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Report No: ICR00325

# IMPLEMENTATION COMPLETION AND RESULTS REPORT
IDA-62810

ON A

SCALE-UP FACILITY CREDIT

IN THE AMOUNT OF EUR 107.5 MILLION
(US$130 MILLION EQUIVALENT)

TO THE

REPUBLIC OF SENEGAL

FOR THE

SENEGAL RURAL WATER SUPPLY AND SANITATION PROJECT

February 26, 2025

Water
Western and Central Africa

CURRENCY EQUIVALENTS

Exchange Rate Effective June 30, 2024

| | |
|---|---|
| Currency Unit = | CFA Franc (CFAF) |
| CFAF 612 = | US$1 |
| US$1 = | SDR 0.578130 |

FISCAL YEAR
January 1 - December 31

| | |
|---|---|
| Regional Vice President: | Ousmane Diagana |
| Country Director: | Keiko Miwa |
| Regional Director: | Chakib Jenane |
| Practice Manager: | Fatouma Toure Ibrahima Wane |
| Task Team Leader (s): | Apolline Angel Bancole Ep Gaye, Stephane Raphael Dahan |
| ICR Main Contributor: | Suneira Rana, Sara Datturi |

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ANSD | Agency for National Statistics and Demography |
| BAFO | Best and Final Offer |
| BMGF | Bill and Melinda Gates Foundation |
| CBA | Cost-Benefit Analysis |
| CPCSP | Planning, Coordination and Monitoring Unit of Programs (*Cellule de Planification de Coordination et de Suivi des Programmes*) |
| CPF | Country Partnership Framework |
| DA | Directorate of Sanitation (*Direction de l'Assainissement*) |
| DGPRE | Directorate of Water Resources Management and Planning (*Direction de la Gestion et de la Planification des Ressources en Eau*) |
| DH | Directorate of Hydraulics (*Direction de l'Hydraulique*) |
| DSP | Public Service Delegation (*Délégation de Service Public*) |
| EIRR | Economic Internal Rate of Return |
| ESMF | Environmental and Social Management Framework |
| FIRR | Financial Internal Rate of Return |
| FM | Financial Management |
| GBV | Gender-Based Violence |
| GoS | Government of Senegal |
| IA | Implementing Agency |
| ICR | Implementation Completion and Results Report |
| INLC | National Initiative to Fight COVID-19 (*Initiative Nationale de Lutte Contre la COVID-19*) |
| ISDS | Integrated Safeguards Data Sheet |
| IWRM | Integrated Water Resources Management |
| JMP | Joint Monitoring Programme |
| LPSD | Sector Development Policy Letter (*Lettre de Politique Sectorielle de Développement*) |
| LQAS | Lot Quality Assurance Sampling |
| LTWSP | Long-Term Water Sector Project |
| M&E | Monitoring and Evaluation |
| MHA | Ministry of Water and Sanitation (*Ministère de l'Hydraulique et de l'Assainissement*) |
| MPA | Multi-Phase Programmatic Approach |
| NPV | Net Present Value |
| O&M | Operations and Maintenance |
| OFOR | Rural Boreholes Agency (*Office des Forages Ruraux*) |
| ONAS | National Sanitation Agency of Senegal (*Office National de l'Assainissement du Sénégal*) |
| PAD | Project Appraisal Document |
| PAGIRE | Integrated Water Resources Management Action Plan (*Plan d'Action pour la Gestion Intégrée des Ressources en Eau*) |
| PAP | Project-Affected Person |
| PCU | Project Coordination Unit |
| PDO | Project Development Objective |
| PEAMIR | Senegal Rural Water Supply and Sanitation Project (*Programme d'Eau, d'Assainissement et d'Hygiène en Milieu Rural et Urbain*) |
| PEPAM | Water and Sanitation Millennium Program (*Programme d'Eau Potable et d'Assainissement du Millénaire*) |

| | |
|---|---|
| PISEA | Integrated Support Program for Water and Sanitation Services (*Programme d'Intervention Sectoriel Eau et Assainissement*) |
| PIU | Project Implementation Unit |
| PPP | Public-Private Partnership |
| PPSD | Project Procurement Strategy for Development |
| PSE | Emerging Senegal Plan (*Plan Sénégal Emergent*) |
| PSP | Private Sector Participation |
| RPF | Resettlement Policy Framework |
| RWS | Rural Water Supply |
| SDAGE | Water Resources Development Master Plan (*Schéma Directeur d'Aménagement et de Gestion des Ressources en Eau*) |
| SDE | Senegal Water Utility (*Sénégalaise des Eaux*) |
| SDER | Senegal Rural Water Company (*Sénégalaise des Eaux Rurales*) |
| SDGs | Sustainable Development Goals |
| SIA | Specialized Implementation Agency |
| SONES | National Water Company of Senegal (*Société Nationale des Eaux du Sénégal*) |
| STBV | Fecal Sludge Treatment Plant (Station de Traitement des Boues de Vidange) |
| STEP | Systematic Tracking of Exchanges in Procurement |
| ToC | Theory of Change |
| UNICEF | United Nations Children's Fund |
| UWSP | Urban Water and Sanitation Project |
| WASH | Water, Sanitation, and Hygiene |
| WHO | World Health Organization |
| WRM | Water Resources Management |
| WSS | Water Supply and Sanitation |
| WWS | Water and Wastewater Services |

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### BASIC DATA

#### Product Information

| Operation ID | Operation Name |
|---|---|
| P164262 | Senegal Rural Water Supply and Sanitation Project |
| Product | Operation Short Name |
| Investment Project Financing (IPF) | Senegal RWSS Project |
| Operation Status | Approval Fiscal Year |
| Closed | 2018 |
| Original EA Category | Current EA Category |
| Partial Assessment (B) (Approval package - 23 Jul 2021) | Partial Assessment (B) (Restructuring Data Sheet - 28 Jun 2024) |

### CLIENTS

| Borrower/Recipient | Implementing Agency |
|---|---|
| République du Sénégal | Direction de Gestion et de Planification des Ressources en Eau (DGPRE), Direction de l'Assainissement (DA), Direction de l'Hydraulique (DH), Office des Forages Ruraux (OFOR), Office National de l'Assainissement du Sénégal (ONAS), Project Implementation Unit (PIU), Société Nationale des Eaux du Sénégal (SONES) |

### DEVELOPMENT OBJECTIVE

Original Development Objective (Approved as part of Approval Package on 23-Jul-2021)

The project's development objective is to increase access to improved water and sanitation services in selected rural areas and strengthen capacity for water resources management.

Current Development Objective (Approved as part of Restructuring Package Seq No 1 on 08-Mar-2021)

The project's development objective is to increase access to improved water and sanitation services in selected rural areas and strengthen capacity for water resources management.

PDO as stated in the legal agreement

increase access to improved water, sanitation and hygiene services in selected rural and urban areas and strengthen capacity for water resources management

**FINANCING**

| Financing Source | Original Amount (US$) | Revised Amount (US$) | Actual Disbursed (US$) |
|---|---|---|---|
| World Bank Financing | 130,000,000.00 | 114,353,010.00 | 111,634,779.57 |
| IDA-62810 | 130,000,000.00 | 114,353,010.00 | 111,634,779.57 |
| **Total** | **130,000,000.00** | **114,353,010.00** | **111,634,779.57** |

**RESTRUCTURING AND/OR ADDITIONAL FINANCING**

| Date(s) | Type | Amount Disbursed (US$M) | Key Revisions |
|---|---|---|---|
| 08-Mar-2021 | Portal | 14.30 | • Development Objective<br>• Components<br>• Results<br>• Risks<br>• Legal Covenants<br>• Disbursement Estimates<br>• Clients<br>• Reallocations<br>• Institutional Arrangement<br>• Implementation Schedule<br>• Other Changes |
| 15-Jun-2022 | Portal | 44.47 | • Reallocations |
| 27-Jun-2023 | Portal | 80.66 | • Components<br>• Results<br>• Loan Closing Date Extension<br>• Reallocations<br>• Implementation Schedule |
| 28-Jun-2024 | Portal | 105.21 | • Components<br>• Results |

| | | | |
|---|---|---|---|
| | | | • Loan Cancellations<br>• Reallocations |

## KEY DATES

| Key Events | Planned Date | Actual Date |
|---|---|---|
| Concept Review | 12-Dec-2017 | 12-Dec-2017 |
| Decision Review | 16-Apr-2018 | 16-Apr-2018 |
| Authorize Negotiations | 02-May-2018 | 02-May-2018 |
| Approval | 22-Jun-2018 | 22-Jun-2018 |
| Signing | 31-Jul-2018 | 20-Jul-2018 |
| Effectiveness | 30-Oct-2018 | 15-Oct-2018 |
| ICR/NCO | 31-Jan-2025 | -- |
| Restructuring Sequence.01 | Not Applicable | 08-Mar-2021 |
| Restructuring Sequence.02 | Not Applicable | 15-Jun-2022 |
| Restructuring Sequence.03 | Not Applicable | 27-Jun-2023 |
| Restructuring Sequence.04 | Not Applicable | 28-Jun-2024 |
| Operation Closing/Cancellation | 30-Jun-2024 | 30-Jun-2024 |

## RATINGS SUMMARY

| Outcome | Bank Performance | M&E Quality |
|---|---|---|
| Moderately Satisfactory | Moderately Satisfactory | Substantial |

## ISR RATINGS

| No. | Date ISR Archived | DO Rating | IP Rating | Actual Disbursements (US$M) |
|---|---|---|---|---|
| 01 | 27-Sep-2018 | Satisfactory | Satisfactory | 0.00 |

| | | | | |
|---|---|---|---|---|
| 02 | 15-Mar-2019 | Satisfactory | Satisfactory | 6.89 |
| 03 | 27-Aug-2019 | Satisfactory | Satisfactory | 6.89 |
| 04 | 21-Feb-2020 | Satisfactory | Moderately Satisfactory | 6.96 |
| 05 | 19-Aug-2020 | Moderately Satisfactory | Moderately Satisfactory | 10.10 |
| 06 | 25-Feb-2021 | Moderately Unsatisfactory | Moderately Unsatisfactory | 14.30 |
| 07 | 13-Sep-2021 | Moderately Unsatisfactory | Moderately Satisfactory | 29.27 |
| 08 | 11-Mar-2022 | Moderately Satisfactory | Moderately Satisfactory | 39.55 |
| 09 | 14-Sep-2022 | Moderately Unsatisfactory | Moderately Satisfactory | 51.68 |
| 10 | 21-Mar-2023 | Moderately Satisfactory | Satisfactory | 64.28 |
| 11 | 25-Sep-2023 | Moderately Satisfactory | Satisfactory | 89.77 |
| 12 | 28-Jun-2024 | Satisfactory | Satisfactory | 105.21 |

## SECTORS AND THEMES

### Sectors

| Major Sector | Sector | % | Adaptation Co-benefits (%) | Mitigation Co-benefits (%) |
|---|---|---|---|---|
| FY17 - Water, Sanitation and Waste Management | FY17 - Public Administration - Water, Sanitation and Waste Management | 16 | 16 | 4 |
| | FY17 - Sanitation | 53 | 0 | 1 |
| | FY17 - Water Supply | 31 | 14 | 25 |

### Themes

| Major Theme | Theme (Level 2) | Theme (Level 3) | % |
|---|---|---|---|
| FY17 - Environment and Natural Resource Management | FY17 - Climate change | FY17 - Adaptation | 7 |
| | | FY17 - Mitigation | 9 |
| | FY17 - Water Resource Management | | 15 |

| | | | |
|---|---|---|---|
| FY17 - Human Development and Gender | FY17 - Gender | | 63 |
| FY17 - Urban and Rural Development | FY17 - Rural Development | FY17 - Rural Water and Sanitation | 94 |

**ADM STAFF**

| Role | At Approval | At ICR |
|---|---|---|
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| Regional Director | - | Chakib Jenane |
| Global Director | Guang Zhe Chen | Saroj Kumar Jha |
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| Regional Vice President | Makhtar Diop | Ousmane Diagana |
| ADM Responsible Team Leader | Oumar Diallo | Apolline Angel Bancole Ep Gaye |
| Co-Team Leader(s) | - | Stephane Raphael Dahan |
| ICR Main Contributor | Suneira Rana, Sara Datturi | |

# I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

## A. CONTEXT AT APPRAISAL

### Context

1. **Senegal, a Sahelian country with limited water resources, requires integrated planning, development, and management of its surface water and groundwater to support its economy.** Thus, the Government of Senegal (GoS) adopted the Integrated Water Resources Management Action Plan (*Plan d'action pour la gestion intégrée des ressources en eau*, PAGIRE) in 2007. Aligned with the Rio Summit recommendations and the Council of African Ministers of Water's vision, PAGIRE focuses on improving governance, knowledge, monitoring, planning, and communication regarding water resources. This initiative places integrated water resources management (IWRM) at the core of water sector governance, aligning with the national Sustainable Development Goals (SDGs) agenda.

2. **At appraisal, the provision of water supply and sanitation (WSS) services was guided by a comprehensive legal and contractual framework established by the Water and Sanitation Law of 2008.** The law clearly defined responsibilities for both urban and rural water services, including the involvement of private operators through delegated management. Key reforms initiated in 1996, supported by the World Bank, led to significant improvements in urban water services. These reforms involved the establishment of the National Water Company of Senegal (*Société Nationale des Eaux du Sénégal*, SONES) to manage urban water assets and the recruitment of a private operator, Senegal Water Utility (*Sénégalaise des Eaux*, SDE), to deliver water services through a performance-based lease agreement. The National Sanitation Agency of Senegal (*Office National de l'Assainissement du Sénégal*, ONAS) was also established to manage urban sanitation. Reforms had also extended to the rural water supply (RWS) sector, with the creation of the Rural Boreholes Agency (*Office des Forages Ruraux*, OFOR) in 2014, tasked with managing rural water systems and monitoring private operators.

3. **Senegal's urban water subsector ranked among the top performers in Sub-Saharan Africa, while rural areas lagged in water access.** At appraisal, 83.8 percent of Senegalese households had access to an improved water source, with significant differences between urban (95.3 percent) and rural (73.7 percent) households.[1] Despite progress, several challenges remained in RWS, including the need for system rehabilitation, addressing poor groundwater quality in central Senegal and supporting ongoing reforms that introduced private sector participation (PSP).

4. **In contrast, the sanitation sector showed significant disparities.** At appraisal, only 55 percent of the population had access to improved sanitation services (that is, basic or safely managed), with a notable gap between urban and rural areas. Urban areas achieved a 68.1 percent access rate, while rural areas lagged at 43.3 percent.[2] This disparity was even more pronounced in central areas of the country, the Groundnut Basin, where only 26 percent of the rural population had access to improved sanitation and 53 percent practice open defecation, leading to negative impacts on public health and child mortality.[3] Moreover, nearly three-fourths[4] of diarrhea-related deaths in Senegal have been attributed to unsafe drinking water and inadequate sanitation practices, highlighting the critical need for improved water and sanitation access in the country.

5. **The Groundnut Basin area, home to one-third of the rural population in Senegal, faced significant challenges related to poorly maintained water systems, low access to improved sanitation, and high poverty ratios.** At appraisal, the region (in particular Diourbel, Fatick, Kaffrine, and Kaolack) was characterized by (a) some of the lowest access rates to improved sanitation and the highest rates of open defecation in the country;[5] (b) high poverty ratios (57 percent on average), compared to a national average ratio of 47 percent; (c) obsolete equipment at water production facilities; and

[1] *Source:* https://washdata.org/data/household#!/table?geo0=country&geo1=SEN, using 2017 data at the time of project appraisal.
[2] *Source:* https://washdata.org/data/household#!/table?geo0=country&geo1=SEN, using 2017 data at the time of project appraisal.
[3] *Source:* PAD dated May 31, 2018, Report Number PAD2763.
[4] Health and environment scorecard 2023, Senegal, World Health Organization: https://cdn.who.int/media/docs/default-source/country-profiles/environmental-health/environmental-health-sen-2023.pdf.
[5] According to the Senegal Ministry of Water and Sanitation (*Ministère de l'Hydraulique et de l'Assainissement* MHA), the four regions—Diourbel, Fatick, Kaffrine, and Kaolack—exhibited very low access rates to improved sanitation (26.3 percent on average) and the highest rates of open defecation in the country (53.3 percent)

(d) poor water quality characterized by high levels of fluoride and salt with negative impacts on the population's health. Additionally, water service management in the area was recently delegated to four private operators to manage around 600 RWS systems, many of which required rehabilitation—under the State's purview. This involved replacing the Associations of Drinking Water Borehole Users (*Association d'usagers de forage*, ASUFOR) with public service delegations (*Délégation de Service Public*, DSPs) to operate the 600 water supply systems. However, progress was slow, primarily due to the State's failure to upgrade the existing facilities.

6. **The appraisal highlighted the need for continued World Bank support** to address these identified gaps, strengthen PSP, and ensure sustainable improvements in water and sanitation services. Research[6] indicates that well-targeted and sustained water, sanitation, and hygiene (WASH) investments can simultaneously reduce inequalities in access to drinking water and sanitation and rural poverty.

### Previous World Bank Engagement

7. **The project builds on the World Bank's long-standing and successful partnership with the GoS in developing the country's water and sanitation services.** Prior to the project under review (that is, The Senegal Rural Water Supply and Sanitation Project (Programme d'Eau, d'Assainissement et d'Hygiène en Milieu Rural et Urbain, PEAMIR), the World Bank funded four successive operations (1995–2021) that supported the urban water sector reforms initiated in 1995 and the rural water subsector reform, leading to the creation of OFOR in 2014 and the first RWS delegation through a public-private partnership (PPP) in 2015.

8. The first project, the *Water Sector Project* (P002346, US$100 million, 1995–2004), addressed bulk water shortages and the financial viability of SONES. The second, the *Long-Term Water Sector Project* (LTWSP, P041528, US$125 million, 2001–2009), expanded water coverage to underserved and low-income neighborhoods in Dakar and secondary cities. The third, the *Water and Sanitation Millennium Project* (P109986, US$55 million, 2010–2015), tackled sustainable groundwater management, the financial viability of SONES and ONAS, and low water and sanitation coverage in rural areas. The fourth, the *Urban Water and Sanitation Project* (UWSP, P150351, US$100 million, 2015–2021), financed strategic water investments, capacity building for OFOR, increased urban sanitation access, and supported the second-generation reform of urban water services.

