

CWIS CITY SNAPSHOT

**CWIS** | CITYWIDE  
INCLUSIVE  
SANITATION

**DAKAR**







# DAKAR CWIS CITY SNAPSHOT

*The Citywide Inclusive Sanitation (CWIS) city snapshots are designed to provide compact summaries of initiatives that are being implemented in eight cities, namely Lusaka, Kampala, Dakar, Khulna, Trichy, Warangal, Narsapur and Wai. Each of these cities has active investments designed to achieve the CWIS goals of equitable, safe, and sustainable sanitation service delivery. These city snapshots are part of the CWIS Monitoring and Learning initiative led by Athena Infonomics with support from the Bill & Melinda Gates Foundation.*

*This city snapshot focuses on the region of Dakar where the Office National d'Assainissement du Sénégal (ONAS) is the lead implementing partner. This factsheet outlines the pathway that Dakar is taking to achieve its CWIS goals and tracks the progress being made, including key shifts in institutional and service delivery models to support safe, equitable and sustainable delivery of services.*

## 1. City Sanitation Overview

Category	Indicator	Value
<b>Demographic</b>	Administrative boundary	Located in the far west of Africa, the Dakar region is the political and economic center of Senegal, with an urbanization rate of 96.5% <sup>1</sup> . The information and statistics in this snapshot are based on the administrative boundary of the Dakar region, which includes the departments of Dakar, Pikine, Guédiawaye and Rufisque. The region has a population of 3.8 million - 1.4 million in the department of Dakar, 1.4 million in the department of Pikine, about 600,000 inhabitants in Rufisque and 400,000 in Guédiawaye.
	Population	3,835,011 <sup>2</sup>
	% of population living in informal settlements	30% <sup>3</sup>
<b>Geographic</b>	Topography	The Dakar region covers 547 km <sup>2</sup> . Most of the region has a very low elevation and is prone to flooding. The areas flooded and at risk of flooding also largely overlap with the low income settlements.
	Groundwater table	Due to a low average elevation, the water table in Dakar is very high and vulnerable to pollution. In parts of Pikine and Guédiawaye, the water table is less than 1 meter below surface.. These characteristics, combined with the absence or deficit of rainwater drainage network, cause annual flooding.
<b>Basic Sanitation Statistics (as of 2020)</b>	% of population covered by sewerage networks	> 30%
	% of population practicing open defecation	2% <sup>4</sup>
	% of population relying on onsite sanitation	< 70%
	Treatment hardware available (combined capacity)	5 WWTPs with a combined capacity of 26,106 KLD and 4 FSTPs with a combined capacity of 640 KLD

<sup>1</sup> Situation économique et sociale régionale 2015 (2018).

<sup>2</sup> Projection of the 2020 population, by the national statistical agency, based on census data from 2013 (ANSD, 2013).

