



**EXPLORING PROMISING AFRICAN EXAMPLES OF
NON-SEWER AND FECAL SLUDGE MANAGEMENT SYSTEMS
FOR WIDER SHARING AND FUTURE REPLICATION
(AfWA/FABRI Project)**

**SANITATION SCTOR STATUS
IN THE WEST AFRICA SUB-REGION
REPORT**



December 2015

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ACRONYMS

AfWA	: African Ministers Council on Water
AMCOW	: African Ministers Council on Water
CLTS	: Community-Led Total Sanitation
FABRI	: Further Advancing the Blue Revolution Initiative
FSM	: Faecal Sludge management
FSTP	: Faecal Sludge Treatment plant
GDP	: Gross Domestic Product
NGO	: Non Governmental organization
ONAS	: <i>Office National de l'Assainissement du Sénégal</i> (National Sanitation Office of Senegal)
ONEA	: <i>Office National pour l'Eau et l'Assainissement</i> (National Office of Water & Sanitation)
PSSAC	: <i>Politique Sous-Sectorielle de l'Assainissement Collectif du Togo</i> (Sub-Sectorial Policy of Collective Sanitation of Togo)
SONEB	: <i>Société Nationale des Eaux du Bénin</i> (National Water Company of Benin)
STC	: Scientific and Technical Council
USAID	: U.S. Agency for International Development
WOP	: Water Operator Partnership
WWTP	: Waste water Treatment plant

1. CONTEXT

The lack of access to improved drinking water and sanitation is a serious roadblock to economic and social development. Improving the ability of service providers to manage and deliver water and sanitation services effectively is critical to reducing the access gap.

Since 2005, AfWA created a committee dedicated to sanitation and environment in Africa under its Scientific and Technical Council (STC) and in 2008, a task force on fecal sludge management (FSM) was formed within this Committee. The mandate of these groups is to advise African operators on addressing capacity building needs on sanitation and environmental issues in order to improve the sector services.

The Further Advancing the Blue Revolution Initiative (FABRI), funded by the U.S. Agency for International Development (USAID), had been partnering with the African Water Association (AfWA) and the African Ministers Council on Water (AMCOW) to improve the water and sanitation sector services in countries across the continent.

AfWA and FABRI's joint approach has been to "scale-up" by working with large numbers of entities simultaneously for maximum impact and increased representativeness. AfWA is currently implementing a major program with FABRI to reduce non-revenue water in 20 utilities across the continent. With regard to sanitation, it is to work at both the national and local levels to expand the development, monitoring, and use of national plans and strategies while supporting private sector sanitation service provider engagement in implementation.

Thus, through the sanitation component of the FABRI program, a three month survey has been carried out from October to December 2015 to make an assessment of stakeholder status in the sanitation sector in four sub-regions of Sub-Saharan Africa: Eastern, Western, Central, and Southern. Specifically, the objectives were to:

- briefly characterize the sanitation situation, particularly the status of non-sewer sanitation and fecal sludge management, in five to eight countries from each of the four Sub-Saharan African sub-regions, highlighting both opportunities and constraints
- identify and initially explore a number of non-sewer sanitation and FSM cases in Africa that are potential models for replication
- shortlist a number of municipalities, utilities and operators from the sub-regions and categorize them as mentors (best performing) and mentees (underperforming) depending on their sanitation status

The present report aims at sharing the results of the study undertaken in the specific sub-region of **West Africa** and is one of the four sub-regional reports that will be compiled into one single report to present the overall situation of African stakeholders in the sanitation sector. This will contribute to improve AfWA and its partners' knowledge on the sanitation sector in Africa in general, and on the status of FSM and non-sewer sanitation in particular, including the available institutional, financial, operational, human resource capacity and best practices for replication.

Furthermore, by identifying and exploring interesting and creative examples of non-sewer sanitation and FSM cases across Africa, this study will lay the groundwork for future potential peer-to-peer learning partnership programs under AfWA Water Operators' Partnerships Africa Program that will help increase and expand the impact of AfWA on water and sanitation in Africa.

2. OVERVIEW OF THE WATER AND SANITATION SECTOR IN THE WEST AFRICA SUB-REGION

The West Africa sub-region has 102 million people (31.5% of the population) who do not have access to water against more alarming figure of people without sanitation around 244 million (75% of the population)! Several thousand children die daily from diarrheaa. These figures retard development insofar as they annually absorb 5% of the countries GDP (WaterAid & World Vision).

(Source:<http://matinlibre.com/index.php/societe/item/2111-lacces-universel-a-leau-et-lassainissement-dans-nos-communaut-es-realizable>).

This delay in water and sanitation sectors affects also the faecal sludge sector. Indeed, the western African countries suffer practically everyone in this sector, from inadequate legislation, a lack of investment, lack of qualified staff and a poorly organized private sector and insufficiently engaged. Thus, faecal sludge is discharged, mostly, directly in the nature (dumps, shallows, beach, etc.).

3. ASSESSMENT OF SANITATION SECTOR STATUS IN WEST AFRICA

The African Water Association (AfWA), through its Water Operator Partnership (WOP) Africa program, is engaged in promoting peer-to-peer partnerships to improve the performance of operators responsible for providing water and sanitation services to more than 60% of African urban households. The initiative's basic strategy is to seek accelerated improvements through more intense and systematic knowledge sharing, including peer support partnerships between operators.

A key priority action of the program is to use utility performance benchmarking to evaluate performance, rank them, and match the best performing utilities with ones that are underperforming. This effort can only be done through an assessment exercise.

4.1 Objectives

The specific objectives of this study are to:

- assess the sanitation stakeholder status in **Benin, Burkina Faso, Cote d'Ivoire, Gambia, Guinea, Mali, Mauritania, Nigeria, Senegal, Togo**, and particularly the status of non-sewer sanitation and fecal sludge management
- identify and initially explore the most interesting cases of non-sewer sanitation and FSM in **West Africa** that are potential models for replication
- identify potential mentors and mentees in **West Africa** for immediate and future peer-to-peer learning partnership program implementation

4.2 Methodology

The methodology adopted has been as follows:

1. making contact with the person(s) resource(s) who knows the sanitation sector in the country concerned;
2. sending the questionnaire by Email to the informant(s) ;
3. receipt of completed questionnaires via Email ;
4. if necessary, exchanges with the informant(s) via Email, skype or telephone ;
5. Synthesis / exploitation of informations received and report writing.

Countries surveyed in West Africa and informants are presented in the table below.

COUNTRY SURVEYED	KEY INFORMANT(S)
Benin	Salifou CISSE <i>Chief of Mission Technical Assistance - PUGEMU/Cotonou.</i> <i>6csalifou@gmail.com</i>
Burkina Faso	Adama KONE <i>Resident Representative WSA.</i> <i>koneadam11@yahoo.fr</i>
Cote d'Ivoire	André Kouamé N'Guessan <i>Assistant Director of Planning and Development, ONAD.</i> <i>a.nguessan@onad.ci</i>
Gambia	Chaba Saïdy <i>Department of Water Resources).</i> <i>chabasaidy@yahoo.com</i>
Guinea	TRAORE Mory Fodé Seydou <i>Head of Division Sanitation and Waste Valorization.</i> <i>morisfode@yahoo.fr</i>
Mali	Mahamadou Kaya <i>Director of Sanitation, Control of Pollution and Nuisance.</i> <i>kayamahamadou@yahoo.fr</i>
Mauritania	Ahmed Weddady <i>Director of Sanitation.</i> <i>ahmedwd62@gmail.com</i>
Nigeria	Engr. Emmanuel Chukwudi EZE <i>Deputy Director (Water & Sanitation)</i> <i>Federal Ministry of Water Resources, Abuja.</i> <i>emmeze@yahoo.co.uk</i>
Senegal	Pape Soumaré <i>Responsible Qualité and Environment.</i> <i>ousmane.soumare@onas.sn</i>
Togo	LAWANI Waïdi <i>Resident Representative WSA.</i> <i>waidilawani@yahoo.fr</i> TCHONDA Tetouehaki <i>Ing. Génie Sanitaire et Environnement.</i> <i>tchonda@gmail.com</i>

The list of criteria for categorizing mentors, mentees and next round mentees is presented in the table below.

GROUP	CRITERIA
Mentors	<p>Mentors are countries, municipalities, utilities and operators that can demonstrate advanced improvements and best practices in sanitation and who can act as mentors in the WOP Africa program.</p> <p>A selected mentor shall show a strong potential to improving performance in sanitation services through:</p> <ul style="list-style-type: none"> - an existing sanitation strategic plan and operational framework, - an ongoing or planned sanitation project within the next three years, - a past experience of involving in a partnership and good knowledge of WOP Africa program, - an availability of dedicated service and personnel for sanitation services, - an availability of some success stories or show-cases on sanitation that can be share with others, - being a recognized performing utility/municipality on sanitation at national or sub-regional level.
Mentees	<p>Mentees are countries, municipalities, utilities and operators serving at least 200 000 inhabitants and that are ready to make a strong commitment to participate in the WOP Africa program with a high likelihood of success.</p> <p>A selected mentee shall show a strong potential to improving performance in sanitation services through:</p> <ul style="list-style-type: none"> - an existing sanitation strategic plan and operational framework, - an ongoing or planned sanitation project within the next three years, - a past experience of involving in a partnership and good knowledge of WOP Africa program, - an availability of dedicated service and personnel for sanitation services.
Next round mentee	<p>Next round mentee are countries that can start preparing to get involve as mentee in a next round of support from AfWA through the WOP approach.</p> <p>A selected next round mentee shall show a strong potential to improving performance in sanitation services through:</p> <ul style="list-style-type: none"> - an existing sanitation strategic plan and operational framework, - an ongoing or planned sanitation project within the next three years, - an availability of dedicated service and personnel for sanitation services.