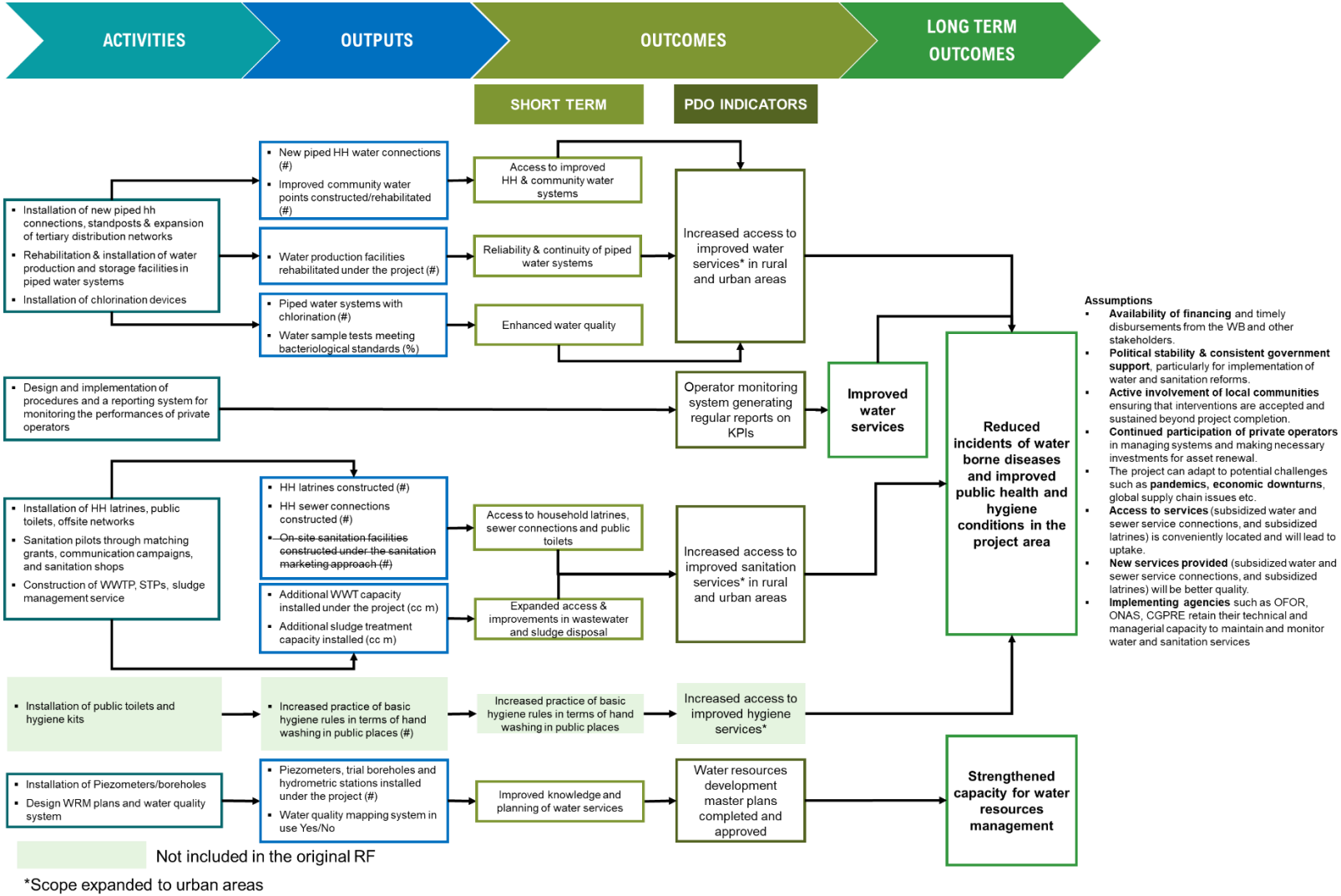
9. **These projects, though implemented independently, were interconnected, with each building on the findings of its predecessors.** PEAMIR continues this series (see annex 8). Specifically, the technical assistance provided under UWSP informed the preparation for this project and started to build the capacity of OFOR as one of its implementing agencies (IAs) to tackle the identified RWS reforms. Thus, the World Bank's ongoing engagement offered an opportunity to apply lessons learned from its successful partnership with the GoS in developing the water and sanitation sector. Importantly, PEAMIR has laid the foundation for a longer-term engagement in the sector through the Senegal Integrated Water Security and Sanitation Multiphase Programmatic Approach (MPA), approved in June 2024, in line with the objectives and principles of the Global Challenge Programs. This US$800 million MPA will enhance policy reforms and dialogue supported under PEAMIR, through the implementation of the water resources management (WRM) master plans, a review of rural water supply models, the design of second-generation service delegation contracts, urban sanitation reform, and the development of rural sanitation facilities. **This successful sequencing of Bank interventions in Senegal's water sector, with each project setting the stage for the next one is serving as a reference in the dialogues with many countries in the region.**

### Theory of Change (Results Chain)

10. The Theory of Change (ToC) has been created for this Implementation Completion and Results Report (ICR) evaluation following the project's logical framework, including the Project Development Objective (PDO), detailed project description, rationale for selection of investments, and Results Framework, as described in the Project Appraisal Document (PAD) and is summarized in figure 1. The ToC also includes the modifications in project design as a result of restructuring.

[6] Sy, Ibrahima, Ansoumana Bodian, Mamadou Abdoulaye Konté, Lamine Diop, Papa Malick Ndiaye, Sokhna Thiam, and Joseph Mouanda. 2022. "Impact of Regional Water Supply, Sanitation and Hygiene (WASH) Program in Senegal on Rural Livelihoods and Sustainable Development." *Journal of Water, Sanitation and Hygiene for Development* 12 (1): 1–15. https://doi.org/10.2166/washdev.2021.029.

**Figure 1. Theory of Change for Senegal Rural Water Supply and Sanitation Project**



### Project Development Objectives (PDOs)

1. The PDO in the Financing Agreement dated July 20, 2018, is stated as follows: *"The objectives of the Project are to increase access to improved water and sanitation services in selected rural areas and strengthen capacity for water resources management."*

### Key Expected Outcomes and Outcome Indicators

2. At appraisal, the project had **three expected outcomes** associated with indicators to monitor progress: (a) *increased access to improved water services*, (b) *increased access to improved sanitation services*, and (c) *strengthened capacity for WRM*. **The outcomes indicators were:** (i) *People provided with access to improved water sources* (number; 365,000) (ii) *Operator monitoring system generating regular reports on performance against key indicators* (Yes/No); (iii*) People provided with access to improved sanitation services* (number; 1,136,000); (iv) *Women provided with access to improved sanitation under the project* (number; 568,000); and (v) *Water resources development master plans completed and approved* (number; 5).

### Components

3. The original project had the following four components.

4. **Component 1: Rural Water Supply** (Appraisal: US$40.88 million; Completion: US$48.30 million). This component aimed to improve water services and expand access in selected rural areas. The main activities included (a) upgrading piped water systems by renewing equipment, constructing and rehabilitating storage facilities, and expanding production capacity; (b) developing access to water through household service connections, expanding distribution networks, and installing standposts; (c) providing consulting services to supervise these activities and ensure quality and effectiveness; and (d) awareness raising communication campaigns about the benefits of household water connections.

5. **Component 2: Sanitation** (Appraisal: US$69.13 million; Completion: US$58.68 million). This component aimed to increase access to improved sanitation and ensure adequate disposal of wastewater and sludge. The main activities included (a) constructing pour-flush latrines and public toilets in rural areas (Diourbel, Fatick, Kaffrine and Kaolack); (b) building small-bore sewers, a wastewater pumping station, and treatment plants, along with providing household connections and a vacuum truck in urban areas (Gandiaye, Diourbel, Nioro du Rip, Guinguinéo, Koungheul); and (c) piloting sanitation marketing initiatives (Saint-Louis and Matam regions), such as matching grants for household latrines, communication campaigns, and the establishment of sanitation shops, along with supervision and outreach activities.

6. **Component 3: Water Resources Management** (Appraisal: US$7.33 million; Completion: US$7.68 million). This component enhanced water resource management through accurate data and comprehensive planning. The main activities included (a) conducting hydrogeological and hydrological studies in eastern Senegal and Casamance; (b) constructing piezometers, trial boreholes, and hydrometric stations to monitor water resources; (c) establishing a water quality mapping system; and (d) providing consulting services and technical assistance for preparing water resources development master plans (*Schémas Directeur d'Aménagement et de Gestion des Ressources en Eau*, SDAGEs) in selected basins, namely the Groundnut basin, Cap Verde, the Senegal River Valley, Eastern Senegal, and Casamance.

7. **Component 4: Program Coordination, Institutional Support, and Capacity Building** (Appraisal: US$12.66 million; Completion: US$12.56 million). This component aimed to strengthen institutional capacity and ensure effective project implementation. The main activities included project management activities such as implementing the Environmental and Social Management Plan (ESMP), project monitoring, financial audits, and communication efforts. Institutional support was provided to various agencies, including the DH, ONAS, and OFOR, through feasibility studies, technical assistance, and the development of management systems. Capacity-building activities involve purchasing vehicles and office equipment, training staff, and covering travel expenses for supervision of project activities.

## B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

8. **The project went through four level 2 restructurings (December 2020,[7] June 2022, June 2023, and June 2024),** primarily driven by COVID-19 response needs, PDO changes, disbursement adjustments, timeline extensions, and fund cancellations. The ***First Restructuring (December 2020)*** supported Senegal's COVID-19 response through multiple changes: modifying the PDO to include hygiene and expanding geographic scope; reallocating funds for COVID-19 activities; revising the Results Framework and disbursement forecasts; amending the Financing Agreement; updating the Integrated Safeguards data sheet (ISDS), and economic analysis; and adding SONES as an Implementing Agency (IA). The ***Second Restructuring (June 2022)*** reallocated funds between disbursement categories,[8] specifically adjusting Category 3, which was insufficient to cover the COVID-19 emergency response commitments, by transferring funds from Categories 1 and 4. In the ***Third Restructuring (June 2023),*** the project closing date extended by one year to June 30, 2024, allowing completion of sanitation works in peri-urban areas. Resources were reallocated by cancelling Category 2 (sanitation marketing) and transferring funds to Category 1 to accelerate final activities and improve procurement. The ***Fourth Restructuring (June 2024)*** processed the cancellation of EUR 2.3 million in unused funds, requiring revision of sanitation component costs, disbursement projections, and the Results Framework.

### Revised PDOs and Outcome Targets

9. Over the implementation period, the four restructurings expanded the PDO scope, added a new PDO indicator and a related intermediate results indicator, dropped one intermediate results indicator, and revised targets for fourteen existing indicators. The PDO was expanded in the first December 2020 restructuring to: *"Increase access to improved water, sanitation and hygiene services in selected rural and urban areas and strengthen capacity for water resources management."*

### Revised PDO Indicators

10. A new PDO indicator was introduced under the first restructuring: *"People practicing basic hygiene rules in terms of hand washing in public places"* targeting 50,000 people (ratio: 200 people per hand-washing station). Additionally, targets were modified for four of the PDO indicators through the restructuring processes, as shown in the below table.

11. The 2020, 2023, and 2024 restructurings also introduced changes to the intermediate results indicators. Specifically, an indicator related to the newly introduced PDO indicator on hygiene was added during the 2020 restructuring: *"Public toilets constructed under the project for public places like health centers, schools, etc."* Another indicator *"On-site sanitation facilities constructed under the sanitation marketing approach"* was dropped in the 2023 restructuring owing to the cancellation of the sanitation marketing activity due to procurement delays. There have also been changes to intermediate indicator targets, which are described in annex 4.

**Table 1. Changes in PDO Indicator Targets during Restructuring**

| PDO Indicator | Original Target (Appraisal 2018) | Revised Target (2020 Restructuring) | Revised Target (2023 Restructuring) | Revised Target (2024 Restructuring) | Final Target (Closing 2024) |
|---|---|---|---|---|---|
| People provided with access to improved water sources (#) | 365,000 | 485,000 | 545,800 | No change | 545,800 |
| Operator monitoring system generating regular reports on performance against key indicators (Yes/No) | Yes | No change | No change | No change | Yes |
| People provided with access to improved sanitation services (#) | 1,136,000 | 725,500 | 541,000 | 513,000 | 513,000 |

[7] This date is based on what is provided in the official Restructuring Paper, Report Number RES41457, December 2020, and differs from the date available in the World Bank Operations Workspace.

[8] Disbursement categories are Category 1 (Goods, Works, Serv. Consultants, Services, Training, Operations except SC 2.4 - sanitation pilot), Category 2 (Matching grants under SC 2.4 - sanitation pilot), Category 3 (Goods, Serv. Consultants, Services, Training, Operations except SC2.4 - sanitation pilot under COVID 19 response), Category 4 (Works except SC2.4 - sanitation pilot under COVID 19 response). *Source:* Restructuring Paper, Report Number RES41457, December 2020.

| PDO Indicator | Original Target (Appraisal 2018) | Revised Target (2020 Restructuring) | Revised Target (2023 Restructuring) | Revised Target (2024 Restructuring) | Final Target (Closing 2024) |
|---|---|---|---|---|---|
| Women provided access to improved sanitation under the project (#) | 568,000 | 362,750 | 270,500 | No change | 270,500 |
| Water resources development master plans completed and approved (#) | 5 | No change | No change | No change | 5 |
| People practicing basic hygiene rules in terms of hand washing in public places (#) | n.a. | 50,000 (new) | No change | 25,000 | 25,000 |

### Revised Components

12. **Component 1: Rural Water Supply.** The first restructuring in 2020 increased the budget from US$40.88M to US$52.52M to finance COVID response activities. The focus was on expanding distribution networks and providing social connections (that is, subsidized household connections). *Subcomponent 1.1. Upgrading piped water systems* was allocated an additional US$6.49M to improve water services in peri-urban[9] areas, rehabilitate existing piped systems, and connect the Sanghé and Kissane villages through new infrastructure. *Subcomponent 1.2 Development of access to water* was allocated an additional US$4.82M to extend networks in Greater Dakar and rural areas, while installing subsidized household connections.

13. **Component 2: Sanitation.** During the **first restructuring**, the budget was significantly reduced from US$69.13M to US$55.15M to support critical COVID response activities. The *Rural Sanitation subcomponent 2.1* experienced substantial reductions, with its budget decreasing from US$39.33M to US$20.35M. This resulted in revised targets of 49,000 latrines and 60 public toilets. A new subcomponent *2.5 urban sanitation access and promoting WASH in public places* was created with US$4.72 million to serve poor neighborhoods in Greater Dakar. This new initiative included installing household sanitation facilities, sewer pipes and connections, 40 public toilets with menstrual hygiene facilities, and comprehensive hygiene awareness programs. **The third restructuring in 2023 brought additional changes**. The project cancelled the construction of 12,750 latrines under the sanitation marketing pilot. These funds were redirected to extend the sewerage network, add 950 connections, and build a new pumping station. To complete these peri-urban works, the project's closing date was extended to June 2024, allowing time to accelerate final activities and improve procurement processes.

14. **Component 4: Program Coordination, Institutional Support, and Capacity Building.** The budget was increased from US$12.66M to US$15.00M to manage COVID-19 response activities. While institutional arrangements remained largely unchanged, SONES was added to support the new urban water supply subcomponent.

### Rationale for Changes and Their Implication on the Original Theory of Change

15. **The project's four restructurings were driven by specific rationales, each with distinct impacts on the Theory of Change (ToC)** – see annex 4 for details**.** The ***first restructuring in December 2020*** responded to urgent COVID-19 needs, expanding the project's geographic scope beyond the original five regions (Thiès, Diourbel, Fatick, Kaolack, Kaffrine) to include Greater Dakar peri urban areas (pandemic epicenter) and remote rural areas with poor water systems. While this expansion significantly expanded the project's reach, it strengthened the ToC by adding a crucial hygiene component that addressed a gap in the original project design. The reallocation of US$16.7 million from rural sanitation to COVID-19 response activities (rural and urban water supply, project management, and Greater Dakar sewer connections, public toilets, and hygiene kits) demonstrated adaptive management without compromising the core ToC. The ***second***

[9] The peri-urban areas with frequent water shortages include Rufisque Sangalkam, Zac of Kounoune, Keur Djaraf/Darourahmane, HLM of Rufisque, Cité Imprimerie, and Déni Birame NDAO.

***restructuring in June 2022*** reallocated funds between disbursement categories[10] to cover COVID-19 funding gap, with no significant impact on PDO or ToC. However, the ***third restructuring in June 2023*** extended the project closing date to June 2024, reflecting implementation challenges, including procurement delays, contractor performance issues, and external shocks from COVID-19 and Russia's invasion of Ukraine. While the cancellation of the sanitation marketing activity led to reduced PDO and related intermediate indicator targets for sanitation, its relatively small size meant minimal impact on the overall ToC. The ***final restructuring in June 2024*** was driven by end-of-project financial management needs, cancelling EUR 2.3M of unspent funds. Though this resulted in reduced household latrine targets and diminished benefits for the Groundnut Region, the reallocation to sewerage infrastructure maintained the project's fundamental focus on improved sanitation access. Throughout all restructurings, the core ToC remained robust, successfully adapting to external pressures while maintaining its focus on improving water and sanitation access.

## II. OUTCOME

### A. RELEVANCE OF PDO

#### Assessment of Relevance of PDOs and Rating

16. The relevance of the PDOs is **High**. Both the original and the revised PDOs were relevant to the sector, government priorities, the World Bank's Country Partnership Framework (CPF), and the Systematic Country Diagnostic (SCD) at appraisal and closing.

17. At the start of the project, while Senegal had made significant progress in increasing water supply coverage in general, the sanitation subsector did not have similar progress. Access to improved sanitation was estimated to be 62 percent in urban areas and 36 percent in rural areas. Moreover, the subsector faced issues such as obsolete rural water systems, poor groundwater quality affecting over 1 million people, and the need for PSP in rural water management. The project activities were focused on leveraging PPPs and addressing these significant challenges related to poorly maintained rural water systems, extremely low access rates to improved sanitation, and high poverty ratios in the predominantly rural Groundnut Basin area (see section 1A). The activities were later expanded to address the COVID-19 pandemic in the Greater Dakar area and highly populated remote rural areas.

18. **Relevance to World Bank strategies.** By narrowing the access gaps between rural and urban areas and between water and sanitation, the project is consistent with the second pathway to poverty reduction and shared prosperity in the World Bank's Systematic Country Diagnostic of 2018:[11] to enhance equity and resilience. The project objectives were also consistent with the current Country Partnership Strategy: 2014–2017,[12] which includes an outcome for improved coverage and efficiency of water supply service in selected states. The project was well aligned with the maximizing finance for development approach, leveraging public resources to attract commercial capital while promoting sustainable infrastructure remains integral. Moreover, the project objectives remain relevant at closing with the World Bank's CPF: 2020–2024,[13] which includes an outcome to ensure access to water and sanitation in the most vulnerable areas.

19. **Relevance to government priorities and strategies.** The project aligned with Senegal's development frameworks at both initiation and completion. Initially, it supported the Emerging Senegal Plan (*Plan Sénégal Emergent*, PSE) 2014-2023's goals for inclusive water and sanitation access. Following the June 2024 elections, national priorities.[14] shifted with the new government's program, emphasizing territorial development, human capital, and good governance. At closing,

[10] Disbursement categories are Category 1 (Goods, Works, Serv. Consultants, Services, Training, Operations except SC 2.4 - sanitation pilot), Category 2 (Matching grants under SC 2.4 - sanitation pilot), Category 3 (Goods, Serv. Consultants, Services, Training, Operations except SC2.4 - sanitation pilot under COVID 19 response), Category 4 (Works except SC2.4 - sanitation pilot under COVID 19 response). *Source:* Restructuring Paper, Report Number RES41457, December 2020.
[11] Senegal Systematic Country Diagnostic 2018, Report No. 130660.
[12] Senegal Country Partnership Strategy for (2014–2017), Report No. 73478-SN.
[13] Senegal Country Partnership Framework for FY20–FY24. Report No. 143333-SN.
[14] https://diomayepresident.org/wp-content/uploads/2024/03/Programme-Diomaye-President.pdf.

the project remained consistent with *Vision Sénégal 2050* and the National Development Strategy (*Stratégie Nationale de Développement)* 2025-2029, focusing on sustainable economic growth, social equity, and environmental stewardship. The PDO also aligned with Senegal's Sector Development Policy Letter (*Lettre de Politique Sectorielle de Développement*, *LPSD*), supporting four objectives: performance-based governance, strengthened IWRM framework, universal water coverage by 2025, and improved wastewater and fecal sludge management by 2025. Thus, the project goals maintained their relevance throughout the project lifecycle.

