



MUNIWASH - MUNICIPAL WASH ACTIVITY

USAID WEST AFRICA MUNICIPAL WATER, SANITATION, AND HYGIENE (MUNIWASH)

FEASIBILITY STUDY REPORT

Study of the Organizational and Financial Performance
of Water and Sanitation Service Providers - Benin

APRIL 2021

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ACRONYMS AND ABBREVIATIONS

AfWA	African Water Association
ABMS	Beninese Association for Social Marketing and Health-promoting Communication / <i>Association Béninoise pour le Marketing Social et la communication pour la santé</i>
ACEP	Drinking Water Consumers Associations / <i>Associations de Consommateurs d'Eau Potable</i>
AGETUR	Urban Works Executing Agency / <i>Agences d'Execution des Travaux Urbains</i>
ANAEMPR	National Agency for Drinking Water Supply in Rural Areas / <i>Agence d'Approvisionnement en Eau Potable en Milieu Rural</i>
ANSSP	National Agency for Primary Health Care / <i>Agence Nationale des Soins de Santé Primaires</i>
APAA	Pan-African Association of Non-sewer Sanitation Operators / <i>Association Panafricaine des Acteurs de l'Assainissement Autonome</i>
ASECNA	Agency for Air Navigation Safety / <i>Agence pour la sécurité de la navigation aérienne</i>
AViPro-Benin	Association of Professional Vacuum Truck Operators of Benin / <i>Association des Vidangeurs Professionnels du Bénin</i>
BCEAO	Central Bank of West African States / <i>Banque centrale des Etats de l'Afrique de l'Ouest</i>
CCA	Community Sanitation Advisor / <i>Conseiller Communautaire d'Assainissement</i>
CVDBE	Biogas and Organic Fertilizer Waste Recovery Center / <i>Centre de Valorisation de Déchets en Biogaz et Engrais organique</i>
DGDU	Directorate General of Urban Development / <i>Direction Générale du Développement Urbain</i>
DWS	Drinking Water Supply
FCFA	Franc of the African Financial Community / <i>Franc de la Communauté Financière Africaine</i>
FSTP	Fecal Sludge Treatment Plant
GIZ	German Development Agency (<i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i>)
IR	Intermediate Results
MCVDD	Ministry of Living Conditions and Sustainable Development / <i>Ministère du Cadre de Vie et du Développement Durable</i>
MFI	Microfinance Institution
MuniWASH	Municipal Water, Sanitation, and Hygiene Activity
NGO	Non-Governmental Organization

PAG	Government Action Plan / <i>Programme d'Action Gouvernemental</i>
PC2D	Growth for Sustainable Development Program / <i>Programme de Croissance pour le Développement Durable</i>
PEA	Privately Owned Water Point / <i>Postes d'Eau Autonome</i>
PEAC	Community Water Point / <i>Postes d'Eau Autonome Communautaire</i>
PGUD	Decentralized Urban Management Project / <i>Projet de Gestion Urbaine Décentralisée</i>
RAMES	African Network of Eco-Healthy Market Gardeners / <i>Réseau Africain des Maraîchers Eco-Santé</i>
ReBin	Reuse your Bin
SA	Limited company / <i>Société Anonyme</i>
SDG	Sustainable Development Goal
S-Eau	Water department / <i>Services de l'Eau</i>
SIBEAU	Beninese Industrial Company of Equipment and Urban Sanitation / <i>Société Industrielle Béninoise d'Équipement et d'Assainissement Urbain</i>
SME	Small and Medium Enterprises
SOBEBRA	Beninese Brewery Company / <i>Société Béninoise de Brasserie</i>
SOBEGI	Beninese Industrial Gas Company / <i>Société Béninoise de Gaz Industriel</i>
SOBEPEC	Beninese Painting and Dyes Company / <i>Société Béninoise de Peintures et Colorants</i>
SONEB	National Water Utility of Benin / <i>Société Nationale des Eaux du Bénin</i>
SSD	Sanitation Services Delivery
SWOT	Strengths, Weaknesses, Opportunities and Threats
UNEAM-Bénin	<i>Union Nationale des Entrepreneurs d'Assainissement MIMIN du Bénin</i>
USAID	United States Agency for International Development
USPAB	Union of Beninese Professional Sanitation Organizations / <i>Union des Structures Professionnelles d'Assainissement du Bénin</i>
VALDERA	Valorization of Waste into Renewable Energy and Agriculture / <i>Valorisation des Déchets en Énergie Renouvelable et en Agriculture</i>
VTO	Vacuum Truck Operator
WASH	Water, Sanitation and Hygiene
WC	Water Closet

WSP	Water Service Provider
WWTP	Wastewater Treatment Plant

I EXECUTIVE SUMMARY

The Government of Benin has invested improving the living environment of urban populations through several projects implemented in the most vulnerable areas with the assistance of technical and financial partners. However, like most developing countries, wastewater and sanitation in Benin has not received sufficient attention and has not been a priority for stakeholders. To support the Government of Benin's efforts, the USAID Municipal Water, Sanitation, and Hygiene Activity (MuniWASH) undertook this organizational and financial performance study of water and sanitation service providers in Bénin as part of its approach to better understand the water and sanitation sector in Bénin. The objective of the study is to identify, using a gender-specific approach, the private sector actors involved in the field of drinking water supply and sewage / fecal sludge disposal and their organizational and financial and service delivery needs.

It should be noted that by order of the Council of Ministers, in 2021, the government entrusted the management of faecal sludge, particularly the fecal sludge treatment plants (FSTPs) under construction, to the *Société de Gestion des Déchets Solides du Grand Nokoué* (SGDS-GN), which is now known as the *Société de Gestion des Déchets et de la Salubrité* (SGDS).

I.1 IN THE WATER SECTOR

Drinking water supply in urban areas is structured around the national water utility of Bénin, le *Société Nationale des Eaux du Bénin* (SONEB), which is the only public operator acting as a delegated project manager on behalf of the municipalities for drinking water and wastewater services in urban and peri-urban areas. There are also several private service providers, particularly in areas not covered by the SONEB system. They are involved either in private distribution, or in distribution from the SONEB system, particularly in peri-urban areas.

These private water suppliers almost all operate informally and have no specific skills or knowledge of the sector to run their activities. They are characterized by an often poorly structured organization with very few practices for recording accounting information (nascent or non-existent primary accounting). Their business model responds much more to a need to diversify sources of income than to a business strategy and is often seen as a “side job” for them.

The pricing system for drinking water varies depending on whether it is a privately owned water point (*Poste d'Eau Autonome - PEA*) or a community water point (*Poste d'Eau Autonome Communautaire - PEAC*) connected to the SONEB system. In the first case, the price is regulated by the market, while in the second case, it is regulated by the City Council. Unit prices vary from 0.6 to 0.8 FCFA per liter of water sold in the case of private PEAs and can reach 1 FCFA per liter of water sold in the case of PEACs. However, financial analyses reveal that private PEAs appear to be at least four times more profitable than that of the PEACs, whose profits are limited by the cost of purchasing water from SONEB, which accounts for three-fifths of their expenses.

Unlike plumbers, masons, and drillers, who are structured in associations with an umbrella organization, there is no association or umbrella organization for private water suppliers other than the associations of drinking water consumers. However, such associations are not, for the most part, formally registered and have no established relations with the municipalities or with the government entities in general.

Municipal bodies have virtually no formal interaction with the operators of private PEAs regarding quality of service including the quality of the water sold to the population. None of the service

providers interviewed in this study had developed a customer loyalty strategy, nor any marketing strategy apart from allowing sales on credit by some standpipe and private PEAs managers.

There have been only a few sporadic capacity building initiatives/activities by the decentralized agencies of the Government, most recently in 2006, to raise awareness and advise private service providers on water purification techniques. Training and monitoring water service providers remains a challenge and requires that the operating model be rethought, especially for works connected to the SONEB system.

1.2 IN THE SANITATION SECTOR

The sanitation sector in urban areas is dominated by on-site sanitation. Artisanal masons, plumbers, drillers, WC Mimin contractors, and vacuum truck operators (VTOs) are the key providers of private sanitation services for the general population, and much of these providers operate informally with rudimentary management of various resources (human, material, financial). Pit emptiers are among the best organized, but although approximately 60% of emptiers are formal contractors, they still face significant challenges with truck/equipment obsolescence and significant repair costs, which weakens their ability to meet demand. These challenges are exacerbated by a lack of professional skills to manage a business and sector understanding, which ultimately translates into a low level of professionalism and weak service delivery. Additionally, inequalities exist at the professional level between women and men in the sector.

Most private sanitation service providers find themselves in a vicious cycle that prevents them from improving and expanding their services, which often requires financial resources that they do not have. Financing institutions (banks and microfinance institutions [MFIs]) are reluctant to lend to these service providers, which leads them to resort to their own funds (equity capital) as the only source of financing. This makes it difficult for private providers to access resources they need because they rarely meet the required conditions, and they become stuck in this precarious financing situation. The reluctance of financing institutions is due to the characteristics of these companies, particularly in terms of qualified human resources and insufficient financial documentation and management. There is a lack of qualified managers/leaders with vision and strategy, and managers do not have qualified support staff. These managers/leaders mismanage the companies' cash flows without using financial standards and without considering the needs for working capital. There is an absence of reliable financial information and traceability of flows related to the activity of these companies (for example, almost none of these providers keep any accounts and do not have a bank account (or even if they do, it is dormant and not fed by the income from their activities)). Finally, there is an inability of water and sanitation service providers to meet the required guarantees.

However, there is one exceptional high-performing private company in this sector in Benin, the Béninese Industrial Company of Equipment and Urban Sanitation (SIBEAU) Limited Company (SA), whose services cover both emptying and management of dumping sites. SIBEAU is the only company with access to existing formal financing mechanisms to develop and grow their business.

To overcome their challenges, private service providers in Benin tend to form associations including: containment/storage (*Union Nationale des Entrepreneurs d'Assainissement MIMIN du Bénin* [UNEAM-Bénin]) and emptying (Association of Professional Vacuum Truck Operators of Benin - AviPro-Bénin). This association structure allows them to speak out, maintain relations, and regulate their trade with minimum rules to which everyone must adhere.

Bénin does not yet have treatment plants that are functional and meet standards. However, two fecal sludge treatment plants (FSTPs) are under construction. In addition, there are very few initiatives

related to resource recovery in the sanitation sector in Benin, but there are some pilot activities underway in Cotonou, Abomey Calavi, and Toffo.

Gender equity in the drinking water supply sector. Entrepreneurship in the water sector is predominantly male. However, the study identified a few women who are water point operators or managers of public facilities - under delegation contract (and often not formal). The women who manage the public standpipes visited in this study were often the spouse or a close family member of the operators, and they oversee sales management and facility upkeep. While women are relatively well-represented at this level, they do not generally play leading roles, that of being the owner or direct delegate of the public service.

The study observed lower female participation as operators of PEAs and PEACs, which are private businesses. In fact, only two women out of ten were identified as operators of water points. The women interviewed who have engaged in drinking water supply entrepreneurship, including the installation of PEAs, financed their activities with their own funds.

Gender equity in the sanitation sector. In a well-established company like SIBEAU, there are women who hold management positions, such as the deputy director and internal auditor. However, the study team identified only one female containment/storage business owner, who is located in the municipality of Aplahoué (ETS Theo La Merveille). She specializes in the construction of WC Mimin latrines and toilets and is also the Deputy Secretary General of UNEAM-Bénin association where she is well known for the regularity of payment of her contributions. The team also identified women who work in entities such as BIOGAZ BÉNIN and the Reuse Your Bin (ReBin) Foundation who are involved in initiatives to promote sanitation by-products, and many of them hold management positions. However, in the emptying service provision market, the study team did not find any women directly involved. Emptying is socially perceived as degrading and not clean, and therefore there is a perception that women are not incentivized to participate in this market.

The study revealed other social constraints that limit women's access to the sanitation sector including the triple social role of women (business, housewife, and mother). In addition, the persistence of sexist stereotypes limits the access of some women to opportunities in the sector. In fact, sanitation is generally seen as a job unsuitable for women. The sanitation market, including all links in the value chain, are almost exclusively managed by men, with very little participation by women.

In summary, the study team found the following regarding gender equity:

- Entrepreneurship in both the water and sanitation sectors is typically male, and women's participation is relatively low.
- Women are more present in the water sector than in the sanitation sector.
- Women are subject to social pressures that limit their participation in this sector.