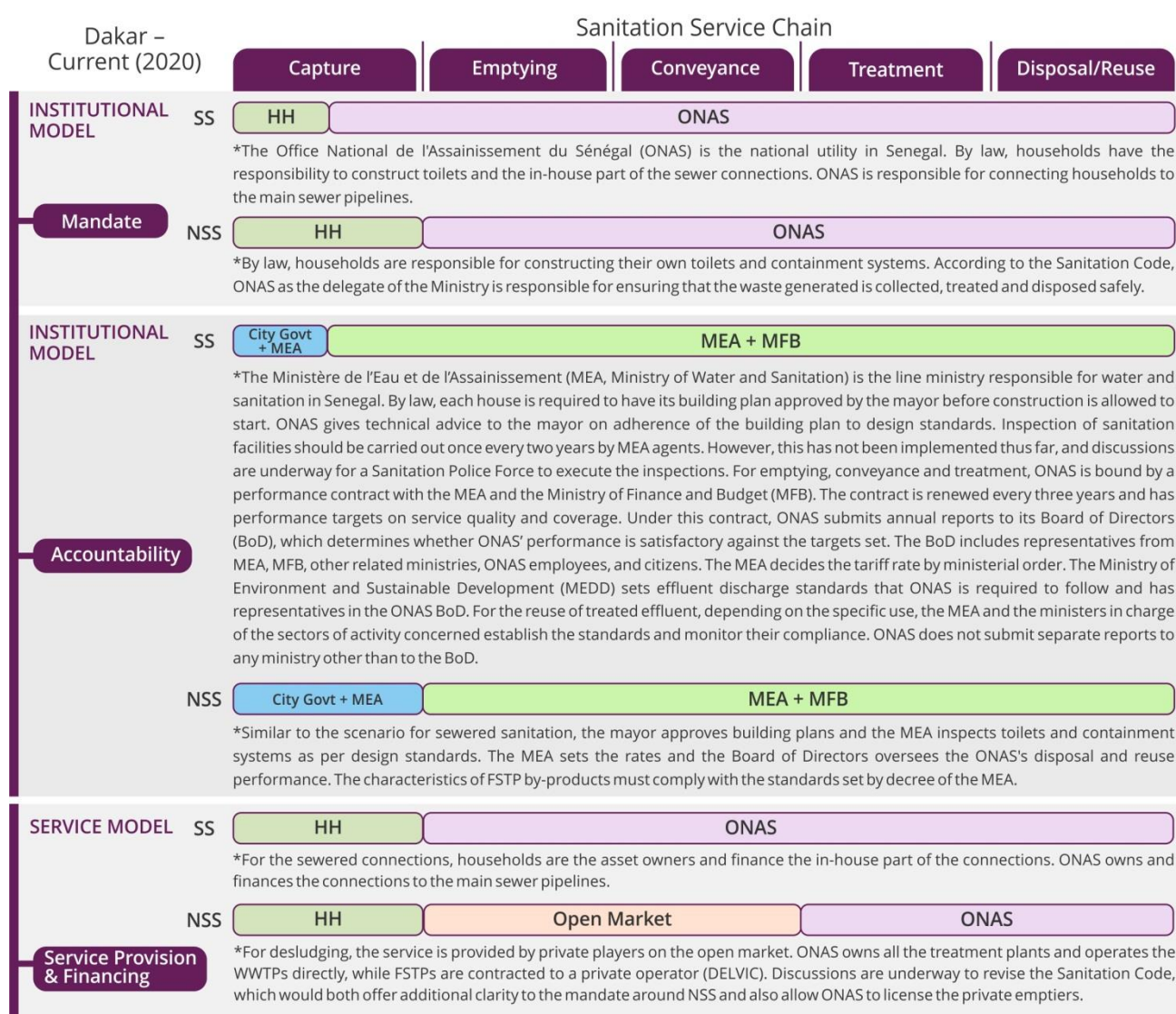
<sup>3</sup> Profil du secteur du logement au Sénégal, ONU - Habitat (2012).

<sup>4</sup> Situation économique et sociale nationale 2016 (2019), page 192, ANSD.

## 2. Institutional and Governance Framework of City Sanitation Service Delivery

The graphic below shows the institutional mandate, accountability and service provision models for Dakar. The full institutional model of urban sanitation service delivery covers all three of the systems functions under CWIS—Responsibility<sup>5</sup>, Accountability<sup>6</sup>, and Resource Planning/ Management (financing framework)<sup>7</sup>. The illustration in this section presents only responsibility and accountability, as financing framework is complex and varies widely across cities. The section on service model illustrates how sanitation services are being delivered. The service model includes a wide range of options such as direct provision by the mandated service authority, public private partnerships, and direct provision by the private sector but with oversight/ regulation by the service authority or through open markets with limited oversight/regulation.

**Legends:** SS - Sewered Sanitation; NSS - Non-Sewered Sanitation



<sup>5</sup> Responsibility means that authority (ies) executes a clear public mandate to ensure safe, equitable, and sustainable sanitation for all.

<sup>6</sup> Accountability means that authorities' performance against their mandate is monitored and managed with data, transparency and incentives.

<sup>7</sup> Resource Planning/ Management means that resources – human, financial, natural, assets – are effectively managed to support execution of mandate across time / space.

### 3. List of CWIS Interventions

This section seeks to capture Dakar's path to CWIS goals of equity, safety and sustainability and its performance on key functions such as clarity of mandate/responsibility, accountability and resource planning/ management. The table below is a list of Key Performance Indicators (KPIs)<sup>8</sup> used to gauge changes towards CWIS, followed by another table detailing the scenario in Dakar. The KPIs EQ-1 and SF-1 specifically follow the definitions as laid out in the Shit Flow Diagram (SFD) manual<sup>9</sup>.

