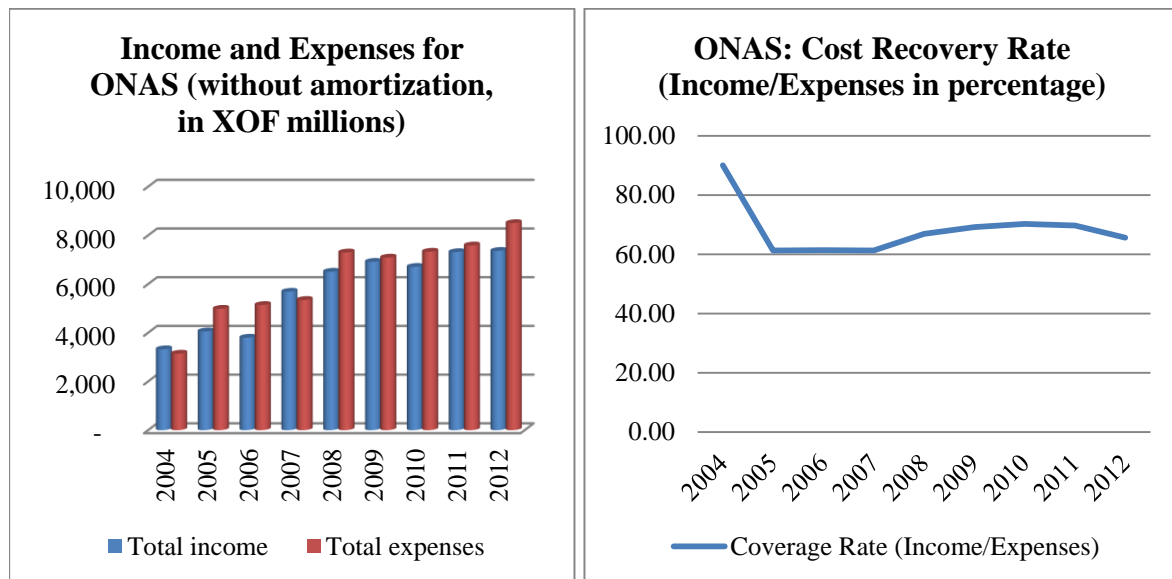
2.61 A report by a private research firm<sup>9</sup> found (and the IEG mission confirmed) that the management model set up between ONAS, the municipalities and other stakeholders of the semi-collective and on-site sanitation system has not been functioning. This was because of design flaws, misinterpretation of work undertaken during implementation, and unclear definition of responsibilities between ONAS and the beneficiaries. The management committees at the commune level either never existed or were never functional, or are no longer functional. The management committees did not receive any contribution from project beneficiaries and they are unlikely to be compensated even in the future because the users are reluctant to make payments to them.

9. HYDROCONSEIL: Note de travail sur le nouveau modèle de gestion, July 2013.

2.62 The sub-sector is also facing financial issues. The cost-recovery ratio of revenues over operating expenses that was 90 percent in 2004 fell dramatically to 66 percent in 2012 (see figure 8 below). This decrease was mainly due to the freezing of sewerage tariff since 2003, which led to increased financial shortfalls for ONAS. As a result, the quality of sanitation services is at serious risk of deterioration.

2.63 The recent water tariff increase, announced on September 15, 2014 is expected to have a positive impact on the financial situation of the three entities overseeing the water and sanitation sector. In particular, the sanitation surcharge, collected through the water bill in urban towns equipped with sewerage systems will increase by 23 percent (from 52.25 XOF/m<sup>3</sup> to 64.27 XOF/m<sup>3</sup>), to enable ONAS to cover its operating costs without asking for increasing subsidies from the Government.

**Figure 8: Financial performance of ONAS**



Source: ONAS

## IMPACTS

2.64 The survey results at the end of the project showed that 82 percent of latrines were well maintained and 85 percent of households reported a significant improvement of hygiene conditions in neighborhoods. The results in terms of local initiatives included the set-up of 33 Local Steering Committees and 48 Management Committees and 10 municipal committees to support the program in order to ensure ownership and sustainability.

## Efficiency

2.65 At project appraisal, the Bank team conducted a cost-benefits analysis of the water and sanitation components based on the health benefits from the reduction of morbidity and mortality for diarrhea diseases and malaria. On this basis, the analysis projected high economic internal rates of return (EIRR) for both the water supply

component (32 percent) and the sanitation component (34 percent), and that incorporation of health benefits would contribute substantially to increasing the ERRs above these values.

2.66 When the project closed in 2007, an ex-post economic analysis was carried out, using a methodology different from the one used at project appraisal due to the absence of a baseline of health benefits. For this reason, the ex-post analysis followed the standard sector methodology, and used the cost-benefit analysis for the water supply components (representing 53 percent of the total project costs) and a cost-effectiveness analysis for the sanitation components (38 percent of the total project costs).

2.67 For the water components, the EIRR was 12.1 percent and the net present value (with a 10 percent discount rate) was US\$24.7 million. Since there were clear health benefits demonstrated by the customer survey results, it is likely that the EIRR with health benefits will be much higher.

2.68 The cost-effectiveness analysis of the sanitation components, carried out on the basis of average investments per capita shows that: (i) the strategic choice made by the Government to develop alternatives to sewerage was more cost effective, as the full cost of sewerage investments would have been much higher than developing condominal systems and on-site sanitation; whereas (ii) the densification of the existing sewerage network, through sewerage connections programs, was also economically justified.

2.69 In conclusion, efficiency is rated as **substantial**.

## Ratings

### OUTCOME

2.70 The overall outcome of the project is rated **moderately satisfactory**. The relevance of project development objective is rated as high, and the relevance of design is rated as substantial. Efficacy was substantial for the objective related to the water supply, and modest for the objective related to the sanitation services because of their questionable sustainability. Project efficiency is rated as substantial. Investments accomplished in the water and sanitation sector remain economically sound five years after the completion of the project.

### RISK TO DEVELOPMENT OUTCOME

2.71 Risk to development outcome is rated as **substantial**. The results achieved under the project will be in jeopardy if the risks described below are not addressed through a concerted effort between the Government and the key sector stakeholders.

2.72 **Institutional risks:** The project helped strengthen the institutions (SONES, ONAS) that oversee the water and sanitation sector. However, the risks surrounding these two public institutions could be raised if their financial and managerial autonomy is not ensured to allow them to perform their duties and contractual responsibilities.

2.73 **Financial risks:** Since the financial equilibrium for the sector was achieved in 2003, the financial strength of SONES has been deteriorating due primarily to the following three factors; (i) lack of tariff adjustment in a context of price evolution for the water operator, whose indexation was specified in the contractual provisions, (ii) increasing consumption generated by significant social connections (more than 175,000 social connections), having a negative impact on the average price and representing 40-41 percent of water consumption); and (iii) lower consumption of the administration having a negative impact on the average price because of the price difference.

2.74 **Maintenance Risks:** Weaknesses were identified in setting up a sound mechanism to oversee the sanitation system. If these instruments are not updated and implemented carefully, the reform agenda might be reversed, and the immense gains may be in jeopardy. It is essential that the Government creates a favorable environment for an effective partnership to oversee the management of the sanitation system.

2.75 **Environmental risks:** The investment requirements to address sanitation challenges for the quickly-growing capital city Dakar are huge, and while there is a comprehensive sanitation strategy that was based on the diversification of technologies, there are concerns related to the potential stress affecting the existing sewerage networks. . If the imbalance persists in terms of investments and reforms in water sector and sanitation sector, sanitation conditions are likely to worsen and even the beneficiaries of improved water services are likely to be affected by the unhealthy conditions.