4.3 Results

4.3.1 Sanitation sector in specific countries

A. Overall sanitation sector status

The overall sanitation sector status is presented, for each country, in the tables below. The information covers the institutional and Regulatory Arrangements, the organizational arrangement, the infrastructures (asset), the non-sewer and Fecal sludge management, the sanitation indicators, the champions in sanitation and other relevant information.

Overall sanitation sector status	
Benin	
Institutional and Regulatory Arrangement of the Sanitation sector	<p>Institutional arrangement</p> <ul style="list-style-type: none"> • Ministry of Urban Development, Housing and Sanitation • Sanitation General Directorate (since November 2014) <p>Regulatory Arrangement</p> <ul style="list-style-type: none"> • Hygiene code • urban planning code (being validated) • blueprint law on the environment and particular texts arising : <ul style="list-style-type: none"> - discharge standards in the receiving environment - regulation of Collection , evacuation and treating - procedure of environmental impact assessment <p>There is no legal text on faecal sludge management</p>
Organizational arrangement	<p>Faecal sludge management</p> <p>The faecal sludge management is assured by private operators:</p> <ul style="list-style-type: none"> • Collection and transportation are realized by emptying association, • Faecal sludge dumping site is none developed. It belongs to a private operator who is in charge of the management. The dumping is paid to the owner. <p>Managing the collective waste water treatment</p> <p>In Parakou, the sewer system and WWTP are managed by Municipalities.</p> <p>In Cotonou, it is the residents' associations who are responsible for the management of the sewer system (with extra intervention by the municipality), while the lagoon WWTP is managed by an NGO under a project of the University with the collaboration of the municipality.</p> <p>The institutional framework being put in place plans to entrust :</p> <ul style="list-style-type: none"> • Faecal sludge Collection and transportation to private sector, with better organization of the emptiers Association; • Faecal sludge treatment and wastewater management (sewage treatment plant and network) to SONEB which is a state company.

Overall sanitation sector status Benin	
Infrastructures (asset)	<p>Sewer network</p> <ul style="list-style-type: none"> • 2.7 km in Cotonou and 1.3 km in Parakou <p>Treatment plant wastewater</p> <ul style="list-style-type: none"> • 3 private WWTP in Cotonou (activated sludge), of which 1 is broken down. • 1 lagoon to Calavi • 1 lagoon to Parakou <p>Faecal sludge dumping sites</p> <ul style="list-style-type: none"> • 3 FSTP, 2 of which have never worked (Parakou and Porto-Novo) • 3 unformal/irreguler dumping dumping site in Parakou • Agricultural lands (on request) <p>Number of registered vacuum/emptying trucks</p> <ul style="list-style-type: none"> • National level : 77 truck • Abomey, Cotonou, Sèmè-Podji and Porto-Novo : 74 truck • Parakou : 3 trucks <p>Number of listed emptying companies</p> <ul style="list-style-type: none"> • 50 formal emptying companies • 10 informal emptying companies
Non-Sewer and Fecal sludge management	<ul style="list-style-type: none"> • No regulation of faecal sludge management. • No control of faecal sludge Collection , transport and desposal ensures by private operators.
Sanitation indicators	<ul style="list-style-type: none"> • Coverage rate of collective sanitation : <1% • Onsite sanitation coverage rate : 40% • Volume of waste water collected : 50 000 m3 / year • Volume of wastewater treated : 20 000 m3 / year • Quantity of faecal sludge collected : 170 000 m3 / year • Average number of trips : 22 000 troips / year. • Average price of emptying trip : 35 000 FCFA 44 500 CFA
Champion municipality/ utility/ operator in sanitation	In Benin, there is any reference city for faecal sludge management

Overall sanitation sector status	
Benin	
Other relevant information	<p>Emptyiers organizational level There is local organizations of emptyiers in Cotonou and Parakou.</p> <p>Towns having begun or planned a faecal sludge management project</p> <ul style="list-style-type: none"> • <u>Cotonou and Abomey-East</u>: a faisability study for faecal sludge dumping site construction has just ended. The funding is is available and it is assured by the KFW - It remains to finalize the land acquisition. • <u>Seme and Cotonou Podji West</u>: rehabilitation and extension Study of the unique working faecal sludge dumping site is in progress. • <u>Parakou</u> : The NGO <i>DCAM Bethesda</i> plans to develop a desludging site for the city. <p>Companies have begun or planned a faecal sludge management project NONE.</p> <p>Best positioned cities to receive a faecal sludge management system</p> <ul style="list-style-type: none"> • Conurbation of Cotonou (Cotonou+ Abomey + Sèmè-Podji +Ouidah + Porto-Novo). <i>The unique dumping site in the area is largely undersized for the population of the conurbation of Cotonou which rises 2 million inhabitants. In addition, the site is too far away homes and is being engulfed by the sea. Finally, there is real potential agricultural reuse of sludge in this area.</i> <p>General informations The faecal sludge management is currently entrusted to the private sector, without any control, with total disruption. In fact, there is no faecal sludge management policy. Institutional organization is underway, through the young General Directorate of Sanitation (implementation in november 2014). Eventually, dumping sites will be managed by SONEB (state enterprise), directly or via concession contracts. Furthermore the General Directorate of Sanitation and SONEB ensure better together organizer of the Association of emptyiers that will always be in charge of Collection and transportation of faecal sludge.</p>

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| <b>Overall sanitation sector status<br/>Burkina Faso</b>                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Institutional and Regulatory Arrangement of the Sanitation sector</b> | <p><b>Institutional arrangement</b></p> <ul style="list-style-type: none"> <li>• Ministry of Agriculture, Water Resources, <b>Sanitation</b> and Food Security</li> <li>• National Office for Water and Sanitation (french acronym : ONEA)</li> <li>• Department of the Environment and Sustainable Development in the Municipality of Ouagadougou</li> </ul> <p><b>Regulatory Arrangement</b></p> <ul style="list-style-type: none"> <li>• Hygiene Code</li> <li>• Environmental Code</li> </ul> <p>There is no legal text on faecal sludge.</p>                                                                                                                                                                                                                                        |
| <b>Organizational arrangement</b>                                        | <p><b>Faecal sludge management</b></p> <ul style="list-style-type: none"> <li>• Private operators organized in Association of emptiers (which grouped mechanical and manual emptiers) ensures Collection and transport of faecal sludge</li> <li>• Centralized state management (ONEA)</li> </ul> <p><b>waste water management</b></p> <ul style="list-style-type: none"> <li>• Centralized state management (ONEA)</li> </ul>                                                                                                                                                                                                                                                                                                                                                           |
| <b>Infrastructures (asset)</b>                                           | <p><b>Sewer Networks</b></p> <ul style="list-style-type: none"> <li>• located at the industrielle area of Kossodo in Ouagadougou</li> </ul> <p><b>Treatment plant wastewater</b></p> <ul style="list-style-type: none"> <li>• 1 in Ouagadougou (Lagoon)</li> </ul> <p><b>Faecal sludge dumping sites</b></p> <ul style="list-style-type: none"> <li>• 1 FSTP in Ouagadougou: this treatment plant receives 30 m3 of faecal sludge per day</li> <li>• 7 unformal/irreguler dumping dumping site in Ouagadougou</li> </ul> <p><b>Number of registered vacuum trucks</b></p> <ul style="list-style-type: none"> <li>• 48 trucks in Ouagadougou</li> </ul> <p><b>Number of listed emptying companies</b></p> <ul style="list-style-type: none"> <li>• 24 companies in Ouagadougou</li> </ul> |
| <b>Non-Sewer and Faecal sludge management</b>                            | <ul style="list-style-type: none"> <li>• No regulation on faecal sludge management.</li> <li>• No control for the private sector that ensures faecal sludge Collection and transport.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| <b>Overall sanitation sector status<br/>Burkina Faso</b>      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sanitation indicators</b>                                  | <ul style="list-style-type: none"> <li>• Coverage rate of collective sanitation : &lt;1%</li> <li>• Onsite sanitation coverage rate : 9,6%</li> <li>• Volume of waste water collected : 841 325 m3 / year</li> <li>• Volume of wastewater treated : 841 325 m3 / year</li> <li>• Quantity of faecal sludge collected : 613 987 m3 / year</li> <li>• Average number of trips : 1 095 voyages / year</li> <li>• Average price of emptying trip : 8 000 - 20 000 FCFA in Ouagadougou</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Champion municipality/ utility/ operator in sanitation</b> | In Burkina, there is no reference city for faecal sludge management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Other relevant information</b>                             | <p><b>Organizational level of emptiers</b><br/>The mechanical emptying association exists and is officially recognized since 2005. The manual emptiers association is not yet organized</p> <p><b>Cities have begun or planned a faecal sludge management project</b></p> <ul style="list-style-type: none"> <li>• <u>Ouagadougou</u>: A faecal sludge treatment plant is being constructed. It is financed by Bill and Melinda Gates foundation. This project includes energy valorisation by anaerobic digestion.</li> </ul> <p><b>Companies have begun or planned a faecal sludge management project</b></p> <p>NONE.</p> <p><b>Best positioned cities to receive a faecal sludge management system</b></p> <ol style="list-style-type: none"> <li>1. Ouagadougou</li> <li>2. Bobo Dioulasso</li> <li>3. Fada Ngourma</li> </ol> <p><i>The average purchasing power in these cities is more than in other urban areas of the country and an important part of the population has access to onsite sanitation.</i></p> |