I.3 KEY RECOMMENDATIONS

Based on the diagnosis and analysis of the private sector in the water and sanitation sector in Benin, the study team made the following key recommendations to provide sustainable solutions to address service provider challenges:

- **Professionalize the water and sanitation market:** To bring service providers out of the informal sector, develop and provide coaching and training to strengthen managerial capacities. Also, the sector should support creation of strong private companies by pooling efforts to reach a critical size and take advantage of economies of scale.

- **Regulate the market through competition:** In Cotonou, the emptying market is developing slowly with only about 100 emptying trucks in circulation. The market is currently small and underdeveloped. Increased competition would make emptying services more accessible and could make prices more acceptable to households, but to be profitable, sanitation service providers need strong demand for their services. Therefore, customer understanding of the services needs to be improved and the image of the profession needs to be enhanced. Setting a competitive price range can guarantee viability of service provision and ensure that the service is in demand.
- **Encourage the involvement of municipalities.** Encourage municipalities to become more involved in their role as regulator.
- **Strengthen water and sanitation providers' associations.**
- **Encourage finance institutions to provide services to the sector.** Financing institutions are often reluctant to provide their services due to their lack of knowledge of this sector and the risks associated with the businesses. The sector should be promoted with financial institutions so that adapted financial products are made available to increase access to financing.

In terms of gender equality, the study made the following recommendations:

- Increase opportunities for women contractors to access financing.
- Promote knowledge and understanding of opportunities of women's roles in the sector including success stories.
- Strengthen the human capital of women contractors by developing entrepreneurial training opportunities tailored to their needs.
- Eliminate social barriers to women's access to opportunities in the water and sanitation sector through efforts to deconstruct gender norms.

2 INTRODUCTION

2.1 CONTEXT AND ISSUES

The Government of Bénin is working to improve the living conditions of its populations, and successive governments have invested in a policy of improving the living conditions of urban populations through projects in the most vulnerable areas, in particular, with the assistance of technical and financial partners. Bénin has successively implemented the Urban Rehabilitation and Management Project (1992-1996) and the Decentralized Urban Management Project - Phase 1 (PGUD: 1999-2004), Phase 2 (PGUD2: 2006-2012). Such initiatives made it possible to develop policy and strategy papers that set guidelines for the various sectors, particularly water, hygiene, and sanitation (WASH), and ultimately to improve the living conditions of the population. The national water policy that was validated in October 2008 sets out the main guidelines and guiding principles for the use of water in the various industries is one of the key legal instruments that contributes to the improvement of water resource management in Bénin. The purpose of this policy is to guarantee water in terms of quantity and quality for all users through rational, efficient, and sustainable management of water resources. In addition, the National Strategy for Urban Wastewater in Bénin (2008-2015), and the Business Plan for the operationalization of the Strategy, as well as the Post-Disaster Needs Assessment report of January 2010, were the result of various interventions under the *Projet de Gestion Urbaine Décentralisée 2* (PGUD2).

As in many developing countries, sanitation and wastewater has not received much attention and has not been prioritized by stakeholders in Bénin. However, due to the growing urbanization and urban demographic growth, sanitation management, particularly of wastewater and fecal sludge, has increasingly become a major concern. In fact, the environmental and sanitary issues caused by the floods of 2010 in Cotonou and the neighboring municipalities were an example of this increased concern, and the Béninese authorities have therefore set up the Emergency Urban Environmental Management Project. The general objective is to improve infrastructure and mitigate the negative impacts of flooding on the environment and to increase the country's level of preparedness. It is divided into several components including, drainage improvement and rehabilitation, solid household waste management, wastewater management, and support to flood and natural disaster prevention and management. This flagship project was implemented in five towns of the Grand Nokoué (Porto Novo, Sèmè-Podji, Cotonou, Abomey-Calavi and Ouidah) between 2010 and 2018. It significantly improved the environmental framework, which included producing/updating several documents: the National Strategy for Urban Wastewater Sanitation in Bénin (2017-2030), the Cotonou Sanitation Master Plan 2015, the tariff survey on wastewater sanitation (2017/2018), and the Rainwater Sanitation Master Plans for the cities of Porto-Novo, Sèmè-Podji, Abomey-Calavi, Ouidah and the Abomey plateau.

Despite these efforts, the living conditions in Bénin's cities remains precarious. Rapid uncontrolled urban growth coupled with significant problems in waste disposal, water quality degradation, urban air pollution, and construction in environmentally vulnerable areas are reflected in the low rates of access to drinking water and sanitation in urban areas, which stand at 76% and 59% respectively in 2019. Faced with this lack of access to basic services, the Government has crafted the Growth Program for Sustainable Development (PC2D 2018-2021). The PC2D is backed up by a Priority Action Plan and a matrix of performance indicators and operationalizes the National Development Program (NDP 2018-2025) from 2018-2021. It converts the Government's vision for achieving the objectives of the Government Agenda (PAG 2016-2021) and the SDGs into projects and programs.

To support these efforts, the USAID MuniWASH Activity focuses on improving financial viability and sustainability, technical and operational performance, and governance and management oversight to close the gap between countries' national priorities and the SDGs. This study aims to contribute to the organizational and financial performance improvement of water and sanitation service providers. To achieve this objective, MuniWASH has designed and implemented a methodology to identify the needs of the targets, with a view to proposing and then implementing solutions that can lead to better organizational and financial performance.

2.2 STUDY OBJECTIVES

The study will identify private sector actors involved in water supply and wastewater and fecal sludge treatment and their needs in terms of service provision, organization, and finance. This study examines operational and financial practices of private water and sanitation service providers including processes for financial management; accounting and bookkeeping; inventory and asset management; production and maintenance management; pricing and payment; staff management and incentivizing; banking, formalization (licenses, registrations); information management; customer and supplier relationship management, etc. and will help formulate performance improvement plans tailored to each company's capabilities for improved operational reliability and financial viability. This will be conducted with consideration of gender issues.

2.3 METHODOLOGY

2.3.1 SCOPE OF THE STUDY

The study selected surveyed municipalities by establishing the following categories of municipalities:

- Representativeness of the different departments.
- Areas with standpipes connected to the connection of the *Société Nationale des Eaux du Bénin* (SONEB) for the distribution of water in peri-urban areas.
- Urbanized municipalities versus poorly urbanized or rural municipalities.
- Proximity to the capital Cotonou and the city of Abomey-Calavi, where there is a multitude of financial institutions that can fund the WASH sector.

Other specific municipal characteristics also were considered:

- Sô-Ava: a lake municipality where the situation of access to drinking water and sanitation facilities is acute.
- Cotonou and Abomey-Calavi: the population size; entrepreneurship development; and where most of the septic tank/shrine emptying activities take place.
- Aplahoué: this municipality is located at a great distance from the major urban centers of Cotonou and Abomey-Calavi.
- Allada, Avrankou, Ouidah and Bohicon: Three moderately urbanized municipalities.

The team selected the following municipalities for this study: *Cotonou, Abomey-Calavi, So-Ava, Ouidah, Aplahoué, Avrankou and Bohicon.*

2.3.2 TARGETING THE STAKEHOLDERS

As part of the study, the team first conducted preliminary interviews with resource persons to build a database of stakeholders to be surveyed, including water suppliers, emptying service providers, masons, and plumbers. They helped the team identify the leaders of associations and umbrella

organizations of local masons, plumbers, drillers, and water suppliers (managers and operators of standpipes, managers of community water point (PEACs) and privately owned water points [PEAs]). Once these stakeholders were identified, the team proceeded to schedule and conduct interviews with each category of stakeholders.

Private providers of drinking water. The team met with standpipe managers, private standpipe operators, community standpipes, drillers and plumbers.

Small-scale sanitation contractors. The team distinguished two categories: 1) Those who have worked on the USAID-funded Sanitation Services Delivery (SSD) project, and 2) Those who have never worked with the SSD project. Choosing contractors took into account the criteria of “level of education of the provider”, “number of sites held” and “volume of activity”. The combination of these three criteria made it possible to constitute a sample that best considered the profiles of the providers present. The study focused on a sample of five vacuum truck operators, of which one is not a partner in the USAID-funded SSD project. The team took into account the level of structuring of the providers interviewed (whether or not they had a formal head office, support staff, or subcontractors) and also the level of education of the owner of the company.

Small-scale wastewater treatment plant (WWTP). The study team planned to interview two managers of small-scale WWTP, one from Tokpa-Zoungo and one from So-Ava. However, only the one in So-Ava could be contacted because the Tokpa Zoungo site was no longer functional. The Tokpa Zoungo market area has been disconnected from the WWTP site, and there are only a few households that remain connected due to clogs in the network.

Service providers involved in recovery/reuse on an experimental or commercial basis. On recovery/reuse, the study team interviewed four stakeholders, which included the Valorization of Waste into Renewable Energy and Agriculture (VALDERA) center of the University of Abomey-Calavi, the African Network of Eco-Healthy Market Gardeners (RAMES), the ReBin Foundation, and the company BIOGAZ BÉNIN.

In addition to these private sector providers, the team conducted interviews with central stakeholders, notably SONEB, to better understand the context of private sector intervention in the drinking water supply chain and to collect additional data.

2.3.3 DATA COLLECTION METHOD

The team developed semi-structured interview guides and questionnaires for data collection. The objective of the *semi-structured interviews* was to gather information useful for understanding the overall framework of the sector, its current dynamics, and its impacts on private sector activities. The interview guides were administered primarily to central stakeholders who have information on the overall framework. The objective of the *questionnaires* was to collect precise information for private operators that could be used to generate, among other things, quantitative information. This information was combined with *site visits* such as visits to company offices, dumping sites or discharging treatment sites of the municipalities visited. This report is based on the analysis of the data and information collected. It focuses on private stakeholders in the drinking water supply and sanitation government’s efforts to provide quality drinking water and sanitation services to the urban poor and underserved.

3 ACCESS TO DRINKING WATER

3.1 STRUCTURE OF DRINKING WATER SUPPLY IN BÉNIN

In Bénin's drinking water supply sector, there are central stakeholders in charge of policy formulation and regulation; implementing entities responsible for supplying water to the population in urban and rural areas; and the private sector.

3.1.1 CENTRAL STAKEHOLDERS, REGULATORS

The **Ministry of Water and Mining** prepares and supervises the implementation of government policy in the water sector in accordance with existing laws and regulations through the General Directorate for Water.

The **Directorate General for Water** ensures the integrated management of water resources nationwide, defines the national strategy for drinking water supply and wastewater treatment, and ensures the implementation of these national strategic guidelines with the stakeholders concerned.

The **Ministry of Decentralization**, through its Directorate of Decentralization and Local Governance, oversees the supervisory role of the Prefects over the municipalities and ensures a policy of harmonization of legality control. The **Ministry of Health**, through the National Primary Health Care Agency and the Directorate for the Promotion of Hygiene and Basic Sanitation, lays down drinking water quality standards and monitors compliance with these standards.

At the decentralized level, the **Water Departments (S-Eau)** are responsible for providing technical assistance to the municipalities to fulfill their responsibilities for drinking water supply and for providing logistical and technical support for rural water supply systems and water quality controls. These water departments fall under the Ministry of Water and Mining.

3.1.2 IMPLEMENTERS

Rural areas: The National Agency for Drinking Water Supply in Rural Areas (ANAEPMR) under the supervision of the Béninese President's Office, is the national agency in charge of drinking water supply in rural areas. ANAEPMR provides support to the municipal project management. Its mission is to initiate, program, execute and monitor drinking water supply infrastructure projects in rural areas. In May 2020, the Cabinet redefined the assistance that ANAEPMR must provide to municipalities by allowing it to sign specific agreements with municipalities to support efforts to achieve universal access to drinking water in rural areas.

Urban areas: SONEB is responsible for the supply of drinking water in urban areas; it is the only public utility operating in urban and peri-urban areas.

Law N° 2016-24 of June 28, 2017 on public-private partnership has fostered private sector participation in the management of drinking water supply systems in small towns. However, many challenges remain before the sustainability of services can be guaranteed.

3.1.3 PRIVATE SECTOR

This study met several stakeholders involved in the water production and distribution chain including craftsmen involved in the construction and maintenance of water collection facilities and the water service providers who own and/or operate facilities for the production and/or distribution of water.

Distribution is done within a relatively limited scope depending on the profile of the service provider. Generally, these operators operate in two forms: private collection and distribution, and distribution from the SONEB system, particularly in peri-urban areas.