#### KPIs for Interventions

<b>Service Outcomes</b>	<p style="text-align: center;"><b>Equity</b></p> <p><i>Services reflect fairness in distribution and prioritization of service quality, prices, and deployment of public finance/subsidies</i></p>	<p style="text-align: center;"><b>Safety</b></p> <p><i>Services safeguard customers, workers, and communities from safety and health risks—reaching everyone with safe sanitation</i></p>	<p style="text-align: center;"><b>Sustainability</b></p> <p><i>Services are reliably and continually delivered based on effective management of human, financial and natural resources</i></p>
	<ul style="list-style-type: none"> <li>• <b>EQ-1:</b> % safely managed sanitation in low income areas               <ul style="list-style-type: none"> <li>○ % wastewater (WW) contained</li> <li>○ % supernatant (SN) contained</li> <li>○ % FS contained</li> <li>○ % FS emptied</li> </ul> </li> <li>• <b>EQ-2:</b> Women's participation in sanitation related matters</li> <li>• <b>EQ-3:</b> Gender friendly PT/CT design</li> <li>• <b>EQ-4:</b> % of sanitation workers covered by social security and health insurance</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SF-1:</b> % safely managed sanitation               <ul style="list-style-type: none"> <li>○ % WW contained</li> <li>○ % WW contained delivered to treatment</li> <li>○ % SN contained</li> <li>○ % FS contained</li> <li>○ % FS emptied (contained + not contained)</li> <li>○ % wastewater treated</li> <li>○ % FS treated</li> </ul> </li> <li>• <b>SF-2:</b> Health and safety standards and SOPs exist to protect sanitation workers from occupational hazards, and compliance is monitored</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SS-1:</b> % of treated wastewater that is reused</li> <li>• <b>SS-2:</b> % of treated biosolids that is reused</li> <li>• <b>SS-3:</b> % of utility capital investments covered by budget line/ government transfers</li> <li>• <b>SS-4:</b> % of O&amp;M cost recovered for sanitation infrastructure (STPs/WWTPs, FSTPs, CT/PTs, desludging trucks, etc.)</li> </ul>
<b>System Functions</b>	<p style="text-align: center;"><b>Responsibility</b></p> <p><i>Authority (ies) executes a clear public mandate to ensure safe, equitable, and sustainable sanitation for all.</i></p>	<p style="text-align: center;"><b>Accountability</b></p> <p><i>Authorities' performance against their mandate is monitored and managed with data, transparency and incentives.</i></p>	<p style="text-align: center;"><b>Resource Planning/ Management</b></p> <p><i>Resources – human, financial, natural, assets – are effectively managed to support execution of mandate across time / space.</i></p>
	<ul style="list-style-type: none"> <li>• <b>RS-1:</b> Policy mandate for service delivery covers both sewered and non-sewered sanitation across the entire sanitation service chain               <ul style="list-style-type: none"> <li>○ Mandate has no exclusions</li> <li>○ Mandate is explicitly pro-poor</li> <li>○ Mandate is gender intentional and inclusive of vulnerable groups</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>AC-1:</b> Service authority performance is monitored externally with clear KPIs and targets</li> <li>• <b>AC-2:</b> Performance data is sufficiently collected and reported, representative, and transparent</li> <li>• <b>AC-3:</b> Incentives and/or penalties tied to performance exist for sanitation service authority</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RPM-1:</b> Clear financing framework</li> <li>• <b>RPM-2:</b> Staff are in place and capable to execute mandate</li> <li>• <b>RPM-3:</b> Quality of investment decision-making</li> <li>• <b>RPM-4:</b> Integrated citywide sanitation plan</li> </ul>

<sup>8</sup> The KPIs are based on the list of CWIS indicators, which are more detailed and intended to offer comprehensive insights into a city's progress towards CWIS. This KPI list focuses on a subset of CWIS indicators and seeks to highlight interventions that can contribute to improved outcomes, as most cities are still in early stages of investment maturity. For example, the CWIS indicators measure women's usage of PT/CTs as quantitative outcomes, while the KPI EQ-3 focus on gender friendly PT/CTs as an intermediate outcome that can lead to more women using PT/CTs.

<sup>9</sup> Definitions as per the [SFD Manual](#) i.e., %SN contained = 0.5 \* %Septic tank/ fully lined tank (sealed)/ lined tank with impermeable walls and open bottom connected to a centralized/decentralized combined sewer or foul/separate sewer; %WW contained = %Toilet discharges directly to a centralized/decentralized combined sewer or foul/separate sewer; %FS contained (all conditions when there is 'low risk' of groundwater pollution) = %Toilet discharges directly to soak pit + %Septic tank/ fully lined tank (sealed)/ lined tank with impermeable walls and open bottom connected to soak pit or no outlet + % Lined/ unlined pit, no outlet or overflow + % Pit (all types), never emptied but abandoned when full and covered with soil, no outlet or overflow + %SN contained.