20. **Previous World Bank involvement.** As mentioned in *A. Context at Appraisal*, the World Bank has been a key GOS partner in developing Senegal's water and sanitation services, through IDA lending and knowledge, and has funded several successive operations since 1995. PEAMIR integrated many lessons from its predecessors, particularly on institutional reform and increased PSP in RWS management. It also established groundwork for future long-term engagement through the upcoming MPA, which builds on PEAMIR's achievements in enhancing policy reforms, WRM capacity, and WSS coverage.

## B. ACHIEVEMENT OF PDOs (EFFICACY)

**Rating: Substantial**

### Assessment of Achievement of Each Objective/Outcome

21. The project had four outcomes associated with indicators to monitor progress: *(a) increased access to improved water services, (b) increased access to improved sanitation services, (c) strengthened capacity for WRM, and (d) increased access to improved hygiene services.* The ICR assessed each of the PDO outcomes by analyzing the achievements of the PDO indicators and related intermediate results. Given the expanded scope of the PDO, the addition of a new PDO indicator, and modified targets that changed the scope of the project during the first restructuring, a split evaluation has been conducted for Outcome Areas 2 and 4.

***Outcome Area 1: Increase Access to Improved Water Services - Rating: Substantial***

22. This outcome's progress was evaluated using two PDO indicators and the corresponding intermediate indicators. Outcome 1 does not require a split assessment as the project's scope expanded to include peri-urban Greater Dakar and densely populated rural areas with poor infrastructure, with the corresponding targets revised upward. Specifically, the restructurings in 2020 and 2023 increased the first PDO indicator target, "*People provided with access to improved*[15] *water sources*," from 365,000 to 485,000 and then to 545,800. The second PDO indicator, "*Operator monitoring system generating regular reports on performance against key indicators*," remained unchanged throughout the restructuring process.

23. **In terms of outputs, all but two intermediate results were achieved.** A total of 439 water production facilities were rehabilitated, while over 50,000 piped water connections and 229 community water points were constructed or rehabilitated, all of which exceeded the planned targets. The indicator on the number of piped water systems equipped with chlorination units fell short at 341, achieving 58 percent of its target of 586, owing to delays in installation in the Kaolack and Kaffrine regions. Nevertheless, the equipment will improve the bacteriological quality in the project area, while the installation of the remaining units will likely be completed post project closure. This effort enhanced water safety by ensuring disinfection, a critical achievement in areas previously vulnerable to waterborne diseases. While the borrower found it difficult to assess the water quality in all project areas (particularly in Thiès/Diourbel and Kaolack/Kaffrine) owing to data/capacity constraints, two water analyses have been completed and confirmed that water provided meets the required quality standards at most sites, contributing to the development of 'improved' water sources.

[15] As per the definition in the PAD (page 39), "'Improved Water Sources' include piped household connections (house or yard connections), public standpipes, public kiosks. The definition of what is considered an 'improved water source' follows the UNICEF-WHO Joint Monitoring Program definition." The definitions for water and sanitation access used by the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) Joint Monitoring Programme (JMP) evolved over the project period. The JMP subdivides the population using improved sources into three groups according to the level of service provided: (a) safely managed, (b) basic, (c) limited.

24. **Before the project intervention, rural areas had obsolete equipment at production facilities leading to service interruptions, insufficient water quantity, and defective water storage facilities.** Additionally, water was often distributed without being disinfected, and there were issues with excessive fluorine and salt content in the groundwater. Moreover, the establishment of DSPs (private operators) to improve water service delivery and ensure sustainability was slow to take off owing to the failure of the State to rehabilitate existing water supply systems, particularly in the Kaolack/Kaffrine and Thiès/Diourbel perimeters.

25. **In terms of outcomes, both the PDO indicator targets were met or exceeded** and the project significantly improved water access, quality, and sustainability across all targeted regions.

26. **Access.** The project reached 554,889[16] people (of which 392,700 are in rural areas and 162,189 are in urban areas and were targeted by the projects COVID response measures), exceeding the first PDO indicator target of 545,800 through rehabilitated and new piped connections, social connections, or standpipes programs. According to the Senegal Client Completion Report, 2024, the project contributed to increasing overall access to improved water sources in rural areas from 75.7 percent[17] before the project to 98.1 percent after implementation, with several regions, including Dakar and Thiès, achieving universal access (100 percent). Table 6.1 in annex 6 shows the increase in access rates, attributable to the project in its targeted areas of intervention.

27. **Quality.** The project's added value lies not only in surpassing numerical targets but also in its direct contribution to reducing time spent by women and children fetching water, thereby freeing up time for education and economic activities. Anecdotal evidence from beneficiary testimonies highlights the health benefits and improved community cohesion stemming from reliable and safe water access. While beneficiaries indicated some concerns on service and water quality issues in certain regions (Ziguinchor), they were overall highly satisfied with the improved access to water services provided by the project—see Table 6.1 in annex 6.

28. **Sustainability.** As part of rural water sector reforms, four private operators (AQUATECH, SEOH, FLEXEAU, Senegal Rural Water Company [*Sénégalaise des Eaux Rurales*, SDER]) were recruited by the State to manage and sustain approximately 600 RWS systems in the Groundnut Basin, many of which required rehabilitation. Upgraded water facilities through the project has significantly increased water production capacity (by 1,706.19 $m^3/h$)[18] of the DSP boreholes, with annual water production rising by 6 percent (SEOH), 15 percent (FLEXEAU), and 37 percent (AQUATECH) between 2021 and 2023. Through upgraded water facilities, the project improved the quality of existing drinking water services for at least 1,746,024 [19] people by either increasing production, reducing water losses, or improving storage capacity. Additionally, social water connections under the project have reduced conflicts among communities that previously relied on standpipes. While some generator breakdowns were noted, possibly due to noncompliance with operating instructions or equipment quality, overall, the project enhanced community ownership and reduced conflicts by providing better quality water services as well as improved operating conditions and safety for the targeted population.

29. **Furthermore, the operator monitoring system was set up, meeting the second PDO indicator target and effectively ensuring oversight of DSPs for improved service delivery.** This has significantly contributed to building local capacity for managing water resources. Training sessions for local water management entities and the introduction of monitoring tools helped establish a culture of accountability and data-driven decision-making, which are crucial for long-term sustainability. This is evidenced by the high confidence levels among women, predominantly responsible for water management within households, in the sustainability of the improvements made by the project at 92.4 percent.

[16] Based on the new JMP definition, 162,189 people in urban areas have access to safely managed drinking water as a result of the project, since 18,021 urban social connections were developed. On the other hand, 392,700 people in rural areas have access to basic (if new or rehabilitated community water systems are used) or safely managed drinking water (if new or rehabilitated social connections are used) as a result of the project.

[17] According to the results of the WASH 2017 survey, conducted by the MHA, Senegal, most Senegalese households get their water from an improved source, 85.5 percent. However, significant differences are noted between places of residence: 93.6 percent for urban households compared to 75.7 percent for rural households.

[18] Based on data collected by OFOR and provided in the Senegal Client Completion Report, 2024.

[19] Based on data collected by OFOR and provided in the Senegal Client Completion Report, 2024.

30. **The targeted interventions had a transformational impact in the project area and significantly improved water access, quality, and sustainability across all targeted regions.** However, two intermediate indicators were missed. Also, since the PDO indicator focused on setting up an operator monitoring system represents an output, the extent to which the system will improve service delivery is still to be determined. Thus, this outcome is rated as **Substantial**.

***Outcome Area 2: Increase Access to Improved Sanitation Services - Rating: Modest***

31. This outcome's progress was evaluated using two PDO indicators: "*People provided with access to sanitation services*" and "*Women with access to improved sanitation facilities under the project*" and the related intermediate indicators. Outcome 2 requires a split assessment as the project's scope reduced, which reallocated funds from sanitation activities toward the COVID 19 response. The PDO and intermediate indicator targets were also reduced over the three restructuring processes.

32. **In terms of outputs,** 38,887 household latrines/toilets were constructed, achieving 82 percent of the target and directly benefitting over 400,000 people through improved public health and hygiene conditions. The corresponding intermediate indicator had an initial target of 100,000, which was revised downward to 53,700 under the first restructuring in 2020 due to reduced funds that were reallocated toward the COVID-19 response. During the third (2023) and fourth (2024) restructuring, the target was further reduced to 47,500 and then again to 44,700 owing to lengthy procurement delays and the subsequent cancellation of 2,800 latrines that could not be achieved by project closure (progress report, supervision mission, June 2024). While targets were met for installing additional fecal sludge treatment and wastewater treatment capacity, works on the public sewerage system significantly lagged achieving only 50 percent of the target. The missed target is largely attributed to the poor performance and delays caused by construction companies (such as hiring poorly trained construction workers, resulting in ineffective fittings at the household level), changes in construction and equipment prices, as well as the onset of the pandemic and the invasion. These factors also contributed to cancelling the construction of the on-site sanitation facilities under the sanitation marketing approach due to the lengthy procurement process.

33. **In terms of outcomes 402,770[20] people (of which 341,870 are in rural areas, while 60,900 are in urban areas and were targeted by the project's COVID response measures), or 79 percent of the target, benefitted from improved sanitation through additional household latrines and sewerage connections.** Half the beneficiaries were women. According to the Senegal Client Completion Report, 2024, before the project, only 18.6 percent of rural beneficiaries had access to improved sanitation, which increased to 99.9 percent after project implementation. Beneficiaries expressed high satisfaction with the improved sanitation infrastructure (see Table 6.2, annex 6) and the cost of acquiring sanitation services, underscoring the level of accessibility provided to rural beneficiaries (annex 6). Overall, the project's emphasis on involving local communities in the construction of household latrines contributed to a sense of ownership, ensuring better maintenance and sustainability of the facilities. Health workers noted a reduction in waterborne illnesses, showcasing the project's impact on public health beyond statistical indicators. However, there were Modest achievements in the end. The primary factor was the delay in procurement and poor performance of the contracted company to complete the works on time. Despite the revision of targets, including at the fourth restructuring which was at project closure, the PDO and intermediate indicators were not achieved. This outcome is rated as **Modest**.

***Outcome Area 3: Strengthen Capacity for Water Resources Management (WRM) - Rating: Substantial***

34. **Outcome 3 does not require a split evaluation** because the associated activities, targets, and indicators were unaffected by any of the restructurings. Progress was measured using one PDO indicator: *"Water resources development master plans completed and approved"* and the related intermediate indicators. The PDO indicator: *"Water resources development master plans completed and approved"* measured progress made in strengthening water resources planning systems, while the two intermediate indicators measured progress toward improving knowledge and monitoring of water resources.

[20] Based on the new JMP definition, a total of 402,770 people (of which 60,900 are in urban areas while 341,870 are in rural areas) have access to safely managed sanitation as a result of the project, owing to the construction of 3,271 household sewerage connections and 38,887 household latrines.

35. **The process of establishing the SDAGEs faced initial delays due to the COVID-19 pandemic** but it was eventually launched at a workshop organized by the Directorate of Water Resources Management and Planning (*Direction de la Gestion et de la Planification des Ressources en Eau,* DGPRE) in July 2021. This workshop included participation from WRM actors, partners, and stakeholders. Before the workshop, underlying studies related to the SDAGEs, the water quality mapping system, and hydrological/hydrogeological studies were already under preparation by DGPRE-contracted consultancy firms. Specifically, initial diagnostics, inception reports, and methodology orientation reports had been submitted and approved, while trend scenarios, hydro economic evaluations, and the framework for the WRM plans were in progress. The World Bank provided input where needed. During the workshop, it was acknowledged that completing all the WRM master plans would take until March 2023 due to the extensive preparatory planning and stakeholder dialogues required at the watershed level.

36. **In terms of outputs,** all five SDAGEs were completed by March 2023, and approved during a dissemination workshop held on January 18, 2024, attended by the Minster of Water and Sanitation, thus meeting the PDO indicator. The water quality mapping system was put to use following a dissemination workshop held on May 24, 2022, thereby fulfilling the intermediate indicator. Furthermore, 42 structures, including 26 piezometers, 8 test boreholes, and 8 hydrometric stations, were installed by project completion. While only 78 percent of the intermediate indicator target was achieved, the intervention still significantly improved data collection, facilitating better decision-making in water management.

37. **Regarding outcomes,** the WRM master plans have established a comprehensive framework for sustainable water resource management, which will be crucial in guiding long-term water usage and protecting critical water sources. The various studies and works are already enhancing knowledge and monitoring of water resources. For example, water quality mapping in Senegal's Groundnut Basin revealed significant contamination from agricultural activities, particularly the use of fertilizers and pesticides, as well as domestic wastewater discharge, highlighting the need for improved monitoring and prevention strategies. Additionally, hydrological and hydrogeological studies in Casamance and Eastern Senegal identified substantial groundwater potential, estimated at 207 million $m^3$/year, which can support the region's sustainable water needs until 2050. The test boreholes and piezometers have strengthened the monitoring of pilot aquifers and improved the understanding and planning of water resources. The planned transfer of equipped test boreholes to local populations is expected to have a lasting positive impact on water supply and household satisfaction in the target areas.

38. However, it should be noted that the PDO indicator represents an output, and the extent to which water resources planning has been strengthened as a result of the master plans and improved knowledge is still to be determined. Therefore, this outcome is rated as **Substantial**.

***Outcome Area 4: Increase Access to Improved Hygiene Services - Rating: Modest***

39. This outcome's progress was evaluated using one PDO indicator: *"People practicing basic hygiene rules in terms of hand washing in public places"* and the related intermediate indicator. Outcome 4 requires a split assessment since the PDO was expanded in the first restructuring in 2020 to include this new fourth objective, emphasizing hygiene, alongside modified targets for water and sanitation as part of the COVID-19 response. Additionally, the PDO and indicator target was reduced during the fourth 2024 restructuring owing to a target setting calculation error.

40. **On outputs,** 45 public toilets equipped with handwashing facilities were installed to address the COVID-19 emergency and a further 43 have been built in rural areas, fully achieving the target for its corresponding intermediate indicator "Public toilets constructed under the project for public places." Each household latrine installation was accompanied by a handwashing facility, carefully integrated and protected by a fenestrated structure provided during construction. The scheme was provided free of charge to beneficiary households with the aim of promoting hygiene practices and strengthening public health in targeted rural communities. However, not all public toilets are connected to the water supply network to allow for handwashing. Moreover, over the implementation period, the target was revised downward from 100 in the first restructuring in 2020 to 83 under the third restructuring in 2023.

41. **Consequently, at an outcome level, 12,750 people, or 51 percent of the targeted number of beneficiaries, could be reached at project completion.** Still, the project's hygiene component contributed significantly to changing behavior at the community level, particularly in rural areas where traditional practices often posed public health risks (see Table 6.3, annex 6). Anecdotal evidence from local clinics highlighted a decrease in cases of diarrheal diseases, directly linked to improved hygiene awareness and handwashing practices. Given that nearly three-fourths[21] of diarrhea-related deaths in Senegal have been attributed to unsafe WASH practices, this additional emphasis on sanitation awareness and the introduction of improved hygiene practices in targeted communities have been critical for laying the groundwork for future efforts. Still, despite the revision of targets at the fourth restructuring in 2024 which was at project closure, the PDO indicator target was not achieved. This outcome is rated as **Modest**.

### Justification of Overall Efficacy Rating

42. **The overall efficacy rating is assessed as Substantial.** The project generated measurable outcomes at closing. Post-closing information show further development under the sanitation component and a commitment to complete some of the activities which could not be finished during the project. The project had set activities and a Results Framework which remained relevant throughout implementation. The restructuring introduced marginal changes to the activities. The results at closure show that the project either reached or exceeded the PDO target values set at appraisal for all but the sanitation outcome. The project had a clear focus on improving water and sanitation services, most of which were implemented despite the onset of the COVID-19 pandemic. The project's capacity-building component and related PDO target were also achieved.

## C. EFFICIENCY

### Assessment of Efficiency and Rating

43. An economic analysis of the project was conducted at the ICR stage, comparing results at the appraisal stage. A summary is presented here with details provided in annex 5. The economic analysis conducted at appraisal was composed of two components. First, a cost-benefit analysis (CBA) to assess the economic impact of the rural water component of the project. The economic benefits included incremental revenues (water sales valued with current tariffs), consumer surplus accruing to water users, and cost savings resulting from the upgrading of systems. Second, for the sanitation component, where the benefits are obvious but difficult to quantify, a cost-effectiveness analysis was conducted based on the annual per capita costs (annualized investment costs and annual operations and maintenance [O&M]) of the various sanitation solutions that provide identical results concerning excreta disposal and wastewater and sludge disposal. The efficiency analysis at the ICR stage followed the methodologies outlined in the PAD, though it also broadened the scope of the methods for determining the project benefits[22] to encompass indirect revenues and included an analysis of implementation efficiency. Results of the efficiency analysis at the ICR stage and at appraisal are summarized in **Error! Reference source not found.**.

44. The ex-post evaluations demonstrate that the project achieved strong economic internal rate of return (EIRR) and net present value (NPV) results. Specifically, the EIRR estimates increased from 8.2 percent at appraisal to 10.85 percent during the first restructuring in 2020, while the NPV at 6 percent discount rate rose from US$9.46 million to US$25.5 million. By project completion, the benefits assessment was expanded to include additional indirect revenues, further elevating the project's impact to an EIRR of 17.27 percent and NPV of US$129.4 million at 6 percent discount rate. This remarkable increase can be attributed to three factors. First, the project's first restructuring during the COVID period, which included SONES-supported installation of 18,021 private connections in urban areas, significantly improved its economic viability metrics and led to improved public health, time savings for households, and increased economic productivity. The benefits extended beyond direct water access, as reduced disease prevalence and enhanced living

[21] Health and environment scorecard 2023, Senegal, World Health Organization: https://cdn.who.int/media/docs/default-source/country-profiles/environmental-health/environmental-health-sen-2023.pdf

[22] Benefits include improvements in water and sanitation service quality and coverage, enhanced infrastructure management, increased positive outcomes for beneficiaries (particularly women and children), strengthened financial performance of private WSS operators, and reduced public health expenditure due to decreased water-related diseases. These benefits were evaluated against project costs, including capital expenditures and incremental operating expenses (encompassing energy, chemicals, commercial operations, and maintenance).

conditions had a ripple effect on the local economy and household finances. Second, despite rising costs and external disruptions, Component 1's investment costs were effectively controlled, resulting in unit costs below initial project estimates, high disbursement levels, and resource utilization. Third, the executing agencies (particularly SONES and ONAS) demonstrated strong procurement expertise that minimized contract award delays and reduced timeline deviations, particularly when the COVID response activities were introduced during the first restructuring.

45. The financial internal rate of return (FIRR) reached 5.07 percent, reflecting a slight improvement from the PAD estimates. This improvement can be attributed to increased financial revenues generated through water tariff adjustments, the establishment of additional water connections, and improved efficiency in water distribution, managed by SONES. The impact was particularly notable for ONAS, which enhanced its asset base through investments of CFAF 16.4 billion (US$25.8 million) and improved its operational efficiency, generating estimated annual revenues of CFAF 0.915 billion (US$1.4 million).

46. The project's financial execution faced initial significant challenges, with rates ranging from just 0.53 percent to 40.66 percent during 2019–2022. Consequently, the project closing date was extended through the third restructuring by a year, largely to complete the rural sanitation works. This initial underperformance was attributed to (a) delays, owing to the pandemic, the invasion as well as community resistance to the RWS reforms in certain project areas in the north; (b) IAs' limited technical capacity; and (c) extended procurement timelines for rural latrines owing to the new procurement approach. Further, while the drinking water component was executed efficiently, achieving targets within budget, the sanitation component saw increased unit costs (15–25 percent) compared to forecasts, limiting efficiency and reducing initial targets. However, the corrective measures implemented following World Bank supervision missions and subsequent restructuring brought the project back on track, resulting in an overall commitment rate of 98 percent across all signed and approved contracts by project closure.