This study team interviewed one standpipe system operator, three standpipe managers, four PEAC managers, six PEA managers, three drillers and one service provider specializing in the design of solar automatic water supply systems—a total of 18 stakeholders of the water value chain. These different stakeholders operate mainly in the cities of Ouidah, Aplahoué, Bohicon, and Avrankou. In the city of Cotonou, where there is a system of standpipes, particularly in the 6th and 2nd locally governed administrative units, the study team interviewed the deputy technical director and MuniWASH focal point at the City Council.

3.2 DIAGNOSIS OF THE PRIVATE SECTOR ORGANIZATIONAL SITUATION

3.2.1 STAKEHOLDER PROFILES

All standpipe managers, standpipe operators, drillers, and managers of self-sustaining community water points operate without any formalization - it is an informal sector in terms of legal status. Among private PEA operators, some hold business registers for a main activity and who subsequently included PEAs into their activities. This is the case, for example, of two PEA operators who hold a trade register for a restaurant in Avrankou and Aplahoué respectively. In general, almost all the providers are involved in the sale of telephone rechargeable batteries, the sale of various goods, catering, sewing, etc.

For the providers interviewed, almost none practiced administrative, logistical, accounting, or financial management or human resources management. General business management is therefore very primitive. As they are often illiterate or without any special skills for the activity and do not have any equipment, some, such as the drillers, use the services of data entry centers or cyber-café in their communities to draw up estimates, invoices, or other documents if necessary.

Most private sector actors had no human resources management procedures. Recruitment is seemingly done in an arbitrary manner with no objectivity. As part of the study, the team identified three practices in this area: recruitment based on the *recommendation or guarantee of a local opinion leader* (e.g., neighborhood leader, municipal hierarchy for the recruitment of water standpipes); *family affinity*, which is observed in the recruitment of drillers or contractors specializing in solar equipment for water distribution; and *political affinity* (political affiliation, closeness to an elected official), which are sometimes a source of conflicts of interest. The arbitrary nature of these recruitments, coupled with the informal nature of these contractors, enables the: (i) the non-existence of formal contracts and specifications clearly stating the role of the employee, which is necessary in some cases, such as standpipes, system operators or PEAC managers, and (ii) poor management practices. For some stakeholders, such as private water service providers (VWSPs) operating PEAs, there is no staff recruited to ensure the sale of water: the sale is carried out either by the operator or his wife, or an employee assigned to other tasks (an apprentice, for example) and incidentally to the sale of water. The team noted a chronic lack of knowledge of the institutional environment of water and the state support system for small and medium enterprises (SMEs) among all the service providers.

3.2.2 OPERATIONS MANAGEMENT

3.2.2.1 PRODUCTION MANAGEMENT

Urban drinking water production primarily is handled through SONEB along with the managers of standpipes and the managers of self-sustaining community water points who ensure distribution. In some communities, this production does not cover the needs of the populations served. This is the case, for example, in the municipality of Aplahoué, where the water supply from the SONEB system, and therefore from the standpipes and PEACs, is only available three to four days a week with water supply cut-off periods during the remaining days. Cuts can last on average between five to twelve hours or more. The hours of interruption also affect service delivery continuity, as the service providers in the town of Aplahoué reported interruptions from 7am to 7pm, and sometimes two days in a row, which corresponds to the time of day when households travel to obtain water supplies.

Drilling for water production by PEAs is carried out by developing a new well or through the development of an existing well. The depth of the well generally varies between 40 and 60 meters. Produced water is stored either in a tank or in a masonry water tower, and often water sold by a PEA is done without any control of the water quality. When the water treatment is done with the use of chlorine tablets, bleach, it is done without any norms, which in any case are unknown to the operators. According to two of the operators, households sometimes complain about the taste and smell after the treatment operations, which corroborates the lack of knowledge of the procedures and standards to be respected. Despite this situation, private WSPs are seen as necessary because they compensate for the inaccessibility and unavailability of water from the main system in the vicinity of the populations of certain districts.

As for the contractor specialized in the installation of solar water pumping systems, production is seasonal and is based on demand. The orders received are honored by the latter with the support of his trainees and secondarily with subcontractors.

3.2.2.2 CUSTOMER MANAGEMENT

In general, no customer records are kept by the various actors. The only register available from the managers of PEACs and SONEB standpipe systems is that of expenditures (paid bills) and receipts. These service providers keep themselves informed of the needs and satisfaction of their clients through the feedback they receive from their managers' telephone lines. To build customer loyalty, PEA managers sell water on credit within a week to a month. One provider confided that he gives a preferential price as to loyal customers, especially those who use water for income-generating activities.

3.2.2.3 SALES, COMPETITION AND MARKETING MANAGEMENT

Providers do not practice keeping sales records. Of the seven standpipe and PEAC managers who took part in this study, none kept a sales register. Only about one out of three of these providers keep an income-expenditure book in which the monthly income and expenditure amounts are mentioned. The amount of credit for water purchases per client varies between 300 and 1,500 FCFA per month.

Water prices vary slightly between private WSPs [0.67–0.8 FCFA/liter or 670–800 FCFA/m³] and PEACs [1 FCFA/liter or 1000 FCFA/m³]. The price of water under PEAs is naturally regulated by the market through competition, while that of the PEAC is sometimes regulated by the City Council. This is the case for the Ouakpè Daho system 2 (Ouidah municipality), where the price is set by the City Council, which defines the resale price of the m³ on the system to the population: from 1,000 FCFA/m³ (of which 200 FCFA was paid to the water standpipes), the price is now 600 FCFA/m³.

As part of this study, the team interviewed a few clients on the choice of water supply location. Proximity is the most important factor in the choice of water supply point. In addition to this, there

is the relative quality of the water (*as perceived by customers*) and the regularity of service (*frequency of breakdowns*). In the municipality of Avrankou, one of the municipalities with the largest number of private WSPs, the team counted an average of six WSPs within a one-kilometer radius.

Providers have a good knowledge of the competitors in their catchment area. However, there is a need for improved marketing. All individual contractors, particularly drillers, masons, and plumbers, who are involved in the construction and/or maintenance of waterworks belong to a professional association. Most of these associations face enormous organizational and management challenges. The team also noted name confusion at the municipality of Avrankou, where the managers of private WSPs have formed an association of drinking water consumers (ACEP). This is tantamount to appointing themselves judge and jury.

3.3 ANALYSIS OF THE FINANCIAL POSITION OF WATER SUPPLIERS

The team’s analysis on the financial management of water suppliers is based on the accounting records that companies are obliged to draw up and publish, or even on other forecasting documents (forecasted income statement, financing table, cash flow statement, etc.). In the context of this study, none of the water service providers kept regular accounts of the operations carried out. For almost all of these providers, the financial information provided was from memory and therefore approximated. The financial analysis of these providers is limited to an assessment of the profit determined based on the revenue and expenditure reports made by the providers. These analyses were conducted for a PEAC and a private PEA.

This analysis shows that PEAs have a better financial position than PEACs. The operating expenses of a PEAC virtually account for 88% of the operating income against 51% for a private PEA, i.e. a profit margin of 12% and 49% respectively. This is largely due to the very high cost of purchasing water (63% of the operating expenses of a PEAC) currently at the level of these providers. Based on the 20% threshold for profitability, it can be inferred that private drinking water suppliers (PEAs) enjoy margins that allow them to be viable, while PEACs are not. Details are provided in the following sections.

The revenues of the water supply service managers are made up of revenues from the sale of water services at SONEB, particularly in the municipality of Aplahoué, which has an adverse impact on the revenue earned by service providers. Almost all of these stakeholders finance their activities with their own funds, 90% of which come from another income-generating activity.

3.3.1 SELF-SUSTAINING COMMUNITY WATER STATION (PEAC)

Table 1: Typical Account of a PEAC Manager in Aplahoué (on SONEB Connection)

EXPENSES	AMOUNTS	PROCEEDS	AMOUNTS
Operating expenses		Operating income	
Purchase of water	448,817	Sale of water in dry season (2,500 FCFA/day)	675 000
Other purchases and external charges Various repairs (tap, fitting, unblocking)	23,000	Sale of water in rainy season (1,500 FCFA/day)	135 000
Remuneration of the staff (20 000 FCFA/month)	240,000		
<i>Total operating expenses</i>	<i>711,817</i>	<i>Total operating revenues</i>	<i>810 000</i>
Profit (Income - Expenses)	98,183	(12%)	

Cost structure varies according to the nature of the water supplier. Standpipe operators connected to the SONEB supply system must purchase water, pay fees to the municipality, pay commissions/salary for the standpipe operator, and pay for repairs to taps and connections. In practice, the charges to be paid to the municipality are not clearly defined, and so the managers do not pay them. In the municipality of Ouidah, there are large expenses related to water loss in the dilapidated system.

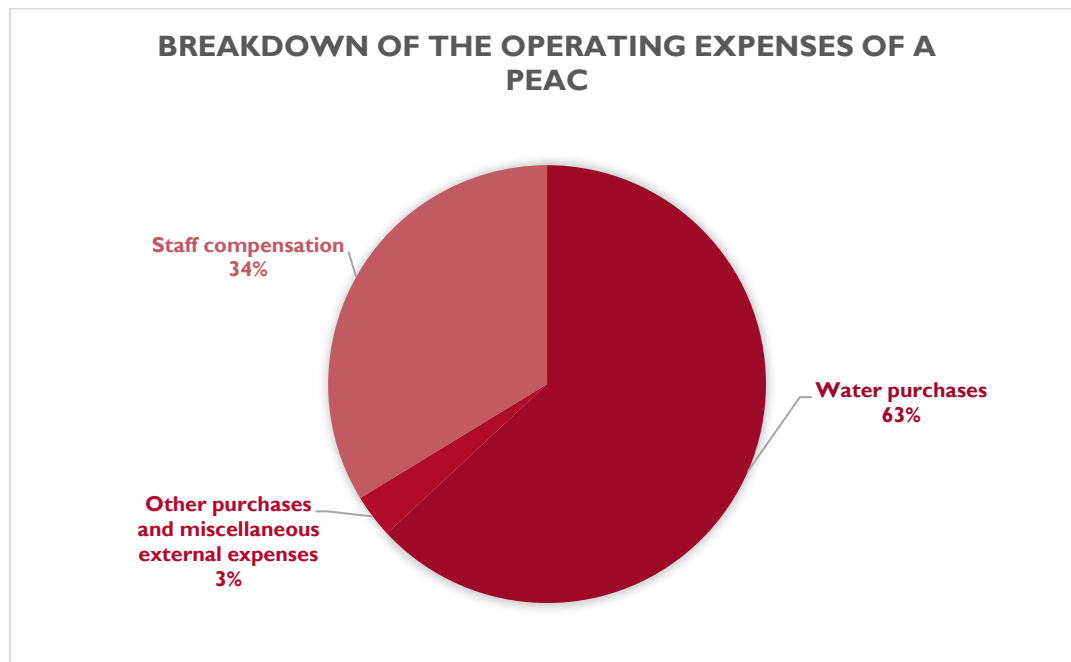


Figure 1: Distribution of the Operating Expenses of a PEAC

Approximately 63% of the operating expenses of a PEAC are from payment of water bills to SONEB. This rate is influenced by the billing of water losses recorded on the system to the managers by SONEB.

Client receivables are marginal among the providers. For the standpipe managers, only two admitted that they sell on credit to the most loyal clients for refunding within 8 to 30 days. The client debt varies between 6,000 and 7,000 FCFA per month for the few providers who grant credit to their clients. Revenue collection is a permanent challenge in the standpipe systems connected to the SONEB system. This is the case with the municipality of Ouidah, where the operator views that the standpipe operators use the revenue for their own purposes.

3.3.2 PRIVATE STANDALONE WATER STATION (PRIVATE PEA)

For private PEA managers, the cost structure essentially factors in the cost of electricity/gasoline, the cost of maintenance and upkeep of the borehole (labor for masons or plumbers and/or generator costs, depending on the case depreciation of the production equipment), and a non-deductible fixed fee for the manager. One of the service providers mentioned that repair/maintenance costs are high - as soon as the water point has a small malfunction, it often damages the suction pump and the alternator. Finally, the use of a conventional post-paid power meter is more expensive than the use of a pre-paid meter.