| <b>Overall sanitation sector status<br/>Ivory Coast</b>                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Institutional and Regulatory Arrangement of the Sanitation sector</b> | <p><b>Institutional arrangement</b></p> <ul style="list-style-type: none"> <li>• Ministry of Construction, Housing, <b>Sanitation</b> and Urban Development</li> <li>• National Office of Sanitation and Drainage (french acronym : ONAD)</li> </ul> <p><b>Regulatory Arrangement</b></p> <ul style="list-style-type: none"> <li>• Environmental Code</li> <li>• Regulation of sanitation services</li> <li>• Decree establishing the approval for faecal sludge Collection , transportation and dumping</li> <li>• Legal texts on faecal sludge management existe</li> </ul>                                                                                                                                                                                                                                                                                                                                                |
| <b>Organizational arrangement</b>                                        | <p><b>Faecal sludge management</b></p> <p>The faecal sludge sector is managed by the private sector</p> <ul style="list-style-type: none"> <li>• Collection and transportation of faecal sludge is done by private operators,</li> <li>• FSTP are directly managed by ONAD (National utility).</li> </ul> <p><b>Managing the collective sanitation/waste water treatment</b></p> <ul style="list-style-type: none"> <li>• The private sector manages the sewer system and treatment plants on behalf of the national utility (contracting).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Infrastructures (asset)</b>                                           | <p><b>Sewer Networks</b></p> <ul style="list-style-type: none"> <li>• 1 050 km in Abidjan, Yamoussoukro, Bouaké, San Pedro, Dimbokro</li> </ul> <p><b>Treatment plant wastewater</b></p> <ul style="list-style-type: none"> <li>• 5 WWTP in Yamoussoukro including 4 activated sludge WWTP and 1 filter drainage bed WWTP</li> </ul> <p><b>faecal sludge dumping sites</b></p> <ul style="list-style-type: none"> <li>• 4 FSTP</li> <li>• 32 unformal/irreguler dumping sites</li> </ul> <p><b>Number of registered vacuum trucks</b></p> <ul style="list-style-type: none"> <li>• national level : 104 trucks</li> <li>• City 1: Abidjan : 80 trucks</li> <li>• City2: Bouaké : 9 trucks</li> <li>• City 3: Yamoussoukro : 8 trucks</li> </ul> <p><b>Number of listed emptying companies</b></p> <ul style="list-style-type: none"> <li>• 17 formal emptying companies</li> <li>• 87 informal emptying companies</li> </ul> |
| <b>Non-Sewer and Faecal sludge management</b>                            | <ul style="list-style-type: none"> <li>• There is a regulation for faecal sludge management at national level</li> <li>• Regulation of sanitation services</li> <li>• Decree establishing the approval for faecal sludge Collection , transportation and dumping</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| <b>Overall sanitation sector status<br/>Ivory Coast</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sanitation indicators</b>                                  | <ul style="list-style-type: none"> <li>• Coverage rate for collective sanitation : 20%</li> <li>• Coverage rate for onsite sanitation : No information</li> <li>• Volume of wastewater collected : 60 000 000 m<sup>3</sup> / year</li> <li>• Volume of treated waste water : 30 000 000 m<sup>3</sup> / year</li> <li>• Amount of faecal sludge collected : 380 000 m<sup>3</sup> / year</li> <li>• Average number of trips (travel) : 40 000 trips / year.</li> <li>• Average price of emptying trip : 15 000 FCFA</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Champion municipality/ utility/ operator in sanitation</b> | <ul style="list-style-type: none"> <li>• In Ivory Coast, there is no reference city for faecal sludge management</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Other relevant information</b>                             | <p><b>Organizational level of emptiers</b><br/>There is a local emptiers organization in Abidjan.</p> <p><b>Cities have begun or planned a faecal sludge management project</b></p> <ul style="list-style-type: none"> <li>• <u>Abidjan, Yamoussoukro, Bouaké, Korhogo and San-Pedro</u>: current project for the identification and organization of actors, strengthening their capacity and construction of FSTP.</li> </ul> <p><b>Companies have begun or planned a faecal sludge management project</b><br/>NONE.</p> <p><b>Best positioned cities to receive a faecal sludge management system</b></p> <ol style="list-style-type: none"> <li>1. Yamoussoukro</li> <li>2. Bouake</li> <li>3. San Pedro</li> </ol> <p><i>In these cities, the rate of access to onsite sanitation and the average standard of living are high compared to other cities. Furthermore, significant possibilities of utilization of by-products are identified.</i></p> <p><b>General informations</b><br/>The faecal sludge management policy initiated remarkable momentum carried by an important institutional and regulatory support.</p> |



| <b>Overall sanitation sector status</b>                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Gambia</b>                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Institutional and Regulatory Arrangement of the Sanitation sector</b> | <p><b>Institutional arrangement</b></p> <ul style="list-style-type: none"> <li>• There is no ministry dedicated to Sanitation</li> </ul> <p>The sanitation component is fragmented as the Ministry of Health &amp; Social Welfare is implementing the soft ware of sanitation, while the department of Community Development is implementing the hard ware, which is VIP latrine constructions and slabs, and National Environment Agency (NEA) is implementing controlling the liquid waste and solid waste management component.</p> <p><b>Regulatory Arrangement</b></p> <ul style="list-style-type: none"> <li>• Environmental Code</li> </ul> <p>There is no legal text on faecal sludge.</p> |
| <b>Organizational arrangement</b>                                        | <p><b>Fecal sludge management</b></p> <ul style="list-style-type: none"> <li>• Collection and transportation : private enterprises</li> <li>• FSTP : No information</li> </ul> <p><b>Wastewater/sewage management</b></p> <ul style="list-style-type: none"> <li>• sewer system : Centralized state management</li> <li>• Treatment plant : Centralized state management</li> </ul>                                                                                                                                                                                                                                                                                                                |
| <b>Infrastructures (asset)</b>                                           | <p><b>Sewer Networks</b></p> <ul style="list-style-type: none"> <li>• 1 km in the Greater Banjul Area</li> </ul> <p><b>Wastewater Treatment plant</b></p> <ul style="list-style-type: none"> <li>• 1 treatment plant</li> </ul> <p><b>Faecal sludge dumping sites</b></p> <ul style="list-style-type: none"> <li>• 10 FSTP</li> <li>• 20 unformal/irreguler dumping dumping sites</li> </ul> <p><b>Number of registered vacuum trucks</b></p> <ul style="list-style-type: none"> <li>• National level : 20 trucks</li> </ul> <p><b>Number of listed emptying companies</b></p> <p>No information</p>                                                                                               |
| <b>Non-Sewer and Fecal sludge management</b>                             | <ul style="list-style-type: none"> <li>• No regulation of faecal sludge management</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Sanitation indicators</b>                                             | <p>Coverage rate for collective sanitation : &lt;1%</p> <p>Sanitation coverage rate of collective : 59%</p> <p>Coverage rate of non collective Sanitation : 41%</p> <p>Annual volume of waste water Collected : 55%</p> <p>Annual volume of waste water Treated : 20%</p> <p>Annual quantity of sludge Collected : No information</p> <p>Annual average number of emptying (number of trips) : 1 500</p> <p>Average price of emptying trip : \$ 150 (75 000 FCFA)</p>                                                                                                                                                                                                                              |

| <b>Overall sanitation sector status</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Gambia</b>                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Champion municipality/ utility/ operator in sanitation</b> | In Gambia, there is no reference city for faecal sludge management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Other relevant information</b>                             | <p><b>Emptiers Organizational level</b><br/>In Gambia, there does not exist faecal sludge organization</p> <p><b>Cities have begun or planned a faecal sludge management project</b><br/>NONE</p> <p><b>Companies have begun or planned a faecal sludge management project</b><br/>NONE.</p> <p><b>Best positioned cities to receive a faecal sludge management system</b></p> <ol style="list-style-type: none"> <li>1. Banjul</li> <li>2. Serekunda</li> <li>3. Brikama</li> </ol> <p><i>In these cities, there are many people who will be willing to pay reasonable prizes for Collection / transportation.</i></p> |

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| Overall sanitation sector status
Guinea | |
|--|---|
| Institutional and Regulatory Arrangement of the Sanitation sector | <p>Institutional arrangement</p> <ul style="list-style-type: none"> • There is no ministry dedicated to Sanitation <p>The sanitation component is fragmented between Ministry Delegate for Environment, Water and Forests (National Directorate of Sanitation and Living Environment) that develops and oversees the implementation government policy in the sanitation sector</p> <p>The Ministry of Health, Public Health and the Ministry of Town Planning and Housing are also involved in the sub-sector.</p> <p>Regulatory Agreement</p> <ul style="list-style-type: none"> • Code of Hygiene • Town Planning Code • Environmental Code <p>There is no legal text for faecal sludge.</p> |
| Organizational arrangement | <p>Faecal sludge management</p> <ul style="list-style-type: none"> • Collection and transport: private companies • Dumping sites : private enterprises through service contract <p>Managing the collective sanitation/waste water treatment</p> <ul style="list-style-type: none"> • Sewer Networks : Private enterprises through service contract • Treatment plant : private enterprises through service contract |
| Infrastructures (asset) | <p>Sewer Networks</p> <ul style="list-style-type: none"> • 75 km in Conakry, Kamsar, Sangarédi, Fria and Beyla. <p>Treatment plant wastewater</p> <ul style="list-style-type: none"> • 3 lagoons <p>Unloading sites faecal sludge</p> <ul style="list-style-type: none"> • 2 FSTP • unformal/irreguler dumping dumping sites : undetermined number • Rejection is on the beach <p>Number of registered vacuum trucks</p> <ul style="list-style-type: none"> • Conakry : 25 • Kamsar : 3 • Sangaredi : 2 <p>Number of listed emptying companies</p> <ul style="list-style-type: none"> • 5 formal entrepise • Informal enterprises: no number available |
| Non-Sewer and Fecal sludge management | <ul style="list-style-type: none"> • No regulation faecal sludge management. |