## **BANK PERFORMANCE**

### **Quality at Entry**

2.76 Quality at entry is rated **Satisfactory**. The Bank had been the leading partner together with several donors, in supporting the formulation and implementation of sector reforms through the previous Senegal Water Project (1995-2004). The quality of the sectoral dialogue and the trust it had generated were key factors in the decision to continue and expand the Bank's support to the sector.

2.77 Project preparation built on the satisfactory fiduciary compliance demonstrated under the previous project, with the necessary adjustments required to take into account the involvement of less experienced executing agencies. The budget devoted to preparation was commensurate with the scope and the complexity of the operation and reflected the level of support provided by the sector and country management.

2.78 The Project built on sectoral reforms and policies that had been successfully tested to promote efficiency in the development and delivery of services. The Bank team covered in-depth social and environmental aspects while properly designing technical and financial aspects of the project. The implementation arrangements were carefully tailored to the capacities of the various executing agencies and included participation of beneficiaries through a demand-driven approach. However, there were shortcomings in the design of the peri-urban sanitation component, because contributions expected from households were too high, and NGO capacity was overestimated.

2.79 While the project aimed at achieving sustainable improvements in the delivery of water and sanitation services in unserved and low income areas of Dakar and in secondary centers, the project design and the results matrix lacked specificity in identifying the targeted population, and the magnitude of the project's contribution in addressing the conditions of life of urban population. Instead of setting absolute targets (number of beneficiaries), it would have made more sense to set relative targets (in percentage of unserved population, especially in secondary centers). Setting such kind of targets would have helped in better assessing the coverage achieved by the project and the needed steps to enhance the conditions of life of urban poor in Dakar and the regional centers.

### **Quality of Supervision**

2.80 Quality of Supervision is rated **Satisfactory**. A productive and trusting relationship was built between the Bank and Borrower's teams, and this helped resolve implementation issues as both parties were open to finding solutions in conjunction with other stakeholders. Supervision missions were fielded regularly and the presence of the task team leader in the field from 2002 to 2006 facilitated regular interaction with the Government and other donors.

2.81 The team closely monitored progress, enabling the Bank and the Borrower to make timely adjustments. For instance, the peri-urban sanitation component faced serious start-up problems due to the fact that the households' contribution (50 percent of the cost of the facilities) was perceived as too high and that the large-scale NGOs involved in outreach activities were not able to communicate and work efficiently with beneficiaries. Modifications were rapidly brought to reduce the contribution to 25 percent and to shift outreach responsibilities to community-based organizations which were closer to the target households.

2.82 Staffing was appropriate, with a high level of continuity, and Bank staff was able to participate in numerous workshops organized by the PCU. The team included a senior safeguard specialist with in-depth knowledge of the project areas.

### **BORROWER PERFORMANCE**

#### **GOVERNMENT PERFORMANCE**

2.83 Government Performance is rated **Moderately Unsatisfactory**. During project preparation, the Government's commitment to the development objective and to the continuation of the water and sector reforms was unquestionable. The Government's commitment and leadership was essential in ensuring the unusually broad participation of donors in this operation and involvement of all other domestic stakeholders. Counterpart funds were provided on a timely basis.

2.84 The Government's commitment to maintaining the sector's financial sustainability however was not followed through. The water tariffs were adjusted as per the lease agreement until 2003, but thereafter the Government only raised the tariffs for public sector entities. In addition, the government record for timely water bill payments,

while exemplary until 2007, fell behind thereafter, straining the resources of the public entities overseeing the water and sanitation sectors.

2.85 Government leadership in the crafting of an institutional mechanism to oversee the sanitation sub-sector has been timid. As the management of condominal and on-site sanitation systems deals with multiple partners, a stronger hand from the public authority would have helped to strike the balance among competing interests, and come to closure on what is the contribution of each stakeholder to establish a working mechanism. Currently, leadership in this matter has been and remains weak. Finally, the project oversight was dispersed across several ministries during the course of implementation, weakening project planning and efficacy.

2.86 Factors that impeded smooth project implementation included: (i) the frequent cabinet reshuffles that led to frequent changes of the general managers of SONES and ONAS; (ii) unaffordable household contribution to peri-urban sanitation facilities (50 percent of the costs); and difficulty encountered with the beneficiary outreach activities conducted by large-scale NGOs. Soon after the household contributions were reduced to 25 percent, and the outreach responsibilities were shifted to community-based organizations, positive results emerged.

2.87 The IEG mission found that after project closure, the Government has been facing difficulty mobilizing the necessary funding from the donors especially for urban water and sanitation sector because of the absence of an updated sector policy and the premature shift in focus from the urban to the rural water sub-sector.

#### **IMPLEMENTING AGENCY PERFORMANCE**

2.88 Implementing agency performance is rated as **Satisfactory**. The PCU performed well in coordinating the design and the implementation of the project, building on the expertise and experience acquired when implementing the previous Senegal Water Project (1995-2004). The PCU reached out to key stakeholders through dissemination of studies and workshops to build consensus on policy options. The PCU was adequately staffed and had in place well-established project management and accounting procedures acceptable to the Bank. The PCU handled deftly monitoring and reporting on project implementation progress, and oversaw fiduciary and procurement responsibilities.

2.89 SONES implemented the urban water investment program, while ONAS managed the overall implementation of the sanitation components and delegated to the public works implementing agency, *Agence d'Exécution des Travaux d'Intérêt Public* (AGETIP) to manage the sub-projects included in the peri-urban sanitation component.

2.90 Beneficiaries of those projects developed their subprojects with the assistance of local NGOs and Community-Based Organizations. Both the national water company SONES and the national sanitation agency ONAS performed well in ensuring physical implementation, procurement, and contract management related to the respective components under their oversight. However, ONAS suffered from lack of full autonomy and a high turnover rate of senior staff.

2.91 The Management and Planning Unit for Water Resources supervised studies and training under the water resources management component, while the Ministry of Environment managed the three components of the Environment Management Plan. The directorate of water resources planning worked effectively with the directorate of environment to monitor the water quality of the Guiers Lake and worked with the PCU to improve its procurement performance.

2.92 However, the IEG mission found and received feedback from the donor community that the technical capacity of some implementing agencies remained weak especially in dealing with the private operator's contractual agreements, possibly due to the non-competitive hiring conditions that could not attract qualified staff in these agencies.

### **3. Supporting Access to On-Site Sanitation Services through OBA Scheme (2007-2011)**

#### **Objectives, Design, and Relevance**

##### **OBJECTIVE**

3.1 The Project Development Objective was "to increase access to on-site sanitation for households living in the Dakar region in a sustainable manner" (Grant Agreement page 6.) This formulation was identical to the objective stated in the Project Appraisal Document (page 6).

##### **COMPONENTS:**

3.2 The project had two components as detailed below:

**(i) Output-based subsidies for the construction of on-site sanitation facilities (appraisal estimate: US\$5.5 million, actual cost: US\$4.89 million).** This component was to fund works, technical studies and supervision, social intermediation, and costs and fees of the implementing agencies. Originally, this component aimed to provide access to sanitation facilities for 15,100 households living in five target municipalities in the Dakar region. It was revised during a level-2 restructuring to provide access for 12,100 households living in the Dakar region.

**(ii) Monitoring and evaluation, audits, and monitoring of environmental and social impact (appraisal estimate: US\$260,000, actual cost: US\$231,787).** This component aimed to establish an effective monitoring and evaluation system, audit, and environmental and social follow-up of the output-based aid program. This component was not modified during the restructuring.