Table 2: Typical Account of a Private WSP (PEA) in Bohicon

EXPENSES	AMOUNTS	PROCEEDS	AMOUNTS
Operating expenses		Operating income	
Purchase of water	0	Sale of water in dry season (2,500 FCFA/day)	675 000
Electricity (90 kWh per month on a prepaid meter)	146,616		
Bleach for water treatment	10,000		
Other purchases and external expenses Various repairs (tap, disomatic)	10,000	Sale of water in rainy season (1,500 FCFA/day)	135,000
Maintenance (washing powder, bleach, brush, etc.)	6,000		
Remuneration of the staff (20 000 FCFA/month)	240,000		
Total operating expenses	412,616	Total operating revenues	810,000
Profit (Income - Expenses)	397,384	(49%)	

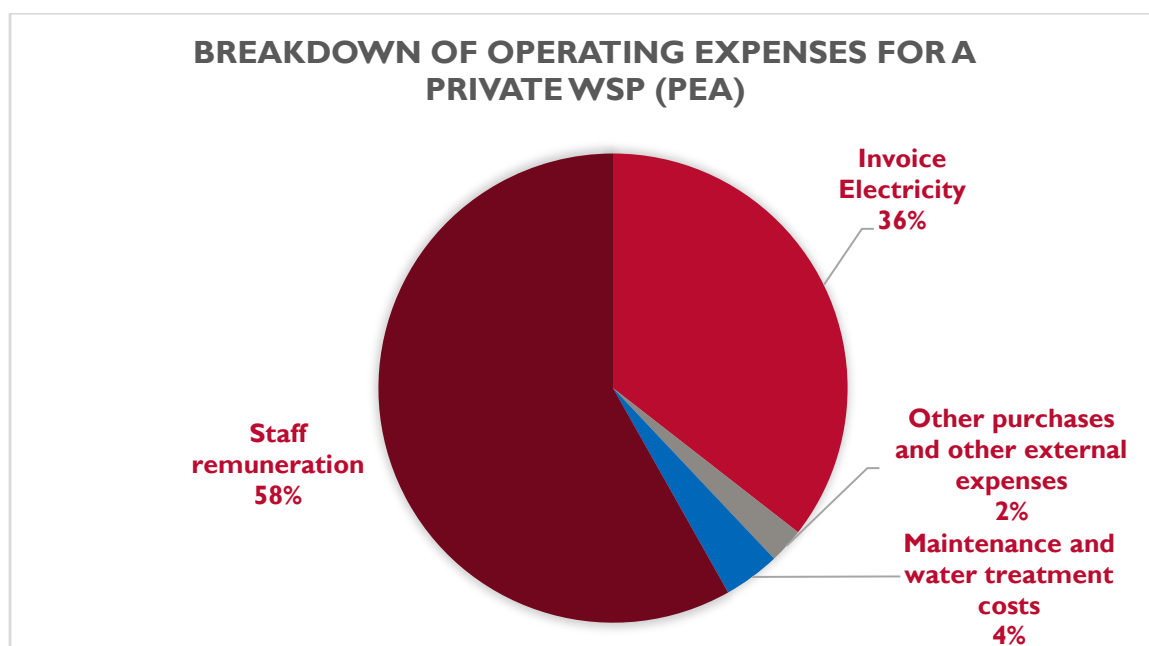


Figure 2: Breakdown of Operating Expenses for a Private WSP (PEA)

Most of the operating expenses of a private WSP (PEA) are related to the remuneration of the personnel (58%) and to the electricity costs which account for 36%. The costs of maintenance and water treatment and other purchases, especially repairs, are marginal and account for about 6%.

3.4 SWOT ANALYSIS OF THE WATER SECTOR IN BÉNIN

The table below shows the analysis of the strengths, weaknesses, opportunities, and threats (SWOT) of the water businesses identified and analyzed above for these private operators.

Table 3: Private Operators' SWOT Matrix

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Customer loyalty • Monthly maintenance of water towers/tanks • Existence of ACEP recognized by the municipalities • Profitability of the activity for private PEAs (>40%) 	<ul style="list-style-type: none"> • Informal entities • Lack of training for water operators • Lack of knowledge of the regulatory framework and industry standards • Lack of organization and management (lack of planning, strategy, accounting, resource and data management documents, etc.) • Improper recruitment method, with conflicts of interest • Inexistence of a water suppliers' association/charter • Low service coverage per provider • Discontinuity of the water supply service at the level of the PEACs due to long and frequent interruptions (case of Aplahoué); • Very limited profitability of PEAC (<20%) • Lack of regular monitoring and control of the quality of the water sold by private WSPs (PEA) • High cost of water charges collected by SONEB for PEAC. • Very little or no interaction between private WSPs and municipalities;
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Existence of national water management policy and strategy papers; • Priority given to the supply of drinking water in the PAG; • Existence of the Investment and Export Promotion Agency (APIEX) for the formalization of companies; • Important demand for drinking water - Existence of a real market, population not served by the main system of the SONEB; • Opening the water sub-sector to the private sector; • Standpipe manager, PEAC: occupations recognized in the national scheme • Political will to facilitate access to water for all. 	<ul style="list-style-type: none"> • SONEB's dominant monopoly situation in the urban environment; • Limited financial sustainability of the water utility, inadequate tariff framework and mechanisms; • Low accessibility to the financing terms of the decentralized financial systems • Outdated water supply system • Organizations not recognized, especially private WSPs, in the national system • Insufficient support staff for water supply activities at the level of the City Councils;

3.4.1.1 WATER PROVIDERS CONNECTED TO THE SONEB SYSTEM

Water providers connected to the SONEB system lack of a formal contract between the service providers and the City Council, which has a negative impact on management of these systems. The managers are not bound by any obligation to provide a written account or to make the activity profitable. Moreover, as they have not received any training on the management of water points, the standpipes are left to their own devices and wait for households that need to fetch water. Therefore, they serve water from the standpipe in a wait-and-see approach regardless of whether or not households will fetch water. The continuity of the service is dependent on their availability. In addition, the profitability of the service is negatively impacted by untimely water cuts, particularly in Azovè. The unavailability of water at the PEACs is a factor that diverts households to private PEAs. It will therefore be necessary to review the possibility of storing water at the PEAC level to compensate for untimely water cuts.

The passive wait-and-see management of customer relations also negatively impacts the profitability of water sales activities by the PEACs, and the revenue collection models are not efficient and do not guarantee the actual collection of revenue from water suppliers. In addition to these issues, there is poor follow-up of the payment of water consumption invoices with the PEACs by the competent agencies from the city government. This results in high levels of unpaid bills and non-functioning standpipes. The populations of these neighborhoods have had to resort to private subscribers who have turned themselves into water resellers.

3.4.1.2 SPECIAL CASE OF STANDPIPES IN THE CITY OF COTONOU

From discussions with the competent departments of the Cotonou City Council, it appears that none of the city's standpipes are functional to dateⁱ. Thirty standpipes have been identified in the sixth district (Ahouansori-agué, Towéta 2, Ladj, Towéta 1 and Vossa) and 10 in the 2nd district of the city of Cotonou, for a total of 40 standpipes, all of which have been out of use for more than four years. These standpipes were previously managed by local management committees under the leadership of the current Directorate of Surveys, Planning and Forecasting.

Standpipes are regularly reported to the chairperson of the development committee of their community and do not understand why the system has recorded so many unpaid bills (more than 7,000,000 FCFA). The conditions under which the management of the water kiosks is granted have yet to be clarified. The populations of these neighborhoods fall back on private subscribers who resell the water to secure supply. This is not only expensive for them, but also raises the problem of water quality.

The process of rehabilitating the system, which began with the identification and census of the standpipes, must include a new management mechanism to prevent the situation from reoccurring. The Cotonou City Council will also have to commit to clearing the slate of more than 7,000,000 FCFA in unpaid bills on the system and to undertake repair work on the water kiosks.

3.4.1.3 PRIVATE WATER SERVICE PROVIDERS (PEA OPERATORS)

Private WSPs often used a model of operation more in line with the need of the operators to diversify their sources of income rather than to create and properly operate a water sales business. The PEAs are therefore operated for the domestic needs of the owner's household first and then for water sales. Since they have not received any training in water treatment, the major challenge for private WSPs is the quality of the water they provide to the population.

3.5 CONCLUDING REMARKS FOR DRINKING WATER SERVICE PROVIDERS

Drinking water supply in urban areas is structured around SONEB, the only public operator acting as a delegated project manager on behalf of the municipalities for drinking water and wastewater services in urban and peri-urban areas. There are also several private service providers, particularly in areas not covered by the SONEB system. They are involved either in private collection and distribution, or in distribution from the SONEB system, particularly in peri-urban areas.

These private water suppliers almost all operate informally and have no specific skills or knowledge of the sector to run their activities. They are characterized by an often poorly structured organization with very few practices for recording accounting information (embryonic or non-existent primary accounting). Their business model responds much more to a need to diversify sources of income than to business management: it is a "side job."

The pricing system varies depending on whether it is a private PEA or a PEAC connected to the SONEB system. In the first case, the price is regulated by the market, while in the second case, it is regulated by the City Council. Unit prices vary from 0.6 to 0.8 FCFA per liter of water sold in the

case of private PEAs and reach 1 FCFA per liter of water sold in the case of PEACs. However, financial analyses reveal that the activity of the private PEAs seems to be at least four times more profitable than that of the PEACs, whose profits are limited by the cost of purchasing water from SONEB, which accounts for three-fifths of their expenses.

Unlike plumbers, masons, and drillers, who are structured in associations with an umbrella organization, there is no association or umbrella organization for private water suppliers other than the ACEPs. However, such associations are not, for the most part, formally registered and have no established relations with the municipalities or with the Government in general.

The municipal bodies have virtually no formal interaction with the operators of private PEAs regarding quality of service, i.e. the quality of the water sold to the population. None of the service providers had developed a customer loyalty strategy, nor any marketing strategy apart from the sale on credit by some standpipe and private PEAs managers.

In terms of capacity building, there have been a few sporadic initiatives/activities (most recently in 2006) by the decentralized agencies of the Government to raise awareness and advise private service providers on water purification techniques. The challenge of training and monitoring water service providers remains, therefore, and requires that the operating model be completely rethought, especially for works connected to the SONEB system.

4 ACCESS TO SANITATION

4.1 STRUCTURE OF THE SANITATION SERVICE CHAIN IN BÉNIN

4.1.1 CENTRAL STAKEHOLDERS

Several categories of stakeholders are directly or indirectly involved in the wastewater and fecal sludge management including public stakeholders, private providers of commercial services, community-based associations, and technical and financial partners. Regulation and policy development for urban sanitation is carried out by the Ministry of Living Conditions and Sustainable Development (MCVDD) through the *Directorate General of Urban Development* (DGDU), while the National Agency for Primary Health Care (ANSSP) of the Ministry of Health is responsible for policy development for basic hygiene promotion and sanitation. The DGDU is responsible for regulating fecal sludge disposal services. Under the supervisory authority of the Ministry of Water and Mining, SONEB is legally responsible for providing wastewater treatment and the *Basic Hygiene and Sanitation Department* (SHAB) is responsible for providing technical assistance to municipalities for the promotion of hygiene and basic sanitation.

Several ministerial departments are responsible for managing the sanitation sub-sector without any ministry being formally nominated to direct the efforts made, which poses a coordination problem for that sub-sector at the central level. However, a 2020 government workshop established the *Ministère du Cadre de Vie et du Développement Durable* (MCVDD) as the lead ministry for the sector, and a formal decree will better define the roles of the different stakeholders.

Several technologies are used to promote basic hygiene and sanitation in urban and peri-urban areas of Bénin. For example, Water and Sanitation for Africa, formerly known as the African Center for Drinking Water and Sanitation, and the Belgian nongovernmental organization (NGO) PROTOS are promoting the Ecosan latrine. The Béninese Association for Social Marketing and Health-promoting Communication (ABMS) promotes a type of twin pit latrine with manual flush called “WC Mimin.”

4.1.2 PRIVATE SECTOR

The study team met with several private sector actors of the sanitation service chain. These included stakeholders in the storage/capture, emptying/transportation, treatment, and disposal/reuse. Within the wastewater and fecal sludge sanitation value chain, these actors are involved in latrine construction and maintenance, emptying, transport, sanitization (first treatment), and marketing of by-products.

- Among **capture/containment** providers, the study team met five small WC Mimin sanitation contractors and 15 small contractors including masons and plumbers.
- For **emptying/transport**, the team interviewed five emptying companies. They are ETS Gnonkoura, Akoubeato Yakpe, Monda et Fils, Hinhami Christ and SIBEAU SA. SIBEAU SA (PLC) is a special case that operates in two areas: emptying/transport and treatment. All the service providers operate mainly in the Cotonou extended urban area¹, which remains the area of concentration for this activity.
- Although several **treatment sites** were scheduled to be visited as part of this study, the team examined one as the others are no longer operational.

