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Report No: PAD1214

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED CREDIT

IN THE AMOUNT OF SDR 50.8 MILLION  
(US\$70 MILLION EQUIVALENT)

TO THE

REPUBLIC OF SENEGAL

FOR AN

URBAN WATER AND SANITATION PROJECT

May 22, 2015

**Water Global Practice  
Africa Region**

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective March 31, 2015)

Currency Unit = CFAF  
CFAF 580 = US\$1  
US\$1.3795 = SDR 1

## FISCAL YEAR

January 1 – December 31

## ABBREVIATIONS AND ACRONYMS

AFD	French Development Agency ( <i>Agence Française de Développement</i> )
AfDB	African Development Bank
ARMP	Procurement Regulatory Authority ( <i>Autorité de Régulation des Marchés Publics</i> )
CCS	Steering Committee ( <i>Comité de coordination et de suivi</i> )
CESMP	Contractor Environmental and Social Management Plan
CFAF	CFA Franc
CPS	Country Partnership Strategy
DCI	Ductile Cast Iron
DEEC	Directorate of Environment ( <i>Direction de l'Environnement et des Établissements Classés</i> )
DGPRES	Directorate of Water Resources Management and Planning ( <i>Direction de la Gestion et de la Planification des Ressources en Eau</i> )
DI	Directorate of Investment
DN	Diameter
EIB	European Investment Bank
EIRR	Economique Internal Rate of Return
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESP	Emerging Senegal Plan
FM	Financial Management
GoS	Government of Senegal
GRS	Grievance Redress Service
IDA	International Development Agency
IEC	Information, Education and Communication
KMS	Keur Momar Sarr
LTMC	Long-Term Marginal Cost
LTWSP	Long-Term Water Sector Project
MDG	Millennium Development Goal
MEFP	Ministry of Economy, Finance and Planning ( <i>Ministère de l'Économie, des Finances et du Plan</i> )

MHA	Ministry of Water and Sanitation ( <i>Ministère de l'Hydraulique et de l'Assainissement</i> )
N/A	Not Applicable
NGO	Non- Governmental Organization
NPV	Net Present Value
OFOR	Rural Boreholes Agency ( <i>Office des forages ruraux</i> )
ONAS	National Sanitation Agency of Senegal ( <i>Office National de l'Assainissement du Sénégal</i> )
ONEA	National Water and Sanitation Agency ( <i>Office National de l'Eau et de l'Assainissement</i> )
PCU	Project Coordination Unit
PDO	Project Development Objectives
P <sub>e</sub>	Lease Contractor Rate ( <i>Prix exploitant</i> )
PEPAM	Water and Sanitation Millenium Program ( <i>Programme d'Eau Potable et d'Assainissement du Millénaire</i> )
PIM	Project Implementation Manual
P <sub>p</sub>	SONES Fee ( <i>Prix patrimoine</i> )
PPP	Public-Private Partnership
PRSP	Poverty Reduction Strategy Paper
RAP	Resettlement Action Plan
RPF	Resettlement Plan Framework
SdE	Senegalese Water Utility ( <i>Sénégalaise des Eaux</i> )
SDR	Special Drawing Rights
SEEN	Niger Water Operating Company ( <i>Société d'Exploitation des Eaux du Niger</i> )
SOMAGEP	Malian Water Operating Company ( <i>Société Malienne de Gestion de l'Eau Potable</i> )
SOMAPEP	Malian Water Assets Holding Company ( <i>Société Malienne de Patrimoine de l'Eau Potable</i> )
SONES	National Water Company of Senegal ( <i>Société Nationale des Eaux du Sénégal</i> )
SPEN	Niger Water Assets Holding Company ( <i>Société de Patrimoine des Eaux du Niger</i> )
WAEMU	West Africa Economic and Monetary Union

Regional Vice President:	Makhtar Diop
Country Director:	Vera Songwe
Sector Global Practice Director:	Junaid Kamal Ahmad
Practice Manager:	Alexander E. Bakalian
Task Team Leader:	Matar Fall



**SENEGAL**  
**SENEGAL: URBAN WATER AND SANITATION PROJECT**

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## PAD DATA SHEET

*Senegal*

*Urban Water and Sanitation Project (P150351)*

### PROJECT APPRAISAL DOCUMENT

AFRICA

GWADR

Report No.: PAD1214

Basic Information			
Project ID P150351	EA Category B - Partial Assessment	Team Leader Matar Fall	
Lending Instrument	Fragile and/or Capacity Constraints [ ]		
Investment Project Financing	Financial Intermediaries [ ]		
	Series of Projects [ ]		
Project Implementation Start Date 15-June-2015	Project Implementation End Date 30-June-2020		
Expected Effectiveness Date 15-Sept-2015	Expected Closing Date 30-Jun-2020		
Joint IFC No			
Practice Manager/Manager	Senior Global Practice Director	Country Director	Regional Vice President
Alexander Bakalian	Junaid Kamal Ahmad	Vera Songwe	Makhtar Diop
Borrower: Republic of Senegal			
Responsible Agency: Programme Eau Potable et Assainissement pour le Millénaire (PEPAM)			
Contact: Amadou Diallo		Title: Coordinator	
Telephone No.: 221338590499		Email: projeau@gmail.com	
Responsible Agency: Office National de l'Assainissement du Sénégal (ONAS)			
Contact: Alioune Badara Diop		Title: General Manager	
Telephone No.: 221338593535		Email: abdiop@onas.sn	
Responsible Agency: Société Nationale des Eaux du Sénégal (SONES)			
Contact: Charles Fall		Title: General Manager	

Telephone No.: 221338397800

Email: charles.fall@sones.sn

**Project Financing Data(in USD Million)**

<input type="checkbox"/> Loan	<input type="checkbox"/> IDA Grant	<input type="checkbox"/> Guarantee	
<input checked="" type="checkbox"/> Credit	<input type="checkbox"/> Grant	<input type="checkbox"/> Other	
Total Project Cost:	70.00	Total Bank Financing:	70.00
Financing Gap:	0.00		

Financing Source	Amount
BORROWER/RECIPIENT	0.00
International Development Association (IDA)	70.00
Total	70.00

**Expected Disbursements (in USD Million)**

Fiscal Year	2015	2016	2017	2018	2019	2020				
Annual	0.00	3.50	7.00	14.00	22.00	23.50				
Cumulative	0.00	3.50	10.50	24.50	46.50	70.00				

**Institutional Data****Practice Area / Cross Cutting Solution Area**

Water

**Cross Cutting Areas**

- Climate Change  
 Fragile, Conflict & Violence  
 Gender  
 Jobs  
 Public Private Partnership

**Sectors / Climate Change**

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Water, sanitation and flood protection	Water Supply	75		
Water, sanitation and flood protection	Sanitation	25		
Total		100		

I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

<b>Themes</b>		
Theme (Maximum 5 and total % must equal 100)		
Major theme	Theme	%
Urban development	Urban services and housing for the poor	100
Total		100
<b>Proposed Development Objective(s)</b>		
The proposed Project Development Objective (PDO) is to improve access to water and sanitation services in selected urban areas in a financially sustainable manner.		
<b>Components</b>		
<b>Component Name</b>	<b>Cost (USD Millions)</b>	
1. Water Supply	48.9	
2. Sanitation	16.8	
3. Institutional Strengthening and Project Management	4.3	
Total	70.0	
<b>Systematic Operations Risk- Rating Tool (SORT)</b>		
<b>Risk Category</b>	<b>Rating</b>	
1. Political and Governance	Low	
2. Macroeconomic	Low	
3. Sector Strategies and Policies	Moderate	
4. Technical Design of Project or Program	Low	
5. Institutional Capacity for Implementation and Sustainability	Low	
6. Fiduciary	Moderate	
7. Environment and Social	Low	
8. Stakeholders	Low	
9. Other		
<b>OVERALL</b>	<b>Moderate</b>	
<b>Compliance</b>		
<b>Policy</b>		
Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [ ]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

<b>Safeguard Policies Triggered by the Project</b>	<b>Yes</b>	<b>No</b>
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36		X
Pest Management OP 4.09		X
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60		X

**Legal Covenants**

<b>Name</b>	<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>
<b>1. Project Implementation Manual</b>		October 15, 2015	

**Description of Covenant:**  
The Recipient shall, no later than one (1) month after the Effective Date, prepare, in accordance with terms of reference acceptable to the Association, and furnish to the Association, a proposed implementation manual for the Project containing detailed: (a) technical (b) administrative, (c) procurement, (d) financial and accounting; and (e) monitoring and evaluation procedures and arrangements, for the Project. Said manual to further include, *inter alia*, elaboration of the procedures for developing and implementing Safeguard Documents.

<b>2. Appointment of External Financial Auditor for the Project</b>		January 15, 2016	
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**Description of Covenant:**  
The Recipient shall, not later than four (4) month after the Effective Date, appoint an external auditor, whose qualifications and experience and terms of reference shall be acceptable to the Association.

<b>3. Financial Equilibrium of the Urban Water Supply Sub-Sector</b>	Yes		Yearly
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**Description of Covenant:**  
In order to ensure the financial sustainability and maintain the Financial Equilibrium of SONES, throughout Project implementation, the Recipient shall implement all necessary measures, including, *inter alia*, any adjustments in water tariffs in accordance with the Water and Sanitation Law.

<b>4. Financial Sustainability of ONAS</b>		December 31, 2019	
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**Description of Covenant:**  
No later than December 31, 2019, the Recipient shall ensure that all measures, including any required sanitation surcharge revisions in accordance with the Water and Sanitation Law are in place to allow ONAS to achieve financial sustainability including covering at least 90 percent of its cash operating expenditures related to sewerage activities.

<b>Conditions</b>			
<b>Source Of Fund</b>	<b>Name</b>	<b>Type</b>	
<b>Description of Condition</b>			
<b>Team Composition</b>			
<b>Bank Staff</b>			
<b>Name</b>	<b>Title</b>	<b>Specialization</b>	<b>Unit</b>
Matar Fall	Lead Water and Sanitation Specialist	Team Lead	GWADR
Pierre Francois-Xavier Boulenger	E T Consultant	E T Consultant	GWADR
Charles Delfieux	Water Supply and Sanitation Specialist	Peer Reviewer	GWADR
Oumar Diallo	Senior Water and Sanitation Specialist	Senior Water and Sanitation Specialist	GWASA
Aissatou Diallo	Senior Finance Officer	Disbursement	WFALA
Madio Fall	Senior Water and Sanitation Specialist	Senior Water and Sanitation Specialist	GWADR
Maman-Sani Issa	Senior Environmental Specialist	Senior Environmental Specialist	GENDR
Pier Francesco Mantovani	Lead Water and Sanitation Specialist	Peer Reviewer	GWADR
Mouhamed Fadel Ndaw	Senior Water and Sanitation Specialist	Senior Water and Sanitation Specialist	GWASA
Boury Ndiaye	Program Assistant	Program Assistant	AFCF1
Mountaga Ndiaye	Consultant	Consultant	GGODR
Fatou Fall Samba	Financial Management Officer	Financial Management Officer	GGODR
Sudipto Sarkar	Lead Specialist	Peer Reviewer	GWADR
Yacouba Konaté	Social Development Specialist	Social Development	GSURR
Maya Abi Karam	Senior Counsel	Legal	LEGAM
Astou Diaw Ba	Senior Program Assistant	Program Assistant	AFCF1
Richard Verspyck	Consultant	Consultant	GWADR
<b>Non Bank Staff</b>			
<b>Name</b>	<b>Title</b>	<b>City</b>	

<b>Locations</b>					
<b>Country</b>	<b>First Administrative Division</b>	<b>Location</b>	<b>Planned</b>	<b>Actual</b>	<b>Comments</b>
Senegal	Dakar Region	Dakar Department	X		
Senegal	Thiès Region	Thiès Department Mbour Department	X		
Senegal	All		X		Countrywide Social Connections Program

## **A. Country Context**

1. Senegal is a Sub-Saharan African country with a population of 13.5 million inhabitants, 45 percent of whom live in urban areas. Senegal aspires to become an emerging middle income country by 2035. However, it has been stuck in low-growth equilibrium since 2006, and has not shared the rapid growth experienced by many other Sub-Saharan African countries over the last decade. Compared to the average growth rate of 6 percent for the rest of Sub-Saharan Africa, growth in Senegal has averaged only 3.3 percent since 2006. The country's Gross Domestic Product growth in 2013 was approximately 3 percent due in part to poor cereal harvests and low production rates in mining and industry. Currently, construction and the services sectors are the main drivers of economic growth. The most recent estimate of the country's poverty index is 46.7 percent. Poverty declined slightly over the last five years, but achievement of the first Millennium Development Goal (MDG) on halving poverty by 2015 is fast becoming a distant prospect.

2. Following the implementation of two generations of Poverty Reduction Strategies between 2003 and 2010, Senegal adopted a National Economic and Social Development Strategy in November 2012 that serves as the consensual coordination framework for public action. This strategy is rooted in the vision of the Emerging Senegal Plan (ESP) to achieve economic emergence by 2035. Apart from economic growth and governance framework improvements, the ESP's key focus areas are to achieve a quantum leap in the living conditions of the people, minimize social inequalities while preserving the resource base and fostering the emergence of viable regions. Achieving this vision will require the implementation of a major investment program with high added value that can trigger a cycle of strong and steady growth. Economic performance is expected to improve in 2014 with a growth rate of 4.5 percent and Senegalese authorities have high expectations for growth in the coming years, predicting rates of 6.7 percent in 2015 and 8 percent by 2017.

## **II. STRATEGIC CONTEXT**

### **A. Sectoral and Institutional Context**

#### **Institutional and Legal Setting**

3. The provision of water supply and sanitation services in Senegal is governed by a comprehensive legal and contractual framework. The Water and Sanitation Law (*Loi portant organisation du service public d'eau potable et d'assainissement des eaux usées domestiques*) of September 24, 2008, defines the responsibilities for managing urban and rural water and sanitation services as well as the principles for delivering services, delegating responsibilities (including to private entities), monitoring and controlling the delivery of services and cost recovery of services.

4. The urban water and sanitation sector reform launched in 1996 helped establish a well performing institutional framework with: (i) the creation of the National Water Company of Senegal (SONES), a public holding company in charge of managing the urban water assets and developing urban water services under a concession agreement with the Government of Senegal (GoS); (ii) the recruitment of a private operator, the Senegalese Water Utility (SdE), to operate the urban water facilities and deliver water services under a performance-based lease agreement; and (iii) the establishment of the National Sanitation Agency of Senegal (*Office National de*

*l'Assainissement du Sénégal*, ONAS), a parastatal in charge of managing urban sanitation. SONES and ONAS have also entered into performance contracts with the GoS represented by the Ministry of Water and Sanitation (*Ministère de l'Hydraulique et de l'Assainissement*, MHA) and the Ministry in charge of Finance (*Ministère de l'Économie, des Finances et du Plan*, MEFP).

5. In 2005, the Government adopted a Water and Sanitation Sector Policy Letter which set out the strategy to achieve the water and sanitation MDGs by 2015, and established the unified framework of the Water and Sanitation Millennium Program (*Programme d'Eau potable et d'Assainissement du Millénaire*, PEPAM) as the steering and coordination instrument for all activities in the sector.

6. IDA's support through the ongoing Water and Sanitation Millennium Project (PEPAM-IDA, P109986) helped in implementing significant reforms in rural water supply, marked by greater involvement of the private sector in the management of rural water facilities, and the creation of the Rural Boreholes Agency (*Office des forages ruraux*, OFOR), a public holding company playing a similar role in rural areas as that of SONES in urban areas. One public-private partnership (PPP) for the management of two regional water systems serving more than 350,000 people has been signed already.

## Situation of Water and Sanitation Services

### Senegal's Pro-Poor Policies for Equitable Access

SONES has developed and implemented commercial and tariff policies to meet the needs of the ever-increasing urban population and particularly those of its poorest strata in the expansion areas of the cities. These policies aim at providing the same access and quality of services to the poor and ensuring that they will be able to afford access costs as well as the cost of water consumption.

Since 1996, SONES has been promoting social water connections at a price (CFAF 18,000 or US\$31) that is subsidized by the water rates, and is much lower than the actual cost (CFAF 84,000 or US\$145). Subsidizing connections enables beneficiaries to benefit from a higher quality and quantity of water services, thus maximizing the health impact. The social connections policy targets the peri-urban neighborhoods, which are likely to accommodate the poor. With program support from most of the sector donors (IDA, AFD, EIB), 205,000 social connections have been built and the countrywide connection rate increased from 48 percent in 1996 to the current rate of 89 percent.

The water tariff structure is designed to enable the small consumers to benefit from affordable rates. A rate of CFAF 202 per m<sup>3</sup> (US\$0.35 per m<sup>3</sup>) is applicable to the first block (monthly consumption lower than 10 m<sup>3</sup> per month) and to standposts, whereas the average tariff amounts to CFAF 598 per m<sup>3</sup> (US\$1.03 per m<sup>3</sup>).

Starting in 2006, ONAS developed a menu of technical options, ranging from sewerage to condominal sewerage and on-site sanitation facilities to provide access to improved sanitation in peri-urban areas of Dakar at a subsidized cost. Albeit less developed than SONES programs, ONAS programs are now being extended to secondary cities. To date, ONAS programs have benefited more than 600,000 people.