**RELEVANCE:**

3.3 The project objective was **Highly Relevant** at entry and at closure. According to the Millennium Development Goals Strategic Document for Senegal, more than a third of the Dakar region did not have access to proper sanitation in 2004<sup>10</sup>. That is why providing increased sanitation services was a priority in the Government's Letter of Sector Policy of July 2005, which set out government options for sanitation in urban centers, with a preference toward the optimal combination of sewerage systems, condominium sanitation, and on-site facilities. The Letter also called for the development of on-site sanitation in all the municipalities of Senegal, based on a technical package similar to the one developed by the Sanitation Program in the suburban areas of Dakar.<sup>11</sup>

3.4 The FY07-10 Country Assistance Strategy had a pillar supporting improvement of the quality of life through "improved access to water and sanitation" (page vii). The ongoing Water and Sanitation Millennium Project, approved in June 2010 focuses on expanding water and sanitation delivery in the rural areas. The recently-approved Country Partnership Strategy for Senegal for the period FY13-17 continued to focus on improving access to potable water and sanitation services in urban and rural areas under one of the two Country Partnership Strategy pillars devoted to improving service delivery in general. The Government sought the grant resources to pursue the unfinished agenda of increased delivery of sanitation services in the Dakar suburbs because the focus of other donors and Government's efforts had been shifted toward improving water and sanitation in the rural areas.

3.5 Relevance of Design was **Modest**. The project design, which included components that supported output-based subsidies for the construction of on-site sanitation facilities, and related monitoring mechanisms were consistent with part of the stated objective, which was to increase access to on-site sanitation for households living in Dakar region. However, the sustainability of sanitation access, specified in the objective was not supported with any specific components. The project did not include institutional arrangements or mechanisms for proper maintenance and management of the facilities built under the project. While there was a component that supported monitoring and evaluation, it focused on audits, environmental, and social impact, and neglected the tracking of the sustainability of the sanitation facilities.

**MONITORING AND EVALUATION**

3.6 **Design:** The Project Appraisal Document did not have a results framework, but the project's monitoring and evaluation framework was designed to monitor contributions paid, sanitation facilities built, and payments made. The Project followed the Output-Based Aid Framework, which gave prominence to non-governmental organizations and community-based organizations to monitor project implementation.

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10. Elaboration d'un document de stratégie pour la réalisation à l'horizon 2015 des objectifs du millénaire pour le développement, Volume 1 : Etat des lieux, Rapport définitif, Décembre 2004.

11. Programme d'assainissement des quartiers péri-urbains de la région de Dakar.



3.7 **Implementation:** Representatives of non-governmental organizations and community-based organizations visited the target areas to collect contributions from households joining the Project against receipts. A contractor then had to visit participating households to determine what type of facility could be built at each site, and build them.

3.8 Because of the complexity of implementation arrangements and delay in launching the project, it was difficult to get information tracking daily progress of the project during the first phase of the project. Following project restructuring, bimonthly meetings and systematic reporting improved and provided closer monitoring of contributions collected, sanitation facilities built and payments made to contractors.

3.9 **M&E Utilization:** After project restructuring, project implementation data and information started to reach implementing agencies, and were used to better plan project activities. The availability of specific data (broken down by area and type of facility) resulted in more focused and targeted interventions and communication campaigns.

## **Implementation**

3.10 The project was approved on July 7, 2007 and the original closing date was February 28, 2010. The project went through level two restructuring in February 2010 to extend the closing date by nearly two years, to December 31, 2011.

### **IMPLEMENTATION EXPERIENCE**

3.11 Implementation arrangements were complex. As illustrated in the figure 13 attached in Annex B, there were at least five echelons separating the PIU and the beneficiaries. While each echelon of the arrangements can conceptually be justified to ensure project execution and its monitoring and evaluation, the set-up turned up to be cumbersome and bureaucratic during project implementation. At the time of restructuring in February 2010, only 10 percent of the sanitation facilities had been built and during the last 22 months, the remaining 90 percent of the sanitation facilities were built.

3.12 Project restructuring expanded the geographic coverage of the project from five to 21 neighborhoods, the number and type of facilities offered, reduced the beneficiary contributions and introduced an in-kind contribution formula, and strengthened behavior change activities to stimulate demand for the facilities. Beneficiary survey results have shown that 88.6 percent of respondents were satisfied with the procedure for allocating the facilities, while other beneficiaries were not satisfied because the work could not be started immediately after payment of financial contribution, or there were coordination issues among key involved institutions.

### **PROJECT COSTS**

3.13 At appraisal, the project was estimated to be US\$7.32 million but the actual cost was US\$6.35 million because the target was reduced from providing 15,100 sanitation facilities, to 12,100 at restructuring. US\$5.12 million (79 percent) was funded by GPOBA and the remaining US\$1.23 million (19 percent) was funded by the borrower which included the government and household contributions.

## SAFEGUARDS AND FIDUCIARY COMPLIANCE

3.14 The project was classified as Category B under OP/BP 4.01 Environmental Assessment because of potentially adverse environmental impacts. Environmental and Social Assessments and related plans were prepared and found to be in compliance with the Bank's safeguards policies. However the ICR reported that absence of qualified personnel limited the effectiveness of social and environmental safeguard measures adopted during project implementation.

3.15 The project had a complex financial management system related to budget, accounting, flow of funds, financial reporting, and internal controls. Because these practices were new, performance in financial reporting became satisfactory only in the final months of the project. All project disbursements were cleared by the World Bank, and AGETIP, under the supervision of ONAS, handled procurement well because of its long experience with Bank funded projects.

## Achievement of the Objective

**Objective: To increase access to on-site sanitation for households living in the Dakar region in a sustainable manner. Rated *Modest***

3.16 Efficacy of this project was assessed based on two outcome measures included in this objective: (i) increased access to on-site sanitation; and (ii) sustainability of such access.

## OUTPUTS AND OUTCOMES

- **Increased Access**

3.17 The project supported the construction of 11,495 facilities which provided improved on-site sanitation access to 103,450 persons in the Dakar region. While the original target of constructing 15,100 facilities set at appraisal was not met, the revised target of 12,100 facilities set at project restructuring was almost met because the project picked up and made significant progress during the final years of implementation.

3.18 The largest number of on-site sanitation facilities constructed under the project was wastewater disposal, followed by mixed facilities, and excreta disposal. The excreta disposal option had a lower than expected demand. This was possibly because the project ended up supporting the neighborhoods that already had excreta disposal facilities, and initially targeted poorer neighborhoods were flooded, precluding construction.

3.19 It also appears that the initial identification of preferred facilities was not determined by the genuine needs of beneficiaries, but rather by the administrative allocation made at the project design and the capacity for beneficiaries to provide the financial contribution. In a survey completed by ONAS, the demand was higher for wastewater disposal facilities (47.8 percent), and the mixed facilities (33.7 percent), compared to the demand for standalone excreta disposal facilities (1.1 percent)<sup>12</sup>. But this

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12. Rapport final de renseignement des indicateurs du projet, ONAS, Dakar, December 2011.

survey may have been conducted in those neighborhoods where excreta disposal facilities already existed. Moreover, the excreta disposal facilities were eventually beyond the purchasing power of the identified beneficiaries.