**Table 2. Disaggregated Economic Analysis**

| Indicator | Original (2018 - At Appraisal) | Revised (2020 - First Restructuring) | Final (2024 - At ICR) |
|---|---|---|---|
| EIRR (%) | 8.20 | 10.85 | 17.27 |
| NPV at 6% (US$, millions) | 9.46 | 25.50 | 129.40 |
| NPV at 10% (US$, millions) | — | 2.92 | 51.90 |
| FIRR (%) | 4.30 | Not revised | 5.07 |

47. The efficiency of the project is rated **Substantial**. The project experienced procurement and pandemic-related investment implementation delays. By the end of 2022, less than half of the project's funds were disbursed. The sanitation component saw a 10 percent increase in unit costs compared to the appraisal forecast and 2 percent of project financing was cancelled due to inability to complete rural sanitation works. However, through corrective action plans and restructuring, the project was brought back on track, resulting in significant economic returns, strong financial performance, and effective use of resources at closure. The project's ability to deliver water and sanitation services to rural and urban populations, while managing external challenges such as the COVID-19 pandemic and rising costs due to inflation, demonstrates its resilience and adaptability.

## D. JUSTIFICATION OF OVERALL OUTCOME RATING

48. Relevance is rated **High**, Efficacy is rated **Substantial,** and Efficiency is rated **Substantial**, which yield an overall outcome rating of **Moderately Satisfactory.**

49. Given the changes to the PDO-related indicators during the first restructuring, a split evaluation has been conducted and summarized in the table below.

**Table 3. Outcome Rating (Split Evaluation)**

| | Original | Revision 1 (2020) | Revision 2 (2023) | Revision 3 (2024) |
|---|---|---|---|---|
| Relevance of Objectives | High | | | |
| **Achievement of the PDO(Efficacy)** | **Modest** | **Substantial** | **Substantial** | **Substantial** |
| PDO 1 - Water access | Substantial | | | |

| | Original | Revision 1 (2020) | Revision 2 (2023) | Revision 3 (2024) |
|---|---|---|---|---|
| PDO 2 - Sanitation access | Negligible | Modest | Modest | Modest |
| PDO 3 – WRM | Substantial | | | |
| PDO 4 - Hygiene access | — | Negligible | Modest | |
| Efficiency | Substantial | | | |
| Outcome ratings | Moderately Unsatisfactory | **Moderately Satisfactory** | Moderately Satisfactory | Moderately Satisfactory |
| Numerical value of outcome ratings | 3 | 4 | 4 | 4 |
| Disbursements (US$) | 11.01 | 69.65 | 24.55 | 6.42 |
| Share of disbursement | 9.86% | 62.39% | 21.99% | 5.75% |
| Weighted value of outcome rating | 0.29 | 2.49 | 0.88 | 0.23 |
| **Final outcome rating** | **3.83 rounded to 4 = Moderately Satisfactory** | | | |

## E. OTHER OUTCOMES AND IMPACTS (IF ANY)

### Gender

50. **Women comprise about half of the targeted beneficiaries for improved sanitation access.** A key impact of the project is improving water quality and access to private and public water and sanitation facilities that offer women and girls privacy and security. Two monitoring surveys were carried out among users of water and sanitation facilities (midterm and end of the project). The results provided gender-disaggregated data revealing disparities in access across regions as well as differences in how men and women experience access to these services. Moreover, nearly one-quarter of households surveyed reported dissatisfaction with water quality. To address these concerns, the project's implementation team developed communication campaigns, which, among other things, strongly encouraged women's participation when selecting locations for household connections or public water standpipes.

### Institutional Strengthening

51. **The project played a vital role in enhancing the capacity of key national IAs** such as OFOR, ONAS, and DGPRE. The support focused on both operational improvements and strategic reforms aimed at long-term sustainability. In particular, the project contributed to strengthening OFOR's capacity by (a) conducting a comprehensive inventory of RWS assets and designing and implementing an asset management system to strengthen OFOR's capacity to effectively manage and maintain infrastructure, (b) updating OFOR's financial model to enhance its financial sustainability and resource management capabilities, and (c) recruiting a social specialist to improve stakeholder engagement and responsiveness to local needs. The project also supported OFOR's involvement in the management of the private sector delegation under its mandate, facilitating better collaboration with private operators for water service delivery. This delegation of operational responsibilities contributed to institutional strengthening by improving OFOR's ability to manage PPPs and ensure sustainable service provision.

### Mobilizing Private Sector Financing

52. As experienced in the urban water subsector—where the private operator invested US$120 million in improving services between 1996 and 2016—the rural water reform designed on the same PPP model crowded in private sector financing in addition to the public investments provided by OFOR. Under 10-year affermage[23] contracts, the private operators of rural water systems have been operating and maintaining the infrastructure and are obliged to invest in the renewal of equipment and assets with a lifespan cycle shorter than 10 years, while OFOR is in charge of large capital investments. In this context, the proposed project paved the way to boost household financing of improved and safe sanitation facilities through the introduction of a marketing approach to sanitation.

### Other Unintended Outcomes and Impacts

[23] Affermage is a type of PPP arrangement commonly used in infrastructure sectors such as water, sanitation, and energy. In an affermage contract, the public authority (usually the government or a public agency) retains ownership of the infrastructure assets but delegates the O&M responsibilities to a private company for a specified period.

53. The project significantly empowered communities and municipalities to actively participate in identifying priority investments through citizen engagement mechanisms such as public consultations and meetings. This inclusive process ensured that their concerns were considered at every stage of the project—design, implementation, and monitoring—thus fostering a sense of ownership and accountability within the local communities. A beneficiary satisfaction survey, conducted at the beginning, midterm, and conclusion of the project, revealed high levels of satisfaction with the participatory approach, with 77.1 percent of households reporting improved access to drinking water through direct connections and substantial improvements in sanitation facilities, particularly in rural areas where access had historically been limited. Moreover, the project implemented a grievance redress system that efficiently addressed and resolved project-related complaints, further enhancing transparency and trust between the project team and the beneficiaries. Through these mechanisms, the project not only improved infrastructure but also strengthened community capacity to manage water and sanitation services in a sustainable manner.

## III. KEY FACTORS AFFECTED IMPLEMENTATION AND OUTCOME

### A. KEY FACTORS DURING PREPARATION

54. **The design of this project was strongly influenced by lessons learned from previous IDA-financed projects** (mentioned in section IIA). These projects laid the foundation for the effective structuring and management of rural water supply and sanitation reforms. The successful urban water sector reforms initiated in 1996, and later the RWS reform supported by PEPAM-IDA, which led to the establishment of the OFOR in 2014, provided a critical blueprint for this project's focus on institutional strengthening and PPP. By replicating these models in rural areas, PEAMIR sought to consolidate progress and address institutional gaps in WSS service delivery.

55. **In addition, the Bill and Melinda Gates Foundation (BMGF) pilot program on fecal sludge management in Dakar's peri-urban areas contributed significantly to shaping the sanitation component of PEAMIR.** The pilot demonstrated how viewing on-site sanitation as an interconnected chain—from collection to treatment and recovery—could optimize performance and profitability in the sector. These insights influenced the project's sanitation design by promoting market-based approaches that improved service delivery while also reducing costs for users. The lessons from the BMGF pilot were adapted and scaled to a national level within the project's scope, particularly in integrating these tools across the value chain to ensure a sustainable model for fecal sludge management.

56. **Furthermore, the capacity of the Project Coordination Unit (PCU) and SIAs to manage such initiatives had been previously demonstrated through the successful implementation of these earlier projects.** Updated assessments conducted during pre-appraisal in February 2018 confirmed that the financial and procurement capacities of the PCU and SIAs were robust, with the financial management (FM) and procurement risks rated as Moderate. IDA support missions for ongoing projects like the UWSP (P150351) had consistently rated procurement and FM performance as Satisfactory, further reinforcing the readiness of the PCU to implement PEAMIR.

57. **Assessment of risks:** At appraisal, the Bank identified and assessed risks across multiple dimensions, determining an overall moderate risk profile. The risk assessment framework identified low risks in political-governance and macroeconomic areas, owing to Senegal's stability and strong GDP growth exceeding 6 percent. The most substantial risk centered on institutional capacity, as ONAS undertook unprecedented rural operations, with mitigation measures including technical assistance for ONAS and private sector engagement. The moderate risks - sector policies, technical design and fiduciary, environmental impacts, and stakeholder concerns - were addressed through established measures including policy dialogue, environmental assessments, and subsidized household services. In retrospect, mitigation measures for fiduciary risk could have been strengthened through stronger oversight of contract durations and better preparation for the new procurement method (called best and final offer or 'BAFO') selected during preparation.

### B. KEY FACTORS DURING IMPLEMENTATION

#### Factors Outside Project Control

58. **COVID-19 related travel restrictions:** The COVID-19 pandemic and associated travel restrictions significantly disrupted World Bank supervision missions, forcing them to be conducted remotely for nearly two years. This was particularly challenging during the post-midterm review (MTR) period, a critical time for timely course corrections. While remote supervision offered some benefits, it lacked the in-person presence essential for effectively addressing issues, especially in remote rural areas with limited internet connectivity and technological infrastructure. Consequently, there were delays in addressing key bottlenecks in the sanitation component, such as contractor performance and coordination between the Project Coordination Unit (PCU) and Implementing Agencies (IAs).

59. **COVID-19 related capacity building delays:** The pandemic also delayed essential capacity-building and training activities for the IAs, which were necessary for the effective management of sanitation works. Although some training sessions were conducted online, these efforts were hindered by limited internet access and connectivity issues in rural areas, where such technological solutions were neither widespread nor culturally adapted at the time. The absence of in-person capacity-building further slowed the pace of implementation and impacted the timely delivery of sanitation services.

### Factors Subject to Bank Control

60. **Quality of client dialogue and restructurings:** The World Bank kept an open and recurring dialogue with the GoS through both virtual and in person formal supervision missions. This enabled quick responses and agility when implementation challenges arose, particularly during the COVID-19 pandemic. Consequently, the restructurings were responsive to the government's ability to deliver and enabled the project to adapt to the new pandemic circumstances, with an emphasis on enhancing water security and hygiene components in response to emerging health concerns. However, these adjustments required additional time, contributing to the overall two-year delay in the project's completion.

### Factors Subject to both Bank and Implementing Agency Control

61. **New procurement method:** The implementation of the sanitation component faced several key challenges, notably due to the new BAFO procurement method which was selected during preparation for the construction of the household latrines (30 percent of the budget before the first restructuring). BAFO refers to a multistage procurement process in which the borrowers invite bidders/proposers who have submitted substantially responsive bids/proposals to submit their BAFO. As this was a new procedure for both the World Bank and the client, it took two years to prepare the tender documents and proceed with the procurement process. In addition, the successful bidder for the sewerage contract performed poorly, which delayed the works by an entire year.

### Factors Subject to Implementing Agency or Government Control

62. **Implementation arrangements:** The strong commitment by IAs and the GoS as well as the clear implementation arrangements led to successful project implementation. The Project Implementation Unit (PIU) team demonstrated strong commitment to the project and ability to adapt to political instability and to COVID-19 related disruptions. Human and organizational capacities were mobilized on time. Staff turnover was minimal and ensured continuity. Implementation Status and Results Reports and Aide Memoires did not identify inefficiencies nor problems with IAs' implementation approach and staffing. On the contrary, they highlighted timely progress and monitoring and evaluation (M&E) efforts. Project delays are largely ascribed to external conditions, the impact of the COVID-19 pandemic, slower-than-anticipated procurement processes, and poor contract management practices.

63. **Contract Management:** The PIU encountered significant challenges in effectively monitoring procurement and contract management activities carried out by certain IAs. These difficulties arose primarily due to delayed or incomplete updates on procurement status, contract details, and disbursement progress by the IAs, making it challenging for the PIU to track project progress and ensure timely interventions. While the PIU's requests for specific contracts were generally answered, requests to access bid documents were often ignored. This issue was compounded when IAs had to obtain bids from other government entities, which were either reluctant or slow to share them. As a result, the PIU faced frequent bottlenecks in overseeing procurement processes and ensuring compliance with project timelines, contributing to delays in contract execution and disbursement. Nevertheless, it should be also noted that during the first restructuring to address

the pandemic, the PIU was quick to process and streamline ten new contracts through emergency procurement waivers, making it possible to recruit high performing companies and move forward with the implementation of COVID response measures. Despite the increased number of activities, the commitments were completed before project closure.

64. **RWS Reform:** The suspension of the rural water reform in 2019, pending an evaluation, slowed down the rehabilitation and upgrading work. At several sites, residents have obstructed the work, resulting in resettlement.

## IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

### A. QUALITY OF MONITORING AND EVALUATION (M&E)

#### M&E Design

65. Overall, the M&E framework was well structured, with clear indicators and regular surveys to track progress and user satisfaction. The limitations affecting the M&E system largely pertained to the ToC, exclusion of critical indicators, and granular approach to monitoring, most of which were addressed during restructuring.

66. **Theory of Change.** The ToC could have covered in higher-level outcomes to trace the extent to which increased access to water and sanitation services improved health and economic outcomes or other factors affecting livelihoods. While these are long-term targets, systematically identifying and tracking them is important, as evidenced by the onset of the COVID-19 pandemic during project implementation such as the project's adaptability to address challenges like supply chain issues and price rises due to external events. Moreover, the ToC was incomplete and missed critical assumptions that materialized during implementation such as the project's adaptability to address challenges, for example, supply chain issues and price rise due to external events.

67. **Exclusion of indicators.** At the time of appraisal, the M&E framework could have been enhanced by (a) including indicators focused on the hygiene element; (b) considering the number of people who benefited from the 438 existing water facilities rehabilitated under the project; and (c) incorporating a gender-disaggregated sub-indicator for the water supply PDO, given the significant impact of the water supply intervention on women. The hygiene aspect was later addressed in the 2020 restructuring, which introduced a new PDO indicator and a related intermediate indicator on access to improved hygiene services. Additionally, OFOR, in collaboration with the operators, captured the impact of the rehabilitation works which significantly improved water availability for 1,746,024 people, by either increasing production, reducing water losses, or improving storage capacity. Finally, beneficiary surveys helped capture qualitative evidence of women's satisfaction levels and the overall impact of the intervention.

68. **Granular approach to monitoring.** The M&E design at appraisal lacked granular and targeted tracking mechanisms that catered to the varied needs of communities across rural, peri-urban, and urban areas. This was a critical gap that underscored the need for a differentiated approach, as each area presents unique challenges and demands for WASH infrastructure. The adjustments in the Results Framework during restructuring, coupled with WASH-related household surveys and impact evaluation studies, provided a more targeted approach to monitoring, which was crucial to ensure equitable health and sanitation benefits across diverse community settings.

#### M&E Implementation

69. **M&E implementation leveraged a robust data system** developed under previous World Bank projects. As per the project's M&E system design, the PCU was responsible for overall M&E coordination and was equipped with multi-project tracking software to support periodic sector reviews, WASH-related household surveys, and impact evaluation studies on access to services. The PCU collected data from different implementing agencies[24] to track the related project monitoring indicators. Overall, the M&E implementation was thorough and aligned with project objectives. The multi-source data

[24] Specifically, data were to be collected as follows: (a) private operators to provide data on water access, service connections, and operating performances; (b) ONAS will provide data on access to improved sanitation (rural areas/small towns); (c) the Directorate of Sanitation (*Direction de l'Assainissement*, DA) to provide data on the pilot program; (d) intermediate indicators linked to works/goods contracts to be drawn from the progress reports by the supervision engineering firms; (e) the status of indicators linked to institutional strengthening to be assessed by the implementation agencies and validated by the PCU; and (f) the indicators of beneficiary satisfaction to be collected through surveys.

collection approach enhanced data reliability by triangulating information from various stakeholders, including private operators, ONAS, and independent engineering firms. However, while the M&E framework successfully captured essential performance metrics, its adequacy depended heavily on the frequency and accuracy of data collection by these entities. For instance, ONAS found the indicator on water sample tests meeting bacteriological standards difficult to assess due to data collection issues as not all private operators monitored water quality. Regardless, timely reporting and systematic validation by the PCU strengthened the project's capacity to track progress effectively. The satisfaction surveys provided valuable insights into beneficiaries' experiences, although a more frequent collection of this data may have provided real-time insights to address emerging issues. In conclusion, the M&E framework was largely effective, though additional periodic assessments could further enhance its responsiveness and the overall impact of monitoring efforts.

### M&E Utilization

70. **The project monitoring information system was instrumental throughout implementation**, allowing for ongoing assessment of project progress, identification of necessary adjustments, and informed decision-making. For example, data on service connections and water access helped prioritize regions with the greatest need for additional resources, ensuring equitable distribution of services. When monitoring revealed delays in sanitation improvements in rural areas, the data guided reallocating resources and accelerating implementation efforts in those areas. Additionally, data from beneficiary satisfaction surveys informed adjustments to improve service quality and address concerns raised by communities. The Project Steering Committee reviewed and validated progress reports based on this data and made timely decisions to resolve issues, adapt strategies, and plan for scale-up or subsequent phases of the project as necessary.

### Justification of Overall Rating of Quality of M&E

71. **The quality of M&E is rated as Substantial.** The Results Framework indicators were thoughtfully selected during project appraisal and remained well aligned with project activities throughout implementation. They adhered to the broader goal of 'coordinated management of water resources', which minimized risks of misalignment when the 2020 restructuring introduced objectives related to 'hygiene services' and expanded the project scope to urban areas. However, there were limitations around the adequacy of its implementation, which relied heavily on the frequency and accuracy of data collection by the private operators. Nevertheless, key project results indicators were consistently included in reports and performance contracts, providing a strong basis for accountability and progress tracking. Information collected was cross-checked across multiple sources, ensuring reliability and accuracy. Overall, the M&E system was effective, enabling comprehensive project monitoring of all project activities. It also leveraged the existing data system developed under previous World Bank projects, ensuring continuity of M&E functions and processes after project closure.

## B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

### Environment and Social Analysis

72. **The project was classified as Category B** due to its minor, localized, and manageable environmental and social impacts, further minimized by using proven wastewater and sludge treatment technologies. It triggered three World Bank safeguard policies: Environmental Assessment (OP/BP/GP 4.01), Physical Cultural Resources (OP/BP 4.11), and Involuntary Resettlement (OP/BP/GP 4.12). Key safeguard documents (ESMF and RPF) were prepared and disclosed in April 2018, with Environmental and Social Impact Assessments ESIAs reviewed in July 2019 by the Bank and Directorate of Environment (*Direction de l'Environnement et des Établissements Classés*, DEEC). A Resettlement Action Plan and grievance redress mechanism were implemented by October 2020, and social safeguards staff were recruited for OFOR and ONAS.

73. **Two fatal workplace accidents occurred during implementation.** The first, in July 2021, resulted in a subcontractor employee's death at the Touba Belel water tank site. The second, in June 2023 at Nioro du Rip, caused one fatality and seriously injured another worker during sewage network installation. The PCU reported both incidents to the World Bank promptly. Following the 2023 accident, emergency measures were implemented, and the PIU developed and executed an action plan under ONAS supervision. The injured worker received full medical treatment and recovered by September 30, 2024, formally concluding the incident.