### 7. Access to Services.

With an aggressive policy to promote subsidized household water connections (see Box) and a large investment program underpinning the reforms over the last two decades, near-universal access to safe water in urban areas (98 percent) has been achieved, thereby exceeding the initial target of 96 percent set for the MDGs. The urban sanitation sub-sector did not witness the same progress as in the water sector and the MDGs will definitely not be achieved. Despite significant investments, the development of urban sanitation has been unable to keep up with the high demand of the growing urban population, particularly outside of Dakar. The access rate to urban sanitation

services reached only 61.7 percent in 2013, compared to the MDG target of 78 percent.

8. In rural areas, steady investment programs in water supply have resulted in an access rate to safe drinking water of 84.1 percent in 2013, exceeding the initial target of 82 percent set out for the MDGs. The access rate to improved sanitation was estimated at 38.7 percent in 2013, far below the 63 percent target set out for the MDGs. The high cost of infrastructure hampers the development of sanitation facilities, whereas the population continues to express their preference for a higher service level than the basic sanitation options proposed to them.

9. **Operating Performances.** The Senegal urban water sector now ranks among the top performers in the business by international standards as illustrated by the following selected indicators, which compare Senegal's performances with the best-managed utilities of the sub-region: Burkina Faso (ONEA, public operator), Mali (SOMAPEP/SOMAGEP-public operator) and Niger (SPEN/SEEN-private operator).

**Table 1: Benchmarking of Operating Performance Indicators (2013)**

Indicator	Senegal	Mali	Burkina Faso	Niger
Access to piped water	98%	68%	84%	74%
Household connections ratio	89%	47%	61%	46%
Unaccounted-for Water (UFW) (%)	20%	28%	18%	15%
Bill collection ratio, private sector (%)	97%	93%	97%	96%
No. of staff per 1,000 connections	2.1	5.1	3.6	4.8
Staff costs/Total revenues (%)	20%	22%	21%	21%
Compliance with bacteriological standards (% of samples)	99%	99%	100%	99%

*Sources: SONES/SdE, SOMAPEP/SOMAGEP, ONEA and SPEN/SEEN*

## Key Sector Challenges

10. **Emergence of Water Shortages.** Half of the urban water sector activity is concentrated in the Dakar region. With a rapid population growth in the capital area and the development of a new economic hub next to the future airport of Ndiass and the Diamniadio area, water demand has been growing faster than expected. This has led to a current peak hour water supply deficit in the Dakar region of 20,000 m<sup>3</sup> per day that is likely to worsen to 60,000 m<sup>3</sup> per day by 2020 if nothing is done. Water deficits are also increasing in Petite Côte, a prime tourist area close to the Dakar region, and will amount to about 35,000 m<sup>3</sup> per day by 2020. In addition, there is a degree of vulnerability in the Dakar supply system, as evidenced by the September 2013 breakage of a Y-shaped connection pipe in the transmission line from the water treatment plant located on the Guiers Lake at Keur Momar Sarr (KMS) to Thiès, which resulted in depriving the city of Dakar of 40 percent of its supply for three weeks.

11. The expansion of the KMS water production system (KMS 3 Project), supported by donors including the European Investment Bank (EIB) and the French Development Agency (AFD), is expected to increase the production capacity by 100,000 m<sup>3</sup> per day by 2020. However, meeting the demand in the 2015-2020 period is looking extremely tight, and actions aimed at providing a quick response to the water shortages are needed in order to avoid deterioration in service reliability in the Dakar region. Without a timely expansion of the water infrastructure, a significant

portion of the urban poor and influx of new arrivals to the region would be excluded from basic services. Parallel impacts would be severe constraints on the development of the tourism industry.

12. **Gap between Water and Sanitation Services.** The access gap between water and sanitation services is particularly wide outside of the Dakar area. The access rate to improved sanitation amounts to 78 percent in Dakar and 44 percent in other urban centers. While the creation of sewerage networks may not be justified everywhere, sewerage services were available in seven urban centers<sup>1</sup> when ONAS was created (as compared to 56 urban centers within SONES perimeter). Only ten additional urban centers<sup>2</sup> have been provided with sewerage services since that date.

13. **Tariff Policy Shortcomings and Financial Viability.** From 1996 to 2003, water tariffs were adjusted from time to time to maintain the sector's financial equilibrium. Tariffs were revised by reference to SONES' financial model, which provides the value of the needed average tariff increase. Another tariff revision was required in 2007. The GoS decided to freeze the rates for households and other private users, and to shift the entire burden of the revision onto the rate for administrative consumers, which had to be increased by about 70 percent, and was further increased by 90 percent in 2009. These political decisions, which may be construed as a hidden subsidy to the sector, made SONES heavily dependent on revenues from public users. Not surprisingly, it also led to the accumulation of arrears on public water bills, which have been settled with significant delays or through compensation with the arrears accumulated by SONES on the service of the debt on-lent by the GoS.

14. **Need for a Second-Generation Reform.** The urban water PPP was initially concluded for a ten-year period. It was re-negotiated twice in accordance with the contractual procedures, extended for twelve additional years and cannot be further extended (the expiration date is December 30, 2018). All sector stakeholders agree that the contract has to be re-bid and should be improved, particularly by shifting additional investment responsibilities to the private operator, while keeping responsibilities for bulky investment programs within SONES. At the same time, the results achieved by a performing and autonomous urban water supply sector contrast with the lagging urban sanitation sector that is hampered by interferences in investment and management decisions and by unfunded mandates, particularly in flood control and drainage.

## **Strategies and Actions to Address Sector Challenges**

15. **Elimination of Water Shortages.** Among the water resources next to the Dakar region consumption areas, the Tassette zone south-east of Thiès, has been identified by SONES and the Directorate of Water Resources Management and Planning (*Direction Générale de la Planification et de la Gestion des Ressources en Eau*, DGPRE) of the MHA as a potentially appropriate (and least-cost) groundwater resource for the construction of a series of boreholes that may deliver an average daily discharge of 20,000 m<sup>3</sup>. The strategic location of the site will allow groundwater to be pumped towards the water tanks in Thiès, which supply most of the Dakar region, and also towards Petite Côte. In the meantime, SONES is implementing a self-financed emergency program to produce an additional 40,000 m<sup>3</sup> per day from other groundwater sources by June 2015.

---

<sup>1</sup> Dakar, Rufisque, Thiès, Louga, Kaolack, Saly and Saint-Louis

<sup>2</sup> Dagana, Diourbel, Fatick, Matam, Mbacké, Mbour, Podor, Richard-Toll, Tivaouane and Ziguinchor

16. In addition, to diversify the water supply resources for the Dakar region and to strengthen the reliability of supply, the Government intends to turn to desalination of sea water as an additional resource to groundwater from boreholes and surface water purification plants. In fact, the most recent desalination technologies, especially with regard to energy consumption, enable desalination to be viewed as a credible and viable complement to the transfer of water from the Guiers Lake, which is located more than 250 kilometers from Dakar.

17. **Revision of Water Tariffs.** SONES and the GoS initiated in 2014 a revision of the water tariff structure to make the sector less dependent on public users. A tariff revision, including a 4 percent increase of the social block tariff (applicable to standposts and to the first 20 m<sup>3</sup> consumed by domestic users in a two-month period) and a 9 percent increase of the rates applicable to other private users, was agreed. The revision was then postponed in view of a likely negative response from the Dakar population, which was experiencing water shortages. Once the impact of the Dakar emergency program started to alleviate water shortages, the GoS eventually approved the tariff increase, which applies to the March 2015 water consumption<sup>3</sup>.

18. **Government's Vision of the Second-Generation Reforms.** The GoS formulated its vision of the next round of reforms in December 2014 in a Framework Note (*Note de Cadrage*). The Framework Note sets the following objectives for the reform: (i) increase access to services, maintain the current performances of water services and reduce the development gap between urban water and sanitation; (ii) consolidate the financial equilibrium of the urban water sector and enable the urban sanitation sub-sector to cover its operational costs; and (iii) finance the development of the sector at conditions consistent with socially acceptable tariffs, excluding *de facto* private concession contracts. The Note further sets the following guiding principles for the options to be explored: (i) the confirmation of the PPP for urban water supply and strengthening the private sector contribution to investments (renewal of the infrastructure and reinforcement of the water production); (ii) the need for a greater private sector role in the delivery of urban sanitation services and to clarify the management and financing of flood control and drainage; (iii) the pursuit of synergies between the water supply and sanitation sub-sectors; and (iv) the need to reinforce the sectoral regulation. And finally, the Note defines a roadmap and a time schedule to ensure that the future operator would be selected and the contract signed by June 30, 2018.

### **Rationale for IDA's Involvement**

19. The proposed project is essential for improving the quality of water services in Dakar and Petite Côte areas. Failure to do so would undermine the social acceptability of the sector's cost recovery policies and of the PPP arrangements. The Government has no other external financing options to provide a quick response to water shortages. The proposed project also creates an opportunity to replicate the experience acquired in Dakar sanitation under the IDA-financed Long-Term Water Sector Project (LTWSP, P041528) to smaller urban centers.

20. By supporting the GoS strategy to diversify the water sources of the Dakar region, the proposed project will also help strengthen the reliability of supply. In parallel, the GoS requested

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<sup>3</sup> The new tariff structure is provided in the Appendix to Annex 5.

the IFC's assistance in preparing a PPP for a seawater desalination plant, for which a feasibility study is being carried out under the ongoing PEPAM-IDA.

21. As importantly, IDA's presence in the water and sanitation sector at a critical time for deepening sectoral reforms will maintain the long-term partnership established with the GoS and water and sanitation stakeholders. IDA will thus continue to play a catalytic role in facilitating the reform process, rather than seeking to push for off-the-shelf solutions.

#### **B. Higher Level Objectives to which the Project Contributes**

22. The proposed project will contribute to achieving the goals of the Country Partnership Strategy (CPS FY2013-2017), discussed by the Board on February 19, 2013, whose second pillar aims to improve access to basic services, including water and sanitation. The project is fully aligned with the new development vision for Senegal, as set out in the ESP, whose second focus area seeks to meet basic social needs which will require improving access to water and sanitation services.

23. The project will contribute directly to the World Bank twin goals of eradicating poverty and sharing prosperity more equally to the benefit of the poor. Access to clean water and sanitation is a key health determinant. It is also the basis for many types of livelihoods that can turn the poor into local entrepreneurs, for example, home-based manufacturing and services.

### **III. PROJECT DEVELOPMENT OBJECTIVES**

#### **A. PDO**

24. The objective of the Project is to improve access to water and sanitation services in selected urban areas in a financially sustainable manner.

#### **B. Project Beneficiaries**

25. About 590,000 people will benefit from the proposed project: (i) 180,000 additional people, mostly from poor urban and peri-urban families, will gain access to safe drinking water through social household connections; (ii) 80,000 additional people will have access to improved sanitation services; and (iii) 330,000 people currently impacted by water shortages will benefit from enhanced services through the increased water production. The latter beneficiaries will be located in Dakar metropolitan area (from the commissioning of project until the commissioning of KMS 3 scheme), and in the urban and tourist centers of Petite Côte.

26. *Reduction of Gender Inequalities.* The proposed project will help reduce gender inequalities. First, the social connections program will eliminate the burden of water hauling, a time consuming and physically stressful task, which mostly falls on female members of households; the other water components will also help reduce the stress associated with water shortages. Second, a lack in access to safe sanitation facilities places women and girls at a greater disadvantage relative to men and boys, perpetuating already existing gender inequalities. The sanitation component will provide safe household sanitation facilities, as well as adequate and

convenient solutions to wastewater disposal, another task falling exclusively on women<sup>4</sup>. Women will also play a prominent role in the hygiene education and information programs and be involved in the selection of the location of public sanitation facilities.

### C. PDO Level Results Indicators

27. The following key performance indicators will measure success in achieving the PDO:
- (a) Number of people in urban areas provided with access to “improved water sources” under the project (core);
  - (b) Number of people in urban areas provided with access to “improved sanitation facilities” under the project (core);
  - (c) Number of people with access to enhanced water supply services under the project;
  - (d) Direct project beneficiaries, of which female beneficiaries (core);
  - (e) Financial equilibrium<sup>5</sup> of the urban water supply sub-sector (yes/no);
  - (f) Coverage of cash operating expenditures of sewerage activities of ONAS; and
  - (g) Beneficiary feedback (core)

## IV. PROJECT DESCRIPTION

### A. Project Components

28. **Selection of Project Activities.** Given the immediate and medium-term Borrower priorities in the water and sanitation sector, and taking into account the scheduled interventions of other donors of the sector, it is proposed that the project focus on the following areas: (i) help finance an interim investment program to quickly address difficulties arising from water shortages in the Dakar region, improve water services in Petite Côte and increase access to services throughout the country; (ii) help increase access to urban sanitation services outside of Dakar; and (iii) support sector institutions and reforms.

29. The proposed project will consist of three components, which are summarized below.

30. **Component 1. Water Supply (US\$48.9 million equivalent).** This component aims at improving water services and expanding access through the following sub-components:

- 1.1 Development of groundwater resources to increase water availability and quality, in selected areas through, *inter alia*, expanding (a) water production capacity by drilling and equipping new boreholes with connection pipes to collect ground water; (b) water transmission by providing and installing feeder pipes, booster pumping stations and constructing a ground storage tank; (c) water storage by constructing storage tanks; and (d) provision of goods for the purpose.

This sub-component will: (i) through the development of groundwater resources in the Tassette area, improve the quantity of water available to existing customers in Dakar until the commissioning of the KMS 3 scheme and will afterwards supply the urban centers of

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<sup>4</sup> The public consultation carried out under the Environmental and Social Management Framework (ESMF) included women’s associations in Joal-Fadiouth that acknowledged the potential benefits of the sanitation facilities to be proposed under the project.

<sup>5</sup> The definition of “Financial Equilibrium” is given in paragraph 51 of Annex 3.

Petite Côte; and (ii) through the development of groundwater resources in Mbour, improve the quantity of water available to existing customers in Petite Côte.

- 1.2 Rehabilitating water infrastructure in the urban center of Nguekhokh to improve water production, storage capacity and distribution through, inter alia, (a) drilling and equipping boreholes; (b) constructing a water storage tank and distribution pipes; (c) rehabilitating stand-posts and household water connections; and (d) provision of goods for the purpose. This sub-component will rehabilitate and improve water infrastructure in this urban center, before incorporating the system within SONES perimeter.
- 1.3 Increasing access to safe water in selected urban centers through the provision and installation of water distribution pipes and household water service connections. This sub-component will: (i) enable the water services to reach currently unserved neighborhoods; and (ii) help connect mostly poor households under affordable conditions.
- 1.4 Carrying out technical studies for water supply systems for selected urban centers.

**Component 2. Sanitation (US\$16.8 million equivalent).** This component aims at increasing access to improved sanitation outside of Dakar through the following sub-components:

- 2.1 Provision of sanitation facilities in the urban center of Joal-Fadiouth, including, (a) provision and installation of sanitation pipes, pumping stations and household sewerage service connections; (b) construction of a wastewater treatment plant and a sludge treatment plant; and (c) installation of in-site household sanitation facilities and public toilets. This sub-component will provide a full range of options of sanitation services, including adequate excreta and wastewater disposal.
- 2.2 Increasing access to sewerage services in selected urban centers where sewerage networks already exist through the expansion of sewers, construction of a pumping station and installation of household sewerage service connections. This sub-component will: (i) enable the sanitation services to reach currently unserved neighborhoods; and (ii) help connect mostly poor households under affordable conditions.
- 2.3 Support to the Recipient in the areas of: (a) supervision; (b) communication, information and education, related to the activities under Components 2.1 and 2.2.
- 2.4 Carrying out detailed technical studies for the development of a sanitation system for the Dakar East Zone

**Component 3. Institutional Strengthening and Project Management (US\$4.3 million equivalent).** This component aims at supporting sector institutions and the sector reforms, and enabling the Project Coordination Unit (PCU) to deliver its responsibilities through the following sub-components:

- 3.1 Strengthening the Recipient's capacity in groundwater monitoring and knowledge of groundwater resources through (a) construction of ground water monitoring boreholes (piezometers); (b) provision and installation of remote monitoring equipment; and (c) carrying out hydrogeological studies for the region of *Horst Ndiass*.
- 3.2 Support to the Recipient in the reforms of the water and sanitation sector.

3.3 Support to the Recipient in the areas of Project coordination, supervision, financial management, communication and outreach, procurement, monitoring and evaluation, supervision of implementation of the Safeguards Instruments, including through the provision of technical assistance, Training, Operating Costs, goods and services for the purpose.

**B. Project Financing**

31. The financing instrument is Investment Project Financing (IPF), consisting of an IDA credit equivalent to US\$70.0 million, over five years. The selection of the IPF instrument is based on its flexibility and suitability to finance a range of activities, including works, equipment and capacity building.

32. The portion of the IDA credit to the Recipient that will finance Component 1 will be made available to SONES at conditions similar to the ones of the IDA credit.

**C. Project Cost and Financing**

33. Total project financing requirements are estimated at US\$70 million, inclusive of price, physical contingencies and taxes, which will be entirely funded by the IDA Credit. Detailed information on costs and financing sources is provided in Table 2 below.

**Table 2: Project Costs by Component and Source of Financing (US\$ million)**

<b>Project Components</b>	<b>Project cost</b>	<b>IDA Financing</b>	<b>% Financing</b>
1. Water Supply	48.9	48.9	100%
2. Sanitation	16.8	16.8	100%
3. Institutional Strengthening and Project Management	4.3	4.3	100%
<b>Total Costs</b>	70.0	70.0	100%
<b>Total Financing Required</b>	70.0	70.0	100%

**D. Lessons Learned and Reflected in the Project Design**

34. Most of the lessons incorporated in the proposed project design derive from the previous IDA operations in Senegal, and also from the experience accumulated in West Africa in developing access to water and sanitation services through social connection programs and sanitation programs. The experience with urban sanitation in Latin America and the Caribbean is also particularly relevant for Senegal.