**Table 2: Facilities delivered in comparison to planned facilities**

Facility by type of use <sup>13</sup>	<u>Appraisal</u>		<u>Restructuring</u>		<u>Final outputs in 2013</u>	
	Planned facilities	Percent by use	Planned facilities	Percent by use	Total facilities built by use	Percent by use
Excreta disposal only	5,200	34	1,092	9	854	7
Wastewater disposal only	9,100	60	4,805	40	6,139	53
Mixed facilities	800	5	6,203	51	4,502	40
<b>Total</b>	<b>15,100</b>	<b>100</b>	<b>12,100</b>	<b>100</b>	<b>11,495</b>	<b>100</b>

*Source:* ICR

3.20 While the project had intended to target the poor, such mechanisms were not developed fully, and therefore ineffective targeting and allocation procedures allowed well-off households to benefit as much, if not more, from the project impact. The design was also tentative in the identification of the nature and the number of the facilities to be built with the grant resources, and the restructuring was also used to modify the combination of facilities to be built, which put more emphasis on mixed facilities.

- **Sustainability**

3.21 The beneficiary feedback on project sustainability was collected through two surveys completed respectively in December 2011 by National Sanitation Office, ONAS, and in May 2014 by IEG.<sup>14</sup> These surveys confirmed that the majority of the beneficiaries were paying attention to maintaining the facilities in good standing. There were 88 percent of positive responses in the first survey confirming that the facilities were maintained in a satisfactory manner, against 12 percent of negative responses. The second survey revealed that 64 percent of beneficiaries were cleaning the facilities on a daily basis and 7 percent of them at least once a week. Regarding the functionality, the first survey found that 88 percent of respondents were using the facilities, against 82 percent during the second survey in 2014.

3.22 **Sanitation:** For the categories of facilities (47 percent of total) that had to be connected to the semi-collective sanitation system, their sustainability was to be dependent upon the success of the management system supervised and subsidized by ONAS. On their part, the households need to maintain the facilities that have been built

13. (i) Excreta disposal only included septic tanks and pour-flush toilets and soak-away pit, (ii) Wastewater disposal facilities were composed of washing facility and soak-away pit, and shower with soak-away pit, and (iii) Mixed facilities were a combination of a wastewater disposal facility and pour-flush toilets, and a shower with a soak-away pit.

14. Methodology, limitations, and the questionnaire of the IEG survey are detailed in Annex C and D.

and empty their intercepting tanks, which were described as low-effort and low-cost for most of the types of facilities built under the project. Due to financial difficulties, ONAS has not yet deployed sufficient resources to operate the collection and disposal facilities optimally.

3.23 A sanitation surcharge of US\$0.05/m<sup>3</sup> is levied by SDE on behalf of ONAS on water customers in all cities with a sewer network. The surcharge represents six percent of the water bill for households using 50 m<sup>3</sup> per month of water and five percent for those using more than 50 m<sup>3</sup> per month<sup>15</sup>. Revenues generated by this surcharge are insufficient to finance ONAS operations and maintain sewerage and drainage networks. As a consequence, ONAS had experienced a XOF 484 million deficit in 1998, which deepened further to reach XOF 1,141 billion or about 20 percent of total revenue in 2012. Achieving financial sustainability of ONAS and finding means to devote resources for on-site sanitation promotion and development remains a major challenge for the sub-sector.

3.24 **Drainage:** A portion of the property tax was identified by the Government as one of the resources that local governments should transfer to ONAS, through the equipment fund for municipalities, to finance operation and maintenance of drainage facilities. However, these resources expected from the municipalities were never made available to ONAS. As a result, operation and maintenance of drainage facilities in Dakar remain problematic. This situation was compounded by a confusing division of responsibilities between the municipalities and ONAS where municipalities are expected to provide resources for services for which they are not accountable.

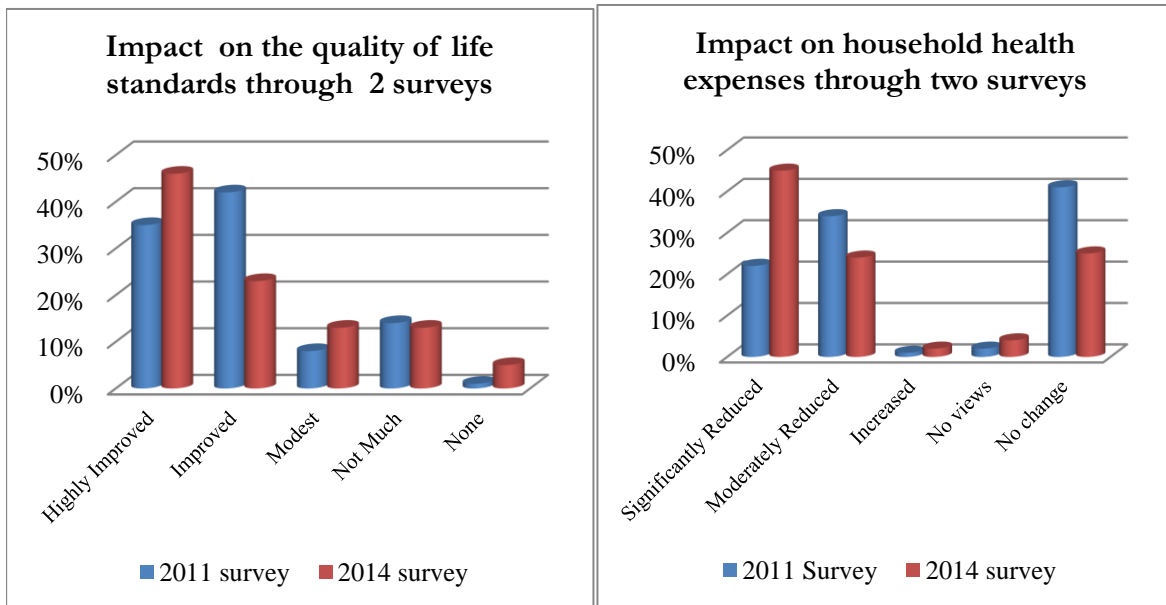
## IMPACTS

3.25 According to the first survey in 2011, 94.5 percent of the women were satisfied with the utilization of the facilities because they are the most involved in the household chores requiring the use of those facilities. Old people and handicapped persons used the facilities the least because most facilities were not well adapted to their needs. The survey also found that the facilities were used by neighbors in 10 percent of the beneficiary households; but this level has reached a higher level of 75 percent in the 2014 survey. Finally, impact on the women's work was overall positive, with 94 percent of respondents confirming that the facilities helped to alleviate the work of women, and to improve the work conditions of the women.

3.26 The impact on the health costs of households was positive in both surveys, having decreased for 56 percent of respondents in the first survey and for 69 percent in the second survey. Beneficiaries in both surveys stated that the facilities gave positive impact on their life standards in the proportion of 77 percent of respondents in the first survey against 69 percent in the second survey (see Figure 9 below). With regards to the impact on living standards, both surveys confirmed that over 60 percent of respondents acknowledged improvements due to the facilities.

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15. The threshold was reduced to 40 m<sup>3</sup> in September 2014, and the surcharge was also revised upward.

**Figure 9: Beneficiary Survey Results**

Source: IEG mission

## Efficiency

3.27 The economic analysis carried out at appraisal was based on the previous IDA-financed program, “On-Site Sanitation for Peri-Urban Communities in Dakar”, which closed in 2009, and the EIRR was estimated to be 20 percent using primarily the estimated health related benefits.

3.28 At project closure, the EIRR was not calculated because pre-project and post-project benefits could not be accurately determined given the recent completion of the sanitation facilities. Besides, assessments of the health benefits of sanitation were difficult to quantify, because it was not clear that the observed benefits in a project intervention area were due solely to improved sanitation. As a result, a cost-effectiveness analysis was carried out at project closure to assess the effectiveness of the unit costs of each technological choice, and it showed that construction of a sewerage system would have cost at least twice as much as what was spent on constructing individual or condominium sanitation facilities. In addition, the two beneficiary surveys showed that there were other economic benefits gained from project interventions, including reduced money spent on healthcare expenses resulting from unsanitary practices, and time saved especially for women.