74. **The implementation of social and environmental aspects is Satisfactory.** The project successfully managed social and environmental aspects. All 15 project-affected persons received proper compensation totaling CFAF 22,781,410, which covered both cash payments and vulnerability assistance. The voluntary land release process was properly documented at four sites (Same Ndiaye, Diaglé, Yorodondé, and Brin) in accordance with World Bank standards. Environmental protection measures, including tree planting and erosion control, were implemented to minimize site disruption and maintain ecological balance.

75. **A budget of CFAF 14,478,200 was mobilized by the Planning, Coordination, and Monitoring Unit of Programs** (*Cellule de Planification de Coordination et de Suivi des Programmes*, CPCSP) for reconstructing the Yéri day-care center (Mbacké), along with additional funds. For the sanitation component, total compensation amounted to CFAF 24,347,790 for 19 PAPs. Satisfaction surveys for OFOR have been completed, with ongoing assessments in the sanitation component to gauge beneficiary feedback on environmental and social impacts.

76. **The Grievance Management Platform (GMP) has been set up and is operational for both the water and sanitation components, with users fully trained.** Environmentally sustainable practices were integrated into the project, including safe waste disposal and groundwater protection measures at project sites. Two resettlement complaints were identified, processed, and resolved at the Nioro site, reflecting the project's commitment to effective grievance resolution and environmentally conscious implementation.

### Procurement

77. **The project was implemented by a PCU through the CPCSP of the MHA.** OFOR, SONES, ONAS, and DGPRE were also executing agencies responsible for awarding their own contracts. The PCU was staffed with two procurement specialists who oversaw procurement activities, worked closely with the agency focal points, and were responsible for quality checks of all agency procurement files. The application of the procurement procedures in some contracts was not always optimal and poor contract management practices contributed to several delays in the project's implementation. The procurement review dated April 2024 pointed to discrepancies between the status in the World Bank's Systematic Tracking of Exchanges in Procurement (STEP) and the actual level of execution. Although the updating of procurement information in STEP was often delayed, the PIU has made efforts to follow the advice of the World Bank team, and improvements were demonstrated during project implementation.

### Financial Management

78. **While the FM system generally complied with World Bank requirements, the project's overall FM performance is rated as Moderately Satisfactory due to several operational challenges.** These include delayed payments for some contracts and weaknesses in oversight, leading to delays in executing certain contracts. Significant delays were also noted in providing data for audits and in contracts for the rehabilitation of water supply systems, installation of social connections, chlorination units, and electromechanical equipment. Further challenges included irregular expenditures due to the ambiguity around the availability of a validated training plan. Specifically, the project had developed a training plan at the start of implementation that had been formally validated by the TTL. In this training plan, a portion of resources had not been allocated to sessions whose themes had been well identified. According to the borrower, it was agreed that the identification would be done subsequently. However, the financial management team maintained that the completed plan had to be returned to the TTL for new validation. The borrower held that this approach was not documented in any procedural framework, neither at the Bank level nor at the project level. This lack of clarity resulted in failure to fully implement previous recommendations concerning invoicing practices. A significant reputational risk remains due to unresolved commitments, especially regarding slow-moving contracts that are either pending commencement or only partially completed. In response, the World Bank has notified ONAS and relevant contractors that deposits will be confiscated if work is not completed by June 2025. As noted in the borrower comments, ONAS is working towards completing the remaining works with the contractor within the stipulated time.

## C. BANK PERFORMANCE

### Quality at Entry

79. **The project design was strong and incorporated relevant lessons learned from previous projects, particularly relating to enhancing PSP and service delivery.** The project was aligned with the country and Bank priorities at preparation and closing, and heavily influenced by the BMGF's pilot on market-based approaches to service delivery.

80. **The Bank designed robust implementation arrangements that made the project likely to achieve its planned outcomes.** A Steering Committee (Comité de Coordination et de Suivi, CCS) provided oversight, bringing together key stakeholders including the MHA, sector institutions, regional development agencies, the association of local elected representatives, and the Ministry of Economy, Finance and Planning (Ministère de l'Économie, des Finances et du Plan, MEFP). The PEPAM PCU managed day-to-day operations and project implementation. The project's four components were effectively implemented with strong support from sector institutions: OFOR for the RWS component, ONAS for sanitation, SONES for urban sanitation services, and DGPRE for WRM. The fourth component, focusing on project management, institutional support, and capacity building, was implemented collaboratively by the PCU, OFOR, ONAS, SONES, and technical departments within the MHA, including DGPRE, the Directorate of Hydraulics (Direction de l'Hydraulique, DH), and DA. The PCU and sector institutions demonstrated their capacity to implement the project effectively, as evidenced by the successful execution of the project.

81. **Measures to ensure quality at entry and manage associated risks were accurately identified**, as outlined in *Section A. Key Factors During Preparation*. Quality at entry included robust project design, clear objectives, and a well-defined approach (See the PAD, page 56-61). It also involved thorough technical, financial, and economic analyses, with a particular emphasis on underserved and low-income areas. Despite some modifications during implementation, the components, activities, and results framework remained relevant. Furthermore, the Bank team's regional base facilitated close collaboration with government counterparts throughout the project preparation phase. The Quality at Entry is therefore rated **Satisfactory**.

### Quality of Supervision

82. **The World Bank team carried out regular supervision missions as per Bank requirements.** It adapted to the circumstances and needs of the project, carrying out virtual missions at the time of the COVID-19 pandemic and calling for regular virtual progress review meetings to monitor project implementation. When the COVID-19 travel restrictions were lifted, the Bank team (comprising specialists in procurement, financial management, social and environmental safeguards, and other subject matter specialists) carried out comprehensive missions covering many of the activities, during which it delved into the issues to understand their origin and provide clear, actionable, and timely guidance for course correction. Aide Memoires and Implementation Status and Results Reports were candid in addressing weaknesses in implementation, and the Bank team was proactive in addressing bottlenecks.

83. **Effective communication with the counterpart enabled quick response and agility when implementation challenges arose, particularly during the COVID-19 pandemic.** As a result, the Bank team were swift in responding to the client's requests for restructurings, cancellation, and additional time as needed, enabling the project to adapt to the new pandemic circumstances.

84. **A close dialogue with the client was critical in building the project's adaptive capacity and achieving the PDO.** The Bank has a decentralized team working in the water sector in Senegal for over a decade. This proximity, coupled with the formal supervision missions, enabled recurring dialogue with the GoS to solve implementation issues and resulted in a positive exchange of information. This high quality of dialogue helped foster trust and client ownership and open the door for a larger and more longer-term engagement through the recently approved MPA discussed in the context section.

### Justification of Overall Rating of Bank Performance

85. **Overall Bank performance rating is Moderately Satisfactory.** While the project was able to deliver impactful results, there were critical issues during implementation pertaining to procurement delays and FM.

## D. RISK TO DEVELOPMENT OUTCOME

86. **The GoS's commitment to strengthening WWS remains robust, demonstrated through its policies and reform initiatives.** However, delays in implementing these reforms, stemming from challenges in institutional capacity, inter-

authority coordination, and prioritizing of national spending, create risks for achieving long-term development outcomes. In the rural water reform, while the Government approved findings from an evaluation mission in 2021 and recommended a comprehensive action plan, this plan has yet to be finalized. Some recommendations, such as the deployment of the SDER operator by OFOR, are progressing. But without a complete action plan, the pathway to further advances remains constrained. In urban sanitation, similar delays are evident. Although the World Bank supported the creation of a liquid sanitation reform and roadmap, endorsed by the Government in December 2021, final approval by the Council of Ministers was done post project on October 4, 2024. Additionally, ONAS faces financial challenges that hinder its ability to sustainably manage urban sanitation. These delays in both rural water and urban sanitation reforms present significant risks to achieving the project's long-term development goals.

87. **The World Bank is addressing these risks by initiating a new MPA,** which will provide the GoS with sustained support for these ongoing reforms – see annex 8. This continued support under the MPA increases the likelihood that development objectives will be met and maintained over time, ensuring that critical reforms in both rural and urban water and sanitation sectors can progress even after the current project concludes. Strengthening ONAS's financial sustainability and accelerating the reform process will be key priorities within this new MPA, improving the chances of successful reform implementation and the achievement of intended outcomes.

88. **The project's sanitation component related to installing household latrines and sewer connections has still not reached its original targets.** ONAS, the primary IA responsible for this component, faced numerous challenges, including delays in contracts and procurement as well as obstacles in decentralizing operational responsibilities to the private sector. The new MPA, through the Integrated Support Program for Water and Sanitation Services *(Programme d'Intervention Sectoriel Eau et Assainissement,* PISEA) project, will address these challenges by bolstering ONAS's capacity and engaging the private sector more effectively. This includes developing a comprehensive reform roadmap aimed at enhancing operational capacity and ensuring reliable service delivery. The GoS prioritizes these recommendations and an action plan in the coming months to ensure these actions' sustainability and long-term success beyond project closure.

89. **Furthermore, limitations in capacity-building activities, such as reduced training support due to the COVID-19 pandemic, could hinder beneficiaries' access to water and sanitation facilities, thereby affecting development outcomes.** Through the new MPA, the World Bank will support the Government in addressing unfinished infrastructure, identifying beneficiaries, and providing additional training to ensure that capacity building translates into sustained access and improved outcomes in water and sanitation sectors.

## V. LESSONS AND RECOMMENDATIONS

90. **A long-term programmatic engagement through a series of interconnected projects is required to achieve a transformational shift in the WSS sector. Building on the lessons of its predecessors, PEAMIR paved the way for a transformational engagement through one of the first Water MPAs under the Bank's Global Challenge Program.** PEAMIR was a continuation of the World Bank support that has been provided to the sector in Senegal over nearly three decades (see annex 8). The lessons from previous World Bank projects that supported both urban and rural sector reforms, particularly PEPAM (which led to the establishment of OFOR in 2014), provided a critical blueprint for this project's focus on institutional strengthening and PSPs. By applying past learnings to rural areas, the project consolidated progress, addressed institutional and access gaps, and improved sustainability in RWS service delivery. Additionally, the project was able to showcase adaptability and agility in the face of the pandemic by building on existing relationships and ongoing dialogues with IAs (DGPRE, ONAS, OFOR, and SONES) and leveraging established operational infrastructure (PCU and fiduciary systems). This groundwork has set the stage for the upcoming MPA to further advance on the DSP model and WRM plans while maintaining implementation continuity through the same IAs and fiduciary processes.

91. **Partnerships with the private sector succeed when built on well-maintained infrastructure and strong government ownership**. Drawing from previous IDA-financed projects, two key lessons (see the PAD, pages 22–23) shaped this project's design: PPP disputes often arise from poor pre-existing facility conditions and public acceptance depends on service quality. At appraisal, four private operators were recruited to operate RWS systems in the Groundnut Basin, but slow progress in state-led facility rehabilitation led to resistance from water users. This project supported upgrading

systems, increasing social connections, and improving water quality, resulting in increased water sales and reduced community conflicts. Furthermore, government ownership, as evidenced by the establishment of OFOR, support for PSP in RWS, and the harmonization of water tariffs, played a crucial role in the long-term sustainability of RWS reforms.

92. **Project success depends on aligning procurement approaches and contract management with implementation context.** In addition to disruptions from the COVID-19 pandemic, project delays for up to two years stemmed from the introduction of the new BAFO procurement method, which required a significant learning curve for both the World Bank and client. The experience highlighted critical lessons about contractor selection and risk management. Furthermore, an important lesson emerged from rural sanitation implementation: large companies were awarded contracts for dispersed rural sanitation sites. However, these companies, owing to their size, were unable to manage scattered jobs in rural areas and consequently subcontracted the activities to smaller firms that actually built the latrines. Direct contracting with these smaller companies, despite requiring more contract management, would have been more efficient and reduced delays. For future projects, four key risk mitigation measures are recommended: (a) implement additional oversight mechanisms to align contract durations with implementation needs; (b) ensure companies with multiple contracts meet cumulative criteria; (c) establish clear, risk-appropriate timelines for contract awards; and (d) match contractor size to project context, particularly in selecting smaller companies for rural sanitation work.

93. **Integrating WSS and WRM objectives enhances sustainability and resilience in sector reforms.** The project's dual focus on WSS and WRM objectives underscored the importance of a coordinated approach for sustainable outcomes, especially in the rural sector. The rural water sector reform illustrated how linking water supply with resource management strengthens system resilience, ensures sustainable resource use, and improves service continuity for communities. This integrated approach allowed the project to address both immediate water access needs and long-term resource sustainability, which is vital in regions with fluctuating water availability. Future projects targeting rural water sector reforms should similarly incorporate WRM objectives to balance increased service demands with the protection of water resources, thereby supporting sustainable growth in both rural and urban sectors.

94. **A well-designed M&E system and tracking mechanisms are essential in adapting to the changing needs of various communities.** Granular and targeted tracking mechanisms that cater to the differentiated needs of communities across rural, peri-urban, and urban areas would help provide a tailored approach and unpack the unique challenges and demands for hygiene and sanitation infrastructure. Hence, using M&E data to inform project implementation and support project management decisions and having the capacity to implement the M&E arrangements are critical.

## ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

### A. RESULTS FRAMEWORK

#### PDO Indicators by Outcomes

| Increase access to improved WSS services in selected rural areas and strengthen capacity for WRM | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Indicator Name | Baseline | | Closing Period (Original) | | Closing Period (Current) | | Actual Achieved at Completion | |
| | Result | Month/Year | Result | Month/Year | Result | Month/Year | Result | Month/Year |
| People provided with access to improved water sources (Number) | 0.00 | Jul/2018 | | | 545,800.00 | Jun/2024 | 554,889.00 | Jun/2024 |
| | Comments on achieving targets | | The project reached 554,889 people exceeding the indicator target of 545,800 through rehabilitated and new piped connections, social connections, or standpipes programs. Final result: 102 percent of target achieved. | | | | | |
| People provided with access to improved sanitation services (Number) | 0.00 | Jul/2018 | | | 541,000.00 | Jun/2024 | 402,770.00 | Jun/2024 |
| | Comments on achieving targets | | 402,770 people benefitted from improved sanitation through additional household latrines and sewerage connections. Since the final ISR Report (Seq No: 12, archived on June 28, 2024, ISR59690) did not reflect the finalized results at closure, this number is taken from the Senegal Client Completion Report, 2024. Final result: 79 percent of target achieved. | | | | | |
| Operator monitoring system generating regular reports on performance against key indicators (Yes/No) | No | Jul/2018 | | | Yes | Jun/2023 | Yes | Jun/2024 |
| | Comments on achieving targets | | The indicator for monitoring the performance of Public Service Delegations has been documented by ensuring the exhaustiveness and coherence of OFOR's operational control activities thanks to the recruitment of a consultant who has accompanied OFOR. Final result: Target achieved. | | | | | |
| Water resources development master plans completed and approved (Number) | 0.00 | Jul/2018 | | | 5.00 | Jun/2023 | 5.00 | Jun/2024 |
| | Comments on achieving targets | | All five SDAGEs were completed by March 2023, and approved during a dissemination workshop held on January 18, 2024, attended by the Minster of Water and Sanitation. Final Result: 100% of target achieved. | | | | | |
| | 0.00 | Jul/2018 | | | 270,500.00 | Jun/2024 | 201,385 | Jun/2024 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Number of women provided with access to improved sanitation under the project (Number) | Comments on achieving targets | | The number of women beneficiaries provided with access to improved sanitation is 201,385. Since the final ISR Report (Seq No: 12, archived on June 28, 2024, ISR59690) did not reflect the finalized results at closure, this number is taken from the Senegal Client Completion Report, 2024. Final result: 74% of target achieved | | | | | |
| People practicing basic hygiene rules in terms of hand washing in public places. (Number) | 0.00 | Jul/2018 | | | 50,000.00 | Jun/2023 | 12,750.00 | Jun/2024 |
| | Comments on achieving targets | | The final target was miscalculated and revised from 50,000 to 25,000 in the June 2024 restructuring. Final result: 51% of target achieved. | | | | | |

## Intermediate Indicators by Components

| **Component 1 : Water Supply** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Indicator Name | Baseline | | Closing Period (Original) | | Closing Period (Current) | | Actual Achieved at Completion | |
| | Result | Month/Year | Result | Month/Year | Result | Month/Year | Result | Month/Year |
| New piped household water connections that are resulting from the project intervention (Number) | 0 | Jul/2018 | | | 50,421 | Jun/2024 | 50,421 | Jun/2024 |
| | Comments on achieving targets | | Final result: 101% of final target achieved. | | | | | |
| Improved community water points constructed or rehabilitated under the project (Number) | 0 | Jul/2018 | | | 229 | Jun/2024 | 229 | Jun/2024 |
| | Comments on achieving targets | | 229 standposts have been constructed and are operational. Final result: 106% of final target achieved. | | | | | |
| Piped water systems equipped with chlorination devices under the project (Number) | 0 | Jul/2018 | | | 341 | Jun/2024 | 341 | Jun/2024 |
| | Comments on achieving targets | | Final result 58% of final target achieved. | | | | | |
| Water production facilities rehabilitated under the project (Number) | 0 | Jul/2018 | | | 439 | Jun/2024 | 439 | Jun/2024 |
| | Comments on achieving targets | | Final result 103% of final target achieved. | | | | | |
| Water sample tests meeting bacteriological standards (Percentage) | 0 | Jul/2018 | | | 70 | Jun/2024 | 68 | Jun/2024 |
| | Comments on achieving targets | | According to the Senegal Client Completion Report, 2024, this indicator was difficult to track and assess due to lack of data availability. Final result: 70% of final target achieved. | | | | | |
| **Component 2: Sanitation** | | | | | | | | |
| Indicator Name | Baseline | | Closing Period (Original) | | Closing Period (Current) | | Actual Achieved at Completion | |

| | Result | Month/Year | Result | Month/Year | Result | Month/Year | Result | Month/Year |
|---|---|---|---|---|---|---|---|---|
| Household latrines constructed under the project (Number) | 0.00 | Jul/2018 | | | 47,500.00 | Jun/2024 | 38,887.00 | Jun/2024 |
| | Comments on achieving targets | | Final result: 82% of final target achieved | | | | | |
| Household sewer connections constructed under the project (Number) | 0.00 | Jul/2018 | | | 6,600.00 | Jun/2024 | 3,271.00 | Jun/2024 |
| | Comments on achieving targets | | Since the final Implementation Status and Results Report (Seq No: 12, archived on June 28, 2024, ISR59690) did not reflect the finalized results at closure, this number is taken from the Senegal Client Completion Report, 2024. Final result: 50% of final target achieved. | | | | | |
| Additional wastewater treatment capacity installed under the project (Cubic Meter(m3)) | 0.00 | Jul/2018 | | | 4,850.00 | Jun/2024 | 4,850.00 | Jun/2024 |
| | Comments on achieving targets | | Final result: 100% of final target achieved. | | | | | |
| Additional sludge treatment capacity installed under the project (Cubic Meter(m3)) | 0.00 | Jul/2018 | | | 100,000.00 | Jun/2024 | 100.00 | Jun/2024 |
| | Comments on achieving targets | | Final result: 100% of final target achieved. | | | | | |
| Satisfaction rate of users of WSS services provided (Percentage) | 0.00 | Jul/2018 | | | 80.00 | Jun/2023 | 92.50 | Jun/2024 |
| | Comments on achieving targets | | Final result: 100% of final target achieved. | | | | | |
| Satisfaction rate of female users of WSS services provided (Number) | 0.00 | Jul/2018 | | | 80.00 | Jun/2023 | 91.50 | Jun/2024 |
| | Comments on achieving targets | | Final result: 100% of final target achieved. | | | | | |
| Public toilets constructed under the project for public places like health centers, schools, etc. (Number) | 0.00 | Jul/2018 | | | 83.00 | Jun/2024 | 83.00 | Jun/2024 |
| | Comments on achieving targets | | Thanks to Covid-19 emergency response, 45 public toilets have been built in public places (markets, schools and health centers) in the peri-urban areas and 43 more public toilets have been built thanks to latrines contracts in rural areas. Since the final Implementation Status and Results Report (Seq No: 12, archived on June 28, 2024, ISR59690) did not reflect the finalized results at closure, this number is taken from the Senegal Client Completion Report, 2024. Final result: 100% of target achieved. | | | | | |