## Dakar Scenario

The table below presents the scenario in Dakar before the CWIS program was initiated, the targets that need to be achieved and the reforms and interventions made to reach these targets. The table seeks to cover key interventions, both those completed over the past few years and those under planning, by all stakeholders that contribute to goals aligned with the CWIS idea. The table is not restricted to interventions that are part of the BMGF funded CWIS program or the CWIS grantee

\*NOTE: Acronyms are available at the end of the section.

		Equity	Safety	Sustainability
Service Outcomes	Starting Scenario (2015)	<ul style="list-style-type: none"> <li>• <b>EQ-2:</b> While ONAS has an employee group for women (National Association of ONAS Women), Gender balance is low within the organization—in 2019, only 24% of all employees were women<sup>10</sup>. As members of the Federation of Women's Associations, community organizations such as women's promotion groups, Tontines and Badienou Gox are actively involved in issues on sanitation access and awareness-raising.</li> <li>• <b>EQ-3:</b> In Pikine and Guédiawaye (LICs), public toilets are not gender friendly. These toilets are often found to be unsanitary and lack access to water and MHM facilities<sup>11</sup>.</li> <li>• <b>EQ-4:</b> Only the employees of ONAS and of the private FSTP operator (~300 total) are covered by social security and health insurance. ONAS contractors (~500) and private workers, who constitute at least 70% of all sanitation workers, have no health insurance/ social security coverage.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SF-1:</b> 31% safely managed sanitation<sup>12</sup>.               <ul style="list-style-type: none"> <li>○ 25% WW contained;</li> <li>○ 20% WW contained delivered to treatment;</li> <li>○ 73% FS contained;</li> <li>○ 63% FS emptied (% contained emptied + % not contained emptied);</li> <li>○ 3% WW treated;</li> <li>○ 18% FS treated.</li> </ul> </li> <li>• <b>SF-2:</b> Health and safety standards and SOPs to protect sanitation workers from occupational hazards do not exist.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SS-1:</b> 4.4% of treated wastewater is reused</li> <li>• <b>SS-2:</b> No data on percentage of treated biosolids that are reused. No standards exist for the reuse of biosolids.</li> <li>• <b>SS-3:</b> 23.8% of utility capital investments is covered by budget line/ government transfers<sup>13</sup></li> <li>• <b>SS-4:</b> No data on percentage of O&amp;M cost recovered for sanitation infrastructure<sup>14</sup></li> </ul>

<sup>10</sup> Annual Report 2019 ONAS.

<sup>11</sup> Connaissance, attitudes et pratiques sur la gestion de l'hygiène menstruelle dans les zones périurbaines de la région de Dakar : cas des départements de Pikine et Guédiawaye (July 2017).

<sup>12</sup> Shit Flow Diagram (2015).

<sup>13</sup> Estimated utilization by December 31, 2019 as listed in ONAS's 2020 budget document.

<sup>14</sup> While ONAS does record data such as income generated from selling FS byproducts, biogas produced, etc., the ONAS budget does not disaggregate certain key costs (e.g. personnel cost) by those associated with infrastructure O&M. Hence the total O&M cost is unclear.