¹ The extended urban area of Cotonou includes the municipalities of Cotonou, Abomey-Calavi, Sèmè-Podji, Ouidah.

- In Bénin, several experiments are being conducted in terms of **reuse/recovery** of faecal sludge and urine. In the context of this study, four stakeholders were interviewed. These were the VALDERA center of the University of BIOGAZ Bénin Sarl. All of these stakeholders are in the municipalities of Cotonou, Abomey Calavi, and Toffo.

4.1.3 POPULATION SERVED

Mimin's small sanitation contractors, as well as the other individual contractors, operate in the municipalities of Abomey-Calavi, Avrankou, Bohicon, Aplahoué, and Ouidah. The population served by these individual contractors is mostly that of homeowners without latrines, or houses with latrines that are not very comfortable, such as VIPs and traditional pit latrines that are unsanitary. For emptying companies, the population served is made up in a very large proportion of homeowners with full pits in the Littoral Department and in the Municipality of Abomey Calavi - two municipalities in which the demand for emptying services is very high. More than one in ten households (13%) in Bénin use improved sanitation facilities, and half (54%) of all households do not have any type of toilet - a much higher proportion in rural areas than in urban areas (69% vs. 34%).ⁱⁱ

4.2 DIAGNOSIS OF THE PRIVATE SECTOR ORGANIZATIONAL SITUATION

4.2.1 CAPTURE/CONTAINMENT

4.2.1.1 PROFILE

There was a clear difference between the contractors who benefited from the support of the USAID SSD project and the others. Fifty percent of the WC Mimin individual contractors operate under the status of sole proprietorship and are formalized while almost all the other individual contractors such as masons and plumbers are informal. When necessary, the informal contractors must find alternative arrangements when they are required to provide documents proving the legality of their companies. They often resort to using the documents of their colleagues who have them.

Operators often have a practical knowledge of the trade but do not have the skills to run a company. The study team found that there is an absence of rigorous business management practices in both formal and informal service providers, and therefore of different human, material, and financial resources. Operations processes, including financial data, are not rigorously documented. Agreements between employees and employers are often made orally, and it is not uncommon for one of the parties not to respect its commitments. In addition, one out of every two contractors stated that they do not have the skills to train, motivate, and supervise their staff, and they fear that this is an unprofitable investment because of the high rate of turnover. These gaps cause instability in the workforce, and sometimes they are a source of conflict. To mitigate staff instability, some contractors set up a system of staff motivation that can include: financial assistance and granting weekly bonuses of 2,000 to 5,000 FCFA - depending on performance.

The study also identified that WC Mimin contractors own between one and five production sites for toilet construction. The start-up capital of these contractors varies from 15,000 to 50,000 FCFA for current assets that vary from 350,000 FCFA to more than 30,000,000 FCFA. They have ambitions to develop their business to expand their market share in the sanitation sector, but also to diversify their portfolio of activities. These include, among others, the acquisition of a plot of land to install their production site, the acquisition of a dump truck to extend their activity to the delivery of sand and thus to have an integrated operation; the acquisition of equipment for the cleaning of the Mimin toilet pits; to increase the production capacity by acquiring additional equipment such as the concrete mixer, the loader; to strengthen their position as wholesalers (for the sale of SATO pans);

to extend their activities to the sector of water drilling. The above-mentioned individual contractors all belong to a professional association and/or an umbrella organization.

4.2.1.2 OPERATIONS MANAGEMENT

Supply management practices vary according to the level of activity of the contractor. Raw material purchases are made (i) *in retail* - aligned with the flow of products - for very small enterprises or (ii) *in bulk* for enterprises with a relatively large volume of activity. However, except for one contractor, the material stocks are not well monitored and managed, and there were no related documents. These practices lead to unplanned production cycles. For example, WC Mimin contractors had a large stock of bricks and other products, the quantity of which was not matched to demand. These products are produced in large quantities in the hope of receiving a large order at a hypothetical date. All WC Mimin contractors and individual contractors declared that they master the techniques of quality assurance of their products, which allows them to optimize production inputs and therefore production costs. The contractor ETS Theo La Merveille confided that he is careful to use the right dosage of the sand-cement-water trio because the quantities of products produced per day depend on it. Thus, he observed significant improvements in his production, going from 2 to 4 toilets per day to 15 toilets per day - using two molds. In addition, this contractor has two varieties of molds; one for tiled toilets (the thickness of the mold is smaller) and another for oxidized toilets (the thickness is larger). This saves tile, sand, and cement in the production of tiled toilets.

4.2.1.3 CUSTOMERS, MARKETING, AND COMPETITION

The clientele of the contractors is very varied and is composed of individuals, public administration, private companies, NGOs, religious congregations, and they include real estate agencies, churches, bars and restaurants, public and private hospitals, and schools. However, private individuals constitute the segment that contributes the most to sales for these contractors. In general, the contractors do not keep a client register. No mechanism for proactively collecting the needs of their clientele has been developed by the contractors. For the Mimin contractors in particular, the situation is accentuated by the fact that the generation of demand from clients is ensured by business contributors, either the Community Sanitation Advisors (CCAs) or affiliated masons. The latter, for example, capitalize on more than 90% of the sales of toilets and latrines to contractors. There is therefore very little interaction between contractors and clients.

To bring products closer to the clients, contractors sell in local sales outlets. However, there are difficulties related to the collaborating with the managers of these points of sale including payment collection (sales are not reimbursed on time by them) and the non-exhibition of products on a regular basis (the managers put the products in their stores and do not exhibit them) while at the same time there is a need to sell in other areas.

In order to retain customers and gain more customers, the contractors use several techniques that focus on different aspects: 1) reputation - a critical factor in attracting customers; 2) average response time in handling customer complaints and claims, which varies between 24 hours (33% of contractors) and 48 hours (67% of contractors interviewed); and 3) good reception, courtesy calls, discounts granted, installment payments or deferred payments (8-15 days). Only the WC Mimin contractors interviewed engage in promotional activities. The level and extent of promotional activities varies according to the means of the contractors. Promotional activities are often financed by their own funds and with the support of partners like the USAID SSD project. The most effective channels to reach clients are door-to-door, radio, and social media. Some of them have acquired sound equipment with their own funds to manage public communications, make flyers, banners, and business cards. All masons and plumbers said they do not actively seek new customers. In general, they secure new customers through recommendations from satisfied customers.

However, these techniques do not always work and do not prevent customers from opting for products from other competitors or from using their services for subjective and social reasons, which can affect company profits.

Despite competition in the market, there is a tendency towards working together in an association. Both the WC Mimin contractors and individual contractors interviewed belong to professional associations. Some are members of more than two associations at the same time. This is the case of the contractor AKOÏ Pierre who is a member of the Community of local building material producers; of *Union Nationale des Entrepreneurs d'Assainissement MIMIN du Bénin* (UNEAM-Bénin) of which he is the President since December 2019 and the *Association Professionnelle des Fabricants de Claustres de l'Atlantique*. They see membership in these associations as an opportunity to share experiences and learn and to benefit from cooperative negotiations.

4.2.1.4 FINANCIAL ANALYSIS

The rudimentary management and operation of the contractors, with little or no data management, makes it difficult to quantify their volume of activity and consequently the financial analysis of their business. Revenues of the individual contractors are primarily made up of the amount of labor invoiced to the client and, secondly, of the profit margin on the purchase of materials.

Income for WC Mimin contractors and the other contractors (non-members of UNEAM-Bénin interviewed) comes from the sale of marketed products. In addition to latrine components, these contractors market a wide range of articles and products used in building construction and interior decoration. Not all of these service providers keep regular accounts that fully track their income. This makes it almost impossible to determine their total sales - even the ones directly linked to sanitation activities. Nevertheless, the sale of basic sanitation products (toilets, pit latrine construction, bulk SATO pans, double ventilated pits, handwashing facilities) represents between 10 to 30% of their sales – except for Ets Theo La Merveille, which only sells basic sanitation facilities.

The analysis of an operating account of one entrepreneur shows that activities generate a profit of around 8.90%, which is not profitable enough as it falls less than 20%. Furthermore, the operating expenses of this entrepreneur represent 83% of its revenue. The analysis of the operating costs established a high proportion related to raw materials (cement, sand, tile, oxide) purchase and those linked to the purchase of SATO pan in bulk, i.e. respectively 53% and 30%.

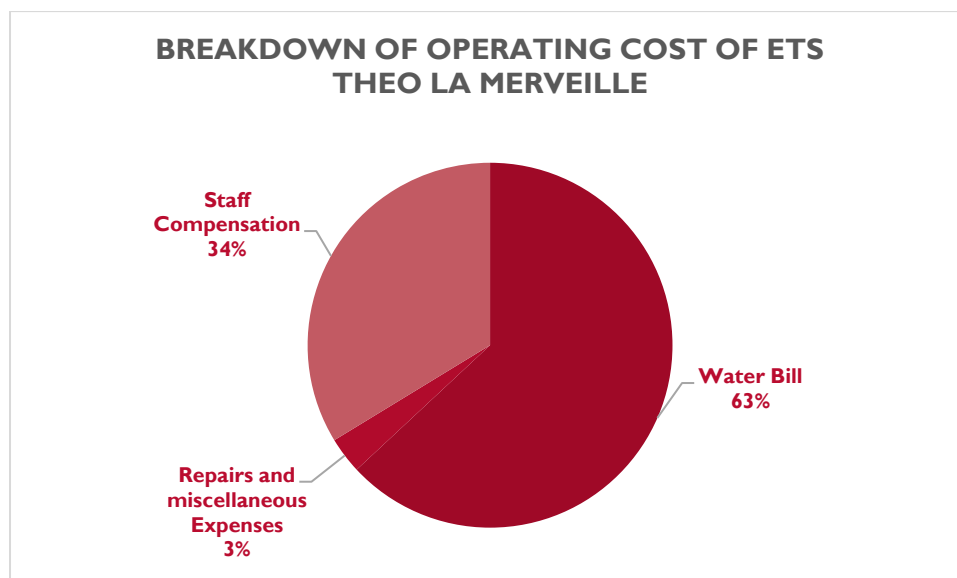


Figure 3: Operating Costs of ETS THEO LA MERVILLE

A better control of expenses related to the purchase of raw materials and bulk SATO pan would significantly improve the profitability of the entrepreneur's activity. As for the WC Mimin contractors and other small sanitation contractors, the receivables are relatively high, and they have enormous difficulties in collection. They do not apply any particular collection strategy other than regular reminders to community advisors who support them in creating demand. The risks of non-recovery are also very high because the contractors do not take any written precautions (IOUs signed by the households and the CCA). Also, considering that some of them do not know the households or have not had any direct interaction with the client until the sale is completed, recovery depends largely on the good faith of the CCA, which can sometimes collect the funds without returning them to the contractor. The telephone remains the most common tool for debt collection.

Financing of activities is often carried out with their own funds and through the endowment and support of external partners such as support from the USAID SSD project. Contractors do not usually resort to loans from microfinance institutions (MFIs) or local banks to finance their activities, because the lending terms and conditions are inaccessible to them. However, all WC Mimin contractors have accounts with an MFI.

4.2.2 EMPTYING/TRANSPORT

4.2.2.1 PROFILE

All of the emptying service providers interviewed are formalized including SIBEAU, which operates as a limited company with a capital stock of 75,000,000 FCFA. All other waste disposal service providers who participated in this study are sole proprietorships, including the startup LCCB/ALLO BÉNIN VIDANGE.

Emptying service providers are relatively better organized than the storage/capture stakeholders, especially SIBEAU, which is a high-functioning private company. SIBEAU has an administrative service which handles management communications and mail. Its organizational structure includes a chief executive officer, a deputy general manager in charge of accounting and finance, an operations department, an internal audit department, and management. Its slogan “We get rid of everything that clutters you” translates the mission that it has assigned to itself alongside the populations of Grand Nokoué. Under the leadership of the Director of Operations and the Deputy Director General, a mid-term evaluation is carried out every six months to assess the year's objectives.

The administrative management of the other emptying service providers are usually carried out by the managers themselves, sometimes with the support of family members. Management is often done in a rudimentary way, as in the case of the storage/capture operators.