- ***Accountability is essential to build and maintain trust with customers.*** Whereas customers and the public in general do not expect much from non-performing utilities, their demands in terms of quality and costs of services increase quickly in the presence of efficient operators, private or public.
- ***Subsidizing access is economically and socially more efficient than subsidizing tariffs.*** The policy of freezing water rates applicable to private consumers and raising public rates well beyond the economic value of water is a clearly inefficient subsidization policy. In contrast, the social connections programs are well-targeted and produce substantial economic benefits that accrue to the new customers, while maximizing the quality of the water service and the health impact of piped water particularly for the poor.

- ***The generalization of access to piped water through household connections requires specific attention to wastewater disposal.*** The increased household water consumption resulting from the shift from standposts or informal supply sources to service connections translates into additional volumes of wastewater. Basic sanitation options focusing on excreta disposal thus need to be complemented by technical solutions for adequate wastewater disposal, which substantially increases the cost of on-site facilities. The experience of the previous LTWSP, as well as sanitation programs implemented in Burkina Faso, show that the development of conventional sewerage may emerge as an economic option, particularly if local conditions (soil conditions or high population density) are not favorable to on-site sanitation.
- ***Lessons from the Brazilian experience on metropolitan and integrated urban water management*** will be made available to Senegal to help inform innovative solutions to sanitation, flood control and drainage issues and can be used to design sanitation sector reforms.

## V. IMPLEMENTATION

### A. Institutional and Implementation Arrangements

35. The proposed project will replicate the implementation arrangements of previous IDA-financed projects in the water and sanitation sector. The urban water component of the project will be implemented by SONES, and the urban sanitation component by ONAS. The overall coordination of the project will be carried out by the existing PEPAM's PCU. The PCU will also manage the implementation of the institutional support component in cooperation with the technical departments of the Ministry of Water and Sanitation. Project oversight will be the responsibility of a Steering Committee (*Comité de coordination et de suivi*, CCS) regrouping representatives of the MHA, sector institutions, and the MEFP.

36. The project implementing agencies are adequately staffed with experienced specialists in procurement, contract management and financial management. IDA's implementation support missions of the ongoing PEPAM-IDA project have consistently rated the procurement and financial management of the project as "Highly Satisfactory". Recent reviews of the ongoing project concluded that the implementation of the environmental and social protection measures was "Satisfactory". There are no overdue audits under projects implemented by the proposed PCU. Updated assessments of the capacities of the implementation agencies were carried out during project pre-appraisal in December 2014 and concluded that the Financial Management risk and the Procurement risk are "Moderate". The assessments identified capacity strengthening actions, particularly to adapt procedures to the specific activities of the proposed project, which are listed in Annex 3. These actions have been completed.

### B. Results Monitoring and Evaluation

37. Project outcome indicators will be calculated using intermediate results and African harmonized ratios in the water and sanitation sector. The contractual framework of the urban water and sanitation sector, and particularly the performance contracts of SONES, SdE and ONAS, provides for an adequate gathering of key indicators of project outcomes, e.g. access data and information on the financial equilibrium of the sector. Information on the population benefitting

from improved services will be collected by SdE. The progress reports produced by the supervising engineers of the water and sanitation works will provide an adequate reporting of indicators of the project's intermediate results.

38. The PCU will compile the data, produce progress and monitoring reports, and initiate specific evaluation studies by independent consultants as needed.

### **C. Sustainability**

39. The Government and the stakeholders' ownership of the sectoral reforms and policies and of the long-term objectives of the water and sanitation sector are key ingredients of sustainability. They have been demonstrated by the satisfactory execution of the previous projects and the successful implementation of the sector reforms. They will be reinforced under the proposed project by: (i) eliminating current water shortages that could eventually undermine the social acceptability of the urban water PPP and of the cost recovery policies; and (ii) the commitment of GoS to proceed with the next round of sector reforms, as demonstrated by the formulation of the Framework Note (see paragraph 18).

40. An additional element of social sustainability is the continuation of pro-poor policies for access to services. The eligibility criteria of the programs developed for social water connections will be based on the characteristics of the diverse urban neighborhoods, particularly in low-income peri-urban areas, which are currently not served or only partly served by the distribution networks. Social water connections will be at no cost to the beneficiary households, who will have to make a small refundable deposit of US\$31, whereas the average price of a standard connection is US\$145. Similar rules will apply to social connections to sewers. Building on previous lessons, the project will target, engage and distinguish the experience of the lowest socio-economic quintiles in the urban population. The baseline will record and monitor the experiences of the most disadvantaged with respect to time taken for getting services, perception of water quality security, reliability, cost, participation and feedback communication processes before and after the project. With public sanitation and Information, Education, and Communication (IEC) for hygiene promotion, attention will be given to promoting women's entrepreneurship through the project as well as access to opportunities for training, business and leadership where feasible.

41. Other features of the project design that will reinforce sustainability include: (i) the effective system of monitoring and evaluation; and (ii) the proven record of performance of the utilities' staff and of the PCU staff.

## **VI. KEY RISKS AND MITIGATION MEASURES**

### **A. Overall Risk Rating and Explanation of Key Risks**

42. The overall risk is considered as "Moderate". The project implementation agencies are experienced and well-versed in the implementation of this type of operation and the technologies to be deployed are fully mastered by all actors. The project is an integral part of a comprehensive water supply program for Dakar and Petite Côte to meet the water demand by 2035, and therefore falls in line with a long-term planning process. Donor actions are properly coordinated via the Unified Activity Framework set up by the Government under the PEPAM. The proposed project follows a series of similar operations funded by IDA in a continuous cycle over two decades, with

successful reforms implemented within a framework of a permanent sector dialogue with all stakeholders and a stable country context.

43. The key residual risk is associated with the effective adoption and implementation of the sector reforms. Given the GoS' commitment to reform expressed in the above-mentioned *Note de Cadrage* (see paragraph 18), and the support provided under component 3 of the proposed project, the Sector Strategies and Policies risk is rated as "Moderate".

## VII. APPRAISAL SUMMARY

### A. Economic and Financial Analyses

44. The main outcome expected from the Project is to enable more than 590,000 persons to get access to improved water and sanitation services at an affordable cost. The Project will also facilitate the transfer of future water production from the KMS 3 scheme. The additional number of beneficiaries of services will consolidate the financial autonomy of the sector to continue investments. Increased access to water and sanitation services will improve the health and hygienic conditions for the population and the environment.

45. *Rationale for public sector provision/financing.* The Senegalese urban water sector has developed a successful PPP, which has been operating since 1996. The sector autonomously covers all its costs, including the debt service, from income generated by water sales. However, considering the social character of the water service, the sector still needs to get on-lent concessional funds to develop the infrastructure and maintain water tariffs at a socially affordable level. The involvement of the private sector through a lease contract has helped to generate productivity gains and reduce operating costs. The sanitation sector is yet to achieve its financial autonomy and partly covers its operating expenditures with the proceeds of the sanitation surcharge applied to water consumption in the sewerage cities, the balance being funded by operating subsidies from the national budget. As regards capital costs, the externalities associated with sanitation justify the continued subsidy of infrastructure development investments while promoting more private sector participation in managing services.

46. *Added Value of the Bank's support.* This project will be a continuation of the Bank's support to the water and sanitation sector in Senegal provided over two decades. The Senegalese model developed with the Bank's support as lead partner in the policy dialogue and the reform design, has achieved highly commendable results as the sector stands out as one of the most efficient in Africa. With Bank's support, this model has been successfully replicated and adapted in other countries in the sub-region (Niger, Cameroon, Burkina Faso and Mali). The Bank's involvement in preparing the second generation reforms will be decisive in creating confidence and visibility for other donors to engage in the long term investment programs of the sector. The Bank's added value will also be high during the project implementation phase, which will need constant support provided by a seasoned decentralized team working in the water sector in Senegal for a long time.

47. *Methodology/scope and next steps.* The economic analysis consists of a cost-benefit analysis to assess the economic impact of the project's urban water component. The economic analysis encompasses about 71 percent of the total project costs. For urban sanitation, where the benefits are obvious but difficult to quantify, a cost-effectiveness analysis has been conducted. The

financial analysis assesses: (i) the financial impact of water activities from the perspective of the urban water supply sector and from SONES; and (ii) the impact of project activities on the financial equilibrium of SONES and ONAS.

48. *Results of the economic analysis.* The Economic Internal Rate of Return (EIRR) of the water-related activities is estimated at 14.4 percent and their Net Present Value (NPV) using a discount rate of 10 percent is estimated at U\$14.6 million. The calculations have been also conducted separately for the sub-components. The social connections sub-component, which generates a substantial consumer surplus, yields the highest EIRR (36.2 percent). The sub-component devoted to the development of groundwater resources in Tassette and Mbour, yields a 10.8 percent EIRR. The Nguekhokh upgrading yields a 15.2 percent EIRR.

49. *Sensitivity Analysis.* The overall results are particularly sensitive to the variation of the water demand (the switching value of this variable amounts to 23.1 percent). However, a weak demand response to the project activities is unlikely, given the current water deficits in the project area.

50. *Sanitation.* The expansion of sewerage services through social connections programs in urban centers already equipped with a sewerage system is competitive, in terms of investment cost per capita (US\$159), with on-site sanitation solutions (US\$141). The unit costs per capita of a new system (US\$232) are 60 percent higher. In the case of Joal-Fadiouth, the technical criteria (water table level and population density) eventually dictate the sanitation options. This is confirmed by the potential cost savings that may accrue to the beneficiaries of the project investments in Joal-Fadiouth, where the costs of emptying conventional latrines are prohibitive and lead to unsafe and environmentally harmful disposal practices (see paragraph 17 of Annex 5).

51. *Financial analysis.* The financial impact of project activities on the urban water supply sector is assessed by the Financial Internal Rate of Return (FIRR) derived from the cost-benefit analysis. Financial calculations take into account the financial revenues and costs in the with/without project situations, including taxes and excluding non-cash generating benefits (consumer surplus). The FIRR is estimated at 8.3 percent. If the analysis is carried out from the sole perspective of SONES<sup>6</sup>, the financial cash-flows are positive during the 6-year grace period of the credit.

52. *Financial perspectives of SONES and ONAS.* Financial forecasts have been prepared using the updated financial model of SONES, which takes into account a medium-term investment program enabling SONES to meet the urban water demand until 2030. The preliminary results of the financial model show that the March 2015 tariff revision will substantially increase SONES' remuneration ( $P_p$  should rise to CFAF 140/m<sup>3</sup>) and that limited and socially-acceptable tariff revisions after 2017 will enable SONES to maintain its financial equilibrium and to cover cash operating expenditures and debt service requirements until 2025, and to reduce its dependency on the revenues billed to administrative users.

53. The March 2015 tariff revision also includes a 35 percent increase of the sanitation surcharge. Financial forecasts prepared for the new Performance Contract between ONAS and the

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<sup>6</sup> In this case, the flow of capital expenditures is replaced by the flow of interests and repayments of the on-lent debt, and the contractual remuneration of SdE has to be deducted from incremental water sales.

Government show that the sanitation surcharge will cover 80 percent of ONAS' cash operating expenditures until 2020.

## **B. Technical**

54. Groundwater resources to be mobilized in Tassette and Mbour have been reviewed by DGPRES, using a model of the aquifer developed by international consultants, and confirmed that the proposed abstraction levels were sustainable. Additional piezometers will be drilled and equipped with remote sensing under Component 3 to provide continuous monitoring of the aquifer.

55. The design studies of the sub-components were reviewed and found to be sound. The transmission and storage facilities of the Tassette sub-component have been designed to facilitate interconnections in the Dakar regional scheme and to optimize energy costs. They represent the least-cost option for addressing water shortages in the short to medium-term.

56. ONAS is already familiar with the sanitation options (sewerage and on-site facilities) and treatment technologies to be used under the proposed project and similar works have been satisfactorily executed in the recent years, particularly for sludge treatment.

57. **Readiness.** All relevant assessments have been completed and their findings have been incorporated in the project design. The project's Steering Committee has been established. The implementation teams are in place within SONES, ONAS and the PCU with adequate capacities, and participated in project preparation. Specialized staff has been trained in Bank procurement. The Project Implementation Manual (PIM) is being updated and the project accounting software has been updated by the PCU. Safeguard documents (Environmental and Social Impact Assessment (ESIA) of the Joal-Fadiouth wastewater treatment plant, Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF)) have been reviewed by the Bank, and were disclosed in-country on March 27, 2015, and at the *Infoshop* on April 13, 2015. Detailed design studies of the water facilities are being financed under the PEPAM-IDA and will be completed by June 2015. The bidding documents of the Joal-Fadiouth sanitation works are available.

## **C. Financial Management**

58. A financial management (FM) assessment of the PCU of PEPAM, which will be in charge of the financial management of the proposed Project, was conducted in December 2014. The objective of the assessment was to determine whether: (a) the PCU has adequate FM arrangements in place to ensure the funds will be used for the intended purposes in an efficient and economical manner and the entity is capable of correctly and completely recording all project related transactions and balances; (b) the Project's financial reports will be prepared in an accurate, reliable and timely manner; (c) the entity's assets will be safeguarded; and (d) the Project will be subject to auditing arrangements acceptable to the Bank. The assessment complied with the Financial Management Manual for World Bank-Financed Investment Operations effective on March 1, 2010.

59. The assessment found that the PCU's existing financial management system can adequately handle FM tasks of this project. FM capacity built under the ongoing PEPAM-IDA will be strengthened to manage the activities of the project. The overall financial management

performance based on the last supervision mission was Highly Satisfactory, and the auditor's opinion of last year's financial statements was unqualified. Moreover, in order to take into account specific activities to be implemented by other entities such as ONAS and SONES, the existing PIM is being updated. The conclusion of the assessment is that the financial management arrangements meet the Bank's minimum requirements under OP/BP10.00. The overall residual risk rating is "Moderate". Details on the Financial Management arrangements for this project are included under Annex 3.

#### **D. Procurement**

60. A formal assessment of the capacity of the proposed project's executing agencies (SONES, ONAS and the PCU) to implement procurement actions was carried out in December 2014 to ensure that IDA standards are adequately met. The detailed procurement responsibilities and activities of these entities with respect to the project components that they execute are provided in paragraphs 20 and 21 of Annex 3. The assessment found that SONES, ONAS, and the PCU, which implemented the Water Sector Project (P002346), the LTWSP, and the PEPAM-IDA, have satisfactory capacities. The PCU staff (unit coordinator and the part-time procurement specialist) is fully experienced in Bank procurement procedures. However, the turnover of technical experts at ONAS must be taken into account, as well as the diverse experience of the staff of procurement units and committees in the parent ministry, the MHA, some of whom have extensive experience in the procurement of other donor-financed projects and have participated in the Bank's and Public procurement training activities during the implementation of the previous water projects. Overall, the capacity to execute the procurement function is average and the risk has been assessed to be "Moderate".

61. The risk mitigation measures include the following: (i) having all requests for no-objection from SONES and ONAS reviewed by the PCU to ensure quality control before sending them to IDA, (ii) using the support of the PCU's procurement specialist to ensure the quality of procurement processes managed by the other agencies, particularly at ONAS, and (iii) organizing training/refresher courses in Bank procurement procedures for the procurement officers (in procurement units and procurement committees) of executing agencies.

62. Procurement under the project will be carried out in accordance with : The Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006, and revised in January 2011; the World Bank's "Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011 and revised July 2014 and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011 and revised July 2014; and the provisions stipulated in the Financing Agreement. The Bank's standard bidding documents shall be used for procurement of works and goods under International Competitive Bidding (ICB), and the Bank's standard Request for Proposal shall be used for large value contracts involving selection of international consultants.

63. Annex 3 provides the thresholds for prior review and procurement methods applicable under the proposed project, as well as a summary of the initial procurement plan.

### **E. Social (including Safeguards)**

64. The project will include rights of way for the water distribution networks, and minimal land acquisition for water production, storage and distribution and sanitation facilities. Therefore, the Borrower prepared a RPF that has been consulted upon and disclosed as a free-standing document along with the ESMF. During project implementation, the screening process will determine whether land would be acquired and whether a sub-project specific Resettlement Action Plan (RAP) is required.

65. The RPF outlines the principles and procedures to be followed in the event of land acquisition, impact on assets and/or loss of livelihoods. Any specific RAP prepared in accordance with the screening result will be negotiated and approved in consultation with all the stakeholders then fully executed before the concerned activity starts.

### **F. Environment (including Safeguards)**

66. The project is classified as B because of the expected moderate magnitude of the negative impacts and risks that would result from its activities. Instead, and apart from risks during exploitation, the overall impact of the project is substantially positive due to improvement of sanitation and living conditions in the intervention areas. The potential sites of the civil works in Joal-Fadiouth are known but those of the investments in the other cities are not. Four safeguard policies have been triggered: Environmental Assessment (OP/BP 4.01); Natural Habitat (OP/BP 4.04); Physical Cultural Resources (OP/BP 4.11) and Involuntary Resettlement (OB/BP 4.12). The World Bank Group Environment Health and Safety guidelines for water and sanitation also apply, especially when it comes to finalizing and incorporating the environmental clauses in the enterprises and plant operators' contracts. To comply with the Bank's policies and the Senegalese environmental regulation, the ESMF and the RPF of the whole project, and the ESIA of the Joal-Fadiouth sanitation (component 2) have been prepared, consulted upon and disclosed in-country on March 27, 2015, and at the Bank Infoshop on April 13, 2015.