3.29 While the selection of the technology choice supported under the project has been demonstrated to be cost-effective and other project benefits were identified, the project efficiency was affected by delays in project implementation due to the severe floods in 2007 and 2008, leading to nearly one-third of the project facilities being constructed in the last three months. In addition, about 12 percent of respondents of the IEG survey in May 2014 declared that the facilities funded by the project were no longer functional because the capacity of the semi-collective networks connecting septic tanks to multiple

households was too small, and some facilities were built with defective materials. Implementation delays resulted also from the heavy bureaucracy.

3.30 On balance, the project efficiency is rated as **modest**.

## **Ratings**

### **OUTCOME**

3.31 Based on the high relevance of objective, modest relevance of design, and mixed achievement of the project's results, and modest efficiency, the overall outcome is rated as **moderately unsatisfactory**.

### **RISK TO DEVELOPMENT OUTCOME**

3.32 The sanitation facilities were built according to a simple design and need only regular maintenance, which involves no expenses other than excreta removal costs for half of the facilities. Three sludge treatment facilities operated by the national sanitation agency provide services to collect and treat waste from septic tanks. The Gates Foundation has provided US\$10.8 million to reduce the cost of sludge removal for poor households in Dakar. Other donors including France, European Union, European Investment Bank, Islamic Bank, and African Development Bank are following the developments in Senegal's water and sanitation sector, and are expressing their interest to provide support to enhance urban sanitation. However, since the Government has not updated its sector strategy since 2005, the donors are handicapped by the absence of a recent plan for the sector outlining the roadmap on the way forward and the level and type of the required support.

3.33 The failure by the government to ensure financial sustainability for the water and sanitation sector has deprived the sanitation sector with resources. Currently, due to financial constraints, ONAS, the implementing agency has not yet deployed sufficient resources to strengthen the septic tanks of the condominiums, and to upgrade the waste water treatment plants. This could be a threat to the maintenance of the condominium sewerage systems. Because of the lack of sector strategy and uncertainties with regards to the maintenance of sanitation sector, risk to development outcomes is rated as **high**.

### **BANK PERFORMANCE**

#### **Quality at Entry**

3.34 Quality of entry was **moderately unsatisfactory** because the GPOBA procedures were complex and the implementation arrangements were cumbersome. Instead of conducting an assessment of the capacity and willingness of households to pay for sanitation services, the Project adopted the same household contribution levels as those used under the Sanitation Program in the suburban areas. This resulted in delays in project implementation and necessitated a level two project restructuring to remedy this situation in 2010.

3.35 At project approval, the geographical scope for the project support was imprecise and tentative, and could not be finalized until the restructuring phase. Similarly, beneficiary neighborhoods and categories of facilities were not clearly identified during the project design. Project implementation could have been faster with an increased and clearer targeting of beneficiary neighborhoods and households, and a better specification of the facilities to be delivered to the potential beneficiaries.

3.36 The GPOBA procedures were complex and not suited to rapid project implementation, which resulted in nearly one-third of the project facilities being constructed in the last three months of the Project, though floods were also a factor in the delay. In particular, GPOBA financial mechanisms were not appropriate to work with the AGETIP, as the latter could not get advance resources to launch the project on time.

3.37 About two years after the project approval, the project could not start because it was not ready for implementation. As indicated earlier, implementation arrangements were heavy and not straightforward. There were more than five echelons of intermediaries between the national sanitation agency and the beneficiaries of sanitation facilities. Relationships among the multiple intermediaries were unclear, and in the end, they were not effective in solving the two key issues: effective oversight, and financial sustainability of the sanitation system. There was a mismatch between the limited amount of resources and the scope of the project and the overwhelming institutional framework for its implementation.

### **Quality of Supervision**

3.38 Quality of supervision is rated **moderately unsatisfactory**, because the supervision was neglected during the first phase of the project, and the increased supervision that took place after the project restructuring did not address the key impediments related to the sustainability of the results. During the second phase, the project Task Team Leader was based in the region and maintained an ongoing dialogue with the various stakeholders, organized monitoring sessions, organized specific missions on the fiduciary aspects of financial management and procurement. Bank staff provided a useful interface between the client and the Bank disbursement department in charge of disbursements. However, the supervision was limited to making sure that the outputs are generated, but did not bring the dialogue with the client to address the key issues besetting the sustainability of the facilities that were being built was inadequate. As a consequence, the setting up of an efficient oversight framework of the sanitation system was not done, and measures to resolve the funding problem of the sanitation system in a sustainable manner were not adopted.

## **BORROWER PERFORMANCE**

### **Government Performance**

3.39 Government performance is rated as **moderately unsatisfactory**. The government had the opportunity to learn from the Long Term Water Sector Project under implementation, and identify and resolve key bottle necks that are preventing the sustainability in the sanitation sub-sector. Instead of identifying the right ministry to

oversee the project, the institutional setting was ineffective and was not improved, and the issues over the financial impasse were not addressed effectively.

3.40 The Government could have invested more in having the project ready for implementation. It is only after two years when the project could not start that the Government deployed efforts to overcome obstacles, including the pledge of about US\$200,000 to ease the burden on those beneficiaries having difficulty in paying their contributions.

### **Implementing Agency Performance:**

3.41 Implementing agency performance is rated as **moderately unsatisfactory**. The key implementing agencies for this project were ONAS, the National Sanitation Agency of Senegal and AGETIP, the Public Works Implementing Agency. Since the Government policy to minimize sanitation taxes limited the budget for ONAS, it had difficulty carrying out its responsibilities to properly oversee the sanitation sub-sector and project activities. This poor financial situation precluded the hiring of competent staff and essential studies and needed infrastructure.

3.42 AGETIP is generally an effective agency with qualified staff, with a long experience of delivering completed works. However, it could not anticipate major procurement delays due to the introduction of a new procurement code, and it could not figure out the complications and specificities of the arrangements governing the disbursements of project resources. This resulted in nearly one-third of the facilities being constructed in the last three months of the Project.

3.43 Eventually, AGETIP spent months to decipher the project's complex financial management system, particularly aspects related to the budget, accounting, fluidity of funds, financial reporting, and internal controls. After project restructuring, these problems were clarified and financial management became satisfactory in the final months of the project.

3.44 The performance of implementing agencies was also worsened by the plethora of other intermediaries in the project execution, including the consulting firms, the construction companies, the NGOs/Community-Based Organizations, the technical auditor and the financial auditor. There was a mismatch between the modest project amount, and the array of intermediaries for its implementation.

### **Lessons Learned**

3.45 **Premature cessation of donor engagement could lead to a loss in momentum for major sector reform.** The Government of Senegal had high ownership of the adopted a strategy (1995 and 2005) in the water and sanitation sector but this has recently waned. Through sustained commitment of IDA, the Bank was able to (i) play a catalytic role in leveraging investment funding from other donors; (ii) smooth friction and bring a cooperative spirit; and (iii) provide continuous support to the full execution of contractual and regulatory obligations. However, the IEG mission found that the Bank and the donor community have recently shifted their focus away from the relatively well performing



urban water and sanitation, to rural water and sanitation sector. As a result, the Government slowed down on its reform agenda, as evidenced by the absence of an updated water sector policy and non-compliance of the lease contract with the private operator, potentially losing the momentum generated to sustain earlier reforms.