| Overall sanitation sector status | |
|---|--|
| Guinea | |
| Sanitation indicators | <ul style="list-style-type: none"> • Taux de couverture en assainissement collectif : 67% • Coverage rate of collective Sanitation : 59% • Coverage rate of non collective Sanitation : 41% • Annual volume of waste water collected : No information • Annual volume of waste water treated : No information • Annual quantity of sludge Collected : No information • Annual average number of emptying (number of trips) : No information • Average price of emptying trip : 600 000 GNF (48 000 FCFA) |
| Champion municipality/ utility/ operator in sanitation | <ul style="list-style-type: none"> • In Guinea, there is no reference city for faecal sludge management. • <i>Poubelle de Conakry</i> is a reference company in the faecal sludge management based in Conakry. |
| Other relevant information | <p>Faecal sludge Organizational level</p> <ul style="list-style-type: none"> • In Guinea, there is an organization of emptiers at Conakry. <p>Cities have begun or planned a faecal sludge management project</p> <ul style="list-style-type: none"> • Conakry, Kamsar, Sangaredi, Wed and Beyla
<i>These are FSTP construction projects</i> <p>Companies have begun or planned a faecal sludge management project</p> <ul style="list-style-type: none"> • Poubelle de Conakry
<i>The company plans to build unloading points arranged faecal sludge</i> <p>Best positioned cities to receive a faecal sludge management system</p> <ol style="list-style-type: none"> 1. Conakry 2. Kankan 3. N'Zérékoré <p><i>These is 3 cities, there is a strong willingness to pay the change service. In particular N'Zérékoré is an agricultural town where agricultural valorization of faecal sludge byproduct will be easy.</i></p> |



| Overall sanitation sector status | |
|--|--|
| Mali | |
| Institutional and Regulatory Arrangement of the Sanitation sector | <p>Institutional arrangement</p> <ul style="list-style-type: none"> • Minister of Environment and Sanitation • National Directorate of Sanitation, Pollution and Nuisance Control <p>Regulatory Agreement</p> <p>There is no legal text for faecal sludge, but policy documents exist:</p> <ul style="list-style-type: none"> • National Policy of Environment Protection • National Sanitation Policy |
| Organizational arrangement | <p>Management of faecal sludge</p> <ul style="list-style-type: none"> • Collection / transportation : Private companies • FSTP : Private companies <p>Managing the collective sanitation/wastewater treatment</p> <ul style="list-style-type: none"> • Sewer : Centralized state management • Wastewater treatment plant : Centralized state management |
| Infrastructures (asset) | <p>Sewer Networks</p> <ul style="list-style-type: none"> • 67 km in Bamako, Mopti and Timbuktu <p>Wastewater treatment plant</p> <ul style="list-style-type: none"> • 3 active sludge • 3 lagoons <p>Faecal sludge dumping sites</p> <ul style="list-style-type: none"> • 1 FSTP • 20 unformal/irregular dumping sites <p>Number of registered vacuum trucks identified</p> <p>No information available</p> <p>Number of listed emptying companies</p> <p>No information available</p> |
| Non-Sewer and Fecal sludge management | <ul style="list-style-type: none"> • Any regulation of the faecal sludge management sector |
| Sanitation indicators | <ul style="list-style-type: none"> • Coverage rate for collective sanitation : <1% • Coverage rate for individual sanitation : No information • Volume of the collected wastewater : No information • Treated waste water volume : No information • Amount of collected septage : No information • Annual average number of emptying (number of trips) : No information • Average price of emptying trip : 35 000 - 50 000 FCFA |

| Overall sanitation sector status | |
|---|---|
| Mali | |
| Champion municipality/ utility/ operator in sanitation | In Mali, there is no reference city for faecal sludge management |
| Other relevant information | <p>Organizational level of emptiers
There is a local organization of emptiers in Bamako, Segou and Mopti.</p> <p>Cities have begun or planned a faecal sludge management project
Towns of Djénné, Kita, Segou and Sikasso, and the town of Bamako 1 and 2 have organisation project on the "sludge" sector and the construction of developed dumping sites.</p> <p>Companies have begun or planned a faecal sludge management project
NONE.</p> <p>Best positioned cities to receive a faecal sludge management system</p> <ol style="list-style-type: none"> 1. Bamako 2. Ségou 3. Mopti <p><i>The population is highly urbanized and demand for emptying service is strong in fact that onsite sanitation dominates. In addition, the active private operators are organized through association.</i></p> <p><i>In Mopti, The demand for emptying service is high because of the high water table. A private garbage collectors association is present.</i></p> <p>General informations
The main constraints of faecal sludge sector in Mali are related to the following:</p> <ul style="list-style-type: none"> - The informal nature of most of mechanical emptying operators ; - the old vacuum truck park ; - low coverage of the territory in treatment facilities and recovery of by-products ; - high cost of collectte / transport sludge that supports manual emptiers, - lack of financing assets for private operators in the sector. <p>Faecal sludge management policy is virtually non-existent.
There is no legal text specific for faecal sludge.</p> |



| Overall sanitation sector status
Mauritania | |
|--|---|
| Institutional and Regulatory Arrangement of the Sanitation sector | <p>Institutional arrangement</p> <ul style="list-style-type: none"> • Ministry of Water and Sanitation • National Directorate of Sanitation • National Office of Sanitation <p>Regulatory Arrangement</p> <ul style="list-style-type: none"> • NONE |
| Organizational arrangement | <p>Management of faecal sludge</p> <ul style="list-style-type: none"> • Collection and transportation are provided by private emptiers • Dumping is done in the nature, without any control. <p>Managing the collective waste water treatment</p> <ul style="list-style-type: none"> • Both sewage network and treatment plant in Nouakchott are managed in-house by the national utility. |
| Infrastructures (asset) | <p>Sewer Networks</p> <ul style="list-style-type: none"> • 38 km Nouakchott <p>wastewater Treatment plant</p> <ul style="list-style-type: none"> • 1 WWTP in Nouakchott (activated sludge) <p>faecal sludge dumping sites</p> <ul style="list-style-type: none"> • 4 unformal/irregular sites in Nouakchott <p>Number of registered vacuum trucks</p> <ul style="list-style-type: none"> • On a national level : 82 truck • City 1: Nouakchott : 75 truck • City 2: Rosso : 4 trucks • City 3: Kiffa : 3 trucks <p>Number of listed emptying companies</p> <ul style="list-style-type: none"> • No formal emptying companies • 30 informal emptying companies |
| Non-Sewer and Fecal sludge management | <ul style="list-style-type: none"> • Any regulation of faecal sludge management. • Any control of private sector that ensures Collection and transportation of faecal sludge management as well as dumping sites management. |
| Sanitation indicators | <ul style="list-style-type: none"> • Coverage rate for collective sanitation : 2% • Coverage rate for individual sanitation : 40% • Volume of wastewater collected : 21 600 m³ / year • Treated wastewater volume : 10 800 m³ / year • Amount of faecal sludge collected : 400 000 m³ / year • Average number of trips (travel) : 40 000 trips / year • Average price of emptying trip : 15 000 UM (~ 30 000 FCFA) |

| Overall sanitation sector status
Mauritania | |
|---|---|
| Champion municipality/ utility/ operator in sanitation | In Mauritania, there is no reference city for faecal sludge management |
| Other relevant information | <p>Emptiers Organizational level
NONE.</p> <p>Cities have begun or planned a faecal sludge management project
NONE</p> <p>Companies have begun or planned a faecal sludge management project
NONE.</p> <p>Best positioned cities to receive a faecal sludge management system</p> <ol style="list-style-type: none"> 1. Nouakchott. <ul style="list-style-type: none"> - <i>Strong demographics</i> - <i>High frequency of pits</i> - <i>Higher standard of living than in other cities</i> 2. Rosso. <ul style="list-style-type: none"> - <i>High frequency emptying because of the web pits</i> - <i>Valorization possibility of sludge</i> 3. Kiffa. <ul style="list-style-type: none"> - <i>Strong demographic growth</i> - <i>Possibility of valoris ation sludge</i> |



| Overall sanitation sector status
Nigeria | |
|--|---|
| Institutional and Regulatory Arrangement of the Sanitation sector | <p>Institutional arrangement</p> <ul style="list-style-type: none"> • There is no ministry dedicated to Sanitation. The Water Resources Department leads the sanitation sector. <p>Regulatory Arrangement</p> <ul style="list-style-type: none"> • There is no legal text on faecal sludge, but rather a National policy framework for Water Supply and Sanitation. |
| Organizational arrangement | <p>Gestion des boues de vidange</p> <ul style="list-style-type: none"> • The private operator provides faecal sludge collection and transport. • Government and private operators manage the faecal sludge dumping sites. <p>Sewer and wastewater treatment plants' management</p> <ul style="list-style-type: none"> • The Government manages the sewer system. • The wastewater treatment plants are run by the government or private operators. |
| Infrastructures (asset) | <p>Sewer Networks</p> <ul style="list-style-type: none"> • A Sewer Networks exist but there is any informations about the length. <p>Wastewater treatment plants</p> <ul style="list-style-type: none"> • No information <p>Faecal sludge dumping sites</p> <ul style="list-style-type: none"> • No information <p>Number of registered vacuum trucks</p> <ul style="list-style-type: none"> • No information <p>Number of emptying companies</p> <ul style="list-style-type: none"> • No information |
| Non-Sewer and Fecal sludge management | <ul style="list-style-type: none"> • No regulation of faecal sludge management. |
| Sanitation indicators | <ul style="list-style-type: none"> • Coverage rate for collective sanitation : No information • Coverage rate for individual sanitation : No information • Volume of wastewater collected : No information • Treated wastewater volume : No information • Amount of faecal sludge collected : No information • Average number of trips (travel) : No information • Average price of emptying trip : 24 000 FCFA |
| Champion municipality/ utility/ operator in sanitation | <ul style="list-style-type: none"> • In Nigeria, there is no reference city for faecal sludge management. |

| Overall sanitation sector status
Nigeria | |
|---|--|
| Other relevant information | <p>Organizational level of emptiers
There is a local organization of emptiers in Lagos and Abuja.</p> <p>Cities have begun or planned a faecal sludge management project
No information</p> <p>Cities have begun or planned a faecal sludge management project
No information</p> <p>Best positioned cities to receive a faecal sludge management system</p> <ol style="list-style-type: none"> 1. Lagos 2. Abuja 3. Enugu <p><i>There is a strong demand in these cities and an ability to pay for the emptying service for a large segment of the population.</i></p> <p>Best positioned cities to receive a faecal sludge management system</p> <ol style="list-style-type: none"> 4. Lagos 5. Abuja 6. Enugu <p><i>There is a strong demand in these cities</i></p> |

