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# IMPACT OF POLICIES AND WATER MANAGEMENT SYSTEM ON WATER QUALITY SERVICE DELIVERY IN AFRICA

## The cases of Burkina Faso and Côte d'Ivoire

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# List of abbreviation and acronyms

| | |
|---|---|
| AfWA | African Water Association |
| COVID-19 | CoronaVirus Disease of 2019 |
| DAAD | German Academic Exchange Service |
| CREPA | Regional center for Low Cost water and Sanitation |
| EWURA | The Electricity and Water Utilities Regulatory Authority in Tanzania |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| IBNET | International Benchmarking Network for Water and Sanitation Utilities |
| MDGs | Millennium Development Goals |
| MEA | Ministère de l'Eau et de l'Assainissement |
| MOH | Ministry of Hydraulics |
| NRW | Non-Revenue Water |
| NWSC | National Water and Sewerage Corporation |
| O & M | Operation and Maintenance |
| OCCR | Operating Cost Coverage Ratio |
| ONAD | Office National de l'Assainissement et du Drainage |
| ONEA | Office National de l´Eau et de l´Assainissement |
| ONEP | Office National de l' Eau Potable |
| PAUWES | Pan African University Institute of Water and Energy Science |
| SAUR | Société d'Amenagement Urbain et Rural |
| SDE | Sénégalaise des Eaux |
| SDGs | Sustainable Development Goals |
| SODECI | Société de Distribution d'Eau de la Côte d'Ivoire |
| TREND | Training, Research and Networking for Development |
| WSS | Water Supply and Sanitation |

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# EXECUTIVE SUMMARY

A well performing water utility is the one that is able to provide sustainable high quality water and wastewater services to the community. It should be able to cover its financial and operational costs while providing affordable water to all. Many African water utilities struggle to deliver service to their customers in a convenient and reliable manner. This is partly due to high dependence on transactions from government and development partners, which also makes finance-loan-accessing ineffective. Another reason is poor management of water losses. Different literatures argue that inefficient performance causes inadequate access to services by the poor who turn to informal vendors, paying more than double of utility tariffs for water whose quality is even uncertain.

This book summarizes the two studies conducted in both Cote d'Ivoire and Burkina Faso with the aim at analyzing the implication of water policies and utility management systems on the water quality service delivery performance in Africa. The study also takes a case on how policies influence the management of Non-Revenue Water (NRW) as one of the three key performance indicators of water utilities. Water and sanitation policies in both countries were reviewed. A SWOT analysis was done to understand the Strength, Weakness, Opportunities and Threat for both water utilities (SODECI from Cote d'Ivoire and ONEA from Burkina Faso).

Results showed that utility management systems and policies implementation play a significant role on the performance of water quality service delivery in African countries. For instance, SODECI and ONEA have been benchmarked as the good performing utilities in Africa having a public- private partnership and public- public partnership respectively. However, gaps in national water policies in both Côte d'Ivoire and Burkina Faso have hindered water quality service delivery especially when it comes to reducing the NRW. Although both countries introduced decentralization as a way to improve rural water coverage, failure to clearly separate functions, strengthen and capacitate municipalities has caused both countries to lag behind with Burkina Faso performing behind Côte d'Ivoire.

The gaps in policy impacts water sector budget, the continuous stagnant tariffs in both countries affects financial sustainability of the sector hindering further expansion of the water networks, and also affects Operation and Maintenance costs coverage. Also, sanitation coverage lags both countries, especially in rural areas. The study recommends institutionalization of NRW in all African water utilities could address the issue of underperformance caused by high level of NRW. It also recommends that the Government, as a regulator, must put in place comprehensive strategies and plans to addressing the inadequacies in institutional and regulatory frameworks that impede good water and sanitation services provision.

# 1

# DEFINITION OF TERMS

**A well performing water utility** is a utility that is able to provide high-quality water and/or wastewater services to its customers in a sustainable manner. This definition of a well-performing utility includes elements of good financial and operational performance, but also universal access to water and wastewater services that are affordable to all. Management of wastewater is necessary to protect and ensure both environmental and human health. Water utilities operations may be under municipal authority, they may be managed by regional authorities, or by private entities. Different entities may own and manage the distribution, collection, and treatment systems. (Van den berg & Danilenko, 2017).