**3.46 Benefits of water investments may not be realized without adequate attention to sanitation.** Recognizing the existence of a comprehensive and integrated approach to sanitation, evidenced by Senegal’s urban sanitation strategy which was based on the diversification of technologies, the assessment found that more resources and more attention were devoted to water production and distribution at the expense of the sanitation sub-sector in Senegal. This finding is reflected in the mismatch between the sanitation infrastructure and the country’s needs, and the lack of solutions to set up sustainable approaches to manage public and semi-public sewerage networks and wastewater treatment plants. According to the interviews carried out during the IEG mission, the supply of increased urban water facilitated by the Bank’s project had led to major pressure on the existing sewerage infrastructure. As the imbalance between the water and sanitation investments and reforms persists, sanitation conditions may worsen, leading to unhealthy conditions and increasing risks of water-borne diseases to the population that benefitted from water services.

**3.47 Raising tariffs only for one customer group may not be effective for ensuring long term sustainability.** Since 2006, the water tariff for the private consumers had been frozen by the Government in contradiction to the lease agreement prescribing annual water price adjustments in line with the inflation.<sup>16</sup> In contrast, while the tariffs increased for the public sector entities, the exploding bills were only partially paid by the government and, as a result, arrears often accumulated and as a consequence, there were limited resources available to fund the sector’s major financial needs. In the absence of steady tariff increases, the sector risks a declining quality of the infrastructure and services.

**3.48 Determining the right threshold of the beneficiary contribution is vital for the successful delivery of peri-urban sanitation services.** The peri-urban sanitation component faced serious start-up problems because the required household contribution was perceived to be too high, and the large-scale NGOs involved in outreach activities were not able to communicate and work efficiently with the beneficiaries. Modification of beneficiary contribution from 50 to 25 percent of the facility cost, and shifting of outreach responsibilities to community-based organizations, increased beneficiary participation in the on-site and the semi-collective sanitation program.

**3.49 Complex management and institutional arrangements lead to implementation delays.** The procedures for Global Partnership for Output-Based Aid (GPOBA) were complex and implementation arrangements were cumbersome. Obstacles to rapid project implementation were not promptly identified and removed during trust fund negotiation and processing. The payment schedules mandated by the GPOBA approach were overly complex, and the Project Team took a long time to get used to the

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16. The mission was informed that the Government finally decided to increase the tariffs in September 2014.

Trust Fund procedures, leading to delays in launching and implementing the project, causing delays in proper establishment of sustainability enhancing measures. The lesson from this experience is the importance of identifying the institutional issues early and simplifying the management and implementation arrangements to avoid delays in project implementation. It is also important to weight the transaction costs associated with the funding size of GPOBA, and the institutional viability of such approach compared to a larger, project scale initiative that is more integrated with the government program.

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## Annex A. Basic Data Sheet

### LONG TERM WATER SECTOR PROJECT (LOAN NO. C3470)

#### Key Project Data (amounts in US\$ million)

	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs	248.43	254.61	102.49
Loan amount	125.00	146.12	116.90
Co-financing	0	0	0
Cancellation	-	-	-

#### Cumulative Estimated and Actual Disbursements

	<i>FY01-06</i>	<i>FY07</i>	<i>FY08</i>	<i>FY09</i>
Appraisal estimate (US\$M)	104.70	116.70	125.00	125.0
Actual (US\$M)	84.26	101.16	133.09	143.59
Actual as % of appraisal	81%	87%	107%	115%
Date of final disbursement: 03/03/2009				

#### Project Dates

	Original	Actual
Negotiations	05/01/2000	05/01/2000
Board approval	03/06/2001	03/06/2001
Signing	05/10/2001	05/10/2001
Effectiveness	07/31/2001	11/07/2001
Closing date	12/31/2007	06/30/2009

**Staff Inputs (staff weeks)**

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultants)
<b>Lending</b>		
FY98	-	259.0
FY99	-	238.8
FY00	-	280.7
FY01	-	126.4
<b>Supervision/ICR</b>		
FY01		20.4
FY02	19	113.4
FY03	28	139.0
FY04	24	116.7
FY05	28	145.8
FY06	25	131.1
FY07	28	191.2
FY08	14	112.1
FY09	11	91.5
FY10		12.0
<b>Total</b>	<b>177</b>	<b>1,978.1</b>

**Mission Data**

Names	Title	Unit	Responsibility/ Specialty
<b>Lending</b>			
Jan G. Janssens	Lead Water and Sanitation Specialist	AFTU2	Task Team Leader
Richard Verspyck	Lead Water and Sanitation Specialist A	AFTU2	Task Team Leader
Matar Fall	Sr. Water and Sanitation Specialist	AFTU2	Water and Sanitation Sanitation
Eustache Ouayoro	Sr. Water and Sanitation Specialist	AFTU2	Sanitation
Sylvie Debomy	Urban Specialist	AFTU2	Sanitation
Claude P. Sorel	Sr. Private Sector Development Specialist		Financial Analyst
Paul Kriss	Economist	AFTU2	Economist
Yves-André Prevost	Sr. Environment Specialist		Safeguards

James Listorti	Environmental Health Specialist	AFTU2	Env. Health
Bernard Abeillé	Lead Procurement Specialist	AFTPC	Procurement
SolangeAlliali	Sr. Counsel	LEGAF	Lawyer
Wolfgang Chadab	Sr. Disbursement Officer	LOAA	Disbursements
Moustapha Ndiaye	Financial Management Specialist		Fin. Management
Fanny Barrett	Sr. Program Assistant	AFTU2	
Torbjorn Damhaug	Consultant	AFTU2	Water Resources Management
<b>Supervision/ICR</b>			
Matar Fall	Lead Water & Sanitation Specialist	AFTUW	Task Team Leader
Sylvie Debomy	Sr. Urban Planner	AFTUW	Sanitation components
IbrahimaRahamane Sanoussi	Procurement Analyst	AFTPC	Procurement
Yves-André Prevost	Lead Environment Specialist	AFTUW	Safeguards
DembaBalde	Sr. Social Development Specialist		Social
Saidou Diop	Financial Management Specialist	AFTFM	Financial Management
Sung HengKok Shun AissatouDicko	Sr. Program Assistant Team Assistant	AFTUW	
Claude P. Sorel	Consultant	AFTUW	Private Sector Development
Richard Verspyck	Consultant	AFTUW	Water and Sanitation

### Other Project Data

Borrower/Executing Agency: Senegal Government/

#### Follow-on Operations

<i>Operation</i>	<i>Credit no.</i>	<i>Amount (US\$ million)</i>	<i>Board date</i>
(i) Storm water Mgt. and Climate Change Adaptation Project	5096-SN	55.6	April 2012
(ii) Water and Sanitation Millennium Project	4678-SN	55.0	Feb-2010

**SUPPORTING ACCESS TO ON-SITE SANITATION SERVICES THROUGH  
OBA SCHEME (TF090466 AND TF909467)**

**Key Project Data (amounts in US\$ million)**

	Appraisal estimate	Actual or current estimate	Actual as % of appraisal estimate
Total project costs	7.32	6.35	86.75
Loan amount	0.00	0.00	0.00
Cofinancing	5.86	5.12	87.37

**Cumulative Estimated and Actual Disbursements**

	<i>FY08</i>	<i>FY09</i>	<i>FY10</i>	<i>FY11</i>	<i>FY12</i>
Appraisal estimate US\$M	1.2	1.2	1.2	1.2	1.2
Actual (US\$M)	0.56	0.52	0.32	1.6	2.2
Actual as % of appraisal	46.7	43.3	26.7	133.3	183.3
Date of final disbursement: May 10, 2012					