Reforms & Interventions	<ul style="list-style-type: none"> <li>• Within the framework of the Programme de Structuration des Boues de Vidange (PSMBV)<sup>15</sup>, ONAS, with technical partners, has developed a model of toilets designed for flood-prone areas, where the low income population in the Dakar region are concentrated.</li> <li>• As part of the PSMBV, ONAS launched a campaign to promote mechanical emptying by subsidizing the cost to match the price of manual emptying (around \$25).</li> <li>• The Ministry of Water and Sanitation (MEA) launched a plan, in 2016, to create gender awareness and promote gender equality within the ministry, and to mainstream gender into program design, planning, budgeting, and monitoring and evaluation<sup>16</sup>. This also led to the creation of a dedicated Gender Unit to implement these initiatives.</li> <li>• ONAS has set up a certification program to register and formalize informal sanitation workers. The registration is expected to help qualify them for social security and health insurance.</li> </ul>	<ul style="list-style-type: none"> <li>• The Association Sénégalaise de Normalisation (ASN) participated in the development of the ISO 30500 standard which regulates the general performance and safety requirements for the design, testing and sustainability considerations for on-site sanitation systems. The standard has been approved by the ASN, and adopted in Senegal.</li> <li>• Under PSMBV, ONAS set up a guarantee fund with the Banque National de Développement Economique (BNDE) to help formalized sanitation workers avail bank loans for truck purchase and engage in safe mechanical desludging. 29 loans have been financed so far under the initiative for the purchase of second-hand trucks.</li> <li>• ONAS set up a call center to match household desludging demand with operators who can provide mechanical emptying services. The call center management has been delegated to the private sector for operational efficiency.</li> <li>• The Délégation Générale à l'Entreprenariat Rapide (DER)<sup>17</sup> finances desludging operators to help them upgrade the desludging vehicles.</li> <li>• ONAS has updated the performance contract with the private sector operators (DELTA/VICAS/DELVIC Group) in charge of the FSTP to directly supervise the safety of the FS emptying and treatment operations.</li> <li>• ONAS is in discussions with DELVIC to implement scheduled desludging</li> <li>• ONAS has operationalized an additional FSTP with 400 KLD capacity (biggest in the region) and is currently augmenting the treatment</li> </ul>	<ul style="list-style-type: none"> <li>• ONAS plans to upgrade all FS treatment systems to the third generation by 2025 to increase reuse, through technologies such as the omniprocessor and those that produce biogas<sup>18</sup>. Meanwhile, at least 3 distribution networks for the biogas from 3<sup>rd</sup> generation FSTPs are also planned to be installed<sup>19</sup>.</li> <li>• ONAS is developing a marketing plan for the recovery of treated water and sludge and to implement a methane gas reuse program to reduce the electricity bill of wastewater treatment plants<sup>20</sup>.</li> <li>• ONAS has set up a system to supply treated wastewater to market gardeners and to use the water to irrigate public spaces.</li> <li>• The private FSTP operator (DELVIC) has been experimenting with multiple ways of reusing treated FS, at various scales and stages of maturity. The methods tested or under testing include: coal briquettes, compost, biochar, paving stone, fertilizer, production of papaya from the compost and treated water, and a project of market gardening in greenhouses. Discussions are also underway to use treated effluent for the cleaning of the emptying trucks.</li> </ul>
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			<p>capacity of the Cambérène WWTP from 19.2 MLD to 90 MLD.</p> <ul style="list-style-type: none"> <li>• ONAS created a Quality, Safety, Environment Department and set up a risk prevention program to improve operations safety at the FSTP for workers, such as PPE gear usage.</li> </ul>	
	Target Scenario (2021 & beyond)	<ul style="list-style-type: none"> <li>• <b>EQ-2:</b> The MEA's institutional set-up is gender-sensitive, MEA interventions take into account the different needs of men and women equitably, and women have equitable representation in the MEA's decision-making bodies.<sup>21</sup></li> <li>• <b>EQ-3:</b> All public toilets are gender sensitive and cater to women's differential needs.</li> <li>• <b>EQ-4:</b> All sanitation workers are formalized, and eligible for national social security and health insurance schemes.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SF-1:</b> 22.5% WW treated<sup>22</sup></li> <li>• <b>SF-2:</b> FSTP safety standards and operational procedures are in place to protect sanitation workers, and an Emptier's technical and financial manual is developed, which covers topics on occupational safety and health.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>SS-2:</b> 80% of the dried sludge is reused</li> </ul>
System Functions	Starting Scenario (2015)	<b>Responsibility</b>	<b>Accountability</b>	<b>Resource Planning/Management</b>
		<ul style="list-style-type: none"> <li>• <b>RS-1:</b> ONAS has the mandate for both sewered and non-sewered sanitation in the country. <ul style="list-style-type: none"> <li>○ <b>RS-1b:</b> The mandate is not explicitly pro-poor as defined in policy documents.</li> <li>○ <b>RS-1c:</b> Mandate does not explicitly mention the needs of women or other vulnerable groups.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>AC-1:</b> ONAS operates under a performance contract with the MEA and MFB, which is renewed every three years. The contract has KPIs for service coverage and quality. MEA directly sets the tariff through decree.</li> <li>• <b>AC-2:</b> Most sanitation data collected is on sewerage sanitation. Major gaps exist around</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RPM-1:</b> By 2020, the MEA's Sanitation Program (PAGEP) represents 37% of the MEA budget. ONAS translates this sanitation financing framework into a Strategic Development Plan (SDP)<sup>23</sup>. Overall, the level of implementation of the plan for the provision of financial</li> </ul>

<sup>15</sup> The PSMBV (2012-2018) is a BMGF funded program which aimed to develop OSS in Dakar with interventions across all links of the sanitation service chain.