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| <b>Overall sanitation sector status<br/>Senegal</b>                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Institutional and Regulatory Arrangement of the Sanitation sector</b> | <p><b>Institutional arrangement</b></p> <ul style="list-style-type: none"> <li>• Ministry of Water and Sanitation</li> <li>• Directorate of Sanitation</li> <li>• Office Nationale sanitation office of Senegal (ONAS)/Sanitation, national utility</li> </ul> <p><b>Regulatory Arrangement</b></p> <ul style="list-style-type: none"> <li>• Sanitation Code (which deals with faecal sludge management )</li> <li>• Environmental code</li> <li>• standard related to wastewater discharge in the natural</li> <li>• Hygiene Code</li> <li>• urban planning</li> <li>• Decree for certifying private emptying companies.(in progress)</li> </ul> <p>There are different legal texts related to faecal sludge.</p>                                                                                                                                                                                                                                      |
| <b>Organizational arrangement</b>                                        | <p><b>Faecal sludge management</b></p> <ul style="list-style-type: none"> <li>• The private operators provide faecal sludge collection and transport.</li> <li>• The national utility (ONAS) is responsible for all faecal sludge dumping site<br/>However, a process was initiated since 2013 to delegate the faecal sludge treatment plants to private operators. Currently, three faecal sludge treatment plants in Dakar are managed by a private company (<i>DELVIC Sanitation Initiatives</i>).</li> </ul> <p><b>Sewer and wastewater treatment plants' management</b></p> <ul style="list-style-type: none"> <li>• The management of sewer systems is the responsibility of the national utility (ONAS)<br/>However, sewer systems maintenance (pipelines and pumping stations) is delegated to private operators in two cities (Dakar and Saly).</li> </ul>                                                                                     |
| <b>Infrastructures (asset)</b>                                           | <p><b>Sewer networks</b></p> <ul style="list-style-type: none"> <li>• Total of 1641 Km in Dakar, Rufisque, Thiès, Saly, à Mbour, Richard-Toll, Louga, Saint-Louis, Kaolack et Diourbel.</li> </ul> <p><b>Wastewater treatment plant</b></p> <ul style="list-style-type: none"> <li>• 4 Wastewater treatment plant, type activated sludge</li> <li>• 7 Wastewater treatment plant, type lagoon</li> </ul> <p><b>Faecal sludge dumping sites</b></p> <ul style="list-style-type: none"> <li>• 7 faecal sludge treatment plants</li> <li>• informal/irregular dumping sites: any information</li> </ul> <p><b>Number of registered vacuum trucks</b></p> <ul style="list-style-type: none"> <li>• 135 trucks in Dakar</li> <li>• 45 trucks in Touba</li> <li>• 25 in Mbour</li> </ul> <p><b>Number of emptying companies</b></p> <ul style="list-style-type: none"> <li>• 5 formal emptying companies</li> <li>• 30 informal emptying companies</li> </ul> |

| <b>Overall sanitation sector status<br/>Senegal</b>           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Non-Sewer and Fecal sludge management</b>                  | <ul style="list-style-type: none"> <li>• There is specific regulation related to faecal sludge management.</li> <li>• private sector that ensures collection and transport of faecal sludge around the country and FSTP management in Dakar is controlled by the national utility.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Sanitation indicators</b>                                  | <ul style="list-style-type: none"> <li>• Coverage rate for collective sanitation : 27%</li> <li>• Coverage rate for individual sanitation : 67%</li> <li>• Volume of wastewater collected : 15 350 000 m3/an</li> <li>• Treated wastewater volume : 12 349 098 m3/an</li> <li>• Amount of faecal sludge collected : 450 000 m3/an</li> <li>• Average number of trips (travel) : 50 000 voyages /an</li> <li>• Average price of emptying trip : 23 000 FCFA</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Champion municipality/ utility/ operator in sanitation</b> | <p>• Au Sénégal, il y a trois villes de référence en matière de gestion des boues de vidange: Dakar, Pikine et Rufisque. Dans ces villes, les stations de traitement de boues de vidange sont gérées par une entreprise privée (Delvic Sanitation Initiatives). Cette délégation de l'exploitation des STBV de Dakar au secteur privé s'inscrit dans un programme initié par l'ONAS pour le développement du secteur des boues de vidange et appuyé par la Fondation Bill &amp; Melinda Gates. Cette initiative comporte, en plus de la délégation de l'exploitation des STBV au secteur privé:</p> <ul style="list-style-type: none"> <li>- la promotion de la vidange mécanique,</li> <li>- la certification des entreprises de vidange par la délivrance de licences (en cours),</li> <li>- la mise en place d'un fonds de garantie pour la vidange destiné aux vidangeurs pour l'achat de pièces de rechange ou le renouvellement des camions,</li> <li>- la construction d'une nouvelle station de traitement des boues de vidange dans la banlieue dakaroise,</li> <li>- la création de valeur ajoutée dans le secteur des boues de vidange à travers <b>l'Omni-Processor</b>, un équipement innovant destiné à produire de la valeur à partir des boues de vidange. Cet équipement est actuellement à Dakar en phase de tests <i>in situ</i>.</li> </ul> <p>Senegal has three reference cities on faecal sludge management: Dakar, Pikine, and Rufisque. In these towns, faecal sludge treatment plants are managed by a private company (Delvic Sanitation Initiatives). This delegation of FSTP to is an initiative of ONAS supported by the Bill &amp; Melinda Gates Foundation and the main goal is the development of onsite sanitation sector. In addition to the delegation of FSTP, this initiative includes :</p> <ul style="list-style-type: none"> <li>- promotion of mechanical emptying ;</li> <li>- certification of emptying companies by license deliverance (ongoing) ;</li> <li>- establishment of guarantee fund for imptying companies intended to purchase spare parts or renewal of trucks ;</li> <li>- construction of new faecal sludge treatment plant in Dakar peri urban areas ;</li> <li>- Creation of added value in the faecal sludge value chaine through <b>the Omni-Processor</b>, an innovative machine intended to produce value from faecal sludge. This equipment is currently tested in Dakar.</li> </ul> |

| <b>Overall sanitation sector status<br/>Senegal</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Other relevant information</b>                   | <p><b>Emptiers organizational level</b></p> <p>There is a national organization of emptiers: Sanitation stakeholders Association of Senegal.</p> <p><b>Cities have begun or planned a faecal sludge management project</b></p> <ul style="list-style-type: none"> <li>• Dakar<br/><i>ONAS has implemented a faecal sludge market structuring pilot program since 2011, with support from the Bill &amp; Melinda Gates Foundation and the scal up at national level is planne by 2017.</i></li> <li>• In November 2015, the National utility has launched an ambitious program of construction of faecal sludge treatment plants in eight cities: Touba, Fatick, Saint-Louis, Louga, Tambacounda, Ziguinchor and Matam.</li> </ul> <p><b>Entreprises ayant commencé ou planifié un projet de gestion des boues de vidange</b></p> <p>DELVIC Sanitation Initaitves qui gère actuellement les trois stations de traitement des boues de vidange de Dakar est intéressé par l'acquisition d'un Omni-Processor pour maximiser ses revenus à travers la valorization des boues de vaidange. Les discussions sont en cours.</p> <p><b>Reference faecal sludge management companies</b></p> <ul style="list-style-type: none"> <li>• Transport and collection: VICAS , DELTA and DELGAS</li> <li>• Faecal sludge treatment plants: DELVIC Sanitation Initiatives</li> </ul> <p><b>Companies have begun or planned a faecal sludge management project</b></p> <ul style="list-style-type: none"> <li>• DELVIC Sanitation Initaitves currently managing three treatment faecal sludge plants of Dakar is interested in owning the Omni-Processor to maximize revenue through valorization faecal sludge by-products. Discussions are ongoing.</li> </ul> <p><b>Best positioned cities to receive a faecal sludge management system</b></p> <ol style="list-style-type: none"> <li>1. Ziguinchor<br/><i>- Tourist city of 277 000 inhabitants with high demand in emptying service because of the high groundwater table.</i></li> <li>2. Kaolack<br/><i>- Strong demand linked to population (410 000 inhabitants) and the high groundwater table.</i></li> <li>3. Touba<br/><i>- High demand: 600 000 regularly hosts major religious events which multiply population by 2-6.</i></li> </ol> <p><b>General informations</b></p> <p>The main constraints of the sanitation sector in Senegal are related to:</p> <ul style="list-style-type: none"> <li>- majority of mecanical emptying companies are informal ;</li> <li>- obsolescence of vacuum trucks;</li> <li>- the lowest coverage of faecal sludge treatment plants infrastructure ;</li> <li>- and practice of the manual emptying in some suburbs, related to emptying price still none accessible to some categories of populations.</li> </ul> |