**Component 3: Water Resources Management**

| Indicator Name | Baseline | | Closing Period (Original) | | Closing Period (Current) | | Actual Achieved at Completion | |
|---|---|---|---|---|---|---|---|---|
| | Result | Month/Year | Result | Month/Year | Result | Month/Year | Result | Month/Year |
| | No | Jul/2018 | | | Yes | Jun/2023 | Yes | Jun/2024 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Water quality mapping system in use (Yes/No) | Comments on achieving targets | | All deliverables have been submitted by the consultant-firm, and the tracking system tool is in place. A dissemination workshop was held on May 24, 2022. The tool is currently in use. Final result: Target achieved. | | | | | |
| Number of piezometers, trial boreholes and hydrometric stations installed under the project (Number) | 0.00 | Jul/2018 | | | 54.00 | Jun/2023 | 42.00 | Jun/2024 |
| | Comments on achieving targets | | Final result: 63% of target achieved. | | | | | |

**B. KEY OUTPUTS**

| | |
|---|---|
| **Increase access to improved WSS services in selected rural areas and strengthen capacity for WRM** | |
| PDO Indicators | 1. People provided with access to improved water sources<br>2. People provided with access to improved sanitation services<br>3. Operator monitoring system generating regular reports on performance against key indicators<br>4. Water resources development master plans completed and approved<br>5. Number of women provided with access to improved sanitation under the project<br>6. People practicing basic hygiene rules in terms of hand washing in public places. |
| Key Outputs<br>(linked to the achievement of the PDO Outcome) | |
| **Component 4: Program Coordination, Institutional Support and Capacity Building** | |
| Intermediate Results Indicators | |
| Key Outputs<br>(linked to the achievement of the Component) | |
| **Component 3: Water Resources Management** | |
| Intermediate Results Indicators | 1. Water quality mapping system in use<br>2. Number of piezometers, trial boreholes and hydrometric stations installed under the project |
| Key Outputs<br>(linked to the achievement of the Component) | 1. Established monitoring systems for water resources and PSDs<br>2. Improved WRM through data collection and infrastructure |
| **Component 2: Sanitation** | |
| Intermediate Results Indicators | 1. Household latrines constructed under the project |

| | |
|---|---|
| | 2. Household sewer connections constructed under the project<br>3. Additional wastewater treatment capacity installed under the project<br>4. Additional sludge treatment capacity installed under the project<br>5. Satisfaction rate of users of WSS services provided<br>6. Satisfaction rate of female users of WSS services provided<br>7. Public toilets constructed under the project for public places like health centers, schools, etc. |
| Key Outputs<br>(linked to the achievement of the Component) | 1. Expansion of sanitation facilities and latrines to improve hygiene<br>2. Increased beneficiary reach with improved sanitation services |
| **Component 1: Water Supply** | |
| Intermediate Results Indicators | 1. New piped household water connections that are resulting from the project intervention<br>2. Improved community water points constructed or rehabilitated under the project<br>3. Piped water systems equipped with chlorination devices under the project<br>4. Water production facilities rehabilitated under the project<br>5. Water sample tests meeting bacteriological standards |
| Key Outputs<br>(linked to the achievement of the Component) | 1. Increase in water availability and quality through facility rehabilitation and chlorination<br>2. Improved access to safe water for rural and peri-urban populations |

## ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

### A. TASK TEAM MEMBERS

| Name | Role |
|---|---|
| **Preparation** | |
| Oumar Diallo | Team Leader (ADM) |
| Mamata Tiendrebeogo | Procurement Specialist (ADM) |
| Mouhamadou Kabir Ndoye | Procurement Specialist |
| Maimouna Mbow Fam | Financial Management Specialist |
| Aissatou Seck | Counsel |
| Medou Lo | Environmental Specialist |
| Mamadou Moustapha Ndoye | Social Specialist |
| Guy Tchakounte Tchabo | Senior Program Assistant |
| Jean Vincent Koua | Program Assistant |
| Madio Fall | Consultant |
| Mamadou Moustapha Ndoye | Social Specialist |
| Medou Lo | Senior Environmental Specialist |
| **Implementation** | |
| **Name** | **Role** |
| Apolline Angel Bancole Ep Gaye | Team Leader (ADM) |
| Stephane Raphael Dahan | Team Leader |
| Seynabou Sarr | Financial Management Specialist |
| Fatou Fall Samba | Financial Management Specialist |
| Ndeye Fatou Mbacke | Procurement Specialist |
| Djibril Diagne | Procurement Specialist |
| Fatoumata Kone | Procurement Specialist |
| Haoussia Tchaoussala | Procurement Specialist |
| Laurent Mehdi Brito | Procurement Specialist |

| | |
|---|---|
| Mountaga Ndiaye | Procurement Specialist |
| Sophie Lo Diop | Environmental Specialist |
| Mamadou Moustapha Ndoye | Social Specialist |
| Aissatou Seck | Counsel |
| Christophe Prevost | Peer Reviewer |
| Anta Tall Diallo | Procurement Team |
| Nikolai Alexei Sviedrys Wittich | Procurement Team |
| Fatouma Toure Ibrahima Wane | Program Manager |
| Dieynaba Bocoume | Program Assistant |
| Cheikh Sall | Consultant |
| Ghislaine Kouedi Nombi | Audit Specialist |
| Abib Samb | Team Assistant |
| Guy Tchakounte Tchabo | Senior Program Assistant |
| Jean Vincent Koua | Program Assistant |
| Astou Diaw-Ba | Operations Analyst |

## B. STAFF TIME & COST

| Stage of Project Cycle | Staff Time & Cost | |
|---|---|---|
| | No. of Staff Weeks | US$ (including travel and consultant costs) |
| Preparation | | |
| FY18 | 27.450 | 207,357.01 |
| FY19 | 13.776 | 97,409.93 |
| FY20 | 3.055 | 8,080.98 |
| FY21 | 3.485 | 10,049.35 |
| FY22 | 1.600 | 4,613.76 |
| FY23 | 1.100 | 2,809.40 |

| | | |
|---|---|---|
| Total | 50.47 | 330,320.43 |
| Supervision/ICR | | |
| FY19 | 13.163 | 58,098.46 |
| FY20 | 26.850 | 84,881.75 |
| FY21 | 35.525 | 192,191.47 |
| FY22 | 45.950 | 304,765.72 |
| FY23 | 35.050 | 154,735.31 |
| FY24 | 30.720 | 127,388.15 |
| FY25 | 9.317 | 46,362.88 |
| Total | 196.57 | 968,423.74 |

## ANNEX 3. PROJECT COST BY COMPONENT

| Components | Amount at Approval (US$, millions) | Actual at Project Closing (US$, millions) | Percentage of Approval |
|---|---|---|---|
| Component 1 : Water Supply | 40.88 | 48.30 | 118 |
| Component 2: Sanitation | 69.13 | 58.68 | 85 |
| Component 3:Water Resources Management | 7.33 | 7.68 | 105 |
| Component 4: Program Coordination, Institutional Support and Capacity Building | 12.66 | 12.56 | 99 |
| **Total** | **130.00** | **127.22[a]** | **407.00** |

*Note:* a. Per the final Implementation Status and Results Report (US$127.53 million), dated June 28, 2024, the World Bank disbursed US$105.21 million and cancelled US$2.47 million. US$10.53 million remains undisbursed. The figures at closing in the above table are taken from the project's final restructuring paper, with the minor difference attributed to currency variations.

## ANNEX 4. RESTRUCTURING DETAILS

1. The project went through four level 2 restructurings (December 2020, June 2022, June 2023, and June 2024). This included expanding the scope of the PDO, adding two new indicators, dropping one intermediate results indicator, and revising the targets for a total of 14 indicators from the Results Framework over the implementation period. Table 4.1 summarizes the changes in costs, table 4.2 outlines the implications of key changes during restructuring on the Project's ToC, and table 4.3 provides the changes to the intermediate indicator targets as well as the final results at closing.

**Table 4.1. Changes in Project Costs During Implementation (US$, millions equivalent)**

| Components | At Appraisal (May 2018) | First Restructuring (December 2020) | Second Restructuring (June 2022) | Third Restructuring (June 2023) | Fourth Restructuring (June 2024) | At Closing (June 2024) |
|---|---|---|---|---|---|---|
| Component 1: Rural Water Supply | 40.88 | 52.52 | No change | 49.10 | 48.30 | 48.30 |
| Component 2: Sanitation | 69.13 | 55.15 | No change | 59.53 | 58.68 | 58.68 |
| Component 3: Water Resources Management | 7.33 | 7.33 | No change | 7.67 | 7.68 | 7.68 |
| Component 4: Program Coordination, Institutional Support and Capacity Building | 12.66 | 15.00 | No change | 13.70 | 12.56 | 12.56 |
| **Total** | **130.00** | **130.00** | **130.00** | **130.00** | **127.22[a]** | **127.22[a]** |

*Note:* a. Per the final Implementation Status and Results Report (US$127.53 million), dated June 28, 2024, the World Bank disbursed US$105.21 million and cancelled US$2.47 million. US$10.53 million remains undisbursed. The figures at closing in the above table are taken from the project's final restructuring paper, with the minor difference attributed to currency variations.

**Table 4.2. Implications of Key Changes on the Project's ToC**

| Key Change | Rationale for Change | Implication |
|---|---|---|
| **First restructuring, December 2020:** *To support the Senegalese authorities' response to the COVID-19 pandemic* | | |
| Change in the PDO and related indicators | **PDO Change:** Expanded geographic scope to rural + urban areas; added hygiene activity.<br>**Geographic expansion:**<br>*Existing*: 5 regions (Thiès, Diourbel, Fatick, Kaolack, Kaffrine)<br>*New:* Greater Dakar peri-urban areas (pandemic epicenter)<br>*New:* Remote rural areas with poor water systems (pandemic prevention) | (i) PDO indicator '*access to improved hygiene services' added;* related hygiene intermediate indicator added.<br>(ii) hygiene element addressed gap in original project design.<br>(iii) ToC strengthened by hygiene focus, geographic expansion; adapted to pandemic needs. |

| Key Change | Rationale for Change | Implication |
|---|---|---|
| Change in the scope and cost of the project components | **Key Cost Reallocation:** US$16.7M from rural sanitation subcomponent to COVID-19 WASH response. Rural sanitation scope reduced as works hadn't started, allowing flexible fund reallocation.<br>**C1: Rural Water Supply:** US$40.88M → US$52.52M<br>*Existing scope***:** RWS upgrade/installation<br>*New scope:* New rural areas RWS upgrade/installation (COVID); Urban water systems upgrade/installation (COVID)<br>**C2 Sanitation:** US$69.13M → US$55.15M<br>*Reduced scope:* rural latrines<br>*Existing scope:* Small town household sewer connections; Wastewater/sludge treatment; Sanitation marketing (same cost, higher target)<br>*New scope:* Greater Dakar sewer connections (COVID); Public toilets + hygiene kits + campaigns (COVID)<br>**C4 Project Management**: US$12.66M → US$15M (COVID) | (i) Water access PDO target increased; sanitation access PDO target reduced; related intermediate indicators adjusted.<br>(ii) Limited impact on TOC, except hygiene addition.<br>(iii) All new COVID response activities were completed on schedule. |
| **Second restructuring, June 2022:** *To reallocate funds between disbursement categories[25] to cover COVID-19 response funding gap* | | |
| Reallocate funds between disbursement categories | Funds transferred from Category 1 and Category 4 to Category 3 to cover COVID-19 response funding gap. | — |
| **Third restructuring, June 2023:** *To seek approval for a first extension of the project closing date from June 30, 2023, to June 30, 2024, to complete the rural sanitation works* | | |
| Cancelled sanitation marketing activity | (i) Lengthy procurement process<br>(ii) Poor contractor performance – ineffective household fittings due to poorly trained workers<br>(iii) Construction and equipment price changes<br>(iv) External shocks – COVID, Russia's invasion of Ukraine | (i) Reduced PDO + related sanitation intermediate indicator targets.<br>(ii) ToC unchanged due to small activity relative to the project size. |
| Extension of the project closing date | (i) Complete sanitation works in peri-urban areas<br>(ii) Fund reallocation - cancel Category 2 and transfer funds to Category 1 to accelerate final activities and improve procurement processes. | — |
| **Fourth restructuring, June 2024:** *To cancel an amount of EUR 2.3 million of Credit No. 6281-SN* | | |

[25] Disbursement categories are Category 1 (Goods, Works, Serv. Consultants, Services, Training, Operations except SC 2.4 - sanitation pilot), Category 2 (Matching grants under SC 2.4 - sanitation pilot), Category 3 (Goods, Serv. Consultants, Services, Training, Operations except SC2.4 - sanitation pilot under COVID 19 response), Category 4 (Works except SC2.4 - sanitation pilot under COVID 19 response). *Source:* Restructuring Paper, Report Number RES41457, December 2020.

| Key Change | Rationale for Change | Implication |
|---|---|---|
| Project cancellation amount + targets revision | (i) EUR 2.3M cancelled - unable to spend by closing date.<br>(ii) Funds reallocated to extend the sewerage network, add 950 connections, and build a pumping station. | (i) Reduced intermediate indicator target on household latrines.<br>(ii) Groundnut Region lost the benefits of the cancelled latrine investments under the project. |

**Table 4.3. Changes in Intermediate Results Indicators during implementation**

| Intermediate Results Indicator | Original Target (2018 Appraisal) | Revised Target (2020 Restructuring) | Revised Target (2022 Restructuring) | Revised Target (2023 Restructuring) | Revised Target (2024 Restructuring) | Final Target at Closing 2024 | Results at Closing 2024 |
|---|---|---|---|---|---|---|---|
| New piped household water connections that are resulting from the project (Number) | 30,500 | 40,300 (Reason: increased budget for COVID response) | No change | 49,900 (Reason: reallocation of funds from sanitation marketing) | No change | 49,900 | 50,421 |
| Improved community water points constructed or rehabilitated under the project (Number) | 200 | 300 (Reason: budget increase for COVID response) | No change | 216 (Reason: decreased demand for standpipes as population prefers household connections) | No change | 216 | 229 |
| Piped water systems equipped with chlorination devices under the project (Number) | 580 | No change | No change | 586 | No change | 586 | 341 |
| Water production facilities rehabilitated under the project (Number) | 371 | 421 (Reason: increased budget for COVID response) | No change | 428 | No change | 428 | 439 |

| Intermediate Results Indicator | Original Target (2018 Appraisal) | Revised Target (2020 Restructuring) | Revised Target (2022 Restructuring) | Revised Target (2023 Restructuring) | Revised Target (2024 Restructuring) | Final Target at Closing 2024 | Results at Closing 2024 |
|---|---|---|---|---|---|---|---|
| Water sample tests meeting bacteriological standards (Percentage) | 98 | No change | No change | No change | No change | 98 | 68.[26] |
| Household latrines constructed under the project (Number) | 100,000 | 53,700 (Reason: budget decrease and funds reallocated to COVID response) | No change | 47,500 (Reason: reduction in number of latrines following contracts evaluation) | 44,700 | 44,700 | 38,887 |
| Household sewer connections constructed under the project (Number) | 5,100 | 6,100 (Reason: Budget increase for COVID response) | No change | 6,600 | No change | 6,600 | 3,271 |
| Additional wastewater treatment capacity installed under the project (Cubic Meter) | 4,900 | No change | No change | 4,850 | No change | 4,850 | 4,850 |
| Additional sludge treatment capacity installed under the project (Cubic Meter) | 145 | No change | No change | 100,000 (error) | 100 (error corrected) | 100 | 100 |
| On-site sanitation facilities constructed under the sanitation marketing approach (Number) | 8,500 | 12,750 (Reason: Budget increase for COVID Response) | No change | Activity dropped | No change | Activity dropped | Activity dropped |
| Public toilets constructed under the project for public places like health centers, schools, etc. (Number) *(new indicator added during the December 2020 restructuring)* | n.a. | 100 | No change | 83 | 83 | 83 | 83 |
| Satisfaction rate of users of WSS services provided (%) | 80 | No change | No change | No change | No change | 80 | 92.5 |
| Satisfaction rate of female users of WSS services provided (%) | 80 | No change | No change | No change | No change | 80 | 91.5 |
| Water quality mapping system in use (Yes/No) | Yes | No change | No change | No change | No change | Yes | Yes |

[26] According to the client's ICR, this indicator was difficult to track and assess due to lack of data availability.

| Intermediate Results Indicator | Original Target (2018 Appraisal) | Revised Target (2020 Restructuring) | Revised Target (2022 Restructuring) | Revised Target (2023 Restructuring) | Revised Target (2024 Restructuring) | Final Target at Closing 2024 | Results at Closing 2024 |
|---|---|---|---|---|---|---|---|
| Number of piezometers, trial boreholes and hydrometric stations installed under the project | 54 | No change | No change | No change | No change | 54 | 42 |

## ANNEX 5. EFFICIENCY ANALYSIS

1. **Project overview.** PEAMIR, with a budget of US$130 million (CFAF 70.5 billion), came into effect on October 15, 2018, and concluded on June 30, 2024, following an extension from its initial end date of June 30, 2023. PEAMIR's main objective was to increase access to improved drinking WASH services in selected rural and urban areas and to strengthen water resource planning and monitoring capacity. The project was originally focused on the Groundnut Basin, covering the regions of Thiès, Diourbel, Fatick, Kaolack, and Kaffrine for drinking water and sanitation. The WRM component had a national scope. In response to the COVID-19 pandemic, a restructuring allowed for the inclusion of the National Initiative to Fight COVID-19 (*Initiative Nationale de Lutte Contre la COVID-19*, INLC WASH), extending activities to include a hygiene component and expanding to peri-urban Dakar and rural regions across Senegal.

2. **Purpose of ex post financial and economic analysis.** In accordance with ICR guidelines, an ex post financial and economic analysis was conducted to reassess the performance of PEAMIR at project completion. This analysis compared project outcomes against the projected indicators set forth in the PAD and the targets adjusted during the December 2020 financing restructuring.

3. **Objectives of the analysis.** The analysis sought to (a) update data, parameters, and assumptions used to establish financial and economic criteria and (b) expand the economic impact analysis based on recorded project outcomes.

4. **Economic analysis.** The economic analysis aimed to update the project's CBA by evaluating PEAMIR's effective implementation at project completion and the impact of its activities.

5. **Financial analysis.** Derived from the CBA, the financial analysis considered revenue and financial costs under 'with' and 'without project' scenarios, accounting for taxes but excluding non-monetized benefits (consumer surplus).