67. The ESMF provides a screening mechanism for mainstreaming environmental and social sustainability aspects from identification of subprojects/activities to their implementation phase. As soon as the implementation site is identified, investment subprojects or activities will be processed through the environmental and social screening procedure and then, if eligible, be subject to the preparation and approval of an ESIA/Environmental and Social Management Plan (ESMP) and/or RAP prior implementation. The screening is executed by the PCU's environmental and social safeguard specialist. This process will result in the environmental classification of the subprojects into categories B or C; Category A subproject will not be eligible for financing. The results of the screening are processed according to the national regulations under the control of the Directorate of Environment (*Direction de l'Environnement et des Etablissements Classés*, DEEC).

68. The relevant bodies have been adequately informed of the Project. Communities concerns and some details of consultations have been provided as Annexes in the ESIA, ESMF and RPF. The key concerns raised during the consultation process included: (i) the Mama Gueth oyster farming area should not be threatened; (ii) stormwater drainage should be integrated in the infrastructure designs; (iii) preferential recruitment should be given to qualified local candidates

for jobs and; (iv) the municipality must have the responsibility of operating the public sanitation facilities. These concerns have been addressed in the alternatives proposed through the ESMP.

69. One of the key principles of this project from the outset was to foster participation by all relevant stakeholders. This approach will be sustained throughout project implementation. The environmental and social assessment studies, namely the ESMF and RPF, were also carried out according to the same principle, using a broad-based public consultation approach, involving the above stakeholder groups. The objective was to raise awareness of project activities and impacts and to foster ownership on the part of the community and stakeholders.

70. The Borrower has reasonable capacity in implementing environmental and social safeguard measures in water and sanitation projects. It has successfully implemented the ESMP and RAP of the PEPAM-IDA project including activities that are similar to those of the proposed project. The last supervision missions of the PEPAM-IDA project concluded that the implementation of the Environmental Management Plan (EMP) was appropriate and the safeguard rating was “Satisfactory”. The same institutional framework used for PEPAM-IDA will be adopted for the proposed project e.g. the PCU will monitor the overall implementation of the EMP, implementing agencies are responsible for their applicable portions of the EMP, and a full time Safeguard Specialist has been recruited to strengthen the safeguard function of the PCU. An amount of US\$0.34 million is earmarked in the project budget to ensure the implementation of the safeguard measures.

#### **G. Other Safeguards Policies Triggered**

*Not applicable*

#### **H. World Bank Grievance Redress**

71. Communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to the responsible country authorities, appropriate local/national grievance redress mechanisms, or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address pertinent concerns. Affected communities and individuals may submit their complaint to the Bank's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate GRS, please visit <http://www.worldbank.org/GRS>. For information on how to submit complaints to the World Bank Inspection Panel, please visit <http://www.inspectionpanel.org>.

**Annex 1: Results Framework and Monitoring**  
**SENEGAL: URBAN WATER AND SANITATION PROJECT**

**Results Framework**

**Project Development Objectives**

PDO Statement

The objective of the project is to improve access to water and sanitation services in selected urban areas in a financially sustainable manner.

**These results are at**

Project Level

**Project Development Objective Indicators**

Indicator Name	Core	Unit of Measure	Baseline	Cumulative Target Values					Frequency	Data Source/ Methodology	Responsibility for Data Collection
				FY16	FY17	FY18	FY19	FY20			
Number of people in urban areas provided with access to “improved water sources” under the Project	<input checked="" type="checkbox"/>	Number	0	0	45 ,000	135 ,000	180 ,000	180 ,000	Annual	Progress reports from PCU	SONES/SdE
Number of people in urban areas provided with access to “improved sanitation facilities” under the Project	<input checked="" type="checkbox"/>	Number	0	0	0	26 ,000	60 ,000	80 ,000	Annual	Progress reports from PCU	ONAS
Number of people with access to enhanced water supply services under the Project	<input type="checkbox"/>	Number	0	0	0	220 ,000	330 ,000	330 ,000	Annual	Progress reports from PCU	SONES/SdE

Direct Project beneficiaries	<input checked="" type="checkbox"/>	Number	0	0	45 ,000	381 ,000	570 ,000	590 ,000	Annual	Progress reports from PCU	PCU
Female beneficiaries	<input checked="" type="checkbox"/>	Percentage Sub-Type Supplemental	NA	50%	50%	50%	50%	50%	Annual	Progress reports from PCU	PCU
Financial equilibrium of the urban water supply sub-sector	<input type="checkbox"/>	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Annual	Annual review of financial model	SONES
Coverage of cash operating expenditures of sewerage activities of ONAS	<input type="checkbox"/>	%	69%	73%	77%	81%	85%	90%	Annual	ONAS	ONAS
Beneficiary feedback	<input checked="" type="checkbox"/>	Percentage	0	0	0	0	0	80	Annual	Survey	PCU

#### Intermediate Results Indicators

##### Component 1: Water Supply

##### Intermediate Result: Increase and improve access to water services

Additional water production capacity constructed under the Project	<input type="checkbox"/>	m3/day	0	0	0	23 ,100	35 ,500	35 ,500	Annual	Progress reports from supervising engineers	SONES
New piped household water connections that are resulting from Project interventions	<input checked="" type="checkbox"/>	Number	0	0	5 ,000	15 ,000	20 ,000	20 ,000	Annual	Activity reports from SdE	SONES/SdE
Water storage capacity constructed under the Project	<input type="checkbox"/>	m <sup>3</sup>	0	0	0	4 ,600	24 ,600	24 ,600	Annual	Progress reports from supervising engineers	SONES
Length of feeder pipes constructed under the Project	<input type="checkbox"/>	Km	0	0	0	10	30	45	Annual	Progress reports from supervising engineers	SONES

**Component 2: Sanitation**

**Intermediate Result: Increase access to sanitation services**

New household sewer connections constructed under the Project	<input checked="" type="checkbox"/>	Number	0	0	0	1,500	4,500	6,000	Annual	Activity reports from ONAS	ONAS
On-site sanitation facilities constructed under the Project	<input type="checkbox"/>	Number	0	0	0	0	150	320	Annual	Activity reports from ONAS	ONAS
Length of sewers constructed under the Project	<input type="checkbox"/>	Km	0	0	0	30	60	100	Annual	Progress reports from supervising engineers	ONAS

**Component 3: Institutional Strengthening and Project Management**

**Intermediate Result:**

Adoption of a new institutional framework for urban water and sanitation	<input type="checkbox"/>	Yes/No	No	No	No	No	Yes	Yes	Annual	MHA	PCU

## Appendix 1 to Annex 1: Results Framework and Monitoring

### SENEGAL: URBAN WATER AND SANITATION PROJECT

#### Results Framework

<b>Project Development Objective Indicators</b>	
Indicator Name	Description
Number of people in urban areas provided with access to “improved water sources” under the Project	<p>This indicator measures the number of people in urban areas who benefited from “improved water sources” under the Project. Improved water sources include piped household connections (house or yard connections), public standpipes, public kiosks, boreholes, protected dug wells, protected springs and rainwater collection. Hence, “improved water sources” do not include, inter alia, water provided through tanker truck or vendor, unprotected wells, unprotected springs, surface water (river, pond, dam, lake, stream, irrigation channel), or bottled water. The definition of what is considered an “improved water source” follows the UNICEF-WHO Joint Monitoring Program definition. Note that “improved water sources” does not refer to the question of new versus rehabilitated water sources, but is the standard definition used to track progress on the Millennium Development Goals.</p> <p>= Number of new social connections x [9<sup>7</sup> people]</p>
Number of people in urban areas provided with access to “improved sanitation” under the Project	<p>This indicator measures the cumulative number of people in urban areas who benefited from improved sanitation facilities that have been constructed under the Project. “Improved sanitation facilities” include flush/pour-flush into a piped sewer system, septic tank or pit latrine, VIP latrine, pit latrine with slab, composting toilet. Hence, “improved sanitation facilities” do not include, inter alia, flush/pour-flush toilets to elsewhere (i.e., not to a sewer network, septic tank or pit latrine), bucket, hanging toilet/latrine, public facility, a shared improved facility, or no facilities, bush or field (i.e. open defecation).The definition of what is considered an “improved sanitation facility” follows the UNICEF-WHO Joint Monitoring Program definition. Note that “improved sanitation facilities” do not refer to the question of new versus rehabilitated sanitation facilities, but is the standard definition used to track progress on the Millennium Development Goals.</p>

<sup>7</sup> The average number of people per water connection is lower than the average number of people per sewerage connection because there is only one sewerage connection per compound/housing unit, while there may be multiple water connections per compound/housing unit.

	= Number of new sewer connections x [13 <sup>7</sup> people] + Number of on-site sanitation facilities x [13 people]
Number of people with access to enhanced water supply services under the Project	This indicator measures the cumulative number of people in urban areas currently having access to water services who received piped water from production facilities constructed under the Project. = Daily production of new facilities (m <sup>3</sup> /day) x 1,000 x 0.8 (network efficiency) / (1.3 (peak factor) x 65 lpcd (average daily consumption per capita))
Direct Project beneficiaries, of which female beneficiaries	Direct beneficiaries from water supply and sanitation interventions under the Project, the percentage of whom are female. = Sum of above target values; percentage of female beneficiaries = 50 %
Financial equilibrium of the urban water supply sub-sector	SONES' net cash balance (previous year plus net cash flow from operations minus debt service and variation of working capital requirements) positive or equal to zero
Coverage of cash operating expenditures of sewerage activities of ONAS	/ Annual revenues from sewerage surcharges/Annual cash operating expenditures of ONAS' sewerage activities
Beneficiary feedback	Beneficiaries that feel project investments reflected their needs (percentage)

### Intermediate Results Indicators

Indicator Name	Description
Additional production capacity constructed under the Project	Daily water production capacity of the facilities constructed under the Project in Tassette, Mbour and Nguekhokh.
New piped household water connections that are resulting from Project interventions	Number of new social water connections installed by SdE.
Water storage capacity constructed under the Project	Capacity of water storage tanks constructed under the Project
Length of feeder pipes constructed under the Project	Length of water pipes with diameter greater or equal to 500 mm constructed under the Project
New household sewer connections constructed under the Project	Number of new sewer connections installed by ONAS. This includes household connections to a condominal system.
On-site sanitation facilities constructed under the Project	Number of on-site sanitation facilities constructed under the Project.
Length of sewers constructed under the Project	Length of sewer pipes with diameter greater or equal to 200 mm constructed under the Project
New institutional framework for urban water and sanitation	Adoption of a new institutional and contractual framework for urban water and sanitation.

**Annex 2: Detailed Project Description**  
**SENEGAL: URBAN WATER AND SANITATION PROJECT**

1. This Annex reviews how the existing challenges facing urban water and sanitation services and the project development objective are addressed by the project components and provides a detailed description of activities financed under the project.

**Relationship between Project Components and PDO**

2. The overall objective of the proposed project is to improve access to water and sanitation services in selected urban areas in a financially sustainable manner.

3. The PDO will be achieved through: (i) expanding water transmission, storage and distribution capacities and constructing sanitation infrastructure; (ii) facilitating access to services through programs for constructing social water and sewerage connections; and (iii) supporting the reforms of the water and sanitation sector to strengthen capacities to deliver and manage services.

4. The first water sub-components of the proposed project will improve the quality of water services by eliminating current water shortages through the development of groundwater resources. The development of the Tassette groundwater resources will make water volumes equivalent to 23,100 m<sup>3</sup> per day available first to Dakar consumers, pending the completion of long-term supply schemes in 2021, then to Petite Côte consumers. The development of groundwater resources in Mbour will provide an additional volume equivalent to 7,700 m<sup>3</sup> per day to existing water customers in Petite Côte. The second water sub-component will help restore an adequate level of services in Nguekhokh through the upgrading of water facilities, including an additional production capacity of 4,700 m<sup>3</sup> per day.

5. The third water sub-component and the sanitation sub-component will help improve access to safe water and improved sanitation outside of Dakar. The development of access to water services will be prioritized through the construction of 20,000 social connections for the population in low-income neighborhoods, as household connections allow for providing more water at a reasonable cost. The construction of sanitation facilities in Joal-Fadiouth and the implementation of social connections in selected sewered cities will enable more than 6,300 households to obtain access to improved sanitation. Joal-Fadiouth was selected as a priority for establishing a sewerage system, since the city experiences severe sanitation and environmental problems stemming from its location on the coast, compounded by a high water table and the population density.

6. The third component of the proposed project will support the GoS in preparing and implementing the next round of reforms in the urban water and sanitation sector, in view of the end of the current PPP contract with SdE by 2018 and the need for more private sector participation in delivering urban sanitation services and financing rehabilitation programs. On rural water, the proposed project will continue to support reforms initiated under the PEPAM-IDA project, which led to a higher involvement of private operators in managing rural water facilities. The component will also finance the development and implementation of the Environmental and Social Management Plan of the project, and the operating costs of the Project Coordination Unit.

## Detailed Project Activities

7. Detailed project activities, together with their costs (including contingencies and excluding taxes) are listed below.

**Component 1 - Water Supply (US\$48.9 million equivalent):** The following activities are planned under this component:

### 1.1 *Development of groundwater resources, including:*

1.1.1 *Development of groundwater resources in the Tassette area (US\$20.01 million).* This sub-component will help increase the availability of water and improve the quality of water services in Dakar and Petite Côte by:

(i) expanding the water production capacity by approximately 23,100 m<sup>3</sup> per day by drilling and equipping seven new boreholes in Tassette, installing a booster pumping station and constructing ground storage tanks (500 m<sup>3</sup>), and supplying and laying connection pipes to collect groundwater;

(ii) expanding the water transmission capacity by supplying and laying:

- a 17-kilometer feeder pipe (ductile cast iron (DCI), diameter (DN) 600 mm) linking the Tassette well field to the new storage tanks in the South of Thiès; and
- a 5-kilometer feeder pipe (DCI, DN 700 mm) linking existing storage tanks in the North of Thiès to the new ones.

(iii) expanding the storage capacity by approximately 20,000 m<sup>3</sup> through the construction of two 10,000 m<sup>3</sup> ground storage tanks in the South of Thiès; and

(iv) financing consulting services for the supervision and technical control of the above works.

1.1.2 *Development of groundwater resources in the Mbour area (US\$20.18 million).* This sub-component will help increase the availability of water and improve the quality of water services in the petite Côte by:

(i) expanding the water production capacity by approximately 7,700 m<sup>3</sup> per day by drilling and equipping two new boreholes in Mbour and Somone and supplying and laying connection pipes to collect groundwater;

(ii) expanding the water transmission capacity by:

- installing a booster pumping station in Mbour; and
- supplying and laying a 24-kilometer feeder pipe (DCI, DN 700 mm) linking the Mbour pumping station to the new water storage tanks in Mbodiène and Pointe Sarène.

(iii) expanding the storage capacity by approximately 3,500 m<sup>3</sup> through the construction of two elevated storage tanks in Mbodiène and Pointe Sarène; and

(iv) financing consulting services for the supervision and technical control of the above works and the Nguekhokh works.

1.2 *Upgrading Nguekhokh water system (US\$3.17 million).* This sub-component will help rehabilitate and improve water infrastructure in Nguekhokh by:

(i) Expanding the water production capacity by approximately 4,700 m<sup>3</sup> per day by drilling and equipping two new boreholes in Nguekhokh;

(ii) expanding the storage capacity by approximately 1,100 m<sup>3</sup> through the construction of one elevated storage tank in Nguekhokh and the rehabilitation of a technical building; and  
(iii) improving the water distribution by rehabilitating and constructing approximately 42 kilometers of distribution pipes and rehabilitating standposts and approximately 1,500 water service connections.

- 1.3 *Social connections program (US\$4.83 million)*. This sub-component will help increase access to safe water in selected urban centers by:  
(i) supplying and laying approximately 160 kilometers of water distribution pipes; and  
(ii) installing approximately 20,000 social connections.
- 1.4 *Technical studies (US\$0.69 million)*. This sub-component will help finance consulting services for the detailed design of the expansion of transmission and distribution networks in Dakar poles and Petite Côte.

**Component 2 – Sanitation (US\$16.8 million equivalent)**: The following activities are planned under this component:

- 2.1 *Sanitation facilities in Joal-Fadiouth (US\$9.53 million)*. This sub-component will help provide a full range of sanitation options to the population by:  
(i) establishing a sewerage network, including:
  - supplying and laying approximately 44 kilometers of sewers;
  - supplying and installing five sewage pumping stations; and
  - supplying and installing approximately 3,000 house connections(ii) constructing treatment facilities, including:
  - a wastewater treatment plant (lagoons) with a capacity of 2,000 m<sup>3</sup> per day; and
  - a sludge treatment plant with a capacity of 60 m<sup>3</sup> per day(iii) constructing approximately 320 in-site household sanitation facilities (septic tanks, soakaway pits and washing basins) and eight public toilets.
- 2.2 *Sanitation in selected urban centers (US\$5.89 million)*. This sub-component will help increase access to sewerage services through social connections programs in the following urban centers, in which sewerage networks already exist:  
(i) Diourbel: Expansion of the sewers by approximately 15 kilometers and provision and installation of approximately 760 social connections;  
(ii) Mbour: Expansion of the sewers by approximately 25 kilometers and provision and installation of approximately 1,270 social connections;  
(iii) Richard Toll: Expansion of the sewers by approximately 15 kilometers and provision and installation of one sewage pumping station and approximately 985 social connections.
- 2.3 *Financing consulting services (US\$0.94 million)* for:  
(i) supervision and control of the above activities; and  
(ii) information, education and communication for Joal-Fadiouth activities and the social connections programs;
- 2.4 *Financing consulting services (US\$0.43 million)* for design studies associated with the Dakar Sanitation Master Plan.