<sup>16</sup> Plan d'institutionnalisation du Genre du Ministère de l'Hydraulique et de l'Assainissement (octobre 2016)

<sup>17</sup> DER is a public organization that facilitates credit access for entrepreneurs. It supports entrepreneurs in obtaining administrative documents necessary for the conduct of business, and works to strengthen inclusion and financial education for all its beneficiaries, with the opening of accounts in financial institutions.

<sup>18</sup> Document de projet de la mise à l'échelle du PSMBV

<sup>19</sup> Document de projet de la mise à l'échelle du PSMBV

<sup>20</sup> Evaluation du contrat de performance (2018)

<sup>21</sup> Plan d'institutionnalisation du Genre du MEA (2016)

<sup>22</sup> The treatment rate is an ONAS performance indicator which is defined as the ratio between the volume of water treated by the WWTPs receiving wastewater and the volume of wastewater collected in the SS network and the sludge depositors that are connected to it. The target for 2021 is 75% (Performance Contract 2019-2021). The target here is arrived at by multiplying the 30% estimated sewer coverage with 75% of their target treatment rate.

<sup>23</sup> Evaluation du contrat de performance (2018)



		<p>NSS data. No MIS in place to aggregate all data collected.</p> <ul style="list-style-type: none"> <li>• <b>AC-3:</b> If performance targets are achieved, ONAS CEO and other staff may be eligible for a performance bonus. There are no penalties for failing to achieve performance targets.</li> </ul>	<p>resources falls short of the scope of the activities to be carried out.</p> <ul style="list-style-type: none"> <li>• <b>RPM-2:</b> ONAS is currently employing more contractors than full time staff.</li> <li>• <b>RPM-3:</b> Investment decisions are made at the MEA level. Due to a lack of cost accounting and structuring, the investment decision does not take into account the results and performance of past investments and is somewhat uncertain.</li> <li>• <b>RPM-4:</b> An integrated city sanitation master plan exists and includes onsite sanitation, offsite sanitation, and storm water management</li> </ul>
Reforms & Interventions	<ul style="list-style-type: none"> <li>• No intervention planned.</li> </ul>	<ul style="list-style-type: none"> <li>• ONAS created the Monitoring and Evaluation Unit, which also developed a set of procedures for data reporting within ONAS.</li> <li>• ONAS has delegated the management of the call center to the private sector, which plans to set up a tracking system for desludging trucks and thus improve the availability of data for this component of the service chain.</li> <li>• ONAS has launched the mobile application "MyONAS" which allows users to make requests for emptying with a GPS system that identifies the nearest emptier. This application has additional functions such as the reporting of broken pipes, complaint registration, and requests for new connection.</li> </ul>	<ul style="list-style-type: none"> <li>• ONAS plans to implement cost accounting, where budget and expenditure would be more detailed and disaggregated by activity.</li> <li>• ONAS is currently advocating for a reform of the sanitation fee to increase the ONAS's salary capacity, which will allow it to employ more permanent staff.</li> <li>• In order to strengthen its actions in the OSS sector, ONAS has created an OSS Directorate (Direction de l'Assainissement Autonome, DAA).</li> </ul>
Target Scenario	<ul style="list-style-type: none"> <li>• <b>RS-1:</b> No change envisioned.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>AC-2:</b> Implementation of an MIS within ONAS.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>RPM-3:</b> Improved conformity between planned and executed investments.</li> </ul>

## Acronyms:

**ASN:** Association Sénégalaise de Normalisation

**BNDE:** Banque Nationale de Développement Economique

**CT/PT:** Community Toilet/ Public Toilet

**DER:** Délégation Générale à l'Entreprenariat Rapide

**FSM:** Fecal Sludge Management

**FS:** Fecal Sludge

**FSTP:** Fecal Sludge Treatment Plant

**LIC:** Low Income Community

**MEA:** Ministère de l'Eau et de l'Assainissement

**MFB :** Ministère des Finances et du Budget

**NSS:** Non-Sewered Sanitation

**ONAS:** Office National d'Assainissement du Sénégal

**OSS:** On-site Sanitation

**PAGEP:** Programme d'Assainissement et de Gestion des Eaux Pluviales

**PPP:** Public-Private Partnership

**PSMBV:** Programme de Structuration des Boues de Vidange

**SPD:** Strategic Development Plan

**SS:** Sewered Sanitation

**STP:** Sewage Treatment Plant

**WWTP:** WasteWater Treatment Plant