6. **Findings.** The ex-post evaluations demonstrate that the project achieved strong EIRR and NPV results. Specifically, the EIRR estimates increased from 8.2 percent at appraisal to 10.85 percent during the first 2020 restructuring, while the NPV at 6 percent discount rate rose from US$9.46 million to US$25.5 million. By project completion, the benefits assessment was expanded to include additional indirect revenues, further elevating the project's impact to an EIRR of 17.27 percent and NPV of US$129.4 million at 6 percent discount rate. This remarkable increase can be attributed to three factors. First, the project's first COVID-related restructuring, which included SONES-supported installation of 18,021 private connections in urban areas, significantly improved its economic viability metrics and led to improved public health, time savings for households, and increased economic productivity. The benefits extended beyond direct water access, as reduced disease prevalence and enhanced living conditions had a ripple effect on the local economy and household finances. Second, despite rising costs and external disruptions, Component 1's investment costs were effectively controlled, resulting in unit costs below initial project estimates, high disbursement levels, and resource utilization. Third, the executing agencies (particularly SONES and ONAS) demonstrated strong procurement expertise that minimized contract award delays and reduced timeline deviations particularly when the COVID response activities were introduced during the first restructuring. The FIRR reached 5.07 percent, reflecting a slight improvement from the PAD estimates. This improvement can be attributed to increased financial revenues generated through water tariff adjustments, the establishment of additional water connections, and improved efficiency in water distribution, managed by SONES. The impact was particularly notable for ONAS, which enhanced its asset base through investments of CFAF 16.4 billion (US$25.8 million) and improved its operational efficiency, generating estimated annual revenues of CFAF 0.915 billion (US$1.4 million).

**Economic Analysis**

7. **Methodology.** The CBA was updated to assess the EIRR and NPV across all project activities. The efficiency analysis at the ICR stage followed the methodologies outlined in the PAD, though it also includes an analysis of implementation efficiency and broadens the scope of the methods for determining the project benefits to include indirect revenues. These indirect revenues encompass improvements in water and sanitation service quality and coverage, enhanced infrastructure management, increased positive outcomes for beneficiaries (particularly women and children), strengthened financial performance of private WSS operators, and reduced public health expenditure due to decreased water-related diseases. These benefits were evaluated against project costs, including capital expenditures and incremental operating expenses (encompassing energy, chemicals, commercial operations, and maintenance).

8. **Scope of analysis.** The analysis updated the project's forecasted outcomes, accounting for actual results after contract awards. Updates included an investment timeline, assessments of project benefits and costs, revised assumptions for operating costs (energy and chemicals), and anticipated reductions in water losses. These updates positively influenced economic results.

9. **Investment costs.** Investments from 2018 to 2024 are shown in table 4.1. At closure, project commitments reached 98 percent, amounting to US$127.22 million. Increased procurement needs due to the INLC approval, simplified procedures, and a revised Project Procurement Strategy for Development (PPSD) led to the addition of 10 contracts. The project achieved a 91 percent disbursement rate, totaling US$115.74 million, with disbursements increasing from 70.1 percent to 88.02 percent (+17.92 points) over the last nine months of the project. The urban component of Component 1 generated a CFAF 100 million surplus, which enabled additional network extension works valued at CFAF 95 million. At project closing, outstanding payments amounted to US$8.72 million, while uncompleted activities totaled US$2.47 million. These incomplete activities were exclusively within the sanitation component, as all planned activities in other components were successfully executed.

10. **The project's financial execution** faced initial significant challenges, with rates ranging from just 0.53 percent to 40.66 percent during 2019–2022. Consequently, the project closing date was extended through the third restructuring by a year, largely to complete the rural sanitation works. This initial underperformance was attributed to (a) delays, owing to the pandemic, the Russia's invasion of Ukraine, as well as community resistance to the RWS reforms in certain project areas in the north; (b) limited technical capacity of the IAs; and (c) extended procurement timelines for rural latrines owing to the new procurement approach. Further, while the drinking water component was executed efficiently, achieving targets within budget, the sanitation component saw increased unit costs (15–25 percent) compared to forecasts, limiting efficiency and reducing initial targets. However, the corrective measures implemented following World Bank supervision missions and subsequent restructuring brought the project back on track, resulting in an overall commitment rate of 98 percent across all signed and approved contracts by project closure.

11. **Projected resources.** The allocated resources proved sufficient for executing both planned and restructured activities, with timely implementation despite some residual works pending completion at closure. Furthermore, evaluations confirmed that the IAs (OFOR, SONES, ONAS, DGPRE, DH, DA, and CPCSP) demonstrated strong procurement expertise, which minimized award procedure delays and reduced the risk of contracting underperforming companies or service providers.

12. **Component performance.** Despite COVID-19 and the invasion, PEAMIR components met most targets on schedule, with environmental and social standards adhered to. The rural water, urban water, and water resources management components performed well. However, the rural, semi-urban, and urban sanitation and institutional support components experienced some delays, resulting in discrepancies from initial targets. The drinking water component was executed efficiently, achieving targets within budget. The sanitation component faced increased unit costs (15–25 percent) compared to forecasts, limiting efficiency and reducing initial targets.

13. **Incremental operating costs.** Costs detailed in the PAD were retained for ex post analysis, as observed variations during project implementation were minor.

**Table 5.1. Operating Costs**

| Indicator | NDP | Other Systems |
|---|---|---|
| +Energy costs (CFAF/$m^3$ produced) | 49.6 | 80.5 |
| Chlorination (CFAF/$m^3$ produced) | 3.6 | 4.6 |
| Maintenance costs | 0.5% of investment costs | |
| Commercial costs | CFAF 2,000/connection | |

*Source:* PAD dated May 31, 2018, Report Number PAD2763.
*Note:* NDP = *Notto-Diosmone-Palmarin*.

14. **Benefits attributable to the project at completion.** The incremental benefits generated by the project activities are listed table 5.3, which also links the activities to the project objectives.

**Table 5.2. Economic Benefits of the Project**

| Development Objective/Activities | Incremental Benefits |
|---|---|
| Development and securing access to drinking water services in rural areas | This component made it possible to restore, secure, and expand production, storage, and distribution capacity in the DSPs; and construction of new connections and standposts of 32,400[27] and 229, respectively, exceeding the project targets. These projects will improve the living conditions of the population in terms of access to water, surplus consumption, reduction of drudgery, and health expenses for 392,700 rural beneficiaries. These results will also translate into additional revenues for the DSPs, which will also record operational and commercial performances linked to a reduction in O&M costs combined with a significant reduction in non-revenue water. |
| Development and securing access to safe drinking water services in urban areas | 18,021 social connections were installed benefitting more than 162,189 urban people with significant economic benefits. This is why the additional income incurred by SONES enhances the overall profitability of PEAMIR. |
| Improving access to sanitation services in rural, semi-urban, and urban areas | Under this component, 38,887 latrines were built, 3,271 connections to the sewerage network, and wastewater and fecal sludge treatment capacity was increased by 4,850 $m^3$ per day and 100 $m^3$ per day, respectively. These achievements benefitted 400,120 people. This component will significantly reduce household and government health expenditure as well as result in substantial savings on the costs of averting deaths, especially among children under 5 years of age. |

15. **Incremental revenues.** The PAD's original assumptions for incremental consumption, water pricing, and revenue projections remain valid for the ex-post analysis. Incremental water sales were driven by total water consumption from two sources: 50,421 new household connections and 229 new public standposts.

16. **Consumer surplus.** The consumer surplus assessment maintains the PAD's methodology by evaluating changes in daily water consumption and prices for households transitioning from (a) standposts to social connections and (b) water vendors to standposts. The consumer surplus is calculated by multiplying three factors: the consumption increase, the price differential between pre- and post-project rates, and the price elasticity coefficient (0.5).

[27] This number is taken from the Senegal Client Completion Report, 2024.

17. **Socioeconomic gains.** The project generated additional unquantified benefits beyond those measured above, falling into two categories: (a) health benefits from improved hygiene and potable water access through both household connections and collective access points, resulting in reduced waterborne diseases, and (b) time-savings benefits, as individuals previously responsible for water collection could redirect their time to other activities.

18. **The socioeconomic gains appraisal methodology.** The socioeconomic benefits assessment draws from a 2004 WHO study by Guy Hutton and Laurence Haller, which evaluates global WSS costs and benefits. Their methodology identifies and quantifies direct and indirect effects using WHO statistical data. The study segments results across five geographical subregions, with Sub-Saharan Africa (AFR) further subdivided based on mortality rates. Specifically, Sub-Saharan Africa comprises two groups: AFR-D (high adult and child mortality rates) and AFR-E (very high adult and high child mortality rates). Senegal falls within the AFR-D classification.

19. **Results of the socioeconomic gains assessment.** Table 5.4 shows the results presented in the document for a country such as Senegal. We then calculated them as a ratio in US$ per person benefiting from the intervention.

**Table 5.3. Socioeconomic Benefits**

| Item | Unit | Total | Unit | Value/capita |
|---|---|---|---|---|
| Total population of AFR-D | M people | 487 | | |
| Water project beneficiary population | M people | 200 | | |
| Water-related diseases avoided | M cases/year | 85,032 | Case/capita/year | 0.4 |
| Avoided health care sector treatment cost | M US$2,000/year | 812 | US$2,000/capita /year | 4.1 |
| Avoided patient treatment costs | M US$2,000/year | 53 | US$2,000/capita/year | 0.3 |
| Productive days gained (fewer sick days) | M days | 227 | Days/capita/year | 1.1 |
| Productive days gained value | M US$2,000/year | 51 | US$2,000/capita/year | 0.3 |
| School days gained (fewer sick days) | M days | 48,591 | Days/capita/ year | 0.2 |
| Baby days gained (fewer sick days) | M days | 287 | Hours/capita/ year | 1.4 |
| School and baby days value | M US$2,000/year | 1,429 | US$2,000/capita/year | 7.1 |
| Time gained (closest supply) | M hours | 21,593 | Hours/capita/year | 108.0 |
| Time gains value | M US$2,000/year | 6,258 | US$2000/capita/year | 31.3 |
| Value of avoided deaths | M US$2,000/year | 830 | US$2,000/capita/year | 4.2 |
| Total benefits | **M US$2,000/year** | **9,433** | **US$2,000** | **47.2** |

20. **The importance of socioeconomic gains.** The analysis reveals a hierarchy of per capita annual benefits: water collection time savings leads at US$31.3 per inhabitant, followed by health improvements for school-age children and infants (US$7.1), prevented mortality value (US$4.2), and community health care cost savings from prevented illnesses (US$4.1). These benefits total US$47.2 per capita annually. To calculate project profitability, this US$47.2 per capita annual rate was applied to vulnerable populations within the project's target group, after adjusting for the Consumer Price Index (CPI) increase of 125.57 percent between 2010 and 2022.

21. **EIRR and NPV.** Table 5.5 compares three sets of economic profitability indicators: the initial PAD calculations, the updated analysis[28] from the 2020 restructuring, and the ex-post analysis at project completion. The comparison examines both the EIRR and NPV, with NPV calculated at two discount rates: 10 percent and 6 percent. The project's final economic

[28] These calculations were specifically conducted to account for the urban water supply subcomponent's substantial contribution to project profitability.

analysis achieved an EIRR of 17.27 percent and NPV at 6 percent discount rate of US$129.4 million. These results are higher than both the PAD projections (EIRR of 8.2 percent and NPV of US$9.46 million) and the COVID-driven restructuring estimates (EIRR of 10.85 percent and NPV of US$25.5 million). Two key factors drove this enhanced performance: first, the project's COVID-related restructuring enabled SONES to install 18,021 urban private connections, significantly increasing revenue streams; second, an expanded scope of the benefits assessment captured additional indirect revenues, elevating the project's overall impact.

**Table 5.4. Economic Analysis**

| Indicator | Original (2018 - At Appraisal) | Revised (2020 - First Restructuring) | Final (2024 - At ICR) |
|---|---|---|---|
| EIRR (%) | 8.20 | 10.85 | 17.27 |
| NPV at 6% (US$, millions) | 9.46 | 25.50 | 129.40 |
| NPV at 10% (US$, millions) | | 2.92 | 51.90 |

**Financial Analysis**

22. The financial impact was assessed using the FIRR, derived from the CBA. Revenue and financial costs in 'with' and 'without project' scenarios were analyzed, including taxes but excluding consumer surplus benefits. The FIRR was estimated at 5.07 percent, compared to 4.3 percent in the PAD, with limited impact on SONES activities.

23. **Financial impact of the project on ONAS.** ONAS experienced ongoing negative gross operating profits due to insufficient revenue to cover operating and personnel costs. Its operating expense coverage ratio increased from 60 percent in 2018 to 87 percent in 2021, underscoring commercial challenges. Project support, including sanitation treatment infrastructure and collective sanitation, significantly benefited ONAS's assets, with investments of CFAF 16.4 billion, representing 52 percent of the component's budget. These investments are expected to generate CFAF 1.15 billion in revenue, with annual revenues projected at CFAF 0.915 billion (6.8 percent of ONAS's 2021 revenue). The project's revenue generation has helped reduce ONAS's dependency on subsidies and contributed to strengthening the agency's financial sustainability.

**Table 5.5. ONAS Financial Performance 2018–2021**

| Item | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|
| Revenue | 7,548 | 9,247 | 12,808 | 13,378 |
| Other income | 3,361 | 323 | 388 | 240 |
| Operating expenses | 8,651 | 9,066 | 10,702 | 10,453 |
| Value added | 2,421 | 561 | 2,496 | 3,119 |
| Personnel expenses | 3,996 | 4,556 | 4,273 | 4,856 |
| Gross operating surplus | −1,575 | −3,995 | −1,777 | −1,737 |
| Depreciation and provisions | 6,885 | 6,385 | 6,133 | 5,937 |
| Operating result | −562 | 68 | 140 | 351 |
| Financial expenses | 123 | 148 | 36 | 32 |
| Income tax | 5 | 5 | 5 | 257 |
| Net result | −653 | −84 | 99 | 71 |
| Revenue/Cash expenses ratio | 60% | 68% | 86% | 87% |

*Source:* ONAS Financial Statements 2018–2021.

**Table 5.6. Financial Impacts of the Project on ONAS' Turnover**

| Revenue Type | Unit | Unit Price | Quantity | Value |
|---|---|---|---|---|
| Fee revenue | CFAF/$m^3$ | 63 | 11,451,295 | 721,431,586 |
| Connection revenue | CFAF/connections | 36,580 | 6,600 | 241,428,000 |
| Systematic Tracking of Exchanges in Procurement (STEP) revenue | CFAF/treated water | 100 | 4,850 | 177,025,000 |
| Fecal Sludge Treatment Plant (STBV) results | CFAF/$m^3$ received | 400 | 100 | 14,600,000 |
| **Total** | | | | **1,154,484,586** |

*Source:* Cost of sludge removal drawn from STBV Waoundé APD.

## ANNEX 6. BENEFICIARY ANALYSIS

1. To determine the impact of PEAMIR and satisfaction levels on the targeted beneficiaries, a study team from the MHA conducted field surveys that encompassed 2,204 households across 26 departments, conducted over 20 days (May 28–June 17, 2024) by a gender-balanced team of 36 interviewers who received three days of training. Using Lot Quality Assurance Sampling (LQAS)methodology, four villages were selected per department with Agency for National Statistics and Demography (ANSD) support. The process began with locality mapping and coordination with local authorities, followed by digital data collection using ODK, supplemented by community questionnaires for impact assessment. Quality assurance measures included pre-validated questionnaires, comprehensive interviewer training, regular field supervision, and systematic data analysis. A summary of the results are as follows.

**Access to Drinking Water - Results**

- **Substantial increase in drinking water access.** PEAMIR has remarkably improved access to drinking water, increasing from 75.7 percent before the project to 98.1 percent after implementation nationwide, an increase of 22.4 percentage points. This universal access in areas such as Dakar and Thiès, where the rate reached 100 percent, demonstrates the project's direct and significant impact.
- **User satisfaction with improved drinking water services.** At the national level, satisfaction rates increased to 86.0 percent for water cleanliness, 68.1 percent for water taste, 83.5 percent for odor, 78.0 percent for color, and 79.5 percent for water pressure. These improvements reflect the effectiveness of systems implemented to treat and distribute drinking water.
- **Women's satisfaction.** Women, as primary water managers within households, showed particularly high satisfaction with improved services, with overall women's satisfaction reaching 87.5 percent. This indicates the project's positive impact on reducing their daily tasks and improving family health.
- **High confidence in improved water services sustainability.** Confidence in the sustainability of project improvements is strong, with a national confidence rate of 92.4 percent. This high confidence in key regions like Dakar and Diourbel underscores a positive perception of infrastructure sustainability and water service management.
- **Concerns and recommendations for continuous improvement.** Despite notable progress, it remains essential to continue efforts in system maintenance and improvement. Focus must remain on improving services to ensure sustainable and reliable access to quality water, with particular attention to meeting the specific needs of less satisfied regions like Ziguinchor.

**Table 6.1. Post-Project Results by Region: Access to Water and Beneficiary Satisfaction (%)**

| Regions | Access to Drinking Water | | Share of Households Satisfied with Improved Drinking Water Services | Perception of Sustainability of Improved Water Services (Women) |
|---|---|---|---|---|
| | Pre Project (2017) | Post Project (2024) | Post Project (2024) | Post Project (2024) |
| Dakar | 73.1 | 100.0 | 97.4 | 98.7 |
| Thiès | 78.1 | 100.0 | 93.9 | 94.5 |
| Fatick | 41.6 | 100.0 | 92.3 | 90.6 |
| Diourbel | 82.0 | 100.0 | 91.2 | 98.6 |
| Kaolack | 81.4 | 100.0 | 97.0 | 96.9 |

| Regions | Access to Drinking Water | | Share of Households Satisfied with Improved Drinking Water Services | Perception of Sustainability of Improved Water Services (Women) |
|---|---|---|---|---|
| | Pre Project (2017) | Post Project (2024) | Post Project (2024) | Post Project (2024) |
| Kaffrine | 80.1 | 93.5 | 67.8 | 86.3 |
| Sedhiou | 58.4 | 80.5 | 66.2 | 68.8 |
| Ziguinchor | 42.9 | 64.9 | 45.5 | 51.3 |
| Louga | 78.0 | 100.0 | 94.0 | 95.4 |
| Saint-Louis | 56.3 | 100.0 | 89.2 | 82.9 |
| Kill | 72.1 | 98.0 | 90.2 | — |
| **Overall** | **75.7** | **98.1** | **87.1** | **92.4** |

*Note:* This data is taken from the Senegal Client Completion Report, 2024, as well as the final Survey Report on the project's performance by the MHA, which includes quantitative and qualitative analysis of the survey data collected.

**Access to Sanitation - Results**

- **Notable improvements in sanitation access.** Before PEAMIR, only 18.6 percent of beneficiaries had access to improved toilets. After the intervention, this rate surged to 99.9 percent, representing an increase of 81.3 percentage points. This radical transformation demonstrates PEAMIR's effectiveness in improving rural sanitation conditions.
- **High satisfaction with facility quality.** The majority of beneficiaries express high satisfaction with the installed sanitary infrastructure, with 94.6 percent satisfied with slab quality and 93.4 percent with toilet quality. Diourbel stands out with 100 percent satisfaction for both aspects, reflecting excellent implementation in this region.
- **Satisfaction with sanitation services acquisition costs.** Satisfaction rates regarding the costs of acquiring toilets and septic tanks are very high, with overall scores of 97.3 percent for toilets and 98.8 percent for septic tanks. This indicates notable acceptance of project rates, highlighting the effectiveness of subsidy strategies or financial support in making these services accessible to rural beneficiaries.
- **Perception of improvements sustainability.** A large majority of women, approximately 94.3 percent overall, are confident in the sustainability of the improvements made. This confidence is a key indicator of the perceived long-term effectiveness of project interventions, especially in regions like Diourbel and Kaolack where confidence rates are extremely high.
- **Positive evaluation of sanitation services management.** Results show high satisfaction with sanitation services management, with particularly high appreciation in Diourbel where satisfaction rates reach or exceed 93 percent for criteria such as complaint handling and collaboration between managers and beneficiaries.