**Component 3 – Institutional Strengthening and Project Management (US\$4.3 million equivalent):** The following activities are planned under this component:

- 3.1 *Support to DGPRES (US\$0.74 million).* This sub-component will help strengthen groundwater monitoring and improve knowledge of groundwater resources, by:
  - (i) constructing four piezometers of the Paleocene aquifer and two piezometers of the Maastrichtian aquifer;
  - (ii) supplying and installing remote monitoring equipment; and
  - (iii) financing additional hydrogeological studies of the Ndiass Horst system.
- 3.2 *Technical and institutional studies (US\$1.12 million).* This sub-component will support sector reforms through the provision of consulting services to:
  - (i) assist the GoS task force in charge of formulating the next round of urban water and sanitation sector reforms;
  - (ii) help OFOR implement the rural water supply sector reform; and
  - (iii) assist ONAS and GoS update the performance contract.
- 3.3 *Support to project management (US\$2.47 million)* through the provision of:
  - (i) one vehicle and equipment (office technology) for the PCU;
  - (ii) consulting services and operating costs for the PCU during two years (FY19 and FY20);
  - (iii) financial audits of the project;
  - (iv) beneficiaries ‘surveys; and
  - (v) support to implementation of the ESMP.
8. The detailed costs of the project activities are provided in the attached Appendix

## Detailed Costs of Project Activities

Activities	Unit	Quantity	Unit Price (CFAF'000)	Cost (CFAF M)	Cost (US\$ M)
<b>Component 1 (Water Supply)</b>				<b>28,349</b>	<b>48.88</b>
<b>1.1 Development of groundwater resources</b>				<b>23,309</b>	<b>40.19</b>
<b>1.1.1 Tassette</b>				<b>11,607</b>	<b>20.01</b>
<i><b>Boreholes</b></i>					
Drilling	No.	7	100,000	700	1.21
Boreholes equipment and connection pipes	No.	7	70,000	490	0.84
Connection pipes DCI DN150	m	3,850	54	208	0.36
Pumping station and ground water storage tank (500 m <sup>3</sup> )	Lump Sum	1	1,410,100	1,410,	2.43
<i><b>Pipes</b></i>					
Transmission pipes DCI DN600	m	16,555	268	4,438	7.65
Transmission pipes DCI DN800	m	4,691	280	1,312	2.26
<i><b>Water Storage</b></i>					
Thiès storage tanks (2 x 10.000 m <sup>3</sup> )	No.	1	2,500,000	2,500	4.31
<i><b>Control and supervision</b></i>					
Supervision	Lump Sum	1	500,000	500	0.86
Technical control (10-year warranty)	Lump Sum	1	50,000	50	0.09
<b>1.1.2. Mbour-Mbodiène</b>				<b>11,702</b>	<b>20.18</b>
<i><b>Boreholes</b></i>					
Drilling (F11 Mbour, F4 Somone)	No.	2	90,000	180	0.31
Boreholes equipment	No.	1	200,000	200	0.34
Boreholes equipment (F11 Mbour)	No.	1	255,000	255	0.44
Boreholes re-equipment (F4 Somone)	No.	1	80,000	80	0.14
Supply and laying connection pipes DN200	m	7,150	65	465	0.80
Pumping station, civil engineering and equipment (R2 Mbour)	Lump Sum	1	675,000	675	1.16
<i><b>Pipes</b></i>					
Transmission pipes Mbour-Mbodiène DCI DN700	m	24,400	280	6,822	11.76
<i><b>Water Storage</b></i>					
Mbodiène water storage tank 2,000 m <sup>3</sup>	No.	1	1,000,000	1,000	1.72
Pointe Sarène water storage tank 1,500 m <sup>3</sup>	Lump Sum	1	1,500,000	1,500	2.59
<i><b>Supervision</b></i>					
Supervision (Mbour-Mbodiène and Nguekhokh)	Lump Sum	1	500,000	500	0.86
Technical control (Mbour-Mbodiène and Nguekhokh)	Lump Sum	1	25,000	25	0.04
<b>1.2 Nguekhokh System Upgrading</b>				<b>1,840</b>	<b>3.17</b>

Activities	Unit	Quantity	Unit Price (CFAF'000)	Cost (CFAF M)	Cost (US\$ M)
<b>Boreholes</b>					
Drilling (F3 and F4 Nguekhokh)	No.	2	100,000	200	0.34
Borehole equipment (F3 Nguekhokh)	No.	1	210,000	210	0.36
Borehole equipment (F4 Nguekhokh)	No.	1	210,000	210	0.36
<b>Water Storage</b>					
Elevated storage tank 1,100 m <sup>3</sup> in Nguekhokh and building rehabilitation	No.	1	650,000	650	1.12
<b>Pipes</b>					
Rehabilitation and expansion networks and standposts	m	42,000	10	420	0.72
Renewal of connections	No.	1,500	100	150	0.26
<b>1.3 Social Connections</b>				<b>2,800</b>	<b>4.83</b>
Social Connections	No.	20,000	100	2,000	3.45
Network expansion for social connections	m	160,000	5	800	1.38
<b>1.4 Technical Studies</b>				<b>400</b>	<b>0.69</b>
Detailed design for expansion of transmission and distribution networks Dakar poles and Petite Côte	Lump Sum	1	400,000	400	0.69
<b>Component 2 (Sanitation)</b>				<b>9,734</b>	<b>16.78</b>
<b>2.1 Joal-Fadiouth</b>				<b>5,526</b>	<b>9.53</b>
<b>Lot 1:</b>					
Sewerage networks (with manholes)	m	44,510	44	1,976	3.41
House connections	No.	2,967	250	742	1.28
Pumping stations	No.	5	150,000	750	1.29
<b>Lot 2:</b>					
Wastewater treatment plant	m <sup>3</sup> /day	1,978	750	1,484	2.56
Sludge treatment plant	m <sup>3</sup> /day	60	5,500	330	0.57
<b>Lot 3:</b>					
Septic tanks, soakaway pits and washing basins	No.	321	631	202	0.35
Public latrines	No.	8	5,200	42	0.07
<b>2.2 Social Connections in Sewered Cities</b>				<b>3,416</b>	<b>5.89</b>
<b>Diourbel</b>					
Sewerage networks (with manholes)	m	15,200	44	675	1.16
House connections	No.	760	250	190	0.33
<b>Mbour</b>					
Sewerage networks (with manholes)	m	25,460	44	1,131	1.95
House connections	No.	1,273	250	318	0.55
<b>Richard Toll</b>					
Sewerage networks (with manholes)	m	14,775	44	656	1.13

Activities	Unit	Quantity	Unit Price (CFAF'000)	Cost (CFAF M)	Cost (US\$ M)
House connections	No.	985	250	246	0.42
Pumping stations	No.	1	200,000	200	0.34
<b>2.3 Control and supervision and IEC</b>				<b>542</b>	<b>0.94</b>
Supervision Joal-Fadiouth	Lump Sum	1	248,662	249	0.43
Supervision Social connections	Lump Sum	1	153,727	154	0.27
IEC Joal-Fadiouth	Lump Sum	1	90,000	90	0.16
IEC social connections	Lump Sum	1	50,000	50	0.09
<b>2.4 Studies</b>				<b>250</b>	<b>0.43</b>
Detailed design and bidding docs Sanitation Master Plan of Dakar East	Lump Sum	1	250,000	250	0.43
<b>Component 3 (Institutional Strengthening and Project Management)</b>				<b>2,515</b>	<b>4.34</b>
<b>3.1 Support to DGPRES</b>				<b>430</b>	<b>0.74</b>
<i>Piezometers</i>					
Paléocène aquifer	No.	4	30,000	120	0.21
Maastrichtian aquifer	No.	2	50,000	100	0.17
<i>Supply of Equipment</i>					
Remote metering and control	Lump Sum	1	30,000	30	0.05
<i>Additional Groundwater Studies Ndiass Horst System</i>	Lump Sum	1	180,000	180	0.31
<b>3.2 Technical and Institutional Studies</b>				<b>650</b>	<b>1.12</b>
TA to ONAS	Lump Sum	1	100,000	100	0.17
2nd generation institutional studies	Lump Sum	1	300,000	300	0.52
Support to rural water supply reform	Lump Sum	1	250,000	250	0.43
<b>3.3 PCU. Support</b>				<b>1,435</b>	<b>2.47</b>
Financial audits	Lump Sum	1	25,000	25	0.04
Project Coordination and Management	Lump Sum	1	1,110,000	1,110	1.91
Beneficiaries Surveys	No.	2	50,000	100	0.17
Support to implementation of ESMP	Lump Sum	1	200,000	200	0.34
<b>TOTAL</b>				<b>40,598</b>	<b>70.00</b>

## **Annex 3: Implementation Arrangements**

### **SENEGAL: URBAN WATER AND SANITATION PROJECT**

#### **Project Institutional and Implementation Arrangements**

1. The institutional implementation arrangements are similar to those used in previous IDA-financed projects in the urban water and sanitation sector, which proved to be efficient and ensured a satisfactory execution of activities.

#### ***Project administration mechanisms***

2. *Oversight.* A Steering Committee (*Comité de coordination et de suivi*, CCS) was established by Ministerial Decision no. MHA/5317 on April 8, 2015 to oversee the implementation of the proposed project. It regroups representatives of MHA, MEFP (represented by the Directorate of Economic and Financial Cooperation and the Directorate of Investment (DI), DEEC, SONES, ONAS and OFOR and the PCU as the CCS secretary.

3. *Project Management and Coordination.* The existing PEPAM's PCU will ensure the financial management and overall coordination of the proposed project. It will (i) carry out financial management; (ii) prepare annual work plans and budgets, to be approved by the CCS and the Association; and (iii) ensure monitoring and evaluation and reporting (including safeguards and financial reporting).

4. *Implementation Responsibilities.* The urban water component of the project will be implemented by SONES, and the urban sanitation component by ONAS. The PCU will manage implementation of the institutional support and project management component in cooperation with the technical departments of the MHA.

#### **Financial Management, Disbursements and Procurement**

#### ***Financial Management Assessment***

5. The assessment found the PCU's existing financial management system to be adequate to handle the FM tasks of this project. The FM capacity built under the ongoing PEPAM-IDA will be strengthened to manage the activities of the project. The overall financial management performance based on the last supervision mission was Highly Satisfactory, and the auditor's opinion of the last year's financial statements was unqualified. However, the actions needed to be taken to enhance the financial management arrangements for the Project, particularly in order to account for the specific activities of the proposed project, were agreed at pre-appraisal. Table 3-1 below provides their current status. The assessment concluded that the financial management arrangements meet the Bank's minimum requirements under OP/BP10.00. The overall residual risk rating is Moderate.

**Table 3-1: FM Action Plan**

	<b>Action</b>	<b>Date due</b>	<b>Responsible</b>
1	Prepare and agree with the Bank on the format of the IFRs.	Done	PCU
2	Update the existing FM manual to take into account the financial management arrangements of this project	Not later than one month after effectiveness	PCU
3	Extension of the PCU auditor' s contract	Not later than four months after effectiveness	PCU

***Financial Management Arrangements***

6. *Budgeting.* The budgeting process and monitoring will be clearly defined in the administrative, financial and accounting procedures incorporated in the Project Implementation Manual (PIM) and the budget will be adopted by the Project Steering Committee before the beginning of the year. Annual draft budgets will be submitted for the Bank’s no-objection before adoption and implementation. Reports of budget monitoring and recommendations will be prepared by the FM team every quarter and included in the Interim Financial Reports (IFR).

7. *Accounting.* The current accounting standards in use in Senegal for on-going Bank-financed projects will be applicable. SYSCOA is the assigned accounting system in the West Africa Economic and Monetary Union (WAEMU) countries. Project accounts will be maintained on an accrual basis, supported with appropriate records and procedures to track commitments and to safeguard assets. Annual financial statements will be prepared by the PCU in accordance with the SYSCOA. Accounting and control procedures will be documented in the updated PIM.

8. *Internal control.* The existing PIM of the PCU is being updated in order to: (i) clearly define FM procedures; (ii) give a clear description of operations documentation; (iii) provide a clear description of the internal control systems that will be used by the project; (iv) maintain an appropriate safeguard of the assets and funds; (v) clarify roles and responsibilities of all stakeholders particularly for ONAS and SONES; and (vi) give a clear description of the budget monitoring and reporting process.

9. *Financial Reporting.* The PCU will produce quarterly unaudited IFRs, which will include sources and uses of funds by project expenditures classification and a comparison of budgeted and actual project expenditures (commitment and disbursement) to date and for the quarter. The IFRs are to be submitted to the Bank within 45 days after the end of the calendar quarter. The PCU has already prepared and agreed with the Bank on the format of the IFRs. The PCU will produce Annual Financial Statements, and these statements will comply with SYSCOA and World Bank requirements. These Financial Statements<sup>8</sup> will comprise of:

- A Statement of Sources and Uses of Funds
- A Statement of Commitments
- Accounting Policies Adopted and Explanatory Notes
- Reconciliation of the Designated Account

<sup>8</sup> It should be noted that the project financial statements should be all inclusive and cover all sources and uses of funds and not only those provided through IDA funding. It thus reflects all program activities, financing, and expenditures, including funds from other development partners.

- A Management Assertion that project funds have been expended for the intended purposes as specified in the relevant financing agreements.

10. *External Auditing.* The Financing Agreement will require the submission of Audited Financial Statements for the project to IDA within six months after year-end. An external auditor with qualification and experience satisfactory to the World Bank will be appointed to conduct an annual audit of the project’s financial statements. The contract for the existing auditor of the PCU will be extended to take into account the audit of the proposed project.

11. The Audit Report and Due Date table below summarizes the auditing requirements:

Audit Report	Due Date
Annual audited financial statements and Management Letter (including reconciliation of the Designated Accounts with appropriate notes and disclosures).	End of June

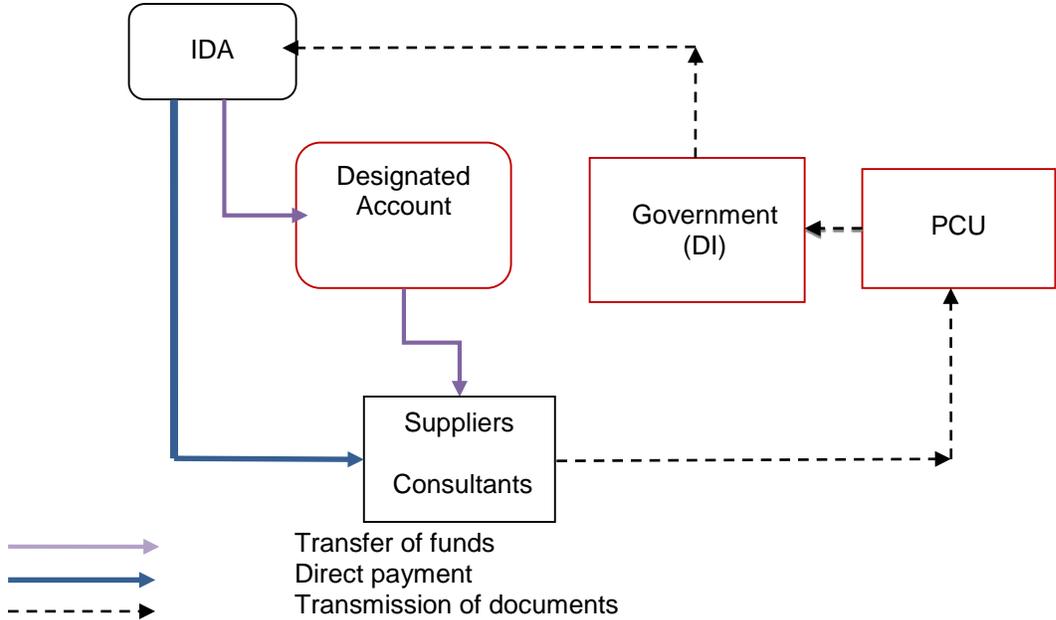
12. *Financial Covenants.* The Borrower shall establish and maintain a financial management system including records, accounts and preparation of related financial statements in accordance with accounting standards acceptable to the Bank. The Financial Statements will be audited in accordance with international auditing standards. The Audited Financial Statements for each period shall be furnished to the Association not later than six (6) months after the end of the project fiscal year. The Borrower shall prepare and furnish to the Association not later than 45 days after the end of each calendar quarter, interim un-audited financial reports for the Project, in form and substance satisfactory to the Association. The Borrower shall comply with all the rules and procedures required for withdrawals from the Designated Accounts of the project.