4.2.2.2 OPERATIONS MANAGEMENT

None of the sanitation service providers has an administrative and financial procedures manual, aside from SIBEAU SA. However, with the support of the SSD project, the VTOs have adopted a protocol for providing hygienic and quality services, and the VTOs benefit from the services of the Mimin Emptying Call Center. Half of the emptying companies wish to promote the use of electronic payment with their clients and say they are ready to sensitize their clients to it.

The service providers, except for SIBEAU SA, manage very few materials and equipment. SIBEAU SA has a garage to repair its trucks, which is equipped with basic spare parts and other maintenance products such as motor oil. Until 2019, there was a central mechanic who coordinated the maintenance of the trucks. However, there were practices of overcharging and unjustified repairs and repair expenses became too high; the company's management undertook reforms that resulted

in the reduction of expenses. Once 2,500,000 FCFA per month, these expenses are now capped at 300,000 FCFA. A regular inventory is carried out every week with the regular keeping of stock records.

SIBEAU SA also has a mini diesel station for the supply of its trucks. This makes it possible to manage the fuel supply of the trucks. SIBEAU has a fleet of five trucks whose average age varies between 12 and 20 years. For fleet maintenance, other oil change service providers use outside technicians. Spare parts are usually purchased in Nigeria. Sometimes trucks are out of service for long periods due to lack of parts or lack of financial resources.

4.2.2.3 CUSTOMERS, MARKETING AND COMPETITION

Half of the VTOs interviewed in this study do not have the practice of keeping customer records and managing relationships with them. Only a few customers who are already loyal receive attention from them. The majority of clients are households. In addition to these clients, there are also services provided to schools, hospitals, etc., which do not, however, make up a large part of the revenue. Emptying service providers avoid credit sales as much as possible - especially to private customers. However, sales made on purchase orders are made on the customer's terms, and payments are made within 30 to 45 days after presentation of the invoice.

Specific case of SIBEAU. SIBEAU SA keeps a register of client companies with which it has a regular relationship and which benefit from a particular attention. SIBEAU has a portfolio mainly composed of large companies such as the Béninese Brewery Company (SOBEBRA), Beninese Industrial Gas Company / *Société Beninoise de Gaz Industriel* (SOBEGI), Béninese Painting and Dyes Company, Central Bank of West African States (BCEAO), etc. Previously, SIBEAU SA had a commercial department dedicated to sales promotion and included a collection department, which managed invoices of big customers. However, the commercial department is no longer functioning, and the agencies are managed directly by the Operation department. The main office located in Atinkanmey centralizes all the orders for emptying and schedules the services according to the availability of trucks. Customer complaints are received at the company's secretariat, which forwards them to the Operations Manager. Complaints are treated within 48 hours at most.

Competition between the providers of emptying services is unfair. The large diversity of stakeholders result in varying levels of service quality. For example, owner-drivers that are trying to merely survive engage in “*partial emptying*” practices (commonly termed as “*kpa kpê dé*” in the local language) and others abuse the trust of households by removing less than the agreed quantity. In addition, challenges in terms of compliance were noted by all of the VTOs interviewed for this study.

The VTOs also mentioned the competition from SIBEAU SA, which is perceived as a wholesaler and at the same time a retailer because it does not pay the same access fees to the dumping site as the others. The other VTOs pay a dumping fee for access to its site, which is the only one in operation in the Cotonou urban area.

From a marketing point of view, the VTOs reported a partnership with external collaborators (hairdressing centers, sewing shops, cafeterias, individuals, etc.) to whom they sometimes leave billers for canvassing and bringing in customers. With these external collaborators, the VTO agrees on a price for the delivery of the service that he collects from the latter without any interaction with the household. This encourages overbidding by these canvassers, who may, for example, collect 45,000 FCFA from the household for a 6m³ emptying operation, and pay just 35,000 FCFA or even 30,000 to the VTO. The principle being that the VTO is forbidden to have any discussion with the household about the price paid to the canvasser.

The VTOs who participated in this study are members of the Union of Beninese Professional Sanitation Organizations (*Union des Structures Professionnelles d'Assainissement du Bénin - USPAB*), which has become Association of Professional Vacuum Truck Operators of Benin (AViPro-Benin). AViPro Bénin is also a member of the Pan-African Association of Non-sewer Sanitation Operators (APAA) and is in partnership with the USAID-funded SSD project, the Cotonou City Council through several technical departments such as the City Police Department and the Department of Population Services.

4.2.2.4 FINANCIAL ANALYSIS

The revenues of the emptying service providers come from the removal and transportation of fecal sludge and industrial wastewater. Sixty percent of the emptying service providers interviewed have a subcontract with an accounting firm that helps them prepare their balance sheets and financial statements. The other 40% does not have accountability for their business.

The expenses are made up of the personnel costs (drivers, laborers), the maintenance and repair costs of the trucks, the costs of small protection materials, the costs of diesel/fuel, the administration costs, the insurance costs and the technical inspection of the truck(s), the various taxes and fees paid during the unloading (unloading tax, access costs to the unloading site, toll bridge costs, fees paid to the City Council); the depreciation costs of the truck (which should no longer be provided for due to the obsolescence of the fleet) and of the equipment and tools. Most of the operating expenses are still concentrated in fuel costs, truck maintenance and staff salaries. The operating expenses are relatively equally heavy on these service providers because of the low level of activity. See Annex I for a sample financial analysis of the company AKOUEBATO YAKPE.

Emptying service providers grant very little or no customer credit; debts held by these providers are usually with companies (public administrations, private companies such as SOBEBRA, Benin Cement Company / *Cimenterie du Bénin-CIMBÉNIN*, Central Bank / *Banque Centrale des États de l'Afrique de l'Ouest BCEAO*, etc.). Most of these operators ensure the financing of their business by using their own funds, often coming from the profits of the business concerned or from other commercial activities; they also appeal to family ties, family or other relations. As for SIBEAU SA, which is a structured company, it uses bank financing both locally and internationally.

4.2.3 TREATMENT

In Bénin, and particularly in the Cotonou urban area where most of the fecal sludge activities are concentrated, there is no fecal sludge treatment plant. Two fecal sludge treatment plants are currently under construction. One in Abomey-Calavi for the treatment of 600m³/day of sludge by 2025 and another in Sèmè-Podji for a treatment capacity of 506 m³/day by 2035.

The only station in service is the one built and operated by SIBEAU since 1994 in Sèmè-Podji. It has been heavily damaged by coastal erosion over the years. Built to treat 180 m³ of sludge per day, it receives 450 to 600 m³ of sludge per day, which far exceeds its capacity and therefore the effluents no longer meet the discharge standards. Nevertheless, it is the only station available for dumping in the Cotonou area. Also, the VTOs deposit the collected sludge in return for fees paid to SIBEAU. These fees are FCFA 1,000 per cubic meter for dumping and 750 FCFA per passage for the amortization of the road leading to the site, which was also built by SIBEAU.

4.2.4 REUSE/RECOVERY

Pilot experiments for reuse are underway, notably in Cotonou, Abomey Calavi, and Toffo. During the study, different types of entities were identified including research centers, foundations, individual companies or limited liability companies. Each is presented below:

VALDERA Center

The VALDERA center is an initiative of researchers working to find a solution for the management of waste on campus and in the municipalities of Bénin and includes a research laboratory where waste of all kinds is transformed into energy and agricultural products. It was created in 2011 by Professor Placide CLEDJO and is researching reuse of paper and plastic waste and bio-methanization of urine in agriculture under the leadership of the Composting and Market Gardening Section. The administration of the center is overseen by Professor Pacide CLEDJO and his assistants. The technical department has not been put in place due to lack of financial resources, but the center is endowed with an administrative secretariat liaising between the partners and the center.

In bio-methanization and renewable energy, there are several experiments on the valorization of sewage sludge into biogas and fertilizer that have been conducted at the center. These experiences have inspired the formation and operation of the company BIOGAZ BÉNIN Sarl which excels in the installation of bio-digesters for domestic use and for production units. The experiments are run with trainees coming from the different technical units of the University of Abomey-Calavi and from private partner universities. The center is supported by the Board of Education of the University of Abomey Calavi and the NGO Bethesda. It should be noted that there is a cruel lack of infrastructure and equipment as well as a platform to receive waste; all of which hinder the increase in production at VALDERA.

Since January 2021, the center has been conducting an experiment to valorize urine in agriculture. To this end, the Director of the center has financed, with his own funds, the construction of three test urinals installed at the General Mathieu KEREKOU Friendship Stadium in Cotonou. Users have access to them by paying the sum of 50 FCFA. Urine is collected in 20-liter containers and transported to the center twice a week by a tricycle. At the center, the urine is sanitized for 30 to 40 days before being mixed with water and then used either for fertilization of market garden crops or for soil amendment according to a well-defined protocol (one liter of raw urine for 1m² of soil reclamation). Toxicity tests carried out on the crops treated with this urea, at the BIO PHARMA laboratory, did not reveal any trace of toxins. Moreover, the yield of the beds treated with urea based on urine is three times better than that of the others treated with water or other fertilizers.

African Network of Eco-Healthy Market Gardeners (RAMES)

The African Network of Eco-Healthy Market Gardeners is a group of Market Gardeners who promote the use of organic fertilizers in their activity. This network was created in 2010 on the initiative of Pr. Benjamin FAYOMI, Research Professor, former Dean of the Faculty of Agronomic Sciences of the University of Abomey Calavi, and Mr. KPOSSA Guillaume, was officially registered in 2012. It is active in seven African countries (Bénin, Côte d'Ivoire, Niger, Senegal, Mali, Ghana and Togo) and has over 100 members in Bénin. The RAMES has a board of directors composed of nine members (one member per country and two persons in charge in Bénin). Each country has a national office that manages the day-to-day business. In Bénin, the office is composed of 11 members. The members of the network have benefited from training in Ghana, Tunisia and Rwanda on compost production. In Rwanda, the production chain employs nearly 300 people.

The network has an experimental site in Calavi, which serves as a school for RAMES. The analysis of samples taken in 2018 on this experimental site of Calavi revealed a toxicity rate of about 9%ⁱⁱⁱ; against a toxicity rate of about 95 to 150% on market garden crops in Cotonou. Only one cooperative (Bonté Divine) out of five still uses feces-based fertilizers from Ecosan latrines on the Houéyiho site. RAMES is also considering the creation of a market gardening village. There is no share of the production and a reduction in the sale price of the bag of compost as an incentive.

The raw materials are collected in the city of Cotonou, especially in the markets (rotten fruits, non-plastic waste) and brought to the site. The collection was done twice a week by tricycles. The production of compost is carried out by the members of the network according to the availability of raw materials. With the help of the network's rolling stock, the waste is collected in the markets of the city of Cotonou and transported to the composting site. Compost is produced from two types of raw materials: dry materials and wet materials (rotten fruits and others). The farmers work on the composting site twice a week on Mondays and Thursdays. Once dumped on the site, the raw materials are sorted and they proceed to the formation of the Andeans and their watering. The turning is done every month until maturation. Then it is proceeded to the drying, the sifting and the bagging of the compost before the setting in sale. The network produced an average of 15 to 25 tons (300 to 500 bags of 50kg) of compost per month, which covered 40% of the demand of the network's clientele, which consisted exclusively of members who operate on the site as market gardeners. The bags of compost produced are sold at 2,000 FCFA to the members who contributed to the production and at FCFA 3,000 to the other members of the network. After the sale, each member who worked takes some compost and also receives his or her share of the profit from the sale of the compost. The income is divided into three parts. A part for the workers, a part for the operation and a part for possible land to buy.

In 2018, the Cotonou City Council granted the network a composting site in the 8th arrondissement with funding of 8,000,000 FCFA from local development support funds. Unfortunately, in November 2020, the City Council took over the site to install the evacuees of Missèbo, even though since the completion of its development, the market gardeners had not yet exploited it because of the rain.

ReBin Foundation

The ReBin foundation (Reuse your Bin) is a Swiss organization based in Geneva and located in the town of Toffo. The valorization center aims to transform waste into valuable resources for the local population. It produces biogas for domestic use, compost, and effluents (organic fertilizers), drinking water, fish farming, bio-culture and solar energy. The foundation's staff is made up of local people recruited through a call for applications. The foundation plans to validate the project of installing a new ReBin center in Ouidah, to double the current production of compost at the Toffo center, and to set up a new governance (self-sufficiency of the waste recovery center in Houègbo). Several production units are functional at the center. They include:

- Water drilling powered by a solar pumping system that ensures the automatic distribution of water. This pumping system is realized by a Béninese craftsman operator of the company ENERSOL BÉNIN created in 2015 and specialized in the sale of electrical and solar materials; Electricity building and Industrial, Renewable energy (domestic photovoltaic solar, solar pumping).
- A composting unit that produces compost and biogas from organic waste purchased from farmers and households within a 2km radius of the site;
- A fish farming unit to sell fresh fish to local residents on the basis of bartering waste for fresh fish.