**Overall sanitation sector status**

**Togo**

|                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Institutional and Regulatory Arrangement of the Sanitation sector</b></p> | <p><b>Institutional arrangement</b><br/>                 In Togo, there is no specific department dedicated to sanitation.<br/>                 Several department are interested in sanitation:</p> <ul style="list-style-type: none"> <li>• Ministry of Agriculture, of animal husbandry and Water Resources</li> <li>• Ministry of Health and Social Protection</li> <li>• Ministry of Urban Development, Housing and Living Conditions</li> <li>• Ministry of Environment and Forest Resources</li> </ul> <p><b>Regulatory Arrangement</b></p> <ul style="list-style-type: none"> <li>• Town Planning Code</li> <li>• Environmental Code</li> <li>• Water Code (which includes sanitation)</li> <li>• Public Health Code (which includes hygiene)</li> <li>• Framework Law on Environment</li> </ul> <p>The National Hygiene and Sanitation Policy is being drafted.<br/>                 There is no legal text on faecal sludge.</p> |
| <p><b>Infrastructures (asset)</b></p>                                           | <p><b>Wastewater treatment plant wastewater</b></p> <ul style="list-style-type: none"> <li>• There is no faecal sludge treatment plant in Togo.</li> </ul> <p><b>faecal sludge dumping sites</b></p> <ul style="list-style-type: none"> <li>• No FSTP</li> <li>• 6 unformal/ireguler site</li> </ul> <p><b>Number of registered vacuum trucks</b></p> <ul style="list-style-type: none"> <li>• Not determined</li> </ul> <p><b>Number of emptying companies</b></p> <ul style="list-style-type: none"> <li>• Not determined</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Organizational arrangement</b></p>                                        | <p><b>Faecal sludge management</b></p> <ul style="list-style-type: none"> <li>• Faecal sludge collection and transport are carried out by private companies</li> <li>• Authorized dumping sites are managed by gouvernement.</li> </ul> <p><b>Sewer and wastewater treatment plants' management</b></p> <ul style="list-style-type: none"> <li>• Centralized state management for sewer network</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p><b>Non-Sewer and Fecal sludge management</b></p>                             | <ul style="list-style-type: none"> <li>• No regulation for the faecal sludge management.</li> <li>• No control of private operators in charge of faecal sludge collection and transportation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| <b>Overall sanitation sector status</b>                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Togo</b>                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Sanitation indicators</b>                                  | <ul style="list-style-type: none"> <li>• Coverage rate for collective sanitation : 2%</li> <li>• Coverage rate for individual sanitation : 35%</li> <li>• Volume of wastewater collected : No information</li> <li>• Treated wastewater volume : No information</li> <li>• Amount of faecal sludge collected : No information</li> <li>• Average number of trips (travel) : No information</li> <li>• Average price of emptying trip : 25 000 FCFA</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Champion municipality/ utility/ operator in sanitation</b> | <ul style="list-style-type: none"> <li>• In Togo, there is no city or reference company concerning faecal sludge management</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Other relevant information</b>                             | <p><b>Organizational level emptiers</b><br/>There is a local organization of emptiers in Lome.</p> <p><b>Cities have begun or planned a faecal sludge management project</b></p> <ul style="list-style-type: none"> <li>• <u>Sokodé</u>: faecal sludge treatment plant construction project funded by the African Water Facility and Plan International Togo.</li> </ul> <p><b>Companies have begun or planned a faecal sludge management project</b><br/>NONE.</p> <p><b>Best positioned cities to receive a faecal sludge management system</b></p> <ol style="list-style-type: none"> <li>1. Lome<br/><i>Lome and its suburban areas (Big-Lome) comprise 1.6 million inhabitants. The city is located on the coastal sedimentary basin or aquifer is shallow, vulnerable to human activities.</i></li> <li>2. Kara<br/><i>Kara is retained in the document of the Policy Sub-Sector Collective Sanitation Togo (PSSAC). Togo's second city (population 109,000 Hbt) with a university center. Therefore, it assumes the role of northern metropolis of Togo (decentralized services). Moreover, the municipal authority is strongly mobilized.</i></li> <li>3. Kpalime<br/><i>Kpalime (86,000 Hbt) is the first tourist city of Togo. It is also used by the PSSAC. The tourist season requires regular emptying of purification works</i></li> </ol> <p><b>Informations générales</b></p> <p>The management of faecal sludge is rudimentary and is privately most of which are informal (private, which has its vacuum truck).</p> <p>To date sanitation programs are still focused on access to private toilet (CLTS). The emptying service exists in only in big cities, but not infrastructure for faecal sludge treatment and recovery byproducts. With the project "Toilets for all in Sokode" Togo will have its first FSTP. There will also be an institutional and regulatory organization of faecal sludge industry.</p> <p>Today the project "Toilets for all to Sokode" the Togo will have its first faecal sludge treatment plant. It also will provide an institutional and regulatory organization of faecal sludge industry.</p> |



**B. Sanitation sector stakeholders' status**

| <b>Sanitation sector stakeholders' status<br/>Benin</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SWOT analysis</b>                                                              | <p><b><u>Strength</u></b></p> <ul style="list-style-type: none"> <li>• Existence of a Ministry dedicated to sanitation.</li> <li>• The government is willing to set up a new institutional framework that provides better organization of private emptiers in charge of faecal sludge collection / transportation.</li> </ul> <p><b><u>Weakness</u></b></p> <ul style="list-style-type: none"> <li>• Lack of legal text concerning faecal sludge.</li> <li>• Weakness of private emptiers (informality and Financial capacities).</li> <li>• Obsolescence of vacuum trucks.</li> <li>• Single equipped and functional dumping site in the country.</li> <li>• No specific experience in faecal sludge management.</li> <li>• Weakness of public and private investment in the faecal sludge sector.</li> </ul> <p><b><u>Opportunities</u></b></p> <ul style="list-style-type: none"> <li>• Very strong presence of onsite sanitation in cities.</li> <li>• Existence of private emptiers association in Cotonou and Parakou.</li> <li>• Finalized or ongoing studies for construction or rehabilitation of dumping sites</li> </ul> <p><b><u>Threats</u></b></p> <ul style="list-style-type: none"> <li>• Relatively low level of large segment of urban populations facing high-emptying cost.</li> <li>• New institutional framework which provides public management</li> </ul> |
| <b>Stakeholder assessment</b>                                                     | <p><b><u>Institutional</u></b></p> <ul style="list-style-type: none"> <li>• Sanitation Sector adequately addressed in the institutional architecture, with the existence of Ministry dedicated to sanitation.</li> </ul> <p><b><u>Financial</u></b></p> <ul style="list-style-type: none"> <li>• Public fundings are very low in faecal sludge management sector. The country has only one official dumping site.</li> </ul> <p><b><u>Operational</u></b></p> <ul style="list-style-type: none"> <li>• Management of dumping sites under state control, which might pose a problem of efficiency in view of senegalese experience.</li> </ul> <p><b><u>Human resource capacity</u></b></p> <ul style="list-style-type: none"> <li>• Weakness in terms of human resources quantity and quality.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>On-going sanitation project/funding in the municipality/ utility/ operator</b> | <p>Currently, significant actions are:</p> <ul style="list-style-type: none"> <li>• <u>Abomey-Calavi et Cotonou-Est</u>: a feasibility study for the construction of FSTP has just ended. The funding provided by the KFW is available - It remains to complete land acquisition.</li> <li>• <u>Sémé Podji et Cotonou-Ouest</u>: a study of rehabilitation, operation and extension of existing single dumping site is under way.</li> <li>• <u>Parakou</u>: NGO <i>DCAM Bethesda</i> plans to develop a FSTP for the city.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



| <b>Sanitation sector stakeholders' status<br/>Burkina Faso</b>                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SWOT analysis</b>                                                             | <p><b><u>Strength</u></b></p> <ul style="list-style-type: none"> <li>• Existence of a Ministry dedicated to sanitation.</li> <li>• Faecal sludge dumping site based on biogas production under realization in Ouagadougou. This is the first experience of its type in sub-Saharan Afrique.</li> </ul> <p><b><u>Weakness</u></b></p> <ul style="list-style-type: none"> <li>• Lack of legal text concerning faecal sludge.</li> <li>• Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities.</li> <li>• Obsolescence of vacuum trucks.</li> <li>• Single equipped and functional dumping site in the country.</li> <li>• No specific experience in faecal sludge management.</li> <li>• Weakness of public and private investment in the faecal sludge sector.</li> </ul> <p><b><u>Opportunities</u></b></p> <ul style="list-style-type: none"> <li>• Very strong presence of onsite sanitation in cities.</li> <li>• Existence of private emptiers association in Cotonou and Parakou.</li> <li>• Support from the Bill &amp; Melinda Gates Foundation to faecal sludge sector through the Ouagadougou dumpingding site (biodigester).</li> </ul> <p><b><u>Threats</u></b></p> <ul style="list-style-type: none"> <li>• Relatively low level of large segment of urban populations facing high-emptying cost.</li> <li>• New institutional framework which provides public management against the private management</li> </ul> |
| <b>Stakeholder assessment</b>                                                    | <p><b><u>Institutional</u></b></p> <ul style="list-style-type: none"> <li>• Sanitation Sector adequately addressed in the institutional architecture, with the existence of sanitation Ministry dedicated to.</li> </ul> <p><b><u>Financial</u></b></p> <ul style="list-style-type: none"> <li>• Public fundings are very low in faecal sludge management sector. The country has only one official dumping site.</li> </ul> <p><b><u>Operational</u></b></p> <ul style="list-style-type: none"> <li>• Management of dumping sites under state control, which might pose a problem of efficiency in view of senegalease experience.</li> </ul> <p><b><u>Human resource capacity</u></b></p> <ul style="list-style-type: none"> <li>• Weakness in terms of human resources quantity and quality.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>On-going sanitation project/funding in the municipality/utility/ operator</b> | <p>Currently, significant action is:</p> <ul style="list-style-type: none"> <li>• <u>Ouagadougou</u>: construction of faecal sludge traetement funded by Bill &amp; Melinda Gates. This project includes an energy valoraisaion of fecal sludge by methanation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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| Sanitation sector stakeholders' status
Cote d'Ivoire | |
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| SWOT analysis | <p><u>Strength</u></p> <ul style="list-style-type: none"> • Existence of a Ministry dedicated to sanitation. • Existence of legal texts concerning faecal sludge. <p><u>Weakness</u></p> <ul style="list-style-type: none"> • Lack of legal text concerning faecal sludge. • Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities. • Obsolescence of vacuum trucks. • Single equipped and functional dumping site in the country. • No specific experience in faecal sludge management. • Weakness of public and private investment in the faecal sludge sector. <p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Very strong presence of onsite sanitation in cities. • Existence of private emptiers association <p><u>Threats</u></p> <ul style="list-style-type: none"> • Relatively low level of large segment of urban populations facing high-emptying cost. • New institutional framework which provides public management against the private management |
| Stakeholder assessment | <p><u>Institutional</u></p> <ul style="list-style-type: none"> • Sanitation Sector adequately addressed in the institutional architecture, with the existence of sanitation Ministry. <p><u>Financial</u></p> <ul style="list-style-type: none"> • Public fundings are very low in faecal sludge management sector. The country has only one official dumping site. <p><u>Operational</u></p> <ul style="list-style-type: none"> • Management of dumping sites under state control, which might pose a problem of efficiency in view of senegalese experience. <p><u>Human resource capacity</u></p> <ul style="list-style-type: none"> • Weakness in terms of human resources quantity and quality. |
| On-going sanitation project/funding in the municipality/ utility/ operator | <p>Currently, significant actions are taken place in:</p> <ul style="list-style-type: none"> • <u>Abidjan, Yamoussoukro, Bouaké, San-Pédro and Korhogo</u>: ongoing projects for identification and organization of stakeholders, build their capacity and construction of faecal sludge dumping sites. |