***Disbursements***

13. *Disbursement Methods,* The following disbursement methods may be used under the project: reimbursement, advance, direct payment and special commitment as specified in the Disbursement Letter and in accordance with the World Bank Disbursement Guidelines for Projects, dated May 1, 2006. Disbursements will be transactions-based where withdrawal applications will be supported with Statements of Expenditures (SOE). A segregated Designated Account (DA) will be opened in a commercial bank acceptable to the Association to facilitate payment for eligible expenditures. The DA will be managed according to the disbursement procedures described in the administrative and financial procedures manual in compliance with the Disbursement Letter. The DA will be managed by the Directorate of Investment (DI) of MEFP, in coordination with the PCU. The ceiling of the DA will be set to CFAF 2.3 billion and will cover approximately four months of expenditures. The DA will be replenished through the submission of withdrawal applications on a monthly basis by the PCU through the DI and will include SOEs and documents as may be required.

14. *Funds Flow Arrangements.* Funds flow arrangements for the project are as follows:

**Funds Flow Chart**



15. The allocation of IDA financing across categories of expenditures is outlined in the table below.

**Table 3-2: Allocation of IDA Financing (USD million)**

<i>Category</i>	<i>Amount of the Credit expressed in USD</i>	<i>Percentage of Expenditures to be Financed (inclusive of taxes)</i>
(1) Goods, works, non-consulting services, and consultants' services, Training and Operating Costs for the Project	70,000,000	100%
<b>TOTAL AMOUNT</b>	70,000,000	

**Procurement**

16. *National procurement system and ongoing reforms.* Senegal adopted a Public Procurement Law in June 2006 and a new Public Procurement Code (decree N° 2014-1212, dated September 22, 2014), as part of the action plan of the Country Procurement Assessment Review for Senegal carried out in FY03. The new Public Procurement Code increased the procurement thresholds and introduced a new concept of unsolicited bids. The legal framework is in line with the international

standards and WAEMU's guidelines. The independent Procurement Regulatory Authority (*Autorité de Régulation des Marchés Publics*, ARMP) responsible for policy and handling complaints from bidders and the National Procurement Department (DCMP) responsible for controls of procurement transactions are fully operational and appropriately carry out their respective missions. Controls within most key contracting authorities are effective through their respective Procurement Commission and Procurement Units. A system (SIGMAP) for collecting, disseminating, and managing procurement information and monitoring procurement statistics has been developed and is operational at the level of the DCMP and some line ministries. The Government intends to apply the SIGMAP to all contracting authorities, including municipalities, in order to improve efficiency, information gathering, and monitoring of procurement transactions. Most of the key decisions as regard sanctions, contract awards, sole source justifications, and complaints are posted on the Public Procurement Website ([www.marchespublics.sn](http://www.marchespublics.sn)). National Standard Bidding Documents have been drafted and are being used by contracting authorities. However, there is a need to ensure regular external and internal procurement compliance reviews from the ARMP and to strengthen the capacity of its new Procurement Investigation Unit. In general, Senegal's procurement laws and regulations do not conflict with IDA guidelines. However, provisions restricting the eligibility of bidders to those coming from WAEMU countries only will not be applied. No special exceptions, permits, or licenses need to be specified in credit documents since IDA procedures take precedence over those laws and regulations

### ***Capacity Assessment and Remedial Actions***

17. An assessment of the executing agencies' capacity to implement procurement was carried out by the Bank's procurement specialist in November 2009. This assessment was revised and updated in December 2014. The assessment reviewed the organizational structure for implementing the project and the interaction between the different agencies involved in the project. The assessment found that SONES, ONAS, and the PCU possessed satisfactory know-how, technical expertise, and experience in Bank procurement procedures during the implementation of the past and ongoing IDA-financed projects. Their procurement capacities include: (i) having acceptable experience in applying the Bank's procurement procedures (from planning to contract awards), (ii) having demonstrated proficiency in managing contracts (scheduling and quality control of delivery), and (iii) having staff with acceptable knowledge in procurement procedures. In addition, the PCU has recruited an experienced procurement specialist under AfDB financing.

18. As regards MHA, the Ministry's procurement organizational structure and conformity with the national procurement law is satisfactory. A procurement unit exists and is responsible mainly for (i) controlling quality and application of the rules, and (ii) advising all the decision-makers on procurement matters. A ministerial committee in charge of bid opening, evaluation, and contract award is operational. The various entities have diverse procurement experiences. Several staff members of these entities were trained in World Bank and National procurement procedures during the implementation of previous IDA-financed projects.

19. An agreement has been reached on the following corrective measures:

- (a) The existing PIM is being updated to be in accordance with Bank's procurement procedures and to clarify the role of staff involved in the procurement process and in the review and approval system.

- (b) Training sessions and workshops will be organized for beneficiaries and financed by the project (workshop for staff involved in procurement, key staff in the agencies, and members of Procurement Units and Procurement committees of MHA) at project launch; training sessions in procurement will be organized by the Bank and agreed-upon local institutes.
- (c) All procurement documents from the MHA will be transmitted for no-objection through the PCU, to ensure quality control.
- (d) The procurement specialist based in the PCU will support procurement processes within the executing agencies.
- (e) An adequate electronic filing system was set up for the project records.
- (f) An assessment will be conducted internally to evaluate the performance of contract holders in order to draw lessons from the past project (PEPAM-IDA).

The overall project risk for procurement is “Moderate”.

### ***Procurement Arrangements***

20. *Procurement responsibilities.* Specific procurement responsibilities of SONES and ONAS include the following:

- (a) Managing the overall planning of activities and the implementation of procurement processes and monitoring activities and/or components for which each entity is directly responsible on a day-to-day basis, in line with the PIM and the Bank Guidelines; and
- (b) Preparing draft bidding documents, draft requests for proposals, evaluation reports, and contracts in close collaboration with the PCU.

21. The PCU will have overall fiduciary responsibility and will carry out the following activities to mitigate the procurement risk: (i) overall coordination and quality control and assurance of all draft procurement documents (bidding documents, requests for proposals, evaluation reports, terms of reference, contracts, etc.) prepared by the executing agencies; (ii) preparation and updating of the Procurement Plan in close collaboration with the executing agencies; and (iii) seeking and obtaining approval of DCMP and then IDA on all procurement documents, if necessary.

22. *Applicable Guidelines.* Procurement for the proposed project will be carried out in accordance with the World Bank’s “Guidelines:”The Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants”, dated October 15, 2006, and revised in January 2011, the World Bank’s “Guidelines:Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers” dated January 2011 and revised July 2014 and “Guidelines: Selection and Employment of Consultants by World Bank Borrowers” dated January 2011 and revised July 2014, and the provisions stipulated in the Financing Agreement. The various items under different expenditure categories are described in general in the following paragraphs.

23. *Fraud, coercion, and corruption.* All procuring entities, as well as bidders, suppliers, and contractors, shall observe the highest standard of ethics during the procurement and execution of contracts financed under the project in accordance with paragraph 1.16 and 1.17 of the Procurement Guidelines and paragraphs 1.23 and 1.24 of the Consultants Guidelines.

24. *Procurement documents.* Procurement will be carried out using the Bank's Standard Bidding Documents (SBDs) or Standard Request for Proposals, respectively for all International Competitive Bidding (ICB) for goods and works and recruitment of consultants. For National Competition Bidding (NCB), while waiting for the Government and the Bank to respectively validate and give the no-objection on the national bidding documents in preparation, the Recipient will use the SBD for ICB for goods and works, and the Bank's Standard Request for Proposals for recruitment of consultants. In the same vein, the Sample Form of Evaluation Reports developed by the Bank will be used until the new national samples are reviewed and found satisfactory to the Bank.

25. *Advertising procedure.* The General Procurement Notice (GPN), Specific Procurement Notices, Requests for Expression of Interest, and results of the evaluation and contracts award should be published in accordance with advertising provisions in the following guidelines: "Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011 and revised July 2014 and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011 and revised July 2014,

26. *Procurement of works.* Works procured under this project will include but are not limited to (i) construction of social connections, including expansion of distribution networks; (ii) construction and rehabilitation of water supply systems; (iii) construction of water storage tanks; (iv) construction of boreholes; (v) installation of piezometers; (vi) construction of sewerage networks; (vii) construction of sanitation social connection; and (viii) a wastewater treatment plant and sewage pumping stations.

27. Direct contracting may be used where necessary if agreed in the procurement plan in accordance with the provisions of paragraph 3.7 of the Procurement Guidelines. Given the need for rapid results on the ground and in compliance with Article 2 of the Decree on Water Services Regulations and Article 59.6 of the lease contract between the Government, SONES and SdE, which provides the latter with exclusive rights to implement water service connections and extension works of secondary and tertiary distributions networks), the following contract will be awarded to SdE under the Direct Contracting method: construction of 20,000 social connections and extension works of secondary and tertiary distribution networks to support the installation of the social connections.

28. *Procurement of goods:* Goods procured under this project will include the supply of vehicles, computer equipment and office equipment, water meters, and so forth.

29. *Selection of consultants.* Consulting services procured under this project will include: supervision of civil works, financial audit, contract management, and studies.

30. Short lists of consultants for services estimated to cost less than US\$300,000 equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraphs 2.7 through 2.8 of the Consultant Guidelines.

31. *Single source selection (SSS)*. In exceptional cases, this method would be used in accordance with the provisions of paragraphs 3.9 to 3.11 of the Guidelines, with IDA's prior no objection.

32. *Procurement of non-consulting services*. The description, estimated cost and the procurement methods will be defined in the Procurement Plan.

33. *Training, workshops, seminars, and conferences*. "Training" means the reasonable costs, included in the Annual Work Plans, of provision of training to persons under the Project, including seminars, workshops, knowledge sharing activities and study tours, consisting of the following: travel and subsistence costs for training participants, costs associated with securing the services of trainers, rental of training facilities, preparation and reproduction of training materials, and other costs directly related to training preparation and implementation. All training and workshop activities will be carried out on the basis of approved annual programs that will identify the general framework of training activities for the year, including (i) the type of training or workshop; (ii) personnel to be trained; (iii) institutions that will conduct the training; and (iv) duration of the proposed training as well as the outcome and impact of the training.

34. *Operating costs*. The operating costs will include: (i) staff salaries; (ii) travel expenditures and other travel-related allowances with prior clearance from IDA; (iii) equipment rental and maintenance; (iv) vehicle maintenance and repair; and (v) utilities and communication expenses. Operating costs financed by the project will be procured using the administrative procedures described in the PIM that were reviewed and found acceptable to the Association.

35. *Implementation readiness*. The following actions were conducted during the preparation of this project:

- (a) A detailed Procurement Plan for the first 18 months of the project has been prepared and agreed upon on March 31, 2015.
- (b) The GPN was prepared and reviewed by the Bank and will be advertised locally and in the United Nations Development Business online.

### ***Procurement plan***

36. The Recipient developed a draft Procurement Plan for project implementation that provides the basis for the procurement methods. This plan was agreed between the Recipient and the Association on March 31, 2015. Upon approval of the credit, and with the Recipient's agreement, the plan will be published on the Bank's public website and will be available in the national procurement website ([www.marchespublics.sn](http://www.marchespublics.sn)) and PEPAM's website maintained by the PCU. The Procurement Plan will be updated, at least annually, in agreement with the Bank team or as required to reflect the actual project implementation needs and improvements in institutional capacity.

37. For each contract to be financed by the credit, the following are agreed between the Recipient and the Bank in the Procurement Plan: the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and

time frame. The prior review and procurement method thresholds indicated in Table 3-3 below are intended for the initial procurement plan.

**Table 3-3: Thresholds for Procurement Methods and Prior Review**

<b>Expenditure Category</b>	<b>Contract Value (Threshold, US\$)</b>	<b>Procurement Method</b>	<b>Contract Subject to Prior Review</b>	
<b>1. Works</b>	≥ 10,000,000	ICB	All	
	< 10,000,000 (*)	NCB		
	<100,000	At least 3 Quotations		
	No threshold	Direct contracting	All	
<b>2. Goods</b>	≥ 1,000,000	ICB	All	
	< 1,000,000 (*)	NCB		
	< 50,000	Shopping	No	
	No threshold	Direct contracting	All	
<b>3. Consultants</b>	<b>Firms</b>	> 300,000	QCBS	All
			FBS	
			QBS	
	<b>Individuals</b>	< 300,000	QCBS	All
			CQ	
			LCS	
	> 100,000	IC (at least 3 CVs)	All	
	< 100,000	IC (at least 3 CVs)	No	
	No threshold	Single Source Selection (Firms & Individuals)	All	
<b>All ToRs regardless of the value of the contract are subject to prior review.</b>				

(\*) In specific circumstances, for example, when there is no sufficient number of qualified firms to ensure competition in the local context, ICB will apply even if the estimated amount is below the thresholds.

ICB: International competitive bidding

NCB: National competitive bidding

QCBS: Quality and Cost-based Selection

FBS: Fixed Budget Selection

QBS: Quality-Based Selection

CQ: Selection based on Consultants' Qualifications

LCS: Least-Cost Selection

IC: Individual Consultants

- (a) All contract amendments raising the initial contract value by more than 15 percent of the original amount or above the prior review thresholds will be subject to prior review by the Bank as determined mandatory in paragraphs 2 and 3 of Annex 1 of the Bank's Procurement Guidelines.
- (b) Post review: For each contract for goods and public works not submitted to prior review, the procurement documents will be submitted to IDA post review in accordance with the provisions of paragraph 5 of Annex 1 of the Bank's Procurement Guidelines. The post review will be based on a ratio of at least 1 of 5 contracts. The prior review thresholds and other measures to be taken to mitigate the procurement risk should be reevaluated once a year with a view toward adjusting them to reflect changes in the procurement risk that may have taken place in the meantime and to adapt them to specific situations. In case of failure to comply with the agreed mitigation measures or Bank guidelines, a reevaluation of both types of thresholds, ICB and prior review, may be required by IDA.

- (c) The Association shall determine by notice to the Recipient the revision of procurement prior review thresholds.

38. A summary of the procurement packages and of the consultancy assignments is presented below in Tables 3-4 and 3-5.

**Table 3-4: List of Contract Packages to Be Procured Following ICB, NCB, and Direct Contracting**

Ref. No.	Contract (Description)	Estimated Cost (US\$)	Procurement Method	P-Q	Review by Bank	Expected Bid Opening	Comments
1	2	3	4	5	6	7	8
<b>Component A: Water Supply</b>							
1	Drilling of seven boreholes in the Tassette area and four boreholes in Mbour, Somone et Nguekhokh	1,865,000	NCB	NO	POST	October 27, 2015	SONES
2	Equipment of seven boreholes and one pumping station in Tassette	3,630,000	NCB	NO	POST	October 27, 2015	SONES
3	Equipment of five boreholes and one pumping station in Mbour, Somone et Nguekhokh	3,610,000	NCB	NO	POST	December 2, 2015	SONES
4	Construction of one 20,000 m <sup>3</sup> water tank in Thiès	4,310,000	NCB	NO	POST	November 11, 2015	SONES
5	Construction of three elevated water storage tanks in Mbodiene (2,000 m <sup>3</sup> ), Pointe Sarène (1,500 m <sup>3</sup> ) and Nguekhokh (1,100 m <sup>3</sup> )	5,430,000	NCB	NO	POST	November 11, 2015	SONES
6	Supply and laying of 600 to 700 mm ductile iron pipes between Tassette and Thiès water tanks and of 700 mm ductile iron pipes between Mbour and Mbodiene	21,670,000	ICB	NO	PRIOR	November 11, 2015	SONES
7	Upgrading of water network and equipment in Nguekhokh	980,000	NCB	NO	POST	November 17, 2015	SONES
8	Construction of 20,000 water service connections and of 160 km of distribution networks	4,830,000	DC	NO	PRIOR	N/A	SONES / SdE
<b>Component B: Sanitation</b>							
1	Sanitation works in Joal-Fadiouth	9,110,000	NCB	NO	PRIOR	August 30, 2015	ONAS
2	On-site sanitation facilities	420,000	NCB	NO	POST	July 31, 2015	ONAS
3	Construction of sewerage connections in selected urban centers	5,890,000	NCB	NO	POST	October 30, 2015	ONAS
<b>Component C: Institutional Strengthening and Project Management</b>							
1	Installation of six piezometers for DGPRE	380,000	NCB	NO	POST	September 18, 2015	PCU

Ref. No.	Contract (Description)	Estimated Cost (US\$)	Procurement Method	P-Q	Review by Bank	Expected Bid Opening	Comments
1	2	3	4	5	6	7	8
2	Supply and installation of remote monitoring equipment for DGPRE	50,000	NCB	NO	POST	September 3, 2015	PCU
3	Supply of vehicles	114,000	NCB	NO	POST	August 15, 2015	PCU

39. *International competitive bidding.* Except as otherwise provided in paragraph 40 below, works and goods shall be procured under contracts awarded on the basis of ICB.