BIOGAZ BÉNIN Sarl

The Center for Waste to Biogas and Organic Fertilizer is a Béninese start-up based in Abomey-Calavi that operates in the renewable energy sector. The Biogas and Organic Fertilizer Waste Recovery Center (CVDBE) mission is to facilitate access to biogas technology to the greatest number of people at an affordable cost for the population. This company is specialized in the realization of bio-digesters for domestic and institutional use. The bio-digesters are dimensioned according to the size of the households and can be sold to the households from 600,000 FCFA.

4.3 SWOT ANALYSIS OF THE SANITATION SECTOR IN BÉNIN

This section is devoted to the analysis of the SWOT of the sanitation professions identified and analyzed above. The strengths and weaknesses are internal, while the opportunities and threats are external factors that can affect their performance.

Table 8: WASTE Matrix of Sanitation Providers

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Existence of an association of providers recognized by the municipalities; • Existence of a desire to formalize, especially among the VTOs (60% majority) • Efforts to organize the sector on the part of associations to fight against unfair competition and to represent the interests of service providers to municipal and government authorities; • Existence of an embryonic practice of staff motivation • Partnership with specialized accounting firms for the preparation of financial statements 	<ul style="list-style-type: none"> • Presence of informal structures, especially the storage/capture link; • One-person, multi-activity, low-capacity and poorly organized companies; • Weak or no organization and administrative, logistical and financial management • Recruitment of personnel by recommendation or affinity; • Low level of equipment and/or obsolescence (e.g.: the oldest truck is 56 years old); • Low capacity to generate demand (e.g., lack of targeted marketing campaign); • Lack of customer management policy • Use of financial resources or means of the personal purposes; • Failure to separate direct and indirect costs;
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Existence of policy and strategy papers for water and sanitation management; • Code of Public Hygiene and Sanitation under review • Construction of two sludge treatment plants is underway; • Priority given to sanitation in the Government's Agenda • Existence of APIEx for formalization • Opening the sanitation sub-sector to the private sector • Political will to organize the private sector involved in sanitation • Emergence of new financial products in the banking sector such as meso-finance adapted to SMEs 	<ul style="list-style-type: none"> • Unregulated and inappropriate pricing framework and mechanisms. Risk of financial underperformance for companies; • Poor access to traditional financing (banks, microfinance). Financing conditions of decentralized financial systems not adapted to the operators' capacities • Lack of a local supply chain for spare parts/dependence on neighboring countries such as Nigeria

4.4 CONCLUDING REMARKS FOR SANITATION

The sanitation sector in urban areas is still dominated by on-site sanitation. Artisanal masons, plumbers, drillers, WC Mimin contractors and VTOs are the key stakeholders in private sanitation.

The vast majority of the private sanitation sector operates in the informal sector with rudimentary management of their various resources (human, material, financial). Although 60% of pit emptiers are structured as formal contractors, they confront challenges with obsolescence of their trucks and significant costs incurred by repairs, which weakens their ability to meet demand. These challenges are exacerbated by the lack of professional skills to manage a business, the lack of knowledge of the norms in force in the sector or a weak will to apply them, which ultimately translates into a general lack of professionalism.

Most of them find themselves in a vicious circle that prevents the development of their activities, which often require financial resources that they do not have. The reluctance of financing institutions (banks and MFIs) is notorious in this sector, leading them to resort to their own funds (equity capital) as the only source of financing. This makes it difficult for companies to access the resources they need because they rarely meet the required terms and conditions, most of which are informal.

To overcome the challenges they face, stakeholders tend to form associations including in containment/storage (UNEAM-Bénin) and emptying (AviPro-Bénin). The associations allow them to speak out, to maintain relations, and regulate their trade with rules to which everyone must adhere. SIBEAU SA covers both emptying and management of dumping sites, and it is the only one that can truly be qualified as a company and that has access to existing financing mechanisms to develop. The study also noted pilot initiatives for recovery that are underway, particularly in Cotonou, Abomey Calavi and Toffo. Bénin does not yet have treatment plants that meet standards, but two FSTPs are under construction.

5 GENDER EQUALITY CONSIDERATIONS

Gender inequalities exist at the professional level between women and men in the sector. Women are generally less represented, especially in technical positions. The study identified a few women who operate at different levels of the value chain with roles and responsibilities different from those of men.

5.1 WATER PROVIDERS

Entrepreneurship in the water sector is predominantly male. However, the study identified a few women who intervene in the distribution link as managers of public facilities - under contracts that are often not formal and operators of PEA. As part of the study, all the standpipes visited were managed by women who are from the family of the operators who handle sales management and facility upkeep. While women are relatively represented at this level, they do not generally play leading roles, that of being the owner or direct delegate of the public service.

As for the operators of the water points (PEAs and PEACs), which are private businesses, the study team observed a lesser participation of women among the stakeholders interviewed and/or visited. In fact, only two women out of ten met were identified as operators of water points. Women who have engaged in entrepreneurship (installation of PEAs) have financed the activity with their own funds.

5.2 SANITATION PROVIDERS

Sanitation is a traditionally male sector due to the low participation of women. Nevertheless, the study identified a few women who move at certain levels of the value chain as entrepreneurs or employees in sanitation companies. In containment/storage, the team identified a single female contractor in the municipality of Aplahoué (ETS Theo La Merveille). She specializes in the construction of Mimin WC latrines and toilets. She is also the Deputy Secretary General of the UNEAM-Bénin association where she is well known for the regularity of payment of her contributions. In a well-established company like SIBEAU, there are women who hold management positions. The team also identified some women who work in entities such as BIOGAZ BÉNIN, the ReBin foundation who are involved in initiatives to promote sanitation by-products. Many of them hold management positions.

The study revealed other social constraints that limit women's access to the sanitation sector including the triple social role of women (business, housewife, and mother). In addition, the persistence of sexist stereotypes limits the access of some women to opportunities in the sector. In fact, sanitation is generally seen as a job unsuitable for women. The sanitation market, including all links in the value chain, are almost exclusively managed by men, with very little participation by women.

In summary, the study team found the following regarding gender equity:

- Entrepreneurship in both the water and sanitation sectors is typically male, and women's participation is relatively low.
- Women are more present in the water sector than in the sanitation sector.
- Women are subject to social pressures that limit their participation in this sector.

6 CONCLUSION AND RECOMMENDATIONS

Significant investments have been made in the water and sanitation sector by the Béninese government since 2016. However, at the level of the stakeholders in the sector, these actions are still struggling to be visible. SONEB is responsible for the supply of drinking water and the wastewater collection in urban and peri-urban areas, but wastewater and fecal sludge management in urban areas is poorly developed and is essentially done through independent sanitation systems. Both water and sanitation are open to the private sector; whose stakeholders operate in most cases in the informal sector.

Sanitation businesses tend to be technically segregated: masonry / slab manufacturing / emptying (manual or mechanical) / sanitization and marketing of by-products / social marketing / etc. The creation of sanitation stores or companies providing all these services, from masonry to treatment, would become a much more profitable and viable business: segmentation and “overspecialization” being detrimental to the viability of a company. The widening of the activities allows to be less wait-and-see and to have access to several market shares.

The study of the organizational and financial performance of water and sanitation service providers reveals both organizational and financial gaps that hinder development of companies operating in the water and sanitation sectors. The challenges of formalization, training, and access to finance are cross-cutting, but these challenges are accentuated by strong individualism of the operators as well as mistrust and skepticism regarding initiatives to create strong companies capable of recruiting quality human resources and ensuring adequate remuneration and thus succeeding in retaining them.

Although the participation of women entrepreneurship is emerging, they are confronted with certain social barriers and stereotypes, especially in the field of sanitation, which hinder to some extent their full involvement: “*sanitation is a man’s job*”.

Based on the diagnosis and analysis of the private sector in the water and sanitation sector in Benin, the study team made the following key recommendations to provide sustainable solutions to address service provider challenges:

- **Professionalize the water and sanitation market:** To bring service providers out of the informal sector, develop and provide coaching and training to strengthen managerial capacities. Also, the sector should support creation of strong private companies by pooling efforts to reach a critical size and take advantage of economies of scale.
- **Regulate the market through competition:** In Cotonou, the emptying market is developing slowly with only about 100 emptying trucks in circulation. The market is currently small and underdeveloped. Increased competition would make emptying services more accessible and could make prices more acceptable to households, but to be profitable, sanitation service providers need strong demand for their services. Therefore, customer understanding of the services needs to be improved and the image of the profession needs to be enhanced. Setting a competitive price range can guarantee viability of service provision and ensure that the service is in demand.
- **Encourage the involvement of municipalities.** Encourage municipalities to become more involved in their role as regulator.
- **Strengthen water and sanitation providers’ associations.**
- **Encourage finance institutions to provide services to the sector.** Financing institutions are often reluctant to provide their services due to their lack of knowledge of this sector and the risks associated with the businesses. The sector should be promoted

with financial institutions so that adapted financial products are made available to increase access to financing.

In terms of gender equality, the study made the following recommendations:

- Increase opportunities for women contractors to access financing.
- Promote knowledge and understanding of opportunities of women's roles in the sector including success stories.
- Strengthen the human capital of women contractors by developing entrepreneurial training opportunities tailored to their needs.
- Eliminate social barriers to women's access to opportunities in the water and sanitation sector through efforts to deconstruct gender norms.

ANNEXES

ANNEX I: Financial analysis of AKOUEBATO YAKPE

Table 4: Commercial Profitability

	2016	2017	2018	2019
Turnover	5,679,500	20,196,743	2,995,930	13,203,785
Net Profit after Tax	527,130	3,471,653	-1,727,770	798,919
Commercial profitability ratio	9.28	17.19	-57.67	6.05

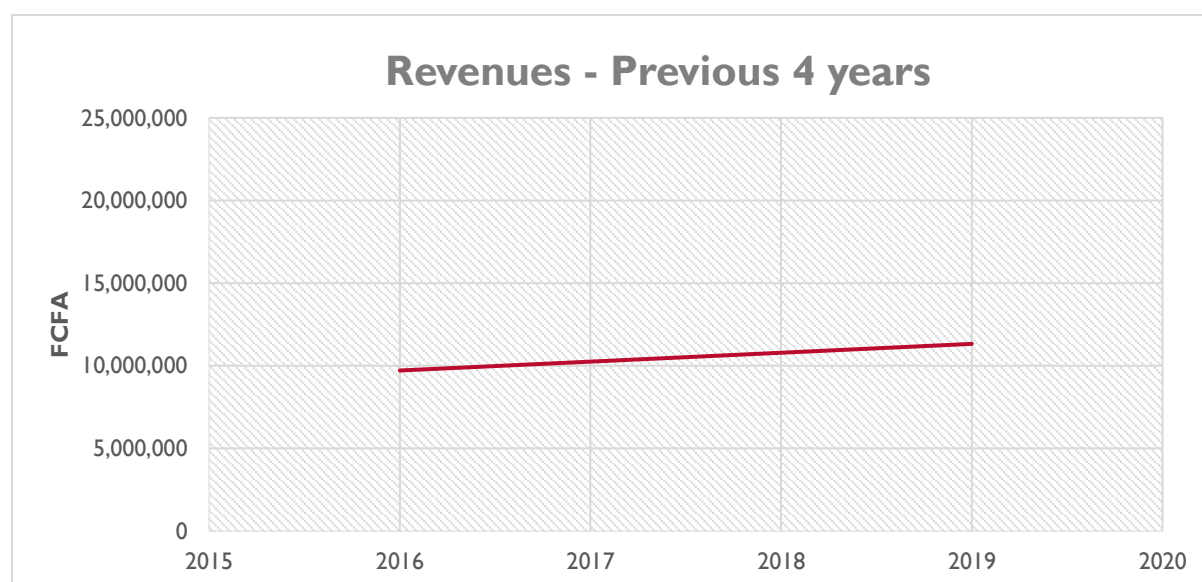


Figure 4: Turnover for Four Years

Table 5: Usual Expenses for Four Years

EXPENSES	2016	2017	2018	2019
Operating expenses (%)	84,3	96,3	86,1	95,0
personnel expenses (%)	15,5	3,7	13,5	4,8
Taxes (%)	0,0	0,0	0,5	0,2
Financial expenses (%)	0,2	0,0	0,0	0,0
TOTAL (%)	100	100	100	100