| Sanitation sector stakeholders' status
Gambia | |
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| SWOT analysis | <p><u>Strength</u></p> <ul style="list-style-type: none"> • NONE <p><u>Weakness</u></p> <ul style="list-style-type: none"> • Lack of a Ministry dedicated to sanitation. • Lack of legal text concerning faecal sludge. • No particular experience in faecal sludge management. • Weakness of public and private investment in the faecal sludge sector. • Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities. • Obsolescence of vacuum trucks. <p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Strong presence of on-site sanitation in the cities. <p><u>Threats</u></p> <ul style="list-style-type: none"> • A relatively low standard of living for a large segment of urban populations face the cost of emptying. |
| Stakeholder assessment | <p><u>Institutional</u></p> <ul style="list-style-type: none"> • Sanitation sector not taken into account in the institutional architecture at ministerial level. <p><u>Financial</u></p> <ul style="list-style-type: none"> • Very low public financing in faecal sludge sector. <p><u>Operational</u></p> <ul style="list-style-type: none"> • No information. <p><u>Human resource capacity</u></p> <ul style="list-style-type: none"> • Weak human resources in quantity and quality. |
| On-going sanitation project/funding in the municipality/utility/ operator | There is no ongoing action on faecal sludge management. |

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| <b>Sanitation sector stakeholders' status<br/>Guinea</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SWOT analysis</b>                                                             | <p><b><u>Strength</u></b></p> <ul style="list-style-type: none"> <li>• NONE</li> </ul> <p><b><u>Weakness</u></b></p> <ul style="list-style-type: none"> <li>• Lack of a Ministry dedicated to sanitation.</li> <li>• Lack of legal text concerning faecal sludge.</li> <li>• No particular experience in faecal sludge management.</li> <li>• Weakness of public and private investment in the faecal sludge sector.</li> <li>• Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities.</li> <li>• Obsolescence of vacuum trucks.</li> </ul> <p><b><u>Opportunities</u></b></p> <ul style="list-style-type: none"> <li>• Strong presence of on-site sanitation in the cities.</li> <li>• FSTP Management entrusted to the private sector.</li> </ul> <p><b><u>Threats</u></b></p> <ul style="list-style-type: none"> <li>• A relatively low standard of living for a large segment of urban populations face the cost of emptying.</li> </ul> |
| <b>Stakeholder assessment</b>                                                    | <p><b><u>Institutional</u></b></p> <ul style="list-style-type: none"> <li>• Sanitation sector not taken into account in the institutional architecture at ministerial level.</li> </ul> <p><b><u>Financial</u></b></p> <ul style="list-style-type: none"> <li>• Very low public financing in faecal sludge sector.</li> </ul> <p><b><u>Operational</u></b></p> <ul style="list-style-type: none"> <li>• FSTP management entrusted to the private sector.</li> </ul> <p><b><u>Human resource capacity</u></b></p> <ul style="list-style-type: none"> <li>• Weak human resources in quantity and quality.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                      |
| <b>On-going sanitation project/funding in the municipality/utility/ operator</b> | There is no ongoing action on faecal sludge management.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| Sanitation sector stakeholders' status | |
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| Mali | |
| SWOT analysis | <p><u>Strength</u></p> <ul style="list-style-type: none"> • Existence of a Ministry dedicated to sanitation. <p><u>Weakness</u></p> <ul style="list-style-type: none"> • Lack of legal text concerning faecal sludge. • Weakness of public and private investment in the faecal sludge sector. • No particular experience in faecal sludge management. • Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities. • Obsolescence of vacuum trucks. <p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Significant need for emptying services due to the large size of the urban population and the strong presence of on-site sanitation in cities. • FSTP management by the private sector. • Existence of an association of private emptiers in Bamako, Segou and Mopti. <p><u>Threats</u></p> <ul style="list-style-type: none"> • A relatively low standard of living for a large segment of urban populations face the cost of emptying. |
| Stakeholder assessment | <p><u>Institutional</u></p> <ul style="list-style-type: none"> • Sanitation sector not taken into account in the institutional architecture at ministerial level. <p><u>Financial</u></p> <ul style="list-style-type: none"> • Very low public financing in faecal sludge sector. <p><u>Operational</u></p> <ul style="list-style-type: none"> • FSTP management entrusted to the private sector. <p><u>Human resource capacity</u></p> <ul style="list-style-type: none"> • Weak human resources in quantity and quality. |
| On-going sanitation project/funding in the municipality/utility/ operator | There is no ongoing action on faecal sludge management. |

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| <b>Sanitation sector stakeholders' status<br/>Mauritania</b>                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SWOT analysis</b>                                                             | <p><b><u>Strength</u></b></p> <ul style="list-style-type: none"> <li>• Existence of a Ministry dedicated to sanitation.</li> </ul> <p><b><u>Weakness</u></b></p> <ul style="list-style-type: none"> <li>• Lack of legal text concerning faecal sludge.</li> <li>• Weakness of public and private investment in the faecal sludge sector.</li> <li>• No particular experience in faecal sludge management.</li> <li>• Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities.</li> <li>• Obsolescence of vacuum trucks.</li> </ul> <p><b><u>Opportunities</u></b></p> <ul style="list-style-type: none"> <li>• Significant need for emptying services due to the large size of the urban population and the strong presence of on-site sanitation in cities.</li> </ul> <p><b><u>Threats</u></b></p> <ul style="list-style-type: none"> <li>• A relatively low standard of living for a large segment of urban populations face the cost of emptying.</li> </ul> |
| <b>Stakeholder assessment</b>                                                    | <p><b><u>Institutional</u></b></p> <ul style="list-style-type: none"> <li>• Sanitation Sector adequately addressed in the institutional architecture, with the existence of sanitation Ministry.</li> </ul> <p><b><u>Financial</u></b></p> <ul style="list-style-type: none"> <li>• Very low public financing in faecal sludge sector.</li> </ul> <p><b><u>Operational</u></b></p> <ul style="list-style-type: none"> <li>• FSTP management entrusted to the private sector.</li> </ul> <p><b><u>Human resource capacity</u></b></p> <ul style="list-style-type: none"> <li>• Weak human resources in quantity and quality.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                    |
| <b>On-going sanitation project/funding in the municipality/utility/ operator</b> | There is no ongoing action on faecal sludge management.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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| Sanitation sector stakeholders' status
Nigeria | |
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| SWOT analysis | <p><u>Strength (Forces)</u></p> <ul style="list-style-type: none"> • NONE. <p><u>Weakness</u></p> <ul style="list-style-type: none"> • Lack of a Ministry dedicated to sanitation. • Lack of legal text concerning faecal sludge. • Weakness of public and private investment in the faecal sludge sector. • No particular experience in faecal sludge management. • Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities. • Obsolescence of vacuum trucks. <p><u>Opportunities</u></p> <ul style="list-style-type: none"> • Strong presence of on-site sanitation in the cities. • Existence of at least two associations of private emptiers. <p><u>Threats</u></p> <ul style="list-style-type: none"> • A relatively low standard of living for a large segment of urban populations face the cost of emptying. |
| Stakeholder assessment | <p><u>Institutional</u></p> <ul style="list-style-type: none"> • Sanitation sector not taken into account in the institutional architecture at ministerial level. <p><u>Financial</u></p> <ul style="list-style-type: none"> • Very low public financing in faecal sludge sector. <p><u>Operational</u></p> <ul style="list-style-type: none"> • FSTP management ensured by the government. <p><u>Human resource capacity</u></p> <ul style="list-style-type: none"> • Weak human resources in quantity and quality. |
| On-going sanitation project/funding in the municipality/utility/ operator | There is no ongoing action on faecal sludge management. |