40. *Other methods of procurement of goods and works.* The table below specifies the methods of procurement, other than international competitive bidding, that may be used for goods and works. The Procurement plan shall specify the circumstances under which such methods may be used:

Other Procurement Methods
Limited international bidding
National competitive bidding
Shopping procedures
Direct contracting
Procurement under Framework Agreements

**Table 3-5: Consultancy Assignments with Selection Methods and Time Schedule**

Ref. No.	Description of Assignment	Estimated Cost (US\$)	Selection Method	Review by Bank	Expected Proposal Submission	Comments
1	2	3	4	5	6	7
<b>Component A: Water Supply</b>						
1	Control and supervision of works in Thiès - Tassette	860,000	QCBS	PRIOR	August 24, 2015	SONES
2	Control and supervision of works in Mbour – Mbodiene - Nguekhokh	860,000	QCBS	PRIOR	August 31, 2015	SONES
3	Technical control in Tassette and Mbour – Mbodiene - Nguekhokh	130,000	QCBS	POST	October 5, 2015	SONES
4	Master Plan (Water Transmission and Distribution) for the new Dakar urban poles and Petite Côte	690,000	QCBS	PRIOR	August 24, 2015	SONES
<b>Component B: Sanitation</b>						
5	Detailed design studies of the Sanitation Master Plan for East Dakar	430,000	QCBS	PRIOR	August 15, 2015	ONAS
6	Control and supervision of works in Joal-Fadiouth	430,000	QCBS	PRIOR	August 15, 2015	ONAS
7	Control and supervision of works of the Social Connections Program	270,000	QCBS	PRIOR	August 15, 2015	ONAS
8	IEC in Joal-Fadiouth	160,000	QCBS	POST	July 31, 2015	ONAS
9	IEC for social connections	90,000	QCBS	POST	July 31, 2015	ONAS

Ref. No.	Description of Assignment	Estimated Cost (US\$)	Selection Method	Review by Bank	Expected Proposal Submission	Comments
1	2	3	4	5	6	7
<b><u>Component C: Institutional Strengthening and Project Management</u></b>						
1	Hydrogeological study of the Horst de Ndiass System	310,000	QCBS	PRIOR	October 31, 2015	PCU
2	Technical assistance to ONAS for expanding the GIS to Joal-Fadiouth	85,000	CQ	POST	August 15, 2015	PCU
3	Technical assistance to ONAS for updating the contractual framework (Performance contract between GoS and ONAS and performance contracts of the private operators)	85,000	CQ	POST	August 15, 2015	PCU
4	Institutional studies and support to 2 <sup>nd</sup> generation reforms	520,000	QCBS	PRIOR	June 15, 2015	PCU
5	Strategic studies for support to OFOR in implementing the rural water sector reform	430,000	QCBS	PRIOR	July 15, 2015	PCU
7	Support to implementation of the ESMP	340,000	IC	PRIOR	June 15, 2015	PCU
8	Financial Audits	40,000	QCBS	POST	June 15, 2015	PCU

QCBS = Quality- and cost-based selection

CQ = Selection based on consultants' qualifications

IC = Individual Consultant

41. *Quality- and cost-based selection.* Except as otherwise provided in paragraph 42 below, consultant services shall be procured under contracts awarded on the basis of quality- and cost-based selection.

42. *Other methods of procurement of consultant services.* The table below specifies methods of procurement, other than Quality and Cost-based Selection, which may be used for consultants' services. The Procurement Plan shall specify the circumstances under which such methods may be used.

<b>Other Procurement Methods</b>
Least Cost Selection
Selection based on Consultants' qualifications
Selection under a fixed budget
Quality Based Selection
Single Source Selection
Individual Consultants

### ***Frequency of procurement supervision***

43. In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the implementing agency has recommended (i) supervision missions every six months to visit the field, and (ii) at least one annual post procurement review.

44. *Procurement and technical audit.* A procurement and technical audit will be carried out at least every two years during project implementation and a report will be prepared on the procurement process, contract management, fiduciary compliance, and so forth.

### **Environmental and Social (including safeguards)**

45. The GoS prepared and disclosed the required safeguard documentation on time. These instruments provide specific mitigation measures along with their comprehensive implementation mechanisms. The main responsibilities are distributed as follows:

- The DEEC is the national institution, along with its decentralized units, in charge of enforcement of the environmental assessment procedure. It has the primary mandate to ensure that the PCU complies with the safeguard issues throughout the preparation and the construction phases. Furthermore, a memorandum has been agreed with the PCU for collaborative supervision of the contractors on the ground during the civil works. Though the DEEC will report to the PCU in the framework of this memorandum, the DEEC will be receiving all the final safeguards implementation supervision and audit reports.
- The PCU will be responsible for implementing the safeguard instruments and measures, on behalf of the Government. To this end, the PCU will collaborate with: (i) the DEEC for follow up on execution of mitigation measures by the enterprises; (ii) the institution in charge of the monitoring of water and air quality in the project influence zone; and (iii) the national entity in charge of heritage conservation for execution of the chance find procedure, should a case arise. The PCU will ensure regular reporting as well as mid-term and final audits of the environment and social measures and recommendations. These reports are shared with the ministry in charge of environment in compliance with national rules.
- The Enterprises (Contractors) will be responsible for executing a large part of the environmental and social measures of the construction phase, which has been integrated in the bidding documents. To this end, the enterprises will prepare their own ESMP (the Contractor Environmental and Social Management Plan – CESMP), excerpted from the global ESMPs approved through the ESIA reports. The draft CESMPs will be cleared by the PCU in collaboration with DEEC prior to commencement of the civil works, and the approved version will be integrated into the Enterprises' detailed work plan. To carry out proper implementation of its environmental and social compliance obligations, any contractor working for the project will recruit environmental and social safeguard specialists who will work closely with the principal engineer of the team. The implementation reports must detail progress in the execution of the CESMP, and be shared with the DEEC and the national entity in charge of heritage conservation.
- The Works Supervisor (Firm or Engineer): the Supervising Engineer will be in charge of the technical control tasks, as well as ensuring the day-to-day oversight of CESMP compliance by the contractor. An environmental safeguard specialist will be recruited as

part of the team to help ensure compliance. A separate CESMP survey report will be periodically provided to the PCU.

- Other key stakeholders: nature, role and responsibilities (general and specific to the project), and specific tasks to execute; collaboration with (professional groups, the local authorities, specialists, etc.). Reports will be sent to the PCU, DEEC, and the World Bank etc. for records, compliance and dissemination purposes.

***Follow up and reporting of the mitigation measures***

46. The environmental and social mitigation measures will be executed, monitored and reported in: (i) a specific Safeguard Monitoring Report; and (ii) the Environmental and Social Safeguards section of the overall project periodic report. The responsibility of the follow up is with the PCU in collaboration with DEEC. Following are the overall implementation indicators to be monitored:

- environmental baseline (air, water, noise) study completed;
- number of mitigation measures executed on time;
- number of safeguard implementation reports.
- completion of the RAPs execution before the commencement of civil works (%);
- number of complaints received/resolved after compensation/relocation;
- existence of safeguard specialists in the team of enterprises and supervising engineers (#);

47. Summary of the critical safeguard implementation measures:

No.	Actions	Responsible
1	Inclusion of appropriate environmental and social mitigation activities and measures in the bidding documents and the contracts of the enterprises and civil works supervisors	PCU
2	Strengthening the managing and technical capacity of the PCU's safeguard unit	PCU
4	Existence of sound protocol (staff, equipment and baseline studies) for the follow through on the residual impacts of the waste water and sludge treatment plants in Joal	SONES
5	Relocation/compensation of all the affected populations as approved in the RAPs	PCU
6	Finalization of the baseline/reference study on air and water resources quality parameters in the new airport influence areas	SONES
8	Approval of the CESMPs and their integration in the contractors' work plan	PCU (DEEC)
10	Reporting periodically to the ministry in charge of environment to comply with the national rules	PCU

**Monitoring & Evaluation**

48. Project outcome indicators will be calculated using intermediate results and African harmonized ratios in the water and sanitation sector. The contractual framework of the urban water sub-sector, and particularly the performance contracts of SONES, SdE and ONAS provides for an adequate gathering of key project outcome indicators, e.g. access data and information on the financial equilibrium of the sector. Information on the population benefitting from improved services will be collected by SdE. Progress reports produced by the consultants in charge of control

and supervision of the water and sanitation works will provide an adequate reporting of indicators of the project's intermediate results.

49. The PCU will compile the data, produce progress and monitoring reports, and initiate specific evaluation studies by independent consultants as needed.

### **Financial Conditions and Covenants**

50. A sound institutional and contractual framework and financial viability are essential to project sustainability. The following covenants have been agreed upon at negotiations:

- In order to ensure the financial sustainability and maintain the Financial Equilibrium of SONES, throughout Project implementation, the Recipient shall implement all necessary measures, including, inter alia, any adjustments in water tariffs in accordance with the Water and Sanitation Law.
- No later than December 31, 2019, the Recipient shall ensure that all measures, including any required sanitation surcharge revisions in accordance with the Water and Sanitation Law are in place to allow ONAS to achieve financial sustainability including covering at least 90 percent of its cash operating expenditures related to sewerage activities.

“Financial Equilibrium” means the situation where the Net Cash Balance at the end of year *n* is positive or equal to zero. For the purpose of this definition, “Net Cash Balance” at the end of year *n* means the net cash balance at the beginning of year *n*, plus the Net Cash Flow (positive or negative) for year *n*; and “Net Cash Flow” for year *n* means the sum of the net operating cash flow, plus any additional external financing (grants, subsidies, increases in equity capital and drawings under loans of more than one year) received during year *n*, less the Variation in Net Working Capital Requirements, the repayments of loans of more than one year, and the investments for that year; and “Variation in Net Working Capital Requirements” means the variation of current assets excluding cash minus the variation in current liabilities for year *n*.

**Annex 4: Implementation Support Plan**  
**SENEGAL: URBAN WATER AND SANITATION PROJECT**

**Strategy and Approach for Implementation Support**

1. The strategy for implementation support has been developed based on the nature of the project and its risk profile. Special attention will be given to help address risks linked to the reform of the water and sanitation sector and its financial viability, which will include: (i) assessing progress in designing the sector reform; and (ii) reviewing the results of the periodic updates of the sector’s financial model; and (iii) helping to bring consensus on measures designed to maintain the financial equilibrium.

**Implementation Support Plan**

2. *Financial Management.* Based on the outcome of the FM risk assessment, the following implementation support plan is proposed. The objective of the implementation support plan is to ensure the project maintains a satisfactory financial management system throughout the project’s life.

<b>FM Activity</b>	<b>Frequency</b>
<b>Desk reviews</b>	
Interim financial reports review	Quarterly
Audit report review of the program	Annually
Review of other relevant information such as interim internal control systems reports.	Continuous as they become available
<b>On site visits</b>	
Review of overall operation of the FM system	Annual (Implementation Support Mission)
Monitoring of actions taken on issues highlighted in audit reports, auditors’ management letters, internal audit and other reports	As needed
Transaction reviews (if needed)	As needed
<b>Capacity building support</b>	
FM training sessions	During implementation and as and when needed.

3. The main focus of implementation support to implementation during the course of the project includes:

Time	Focus	Resource Estimate		Partner Role
First 12 months	Technical and procurement review of the bidding documents	Water and sanitation specialists	7 SWs	N/A
	Procurement training	Procurement specialist(s)	3 SWs	
	FM supervision and training	FM specialist	4 SWs	
	Social impact and land acquisition	Social specialist	2 SWs	
	Environmental supervision and training	Environmental specialist(s)	4 SWs	
	Financial and institutional aspects	Financial analyst/Private sector specialist	2 SWs	
	Team leadership	Task Team Leader	8 SWs	
12-48 months	Project construction	Water and sanitation specialists	10 SWs	N/A
		Procurement specialist(s)	10 SWs	
	Environment and social monitoring & reporting	Environmental specialist(s)	8 SWs	
		Social specialist	8 SWs	
	Financial management disbursement and reporting	FM specialist	8 SWs	
	Financial and institutional aspects	Financial analyst/Private sector specialist	12 SWs	
Team leadership	Task Team Leader	22 SWs		

Staff skill mix required is summarized below.

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Water and Sanitation specialists	17	6	Regional and country office based
Procurement	13	-	Country office based
Social specialist	10	-	Regional office based
Environment specialist	12	-	Regional office based
Financial management specialist	12	-	Country office based
Financial analyst/Private sector specialist	14	4	
Task team leader	30	8	Regionally based

**Annex 5: Economic and Financial Analyses**  
**SENEGAL: URBAN WATER AND SANITATION PROJECT**

1. The Economic Analysis Section aims to assess the economic impact of the components of the proposed project through a cost-benefit analysis of the water activities and a cost-effectiveness analysis of the sanitation activities. The Financial Analysis Section aims to assess: (i) the financial impact of the project's activities on the urban water supply sector and on SONES; and (ii) the financial viability of SONES and ONAS.

**A. Economic Analysis**

**Methodology and Scope**

2. *Water Supply.* The economic analysis consists of a cost-benefit analysis of the water supply activities of the proposed project. As explained in the project description, these activities help: (i) address the current water shortages in Dakar and the Petite Côte (through the development of groundwater resources in Tassette and investments in Mbour-Mbodiène); (ii) restore adequate water services in Nguekhokh; and (iii) expand access to water services through a social connections program that will be implemented throughout the country. The cost-benefit analysis encompasses 71 percent of total project costs. It considers an investment program consisting of the water supply component, an allocated portion of the institutional strengthening and project management component, and the incremental (with/without project) costs and benefits associated with these investments. All calculations are carried out over a 30-year period, using constant 2013 prices and excluding taxes and financing costs.

3. *Sanitation.* The analysis is based on the comparison of investment costs per capita for each of the available sanitation options.

**Water Supply**

4. *Investment Costs.* The cost estimates are drawn from: (i) preliminary design studies and outcome of the most recent bids made by SONES for similar production, storage and transmission facilities; and (ii) cost estimates of distribution facilities (including service connections) provided by SdE. Direct investment costs consist of: (i) the costs of activities of Component 1; and (ii) the cost of activities of Component 3 which may be partially (project management activities) allocated to water supply. In addition, given that Tassette's production facilities would first be used to address water shortages in the Dakar region (transferring water to the Thiès storage tanks) until the KMS 3 scheme is commissioned in 2021, and then to address water shortages in Petite Côte, project investments have to be adjusted by:

- Adding the cost of a 22-kilometer transmission line from the Tassette well field to Mbour; and
- Subtracting the residual value in 2021 of the project investments located in Thiès, which would be used exclusively to convey water from the KMS 3 scheme.

5. Detailed investment costs are given below.

**Table 5-1: Investment Costs for Economic Analysis (CFAF Million)**

<i>Activities</i>	<i>Cost Estimate</i>	<i>Adjusted Cost</i>
Development of groundwater resources:		
Tassette	11,608	8,858
Mbour-Mbodiène	11,702	11,702
Nguekhokh	1,840	1,840
Social connections	2,800	2,800
Project management (including safeguards)	723	723
<b>Total</b>	<b>28,673</b>	<b>25,923</b>

Source: Design studies, SONES, SdE and Bank estimates

6. *Incremental Costs.* The energy costs of the new facilities are drawn from the design studies; other operating costs are estimated on the basis of the current SdE expenditures as stated in the Financial Model and would be as follows:

**Table 5-2: Operating Costs**

<b>Item</b>	<b>Consumption per m<sup>3</sup> produced</b>	<b>Cost (CFAF)</b>	<b>Unit Cost (CFAF/m<sup>3</sup> produced)</b>
Electricity:			
• From Tassette to Dakar	0.375 kWh	97	36.5
• From Tassette to Petite Côte	0.375 kWh	97	36.5
• Mbour boreholes	0.360 kWh	97	26.5
• Mbour-Mbodiène	0.250 kWh	97	33.8
• Nguekhokh	0.335 kWh	106	35.5
• Other regions	0.490 kWh	106	51.9
Chlorination			
• Dakar and Petite Côte (chlorine)	7.4 g	850/kg	6.32
• Other regions (hypochlorite)	24.5 g	245/kg	5.99
Commercial costs	CFAF 6,000 per connection per year		
Maintenance costs	0.5% of investment costs per year		

Source: Design studies, SONES financial model and Bank estimates

7. *Incremental Benefits.* The incremental benefits generated by the project activities are listed in the table below, which also links activities and the PDO:

**Table 5-3: Project Economic Benefits**

<i>Development Objective/Activities</i>	<i>Incremental Benefits</i>
Improving access to water services (existing consumers):	The increase of production and transmission capacities would be used to eliminate water deficits in impacted areas and generate additional water consumption from existing users.
<ul style="list-style-type: none"> <li>Development of Tassette groundwater resources</li> </ul>	Benefits would vary over time and would be as follows:

- Mbour-Mbodiène and Nguekhokh:
    - From 2018 to 2021, Tassette water would be distributed in Dakar; benefits would be increased water revenues from existing water users.
    - After 2021 (and the commissioning of other water systems), Tassette water would be distributed in Petite Côte; benefits would be water revenues from existing water users.
- Water produced by facilities would be distributed in the urban centers of Petite Côte; benefits would be increased water revenues from existing users.

Increasing access to safe water (social connections)	- Incremental water revenues from new connections - Consumer surplus accruing to beneficiaries
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8. *Incremental Revenues.* The incremental consumption, water prices and revenues are estimated on the basis of: (i) current data on water consumption and current water rates (the current water tariff schedule is given in the Appendix to this annex); and (ii) the results of a survey of the willingness-to-pay of unconnected water users<sup>9</sup>. The average revenue per additional m<sup>3</sup> sold is: (i) for existing consumers, the average revenue observed in the impacted centers, excluding administrative users, the tariff of which includes a substantial part of subsidies; and (ii) for new consumers, the average revenue from social connections. The assumptions for estimating incremental revenues accruing to the water utilities are summarized in the table below:

**Table 5-4: Consumption and Water Rates**

Beneficiaries	No. of people served	Consumption (lpcd)	Average Revenue (CFAF/m <sup>3</sup> )
Dakar consumers	219,000	65	477
Petite Côte consumers	291,000	65	465
Nguekhokh consumers	43,000	60	376
HH with social connection	9 per HH	50	240

Source: SONES/SdE Financial Model and Bank estimates

9. *Consumer Surplus.* The table below shows the variation of daily consumption and prices paid by a household shifting from standposts or water vendors to a social water connection.