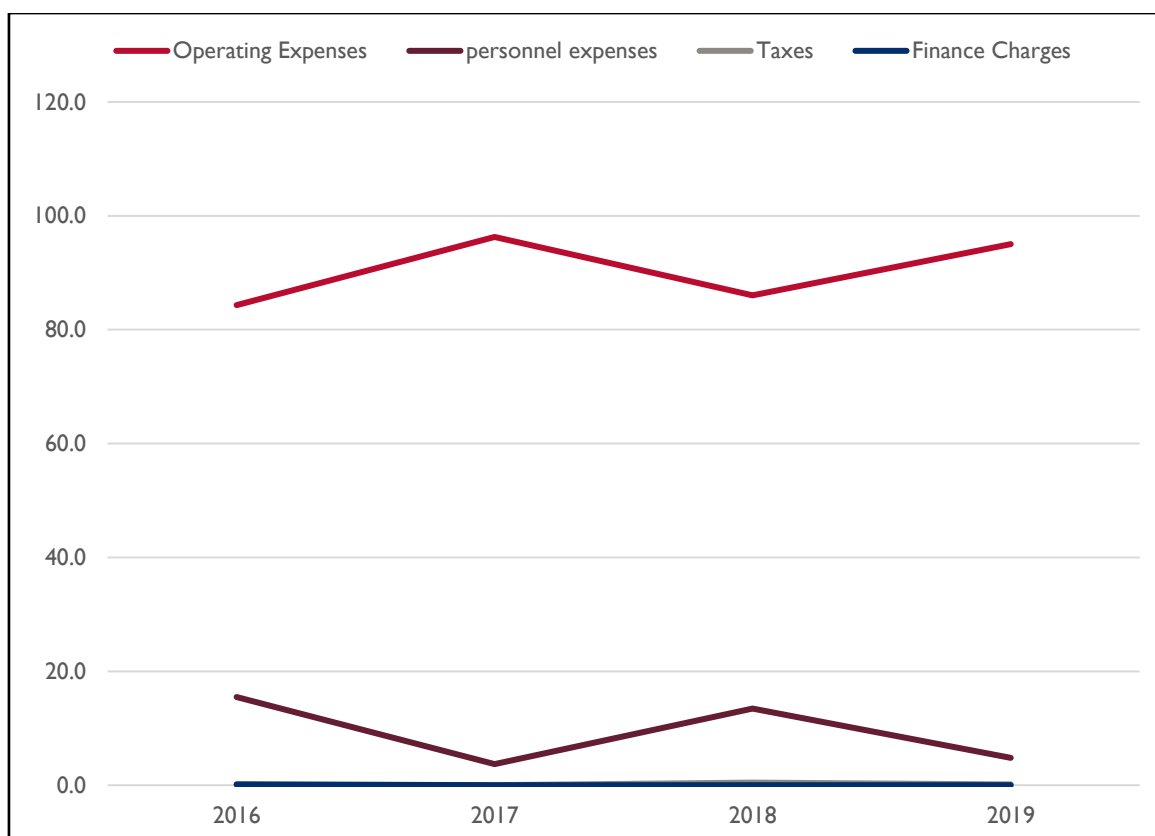


Figure 5: Evolution of Expenses over Years

Operating expenses represent between 86.3% and 96.3% of total expenses and personnel expenses between 3.7% and 15.5% of ordinary expenses. The relative proportion of personnel costs is higher in years when the company has made few sales of spare parts. The sale of spare parts contributes substantially to the coverage of the company's expenses.

Table 6: Analysis of the Return on Capital Investment

Return on investment			
HEADING	Year 2017	Year 2018	Year 2019
Capital	3 750 000	3 750 000	3 750 000
Retained earnings	-6 323 680	-2 852 027	-4 579 797
Net income for the year	3 471 653	-1 727 770	798 919
Total equity	897 973	-829 797	-30 878
Net income for the year	3 471 653	-1 727 770	798 919
Total equity excluding income	-2 573 680	897 973	-829 797
Return on invested capital (%)	-134,89	-192,41	-96,28

The return on invested capital has been negative since 2017. This clearly indicates that the activity is not profitable for the operator. Moreover, this financial situation is likely to add burden on finding new partners.

Calculation of working capital and working capital requirement

Working capital is by definition the share of stable resources (own resources, provisions for risks and charges, medium or long term debts) available after the financing of fixed assets and assets without value to contribute to cover the financing needs related to the operation (current assets).

Table 7: Evolution of the Working Capital of Akouebato Yakpe

HEADING	Year 2017	Year 2018	Year 2019
Stable resources	897 973	-829 797	-30 878
Net fixed assets	905000	590000	395000
Working capital	-7 027	-1 419 797	-425 878

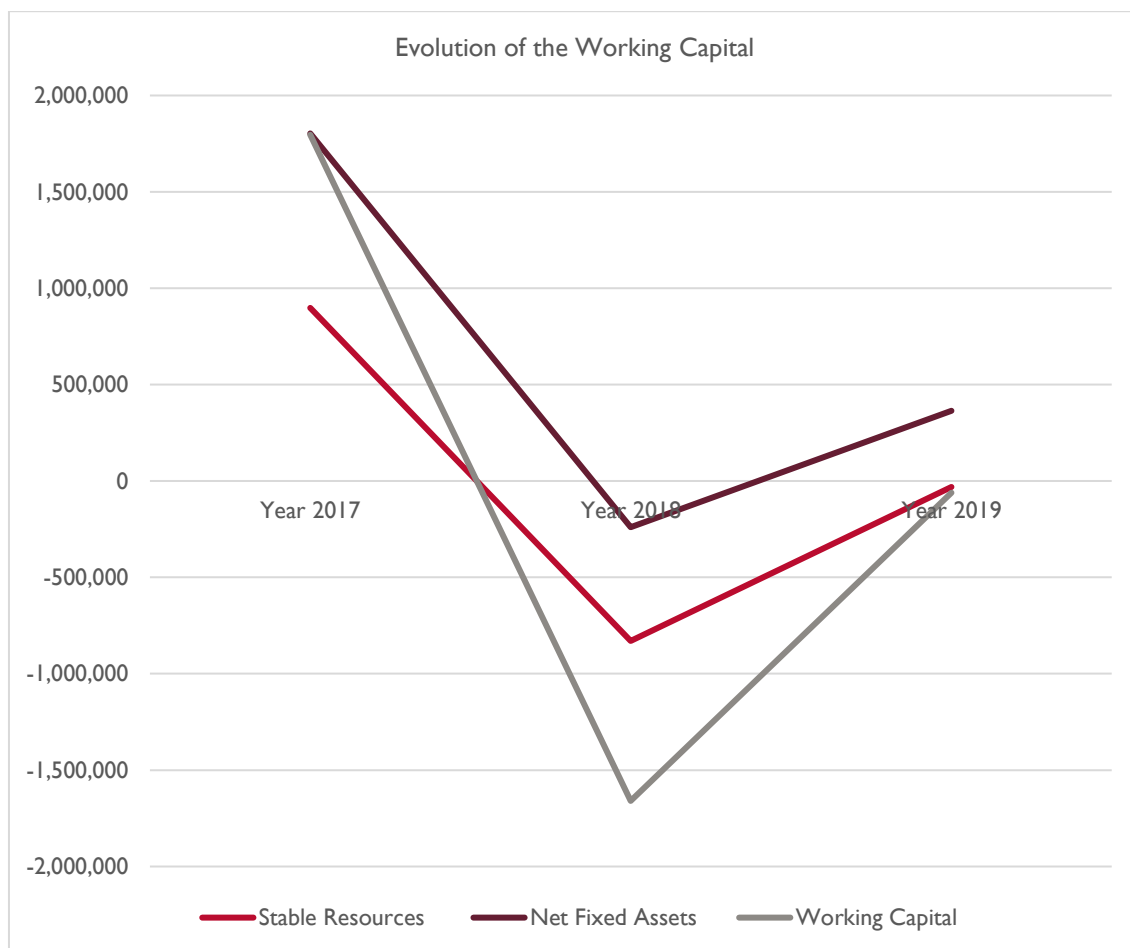


Figure 6: Evolution of the Working Capital

The Working Capital Requirement forms part of the financing needs linked to the activity (operating or non-operating) not covered by the resources coming from this same activity.

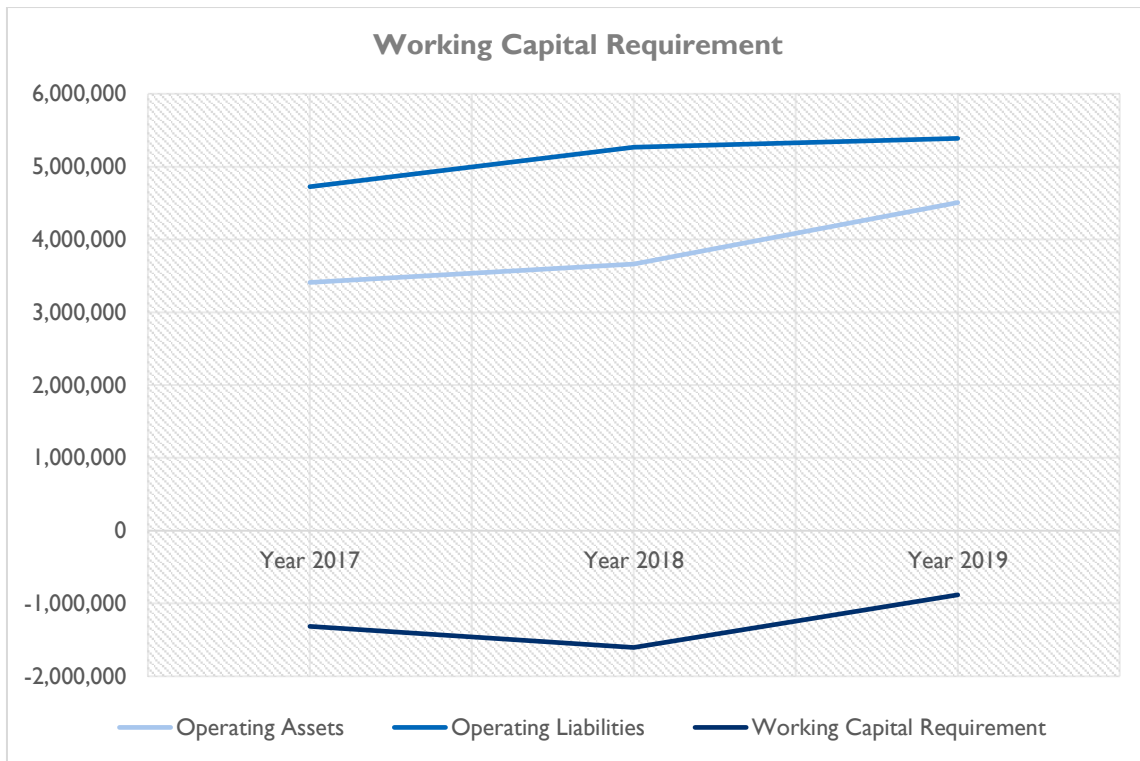


Figure 7: Working Capital Requirement

Both the working capital and the working capital requirement are negative. This means that the inadequacy of stable resources in relation to stable jobs (negative working capital) is compensated by an excess of variable resources over variable jobs (negative working capital requirement). This also reflects strong recourse to subcontracting, with subcontractors' payment terms largely exceeding those of customers.

ANNEX 2: LIST OF VACUUM TRUCK OPERATORS - PARTNER OF SSD

Redacted

ANNEX 3: LIST OF MASONS TRAINED UNDER THE SSD PROJECT

Redacted

- ⁱ As of 30/03/2021, all the standpipes in the city of Cotonou are out of order and require rehabilitation.
- ⁱⁱ EDS Bénin 2018
- ⁱⁱⁱ The probable cause of this toxicity would be the contamination of the irrigation water. Calavi being in a downward basin, the water from the north would contain residues of chemical fertilizers used in northern Bénin.

ANNEX 4: LIST OF MICRO-ENTERPRISES TRAINED BY THE SSD PROJECT

Redacted

ANNEX 5: DATA COLLECTION QUESTIONNAIRES

Redacted