**Project Dates**

	Original	Actual
Board approval	07/06/2007	07/06/2007
Signing	07/06/2007	07/06/2007
Effectiveness	06/29//2007	11/08/2007
Appraisal	01/19/2007	01/19/2007
Closing date	02/28/2010	12/31/2011

**Staff Inputs (staff weeks)**

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of staff weeks	USD Thousands (including travel and consultant)
Lending	9	\$178,683
Supervision/ICR	32	\$241,608

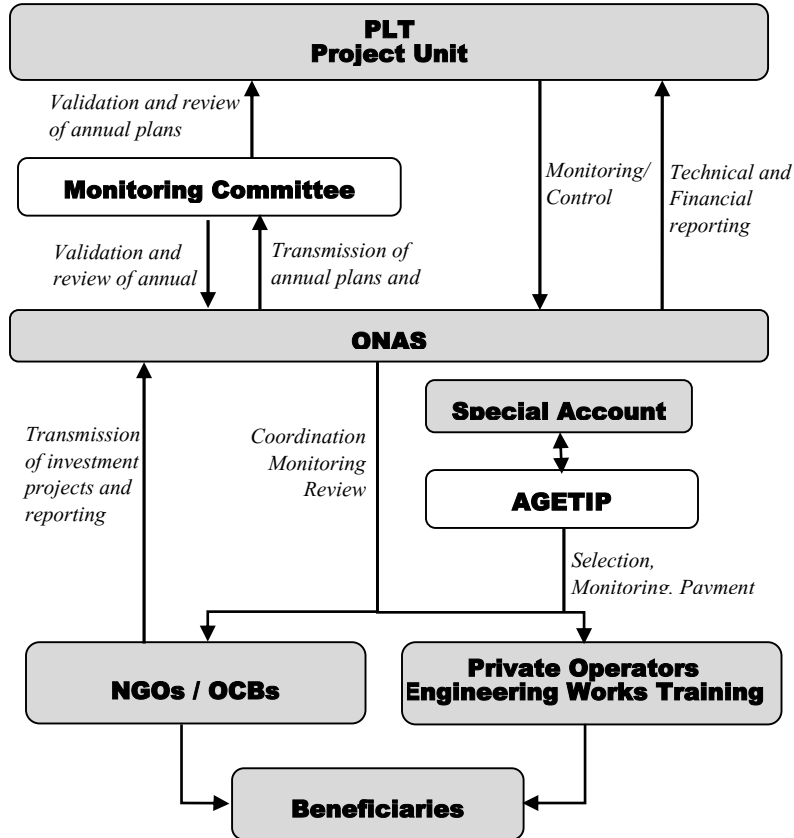
<b>Names</b>	<b>Title</b>	<b>Unit</b>	<b>Responsibility/ Specialty</b>
<b>Lending/Grant Preparation</b>			
Sylvie Debomy	Sr. Urban Planner	AFTU2	TTL
Miguel Vargas Ramirez	WSS Specialist	LCSUW	Water and Sanitation
Yogita Mumssen	Infrastructure Specialist	GPOBA	Infrastructure
Priyanka Sood	Consultant	GPOBA	Water and Sanitation
Sidi Boubacar	Lead Counsel	LEGAF	Lawyer
Bourama Diaite	Sr. Procurement Specialist	AFTPC	Procurement
Saidou Diop	Financial Management Specialist	AFTFM	Financial Management
Yves Prevost	Sr. Environmental Specialist	AFTS4	Safeguards
Ousseynou Diop	Sr. WSS Specialist	ETWAF	Sanitation
<b>Supervision/ICR</b>			
Matar Fall	Lead Water & Sanitation Specialist	AFTUW	TTL
Pierre Boulenger	Consultant	AFTUW	Water and Sanitation
Sidy diop	Sr. Procurement Specialist	AFTPC	Procurement
Fatou Samba Fall	Financial Management Analyst	AFCF1	Financial management
Sung Hen Kok Shun	Sr. Program Assistant	AFTUW	Administrative support





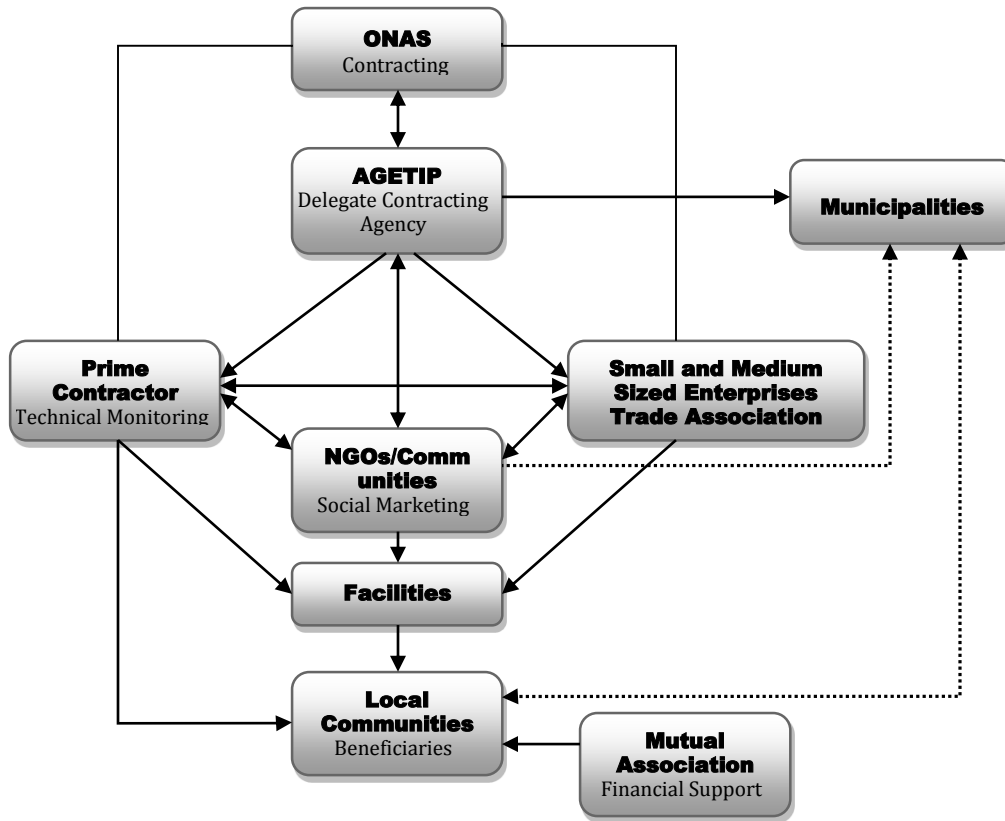
## Annex B. Additional Figures

Figure 10: Implementation arrangements for GPOBA project



Source: ONAS

**Figure 11: Oversight and Management Mechanism of a Semi-Collective Sanitation System**



## **Annex C. Methodological Approach of the GPOBA Beneficiary Survey**

### ***Introduction***

As part of the PPAR exercise, the IEG field mission aimed to obtain feedback from the beneficiaries of the sanitation facilities provided by the GPOBA project through a survey. This survey was conducted as a pilot, using an ICT device and a team headed by a senior statistician five university students in Senegal. The team interviewed a random sample of 400 households using a questionnaire (Annex D) that was pre-loaded on an electronic device.

### ***Limitation***

The number of constructed facilities was reported to be 11,495, but detailed information such as the type of structure, names of the beneficiaries, their identification card numbers, neighborhood, and geographic coordinates, were only available for 2,999 facilities. For the purposes of this survey, feedback was received from a random sample from these 2,999 facilities.