**Table 5-5: Consumption and Water Prices with and without Project**

Current/ Future source of supply	Without Project		With Project	
	Consumption (lpcd)	Average Price (CFAF/m <sup>3</sup> )	Consumption (lpcd)	Average Price (CFAF/m <sup>3</sup> )
Standposts/ social connection	20	500	50	240
Vendors/standposts	10	1,000	50	240

Source: WTP Study and Bank estimates

<sup>9</sup> Study of the willingness-to-pay for water and sanitation services in urban areas (EDE-ICEA, 2010 – PPIAF)

The consumer surplus is equal to the increase of water consumption multiplied by the difference of the water price paid before and after the project and by the price elasticity (0.5).

10. *EIRR and NPV.* The economic internal rate of return (EIRR) is estimated at 14.4 percent. The net present value (NPV) of the project's benefits and costs is estimated at US\$14.6 million, using a discount rate of 10 percent. With the same discount rate, the long-term marginal cost (LTMC) is estimated at CFAF 402 per m<sup>3</sup>. The LTMC is 20 percent lower than the average revenue per cubic meter sold (excluding the water sales to the administrations), which demonstrates that groundwater is the least-cost solution. The EIRR and NPV associated with the sub-components are as follows:

**Table 5-6: Results by Sub-component**

<i>Sub-component</i>	<i>EIRR</i>	<i>NPV@10% (US\$ M)</i>
<b>Overall project</b>	14.4%	14.6
<b>Development of groundwater resources</b>	10.8%	2.2
<b>Nguekhokh</b>	15.2%	1.3
<b>Social connections Program</b>	36.2%	11.0

11. *Sensitivity Analysis.* A range of scenarios has been developed to test the sensitivity of the EIRR to the main elements of the economic cash-flows. The variables tested for the sensitivity analysis were: (i) investment costs; (ii) operating costs; and (iii) overall water demand. The outcome of the scenarios is given in Table 5-7 below, which also provides the switching values of the variables. The project is particularly sensitive to the reduction of water demand, which exhibits the lowest switching value. However, a weak demand response to the project activities is unlikely, given the current water shortages in the project areas.

12. An additional scenario tested the sensitivity of the project to a reduction of the yield of the Tassette well field after the first five years of operations. Not surprisingly, the Tassette/Mbour sub-component is sensitive to a reduction of the production of the Tassette groundwater resources (switching value: 14 percent), but this reduction is unlikely in view of the result of the hydrogeological studies.

**Table 5-7: Results of the Sensitivity Analysis**

<i>Scenario</i>	<i>EIRR</i>	<i>NPV@10% (US\$ M)</i>	<i>Switching value</i>
<b>Base scenario</b>	14.4%	14.6	
<b>Investment cost increase 20%</b>	11.8%	7.1	38.9%
<b>O&amp;M cost increase 20%</b>	13.7%	12.1	115.5%
<b>Overall demand decrease 20%</b>	10.6%	2.0	23.1%
<b>Tassette production reduced by 20% after five years</b>	13.6%	11.4	14.0% <sup>†</sup>

<sup>†</sup>Switching value of the Tassette/Mbour sub-component only

## Sanitation

13. *Proposed Options of Sanitation Services.* The sanitation component of the project proposes various sanitation options, namely sewerage services and on-site sanitation. The options yield

similar benefits to the households in terms of improvement of disposal of both excreta and wastewater<sup>10</sup>. The on-site facilities, particularly, would not be limited to latrines, but would include washing facilities associated with soakaway pits. The effective use of these facilities would be encouraged by extensive hygiene education programs, leading to effective behavior changes and better hygienic practices.

14. *The Particular Case of Joal-Fadiouth.* The existing conditions in Joal-Fadiouth are particularly challenging for the adequate disposal of septage and wastewater. In most of the town, the high water table forbids infiltration and traditional latrines should be frequently emptied. Actually, the emptying costs and the absence of adequate disposal facilities for septage haulers make the adequate disposal of excreta unaffordable for households, which dump wastewater and septage in their immediate environment. The project will address these issues by: (i) providing sewerage connections to households that are located close to the sea; (ii) providing on-site facilities (septic tanks or VIP latrines) to households located in areas with a lower water table; and (iii) providing adequate disposal facilities for septage haulers with the construction of a sludge treatment plant.

15. *Cost Comparison.* The economic analysis of the sanitation component is based on the cost-effectiveness of the proposed options, the feasibility of which is also contingent on other considerations, such as the soil conditions (permeability), the proximity of existing sewers and hydraulic conditions. The table below provides the unit cost per capita of the various options:

**Table 5-8: Average investment costs of the various sanitation options**

Type of sanitation service	Unit cost per person served (US\$)	Design criteria	Number of project beneficiaries
<b>Sewerage : Joal Fadiouth</b>			
Sewerage connection	35		
Sewers and pumping stations	129	High water table, high population density	38,000
Wastewater treatment	68		
<b>Total cost</b>	<b>232</b>		
<b>Sewerage: Social connections program</b>			
Sewerage connection	35	Housing located in sewerred city with existing wastewater treatment plant	39,000
Sewers and pumping stations	124		
<b>Total cost</b>	<b>159</b>		
<b>On-site sanitation:</b>			
On-site facility	111	Peri-urban area, absence of sewers; permeable soil, water table<1.3m	3,000
Sludge treatment plant	30		
<b>Total cost</b>	<b>141</b>		

Source: Design studies and ONAS

16. The above results show that the social connections programs in towns already equipped with a sewerage system have a per capita cost (US\$159) close to on-site sanitation (US\$141). The creation of a new sewerage system in Joal-Fadiouth generates costs that are 60 percent higher.

<sup>10</sup> The provision of adequate wastewater disposal is all the more important as the majority of households would be served through water service connections.

However, the technical design criteria (level of the water table and population density) eventually dictate the sanitation option.

17. *Potential Cost Savings in Joal Fadiouth.* The project will generate substantial savings in emptying costs for the beneficiaries of the sanitation sub-component in Joal-Fadiouth. Table 5-9 below compares the annual cost of adequate disposal of wastewater and septage for an urban compound (regrouping on average 13 people) in the with/without project situation:

**Table 5-9: Annual Cost Savings in Joal Fadiouth (US\$ per compound)**

Costs and Savings	Unit	Without Project	With Project	
			Sewered Compound	On-Site Facility
<b>Emptying costs</b>				
Frequency	No. per year	4	0	1
Unit cost	CFAF	17,000	17,000	17,000
<b>Annual cost per compound</b>	CFAF	68,000	0	17,000
<b>Sanitation surcharge</b>				
Annual water consumption	m <sup>3</sup>	237	237	237
Surcharge per m <sup>3</sup>	CFAF	0	34	34
<b>Annual surcharge per compound</b>	CFAF	0	8,007	8,007
<b>Annual savings:</b>				
Per compound	CFAF	0	59,993	42,993
Per compound	US\$	0	103	74
Per capita	US\$	0	8	6

Source: Design studies, ONAS and Bank estimates

## B. Financial Analysis

### Financial Impact of the Project

18. *Sector's Perspective.* The financial impact of project activities is assessed by the Financial Internal Rate of Return (FIRR) derived from the cost-benefit analysis. Financial calculations take into account the financial revenues and costs in the with/without project situations, including taxes and excluding non-cash generating benefits (consumer surplus). The FIRR is estimated at 8.3 percent. This FIRR reflects the rate of return computed from the perspective of the combined partners of the sector (Government, SONES and SdE).

19. *SONES' perspective.* The financial cash flow accruing to SONES may be computed by: (i) replacing the flow of investment costs by the debt service paid by SONES to the Government, in accordance with sector policies; and (ii) deducting the lease contractor rate (about CFAF 360 per m<sup>3</sup>) from the average revenue per cubic meter sold. The *pari passu* on-lending at the initial IDA conditions would result in positive annual cash flows for SONES during the grace period of the credit (until 2021) followed by constantly negative cash flows. SONES' financial equilibrium would not be impacted over the medium term.

### Financial Viability of SONES and ONAS

20. *Current Financial Situation of SONES.* Table 5-10 below summarizes SONES' most recent financial statements. SONES generated a net income of CFAF 973 million in 2013 and of CFAF

698 million during the first semester of 2014. SONES' cash amounted to CFAF 3 billion at the end of 2013 and to CFAF 1.35 billion at the end of 2014.

**Table 5-10: SONES – Selected Financial Data (CFAF M) and Indicators**

Year	2011	2012	2013	2014
SONES Fees	18,001	16,842	15,759	16,492
Operating revenues	18,592	18,674	16,494	17,013
Cash operating expenditures	3,030	4,936	3,692	3,240
Depreciation and allowances	11,039	10,346	10,418	10,441
Operating costs	14,069	15,282	14,110	13,682
Operating income	4,523	3,392	2,384	3,331
Interest	2,685	2,334	2,181	2,349
Net income	1,516	1,705	973	1,561
Net cash generation	14,669	11,908	12,231	13,081
Debt service	29,127	4,476	16,955	10,858
Working capital requirements	-16,675	8,090	-5,329	3,606
Investments	10,504	8,061	15,094	16,603
Borrowings	12,551	4,933	11,683	12,919
Grants	2,898	2,693	6,516	2,704
Cash on hand†	2,961	3,009	3,093	1,350
Cash variation	717	48	84	-1,743
Operating ratio	75.7%	81.8%	85.5%	83.8%
Cash operating expenditures/m <sup>3</sup> (CFAF)	25.6	40.1	29.1	25.3

†excluding cash earmarked for externally-financed projects

21. SONES is still in financial equilibrium, but the cash variation became negative during 2014. SONES' share of sector revenues (*prix patrimoine*, P<sub>p</sub>) decreased by 20 percent between 2010 and 2014 (see Table 5-10). This was attributable to: (i) the increasing share of the consumption billed in the social block; (ii) the impact of the (contractual) indexation of SdE's remuneration (*prix exploitant*, P<sub>e</sub>); and (iii) in 2013, to the reduction of water sales resulting from the interruption of supply from KMS.

**Table 5-11: Revenue Sharing (CFAF/m<sup>3</sup>)**

Year	2010	2011	2012	2013	2014
Average revenue per m <sup>3</sup>	542.3	561.2	551.4	540.0	535.2
Pe (SdE)	350.0	356.4	364.0	364.0	362.0
Pp (SONES)	150.0	147.9	132.8	122.8	120.2
Sanitation surcharge (ONAS)	42.3	56.9	54.6	53.2	53.0

22. *Financial Forecasts.* Financial forecasts have been conducted by using the preliminary version of SONES' updated financial model. The updated version takes into account: (i) a medium-term investment program designed to meet the water demand, including investments of the proposed project, as well as the KMS 3 project and one tranche of the desalination plant; (ii) the March 2015 tariff revision (4 percent for the social block and 9 percent for other consumers, with the exception of administrative consumers); and (iii) further socially-acceptable tariff revisions (1 percent per year from 2017 to 2021 and 2 percent per year afterwards). The March 2015 revision

will substantially increase SONES' remuneration ( $P_p$  should rise to CFAF 140/m<sup>3</sup>). Those limited tariff revisions would ensure SONES' financial equilibrium over the medium term and enable SONES revenues to cover its cash operating expenditures as well as the debt service until 2025. The tariff revisions are also designed to reinforce SONES' financial viability by reducing the dependency of SONES on the revenues billed to administrative users.

**Table 5-12: SONES - Selected Financial Data (CFAF M) and Indicators (2015-2025)**

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
SONES Fees	19,260	19,801	19,519	19,770	23,177	23,997	24,558	25,089	26,437	27,789	29,422
Operating revenues	19,492	20,038	19,761	20,016	23,429	24,253	24,819	25,356	26,709	28,067	29,705
Total revenues	22,090	22,535	22,609	23,180	26,824	27,764	28,578	30,839	33,516	35,697	37,634
Cash operating expenditures	3,816	4,165	4,743	5,095	5,489	5,834	6,138	6,414	6,582	6,729	6,890
Depreciation	11,819	12,273	12,212	13,010	13,476	15,945	17,673	23,418	30,310	32,673	34,276
Operating costs	15,635	16,438	16,955	18,105	18,964	21,779	23,811	29,832	36,893	39,403	41,165
Interest	3,008	3,144	4,050	4,629	5,085	5,431	5,839	6,317	6,955	7,438	7,875
Total costs	19,505	20,320	21,406	22,845	24,743	27,348	29,650	36,150	43,848	46,840	49,041
Operating income	3,857	3,599	2,806	1,912	4,464	2,474	1,008	-4,476	-10,183	-11,336	-11,460
Net income	2,585	2,215	1,203	335	2,081	416	-1,071	-5,310	-10,331	-11,144	-11,407
Net cash generation	12,884	12,698	11,626	11,555	13,739	14,530	14,711	14,719	15,532	16,361	17,353
Borrowings	8,649	48,890	69,937	40,965	42,203	36,694	33,260	34,596	28,867	28,343	30,543
Grants	2,393	0	8,473	8,473	10,201	11,565	11,087	11,532	9,622	9,448	10,181
Investments	12,510	49,194	78,718	49,750	55,351	51,210	47,202	48,988	41,355	40,660	43,598
Debt service	10,548	11,379	12,094	13,714	14,203	15,117	15,203	15,690	19,076	21,697	25,195
Variation of working capital requirements	8,722	-439	-856	-504	328	-575	-474	-990	-778	-121	38
Cash variation	-4,846	4,598	4,130	2,661	1,345	2,467	2,965	3,477	1,325	-647	-2,880
Cash at year end	9,259	13,857	17,987	20,648	21,993	24,460	27,424	30,901	32,226	31,579	28,699
<b>Ratios and indicators</b>											
Operating ratio	80.2%	82.0%	85.8%	90.4%	80.9%	89.8%	95.9%	117.7%	138.1%	140.4%	138.6%
Debt service coverage (times)	1.5	1.4	1.3	1.2	1.3	1.3	1.4	1.3	1.2	1.1	1.0
$P_p$ (CFAF/m <sup>3</sup> )	139.7	135.6	127.9	124.5	140.9	136.7	134.5	132.5	135.4	138.9	142.0
Share of administrative users in SONES fees	72%	69%	70%	69%	60%	57%	56%	55%	52%	49%	46%

Source: SONES Financial Model and Bank estimates

23. *Current Financial Situation of ONAS.* ONAS' income statements are summarized in Table 5-13 below. ONAS registered positive net incomes over 2010-2013. However, the sanitation surcharge cannot fully cover the cash operating expenditures of ONAS' sewerage activities. The gap is financed by operating subsidies, which also finance the operating expenditures of the flood control and drainage activities. These subsidies are irregular and often give rise to additional governmental requests for unscheduled missions and services. The second-generation reform should clarify ONAS' mandate and establish a transparent financing strategy for the sewerage activities.

**Table 5-13: ONAS –Income Statements (CFAF M)**

<b>Year</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Sanitation surcharges	5,340	5,837	5,807	5,709
Operating subsidy	1,232	1,337	1,370	3,233
Operating revenues	6,764	7,477	7,907	9,083
Cash operating expenditures	7,253	7,507	8,463	9,604
Depreciation and allowances	4,393	4,353	4,725	4,638
Operating income	-4,882	-4,383	-5,281	-5,159
Non-operating income	5,154	4,972	5,361	5,343
Net income	272	589	80	184
Sanitation surcharges/Sewerage operating expenditures (%)		69.7%	65.6%	63.1%

24. The March 2015 tariff revision also includes a 35 percent increase of the sanitation surcharge. Financial forecasts prepared for the new Performance Contract between ONAS and the Government show that the sanitation surcharge will cover 80 percent of ONAS' cash operating expenditures until 2020.

## Appendix to Annex 5

### Water Tariff Schedule (Last revision: March 2015)

Category	Water Tariff w/o Taxes	Sanitation Tariff w/o Taxes†	Total w/o Taxes	VAT (18%)	MH A Tax	Munici -pal Tax	Total incl. taxes
<i>Domestic customers with 15 mm water meter</i>							
0 to 20 m <sup>3</sup> /2-month period	186.55	13.50	200.05	0.00	1.95	0.00	202.00
21 to 40 m <sup>3</sup> /2-month period	631.14	61.63	692.77	0.00	1.95	3.25	697.97
More than 40 m <sup>3</sup> /2-month period	655.65	84.31	739.96	133.19	1.95	3.25	878.35
<i>Non-domestic customers and domestic customers with meter of diameter greater than 15 mm</i>							
Single Tranche	655.65	84.31	739.96	133.19	1.95	3.25	878.35
Standposts, public WC, markets, hydrants, not-for-profit religious institutions							
Single Tranche	239.05	66.73	305.78	55.04	1.95	3.25	366.02
<i>Market-gardeners</i>							
Consumption from 0 to Q‡	102.92	0.00	102.92	18.53	1.95	0.00	123.40
Consumption from Q to 2*Q	467.31	0.00	467.31	84.12	1.95	0.00	553.38
Consumption beyond 2*Q	655.65	84.31	739.96	133.19	1.95	3.25	878.35
<i>Administrations (central government)</i>							
Single Tranche	1,868.88	295.00	2,163.88	389.50	1.95	3.25	2,558.58

† Applicable to customers of sewered cities only.

‡Q: allowance allocated to the market-gardener

**Annex 6: Map IBRD 41643**  
**SENEGAL: URBAN WATER AND SANITATION PROJECT**