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| <b>Sanitation sector stakeholders' status<br/>Senegal</b>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SWOT analysis</b>                                                              | <p><b><u>Strength</u></b></p> <ul style="list-style-type: none"> <li>• Existence of a Ministry dedicated to sanitation.</li> <li>• Lack of legal text concerning faecal sludge.</li> <li>• Good expérience in faecal sludge management.</li> <li>• Willingness of the Government to strengthen legislation to better organize the collection / transport of faecal sludge (license).</li> </ul> <p><b><u>Weakness</u></b></p> <ul style="list-style-type: none"> <li>• Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities.</li> <li>• Obsolescence of vacuum trucks.</li> </ul> <p><b><u>Opportunities</u></b></p> <ul style="list-style-type: none"> <li>• Strong presence of on-site sanitation in the cities.</li> <li>• ongoing project for development of faecal sludge sector in Dakar (supported by the Bill &amp; Melinda Gates Foundation).</li> <li>• Good organization of private emptiers.</li> </ul> <p><b><u>Threats</u></b></p> <ul style="list-style-type: none"> <li>• A relatively low standard of living for a large segment of urban populations face the cost of emptying.</li> </ul> |
| <b>Stakeholder assessment</b>                                                     | <p><b><u>Institutional</u></b></p> <ul style="list-style-type: none"> <li>• Sanitation Sector adequately addressed in the institutional architecture, with the existence of sanitation Ministry.</li> </ul> <p><b><u>Financial</u></b></p> <ul style="list-style-type: none"> <li>• Very low public financing in faecal sludge sector.</li> </ul> <p><b><u>Operational</u></b></p> <ul style="list-style-type: none"> <li>• FSTP management ensured by the private sector.</li> </ul> <p><b><u>Human resource capacity</u></b></p> <ul style="list-style-type: none"> <li>• Weak human resources in quantity and quality.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>On-going sanitation project/funding in the municipality/ utility/ operator</b> | <p>Ongoing actions on faecal sludge management are:</p> <ul style="list-style-type: none"> <li>• <u>Dakar Region</u>: implementation of a complete faecal sludge program (construction of a FSTP, delegation of FSTP management to the private sector, tests on the prototype of the omni-processor, loans to emptiers based on a guarantee fund, setting up a call center, ongoing process for inserting the license to exercise the emptying activity in senegalese legislation).</li> <li>• <u>Municipality of Touba</u>: construction of a faecal sludge treatment plant.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



| <b>Sanitation sector stakeholders' status<br/>Togo</b>                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SWOT analysis</b>                                                             | <p><b><u>Strength</u></b></p> <ul style="list-style-type: none"> <li>• NONE.</li> </ul> <p><b><u>Weakness</u></b></p> <ul style="list-style-type: none"> <li>• Lack of a Ministry dedicated to sanitation.</li> <li>• Lack of legal text concerning faecal sludge.</li> <li>• Weakness of public and private investment in the faecal sludge sector.</li> <li>• No particular experience in faecal sludge management.</li> <li>• Weakness of private emptiers in terms of organization (informal nature) and Financial Capacities.</li> <li>• Obsolescence of vacuum trucks.</li> </ul> <p><b><u>Opportunities</u></b></p> <ul style="list-style-type: none"> <li>• Strong presence of on-site sanitation in the cities.</li> <li>• Existence of an associations of private emptiers in Lome.</li> </ul> <p><b><u>Threats</u></b></p> <ul style="list-style-type: none"> <li>• A relatively low standard of living for a large segment of urban populations face the cost of emptying.</li> </ul> |
| <b>Stakeholder assessment</b>                                                    | <p><b><u>Institutional</u></b></p> <ul style="list-style-type: none"> <li>• Sanitation sector not taken into account in the institutional architecture at ministerial level.</li> </ul> <p><b><u>Financial</u></b></p> <ul style="list-style-type: none"> <li>• Very low public financing in faecal sludge sector.</li> </ul> <p><b><u>Operational</u></b></p> <ul style="list-style-type: none"> <li>• FSTP management ensured by the Government.</li> </ul> <p><b><u>Human resource capacity</u></b></p> <ul style="list-style-type: none"> <li>• Weak human resources in quantity and quality.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>On-going sanitation project/funding in the municipality/utility/ operator</b> | <p>Unique ongoing action on faecal sludge management:</p> <ul style="list-style-type: none"> <li>• <u>Sokodé</u>: project of construction of FSTP funded by the African Water Facility and Plan International Togo.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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4.3.2 Models for replication

A. Overview

Senegal's experience is interesting both for on-site sanitation in flood zones and for faecal sludge management. It forms part of faecal sludge market structuring program supported by the Bill & Melinda Gates Foundation.

Faecal sludge management: The experience covers all the Region of Dakar and has several objectives: (i) reduce the cost of emptying, increase the income of emptiers, enable sustainable management of sites developed for unloading and professionalize the emptying activity.

Non-sewer sanitation: This intervention is in progress in the suburbs of Dakar. It aims to facilitate access of the poor population living in flooded areas to sanitation adapted to local environmental conditions and the ability to pay of the beneficiaries.

B. Best practices

Faecal sludge management

Several actions are initiated:

1. setting up a call center dedicated exclusively to emptying.
It connects the customer (household) and emptier.
2. loans to emptiers based on a guarantee fund
A guarantee fund housed in a Commercial bank allows emptiers access to credit at a lower rate than the market. These credits are intended for the renewal of the trucks or the purchase of spare parts.
3. Delegation of the management of decanting site to the private sector
This action allowed: (i) better functioning of FSTP, (ii) improvement in revenue, (iii) relief of ONAS budget through staff recruitment by the private enterprise and (iv) decline in the wild stripping because of longer opening hours.
4. Building a faecal sludge treatment plant
This infrastructure aims to reduce distances traveled by trucks. The goal is, as for the guarantee fund, on one hand to reduce the expenses of the emptiers (fuel, repairs), and increase their income and other, and on the other hand help lower the emptying cost for the household.
5. Insertion of the license to practice emptying activity in Senegalese legislation
The process is ongoing. It is fully participatory, with the contribution of emptiers at all stages, particularly for defining the criteria and sanctions. Emptying activity may be exercised only after obtaining the license, which combines technical criteria (truck status), administrative criteria and security staff criteria (personal protective equipment).
6. Tests on the prototype of the Omni-Processor
The Omni-Processor is an equipment which produces, from faecal sludge, electricity, ash (for soil amendment) and water whose quality allows its use in all human activities and even for drinking. Ongoing tests in Dakar aimed firstly to demonstrate the market value of faecal sludge and secondly, to help "tropicalize" the first commercial version being completed in Seattle. Private enterprise DELVIC sanitation Initiatives (manager of the three FSTP in Dakar) is involved in testing through one of its engineers, supply of dried sludge and realization of tests on the ashes. It envisages the acquisition of the first commercial version.

On-site sanitation

This action consisted in:

1. choose, through an international call for proposal, the most adapted on-site sanitation facilities to the context of the suburbs of Dakar (flood-risk area, low incomes);
2. test retained technologies to estimate them on civil engineering, purifying capacity and acceptance by the population;
3. propose to the populations most adapted technologies on the basis of a credit at low rate of interest based on a guarantee fund for the toilet.

4.3.3 List of potential good mentors and mentees in the sub-region

Potential participants for Phase 2 are presented in the table below.

| No | Potential mentors | | Potential mentees | |
|----|---|---------------|--|--------------------------------|
| | Municipalities/
Utilities/ Operators | Country/City | Municipalities/
Utilities/Operators | Country/City |
| 1 | ONAS
(National utility) | Senegal/Dakar | ONAD
(National utility) | Cote d'Ivoire/
Yamoussoukro |
| 2 | - | - | ONAS
(National utility) | Senegal/Ziguinchor |
| 3 | - | - | ONEA
(National utility) | Burkina Faso/
Ouagadougou |
| 4 | - | - | SONEB
(National utility) | Benin/Cotonou |
| 5 | - | - | National Directorate of Sanitation
and Living Environment | Guinea/Conakry |

Potential participants for next phase are presented in the table below.

| No | Potential mentees | |
|----|--|-----------------------|
| | Municipalities/
Utilities/ Operators | Country/City |
| 1 | Municipality of Sokodé | Togo/Lomé |
| 2 | Ministry of Water Resources | Nigeria/Abuja |
| 3 | National Directorate of Sanitation and Pollution Control
and Nuisance | Mali/Bamako |
| 4 | ONAS (National utility) | Mauritania/Nouakchott |
| 5 | Ministry of Community Development | Gambia/Banjul |

4. DIFFICULTIES ENCOUNTERED

The main difficulty is related to the lack of preparation of the survey

It would have taken at least one week of preparation consisting, for AfWA, to obtain the agreement of informants to participate in the survey. AfWA had first, in each country :

1. contact the informants (especially persons officially in charge water and purification) to inform and prepare them to receive the questionnaire to be sent by the consultants,
2. and communicate the list of these persons to consultants.

This would have greatly facilitated contact consultants / informants and would have yielded information more reliable and faster. Indeed, many officials have not responded and the responses have arrived late. In particular, any reaction from Niger and Ghana. Moreover, when a reply should be specified, feed backs are almost nonexistent, perhaps due to unavailability of certain information.

5. CONCLUSIONS/RECOMMENDATIONS

Overall, the faecal sludge sector knows a significant delay in the West African Region. On the 10 countries surveyed, 80% have no legal text on faecal sludge. The financing in in the sector are very low, which results among other things, little or no FSTP. The emptiers are little or no organized and truck fleet is old.

It is nonetheless noted in most countries, a willingness of the authorities to take by the horns the problem of faecal sludge. But it poses two main problems:

1. A lack of experience in this field,
2. and weak human and financial resources to carry out the necessary actions.

The project conducted by Senegal in Dakar is an example which can serve as basis for development projects of faecal sludge sector. This intervention supported by the Bill & Melinda Gates Foundation, takes into account the entire faecal sludge value chain.

- Production faecal sludge
 - *Making available for the poor people in flooded areas, accessible toilets in financial condtions compatible with their income.*
- Collection and transportation of faecal sludge
 - *Strengthening of the organization of emptiers.*
 - *Facilitation of renewing and rehabilitating the truck fleet, via a guarantee fund for emptiers.*
 - *Promotion of mechanical emptying among households.*
 - *Setting up a call center for emptying.*
 - *Private companies certification Process (license to practice).*
- Faecal sludge treatment
 - *Delegation of the management of the three sites developed decanting the private sector.*
 - *Construction of a FST.*
- Valorization of faecal sludge
 - *Installation of the prototype of the Omni-Processor, which produces electricity, ash and "good water quality from faecal sludge.*

This Senegalese experience worth sharing with other african countries. This is what motivates the choice of Senegal as a mentor for the West African region.

Note: All ten survey informants in the survey declared to know AfWA and WOP.