**Table 6.2. Post-Project Results by Region: Access to Sanitation and Beneficiary Satisfaction (%)**

| Regions | Access to Improved Sanitation | | Share of Households Satisfied with Improved Sanitation Services | Perception of Sustainability of Improved Sanitation Services (Women) |
|---|---|---|---|---|
| | Pre Project (2017) | Post Project (2024) | Post Project (2024) | Post Project (2024) |
| Fatick | 9.4 | 100.0 | 95.3 | 90.1 |
| Diourbel | 14.0 | 100.0 | 98.2 | 98.2 |

| Regions | Access to Improved Sanitation | | Share of Households Satisfied with Improved Sanitation Services | Perception of Sustainability of Improved Sanitation Services (Women) |
|---|---|---|---|---|
| | Pre Project (2017) | Post Project (2024) | Post Project (2024) | Post Project (2024) |
| Kaolack | 18.9 | 100.0 | 98.1 | 96.7 |
| Kaffrine | 28.7 | 99.6 | 94.6 | 93.7 |
| **Overall** | **18.6** | **99.9** | **96.5** | **94.3** |

*Note:* These data are taken from the Senegal Client Completion Report, 2024, as well as the final Survey Report on the project's performance by the MHA, which includes quantitative and qualitative analysis of the survey data collected.

**Access to Hygiene - Results**

- **Significant improvement in access to handwashing facilities.** Before PEAMIR's intervention, only 13.3 percent of beneficiary households had handwashing facilities near toilets or kitchens. After the project, this rate increased to 75.7 percent, marking an impressive rise of 62.4 percentage points.
- **Increase in handwashing frequency.** Handwashing frequency among beneficiary households increased significantly following the implementation of PEAMIR. Overall, the proportion of households washing their hands more than five times per day increased from 13.3 percent before the project to 24.5 percent after, representing an increase of 11.2 percentage points.
- **Improvement in water tank cleaning frequency.** Similarly, the improvement in water tank cleaning frequency among beneficiaries was notable. Before the project, 69.3 percent of households cleaned their tanks more than once per month. This rate increased to 86.5 percent after the project intervention, representing an overall increase of 17.2 percentage points, reflecting increased commitment to improved hygiene practices thanks to awareness activities and infrastructure provided by PEAMIR.
- **Impact of awareness sessions on adoption of recommended practices.** Awareness sessions had a variable but significant impact, with 56 percent of households exposed to awareness activities. Among these, 66.2 percent applied all recommended practices, showing the effectiveness of these initiatives in improving hygiene-related behaviors.
- **Perceived reduction in water-related diseases due to PEAMIR interventions.** There was a notable reduction in water-related diseases following PEAMIR's water and sanitation improvements, with 66.2 percent of beneficiaries reporting a clear reduction in these diseases.

**Table 6.3. Handwashing: Access and Frequency (%)**

| Region | Access to Handwashing Facilities Next to or Near a Toilet | | Frequency of Handwashing (more than 5 times a day) | |
|---|---|---|---|---|
| | Pre Project (2017) | Post Project (2024) | Pre Project (2017) | Post Project (2024) |
| Fatick | 8.5 | 81.8 | 16.5 | 31.2 |
| Diourbel | 17.5 | 70.2 | 28.1 | 42.1 |
| Kaolack | 5.3 | 75.3 | 17.3 | 28.3 |
| Kaffrine | 32.7 | 71.4 | 0.0 | 7.8 |
| **Overall** | **13.3** | **75.7** | **13.3** | **24.5** |

## ANNEX 7. BORROWER COMMENTS

The Senegal Ministry of Water and Sanitation had the opportunity to comment on the draft of this ICR Report. Comments were received on Dec 31, 2024, and are summarized below. Any differences between the report and the borrower comments have been explained in a footnote.

**Summary of Borrower Comments**

1. **PDO Relevance to the New Development Framework Adopted Following the April 2024 Regime Change:** The analysis of the alignment between PEAMIR's Project Development Objective (PDO) and the new framework can be approached simply from the perspective of addressing access to water and sanitation services, including Integrated Water Resources Management (IWRM). This can be documented as follows:

> *With the advent of the new regime in 2024, a new framework was established to serve as the foundation for economic and social governance. This framework was articulated through the Vision of a Sovereign, Just, Prosperous nation anchored in strong values by 2050. This new National Transformation Agenda fortunately confirms the priority given to Water in almost all its social, economic, and ecosystem dimensions. Water will play a driving role in the ambitions to guarantee food and environmental sovereignty as well as in significantly reducing social inequalities. This new vision is thus perfectly aligned with the SDG agenda and goes even further while embracing the need to strengthen the principles of the Human Right to Water and Sanitation. Indeed, through this National Transformation Agenda, "Senegal's territorial inequities will have been resolved by 2050. Senegalese citizens will benefit from the same quality of education, health services, access to electricity, water and sanitation, and decent housing..."*
>
> *Water will be a true priority in this new Agenda, particularly across its four (04) strategic axes: i) Competitive Economy, ii) Quality Human Capital and Social Equity, iii) Sustainable Territorial Planning and Development, and iv) Good Governance and African Engagement. More specifically, within the SND strategic framework, there is clear consideration of water, sanitation, and Integrated Water Resources Management (IWRM) issues, enabling concrete alignment of sectoral policy. Thus, access to water and sanitation services is addressed in Axis 2 (**Quality Human Capital and Social Equity**) through Strategic Objective 2.5 (Strengthen access to basic social services) which targets two expected outcomes (EO 2.5.1: improved access to quality water and EO 2.5.2: improved sanitation services). IWRM-related issues are also addressed in Axis 3 (**Sustainable Planning and Development**) through Strategic Objective 3.1 (Ensure sustainable territorial planning and organized urbanization) which targets two expected outcomes (EO 3.1.1: promotion of sustainable territorial planning with integrated economic hub development and EO 3.1.3: construction of sustainable cities (green, resilient, and smart through coordinated sectoral policies)). More broadly, sectoral action also aligns with and contributes to Axis 1 (**Competitive Economy**) through Strategic Objectives 1.1 to 1.6 via its contribution to agro-industrial development, promotion of public-private partnerships (leasing and concessions) for public service management involving the national private sector, establishment of innovative domestic financing mechanisms, increasingly strengthened role of research and innovation in the Water-Sanitation sector through cooperation with universities and research institutes, and the sector's growing digitalization.*
>
> *Finally, the sectoral policy definition also aligns with Axis 4 (**Good Governance and African Engagement**) through Strategic Objective 4.3 (Reform central and decentralized Public Administration targeting the expected outcome (EO 4.3.2: harmonization of state services' mandates and interventions, through major institutional reforms aimed at rationalizing and improving the sector's organizational framework). The sector also contributes to Strategic Objective (4.6: Drive reforms and projects necessary for strengthening African Integration) which targets an expected outcome (EO 4.6.4: promotion of infrastructure development and integration support mechanisms. The basin organizations for the management of the Senegal and Gambia Rivers develop strategic infrastructure for energy production, water flow regulation, navigation, etc., while participation in regional bodies contributes to integration through hydro-diplomacy).*
>
> *Source: Draft new LPSD – December 2024.*

2. **End-of-Project Indicators:** At the time of providing comments, the borrower clarified and confirmed the results of the project at closure which is reflected in the ICR. Specifically, the borrower noted the following:

a. **Chlorination units:** At the end of June 2024, 341 units were installed instead of the planned 321, resulting in a target achievement rate of 58%. It's important to note that this shortfall in meeting the objective was due to resistance from certain rural borehole managers who opposed the rural water reform[29].

b. **Family latrines:** 44,700[30] units were completed, achieving 94% of the target, comprising 40,000 family latrines in rural areas and 4,700 latrines in peri-urban areas, with the latter implemented as part of the COVID-19 response measures.

c. **Household sewer connections:** As confirmed with ONAS and as of June 30, 2024, household sewer connections reached 3,271 connections, representing 49.5 percent of the target (6,600). Within this total, 1,000 units were completed through the COVID-19 Initiative (100 percent achievement) and 2,271 units (60 percent achievement) through the base project, as shown in the table below. ONAS has made arrangements for completing the remaining connections to meet the quantities specified in the ECOTRA company contract.

**Table 7.1: Household sewer connections planned and completed (#)**

| Sites | Planned (#) | Connected and Operational (#) |
|---|---|---|
| GANDIAYE | 1,125 | 1,125 |
| DIOURBEL | 800 | 106 |
| GUINGUINEO | 811 | 397 |
| NIORO | 890 | 218 |
| KOUNGHEUL | 746 | 0 |
| **TOTAL** | **4,372** | **2,271** |

d. **Women with access to improved sanitation facilities:** The PAD conventionally established that women represent 60 percent of the total population gaining access to sanitation through the project. Therefore, as of June 2024, the number reached 228,500[31] women, achieving 94 percent of the target.

3. **Project Fund Disbursement:** The rate reached 89 percent by end-June 2024 and increased to 96.2 percent in November 2024. Once pending Bank payments and final installments related to the grace period are settled, the ratio is expected to reach at least 98 percent.

4. **M&E Design:** A service quality improvement indicator was not included in either the initial PAD results framework or subsequent restructurings. To document the achieved results, CPCSP compiled data collected by monitoring offices and

[29] The Senegal Client Completion Report, 2024 also mentions that the chlorination target was missed in the Kaolack and Kaffrine regions due to delays for technical reasons

[30] This number differs from the Senegal Client Completion Report, 2024, which states that 38,887 latrines were built at project closure against a target of 44,700 and has been considered for this ICR. It can be assumed that 44,700 units were completed at the time the borrower provided these comments i.e., Dec 31, 2024.

[31] This number differs from the Senegal Client Completion Report, 2024, which states that 201,385 women had access to improved sanitation at project closure and has been considered for this ICR.

social engineering firms mobilized by OFOR. These sources only helped identify intervention sites and the scope of completed works. Based on this information, CPCSP was able to calculate the number of people reached.

5. **Development of 5 SDAGE (Water Resource Management Master Plans):** The development of SDAGE under PEAMIR aligns with a strategic axis of PAGIRE phase 1, specifically in defining a new water resource planning system. The development process is participatory, engaging all water resource management stakeholders. The process also includes developing Water Resource Management Plans at the sub-basin level and Local IWRM Plans at the municipal level. These SDAGE complement the national water security analysis, with implementation being realized through the World Bank-funded PISEA program.

6. **Project Contribution to Rural Water Public Service Delegation Viability:** While highly disaggregated data on the project's specific impact is difficult to collect, analysis of two DSPs shows that billed water volumes evolved significantly during the project period, which could be attributed to the contribution of connections. Beyond increasing the DSP customer portfolio through financing subsidized household drinking water connections, the project also generated substantial work-related revenue through established direct agreement contracts that enabled private operators to directly develop certain infrastructure elements. For example, for the DSP managed by the private operator SEOH, works under PEAMIR generated almost 1.18 billion FCFA in revenue over three years (2021-2023). For the Flex'Eau operator, the significant 30% increase in billed water volumes is largely attributable to water connections financed under the project.

**Table 7.2: SEOH Operational Data**

| Categories | 2021 (FCFA) | 2022 (FCFA) | 2023 (FCFA) |
|---|---|---|---|
| Global water sales revenue | 1,388,175,775 | 1,482,904,287 | 1,531,460,775 |
| Works revenue | 70,277,371 | 117,545,680 | 221,465,396 |
| PEAMIR works revenue | 347,336,406 | 381,832,998 | 450,115,361 |
| Total billed water volume in perimeter | 5,043,833 | 5,340,943 | 5,536,041 |
| Operating result | 167,160,522 | 328,073,246 | 445,550,132 |
| **TOTAL** | **108,019,889** | **207,777,955** | **284,356,380** |
| ***Flex'Eau Operations Data: Total billed water volume in perimeter (FCFA): 2021: 19,168,004; 2022: 19,309,402; 2023: 24,325,543*** | | | |

7. The borrower also provided clarification and additional information on the following points which have been integrated and updated in the ICR Report:

a. **Contract Management:** The assertion that the PCU encountered difficulties in properly monitoring contracts needs to be nuanced, if not reconsidered. Indeed, at each implementing agency level, a focal point was properly designated who works with a team that includes a Procurement Specialist (SPM). At the CPCSP level, there is also a procurement support system with a PPM, a PM officer, and a senior expert who is very familiar with World Bank procedures in several projects. In addition, periodic and especially monthly meetings were held regularly, and sometimes even on a monthly basis to monitor commitments. It should be further noted that during the first project restructuring to take into account the Covid-19 response effort, ten new contracts were added and a modification of the PPSD was made to account for the streamlining and exceptions related to the desire to move very quickly in contract procurement

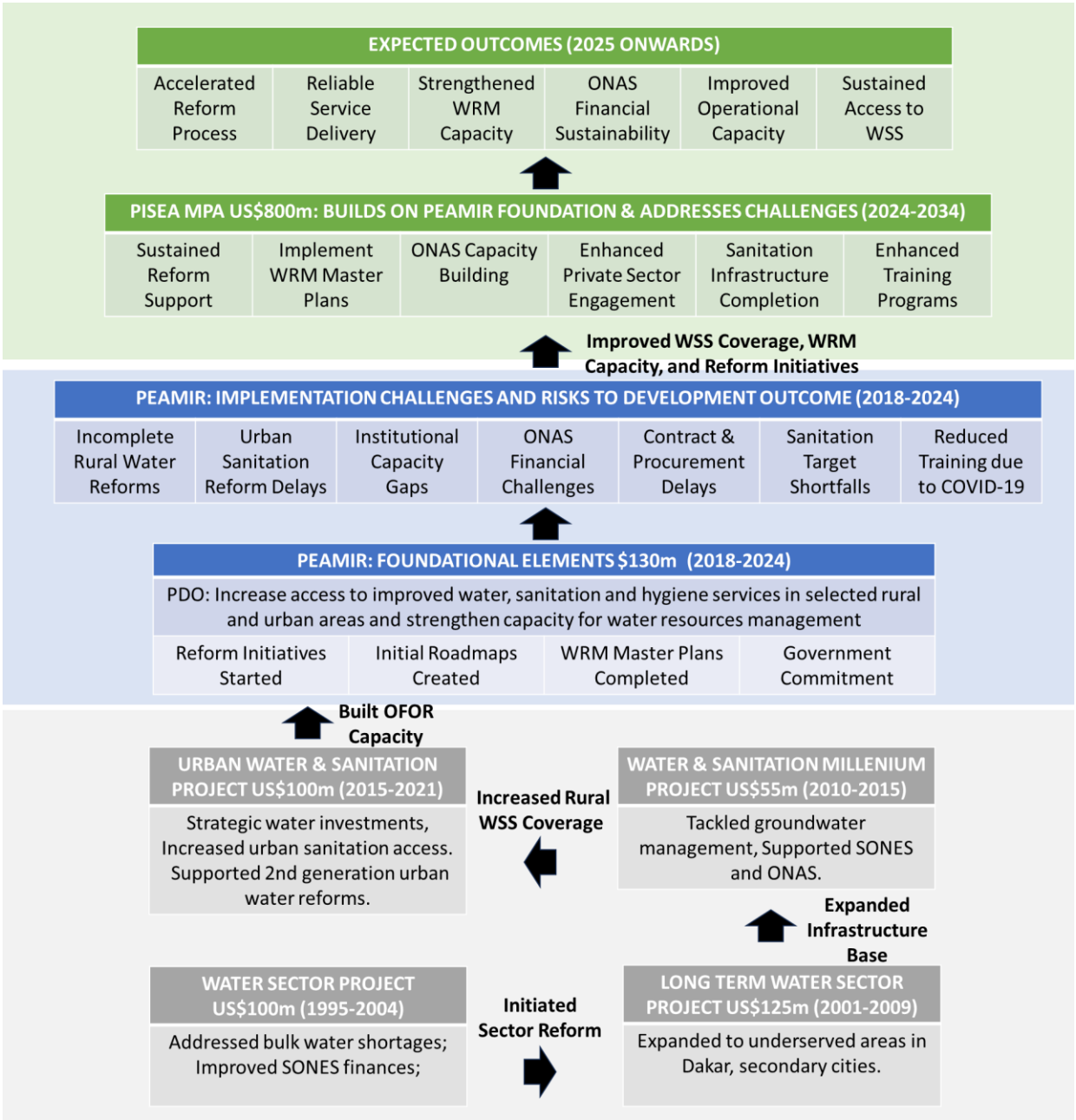
timeframes. And despite this increased volume of activities, all commitments related to these additional activities were processed on time and the contracts executed and then closed before the project closing date.

b. **Financial Management:** The report mentions that some expenditures had been rejected, for example those related to a training plan that had not been validated. It should be noted that the project had developed a training plan at the start of implementation that had been formally validated by the TTL. In this training plan, a portion of resources had not been allocated to sessions whose themes had been well identified. It was agreed that the identification would be done subsequently. However, the financial management team maintained that the completed plan had to be returned to the TTL for new validation; an approach that is not documented in any procedural framework, neither at the Bank level nor at the project level.
c. **Liquid Sanitation Reform:** The framework note and the roadmap for the reform of liquid sanitation in urban and peri-urban areas were presented and adopted by the Government in the Council of Ministers on October 4, 2024.
d. **Beneficiary Household Identification:** The report mentions that delays in rural family latrine construction were in part due to late beneficiary household identification, which is not the case. The CPCSP, in coordination with ONAS, had established an advance distribution list of all beneficiary villages based on precise intervention zone mapping, with proposed infrastructure allocation considering access and poverty levels. Subsequently, household lists were finalized in collaboration with village chiefs and administrative authorities.
e. **ONAS Monitoring System:** The report notes that ONAS lacks any mechanism for independent monitoring of the conformity of latrines built, which is not the case. ONAS implemented a monitoring system comprising three control offices, selected through competitive bidding and deployed across three defined geographical poles to ensure satisfactory coverage of the operational zone. This system operates under the supervision of an ONAS project team that conducts regular field missions.

## ANNEX 8. SEQUENCING OF BANK INTERVENTIONS IN SENEGAL'S WATER SECTOR

The successful sequencing of Bank interventions in Senegal's water sector, with each project setting the stage for the next one is serving as a reference in the dialogues with many countries in the region.

**Figure 8.1: Sequencing of Bank Interventions in Senegal's Water Sector Over 30 Years**



## ANNEX 9. SUPPORTING DOCUMENTS

1. Project Appraisal Document (PAD) dated May 31, 2018, Report Number PAD2763.
2. International Development Association Financing Agreement, Credit Number IDA 6281-SN.
3. Amendment to the Financing Agreement -Extension Request, Credit Number 62810-SN.
4. Amendment to the Financing Agreement -Partial Fund Cancelation, Credit Number 6281-SN.
5. Restructuring Paper, Report Number RES41457, December 2020.
6. Restructuring Paper, Report Number RES51938, June 2022.
7. Restructuring Paper, Report Number RES56195, June 2023.
8. Restructuring Paper, Report Number RES60788, June 2024.
9. Implementation Status and Results Reports (numbers 1–14).
10. World Bank Supervision Aide Memoires for Senegal Rural Water Supply and Sanitation Project.
11. Management Letters for Senegal.
12. Senegal Country Partnership Strategy for FY13–FY17. Report Number 73478-SN.
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## ANNEX 10. MAP

**COUNTRY: Senegal**

**Senegal Rural Water Supply and Sanitation Project**