### ***Sample Size***

Considering the homogeneity of facilities in the different areas, a maximum threshold and pessimistic risk of non-response error equal to 50 percent of respondents were assumed. This leads to a sample size equal to 400 individuals, corresponding to a margin of error of 5 percent.

### ***Size Distribution of the Sample***

Relying on administrative criteria, standards of living, and geographic location, communities affected by the project were grouped into three areas: (i) urban: Wakam and Yoff; (ii) suburban: Mbao Keur Massar, Sebikhotane / Diamniadio Diamaguène-Sicap Mbao, Malika, Yeumbeul; (iii) and rural: Pout, Sangalkam, Yène. To select a representative random sample of project beneficiaries, a stratified random sampling method was applied to ensure representative samples for each of the eight zoning areas.

### ***Drawing of Beneficiaries to be surveyed***

A random drawing (using Excel) was applied on the list of beneficiary communities to survey. This generated the list of recipients according to the number found from the method of allocation (see table below).<sup>17</sup>

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17. Taking into account the homogeneity within each of the three areas and for reasons of time and optimization of resources, data collection was conducted in the following representative locations: i) urban: Wakam; (ii) suburban: Keur Massar, Sebikotane / Diamniadio Diamaguène-Sicap Mbao, Malika, Yeumbeul; (iii) rural: Sangalkam.

**Table 3: Sample Distribution Among Locations**

Types of facilities	Locations								TOTAL
	Diamniadio	Sebikotane	Keur Massar	Malika	Diamagne Sicap Mbao	Yeumbeul	Sangalkam	Ouakam	
Two Toilets and a Shower	5	6	11	4	11	8	40	1	84
One Toilet and a Shower	3	3	2	-	-	-	-	-	7
Two Toilets	-	0	-	1	1	1	-	-	2
Washing Facilities	8	13	50	30	32	54	39	2	228
Sceptic Tank	1	2	10	3	23	15	0	1	56
Shower	-	-	0	1	0	1	-	-	2
Semi-public Sewerage	-	-	-	-	5	-	-	16	21
<b>TOTAL</b>	<b>17</b>	<b>23</b>	<b>74</b>	<b>38</b>	<b>72</b>	<b>78</b>	<b>78</b>	<b>19</b>	<b>400</b>

*Source:* IEG PPAR Mission

## Annex D: Survey Questionnaire on Beneficiary Feedback

### (I) SYNTHESIS QUESTIONS

1. What is the overall condition of the sanitation facility in terms of functionality and cleanliness?

A. Very Good
B. Satisfactory
C. Average
D. Poor

2. What effect, if there was, has the installation of sanitation facility had on the quality of life of the beneficiary?

A. Very High
B. High
C. Modest
D. Poor

### (II) QUESTIONS RELATED TO THE CONSTRUCTION PHASE OF THE SANITATION FACILITIES.

1. Which donor funded programs for sanitation facilities you received?

A. World Bank
B. Other

2. How long ago / what year was your sanitation facility installed?

Text:
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3. Why did you decide to participate in the project to get the sanitation facility?

E. For safety
F. For pride and status
G. For convenience or comfort
H. For family's health or cleanness

4. Who helped you to build the facility?

A. Government services
B. Private Contractor
C. NGO
D. Other

5. How much did you pay out of pocket to install the sanitation facility?

Text:
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***(III) QUESTIONS ON THE USE AND MAINTENANCE OF SANITATION FACILITY*****A. ABOUT THE HOUSEHOLD AND THEIR USAGE OF FACILITY**

1. How many people, including you, are in your household?

Text

2. How many children are there in your household?

Text

3. Do you have a sanitation facility only for your household? Or do you share with others?

Yes

No

4. If shared with others, with how many more people?

Text

5. How far is the facility from your house?

Text

**B. FACILITY USAGE AND MAINTENANCE QUESTIONS**

1. What type of sanitation appliance was installed in your home

A. Excreta disposal only

B. Wastewater Disposal

C. Mixed facility

2. Before the facility installation, where you and your family usually go to defecate?

Text

3. Before the facility installation, how would you get rid of wastewater?

Text

4. Before the facility installation, where you and your family usually go to defecate, and how would you get rid of wastewater?

Text

5. Have you ever had it cleaned? Who cleans it? How often?

Text

6. How much does it cost to clean/maintain it?

Text

***(IV) QUESTIONS RELATED TO IMPACT ON THEIR LIVES***

1. What health changes, if any, have been seen and perceived in your family since the facility was installed?

A. Significantly decreased

B. Decreased

C. No change

D. Increased

E Don't know
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2. In what other ways has it changed your family's life?

A. Significantly improved
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B. Improved
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C. Improved somewhat
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D. No change
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E. Don't know
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***(V) CONCLUDING QUESTIONS:***

1. Is there anything you want to improve with your sanitation facility? (that would make it better, more useful)

Text:
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2. What other facilities/infrastructures you wish you had (family or community)?

Text:
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## Annex E. List of Persons Met

<b>Name</b>	<b>Designation</b>	<b>Organization</b>	<b>Location</b>
<b>GOVERNMENT OFFICIALS</b>			
Anta Seck	Director General	Senegal National Water Company	Dakar
Amadou Diallo	National Coordinator	Millennium program for water and Sanitation	Dakar
Ibrahima Ndiaye	Secretary General	Senegal National Water Company	Dakar
El Hadji Ada Ndao	Director of Works	Senegal National Water Company	Dakar
Diene Faye	Director	Ministry of Water and Sanitation	Dakar
Ousmane Dione	Director of Studies and works	Ministry of Water and Sanitation	Dakar
Kemokho Danfakha	Water Engineer	Ministry of Water and Sanitation	Dakar
Niokhor Ndour	Water Resources Expert	Ministry of Water and Sanitation	Dakar
Mouhamadou Doudou Fall	Water Resources Expert	Ministry of Water and Sanitation	Dakar
Alassane Dieng	Technical Advisor	Senegal National Sanitation Office	Dakar
Ousmane Camara	Secretary General	Senegal National Sanitation Office	Dakar
<b>MULTILATERAL/BILATERAL DEVELOPMENT AGENCIES</b>			
Frederic Fourtune	Water Program Manager	European Union Office - Senegal	Dakar
Hugo van Tilborg	Advisor and Chief of the Infrastructure Sector	European Union Office - Senegal	Dakar
Benjamin Grand	Officer in charge of the Water sector	French Development Agency	Dakar



Anne-Marie Deransart	Operations Officer	European Investment Bank	Dakar
Kossi Eguida	Senior Operations Officer	African Development Bank	Dakar

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**OTHER STAKEHOLDERS**

Mamadou Dia	Director General	The Water Private Operator Company	Dakar
Ibra Seck	Technical Director	AGETIP	Dakar
Ndeye Fatou Dia Cissé	Projects Coordinator, Water and Sanitation	AGETIP	Dakar
Dabo Aminata Tandiam	Community Development Specialist	AGETIP	Dakar
Madicke Niang	Sanitation Survey Team member	Independent	Dakar
Bassirou Beye	Sanitation Survey Team member	Independent	Dakar
Khady Gueye	Sanitation Survey Team member	Independent	Dakar
Pape Waly Loum	Sanitation Survey Team member	Independent	Dakar
Memedou Sy	Sanitation Survey Team member	Independent	Dakar
Ndiola Gueye	Sanitation Survey Team member	Independent	Dakar

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**WORLD BANK GROUP STAFF**

Matar Fall	Lead Sanitation and water, Task Team Leader		Oudgadougou
Pierre François Xavier Boulanger	Water and sanitation specialist		Dakar
Boury Ndiaye	Program assistant		Dakar

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