**Service delivery model** refers to the way in which the different responsibilities around services are organized, typically indicating who is directly responsible for the daily tasks of operating, maintaining and administrating the services: the service provider, who is responsible for functions like planning, coordination, monitoring, oversight and support: the service authority, and the roles at the enabling environment such as investment planning and regulation. It also defines the level of services to which users are entitled, costs and technologies through which the service is provided. (Smits, 2014)

**Service levels defines** the quality of service the user is entitled to. For water and sanitation, water service levels must include quality, quantity and continuity of water supply service whereas for sanitation it requires adequate separation of faecal matter from human contact, the use of sanitation service and environmental impact (Smits, 2014).

**Service life cycle refers** to all stages in the life cycle of a water or sanitation service. It starts with building a system and establishment of service provision. The second stage is actual service delivery day by day. Finally, maintenance and service expansion (Smits, 2014).

Benchmarking is a tool for performance assessment that aims at performance improvement. Benchmarking enables performance comparisons overtime, or with other providers, e.g. those providing on-site sanitation and faecal sludge management in the case of the RASOP project participating cities against stipulated guidelines or standards. Best practices are identified, and these can be fine-tuned to suit context specific situations to enhance performance (AfWA, 2016).

**Performance analysis** is defined by three different indicators which are operational performance, financial performance, and customer performance. Performance analysis permit utility managers, policy makers, regulators, and the general public to measure whether utilities are fulfilling their mission, and to form a view on their ability to do so in the future. Performance assessment is done objectively as it is based on internationally recognized indicators and benchmarked against local and global best practices (Van den berg & Danilenko, 2017).

**Operational performance** is defined as the unweighted average of three indicators: metering, non-revenue water (NRW, as measured in cubic meters per connection per day), and staff efficiency (which measures how much revenues are collected for each U.S. dollar spent on staff costs). Operational performance looks on how utility manages its operations (Van den berg & Danilenko, 2017).

**Financial performance** is defined by the operating cost coverage ratio (OCCR). The financial performance is measured in terms of how effective the utility is in generating revenues from its operations, and using these revenues to cover its operation and



maintenance (O&M) costs (Van den berg & Danilenko, 2017).

**Customer performance** is defined as the unweighted average of three indicators: population per connection, reliability, and affordability. The population per connection is looked at as a proxy for service levels. When utilities provide only household connections, the population per connection tends to be relatively low (slightly above the average household size). Yet, sharing of connections is common in Africa through the provision of stand posts, the use of water kiosks, and sharing of house connections with several households. The objective of utility is to provide customers with high-quality water services and a bit of wastewater service. The quality of water service is measured by ability to provide access to users and the level of service it can provide to customers (Van den berg & Danilenko, 2017).



# 2

# BACKGROUND

What the public wants from water utilities is sufficient, reliable, convenient, and safe water services. Water provision that is transparent, financially sustainable, and responsive to citizens. Wastewater should be collected, treated, and discharged properly (Soppe et al, 2018). African water utilities are responsible for providing water supply and sanitation (WSS) services, however many African water utilities struggle to deliver service to their customers in a convenient and reliable manner. Nearly one billion people in Africa still lack access to safe drinking water. The SDGs requires that African utilities provide equitable access to safe and affordable drinking water for all. Many African utilities are still lagging behind to achieve SDGs due to ineffective management systems causing poor performance issues such as low operating and investment efficiency (Heymans et al, 2016).

Water is politically sensitive, and most politicians have not been able to effectively balance the trade-offs between affordability and expansion of coverage to poorer communities with the utility's need for financial viability (Hughes 2003). This is due to ineffective policies, linked with the noncompetitive nature of the sector and poor policies implementation in many African countries. Some governments have tried to improve their water utilities such as SODECI in Côte d'Ivoire and ONEA in Burkina Faso, but unfortunately they have had only limited success. There is a need to analyze how policies and utility management systems in Côte d'Ivoire and Burkina Faso have impact on water utility performance in order to help policy makers and stakeholders of the water sector in other African countries, hence a review of water and sanitation policies in Africa, as well as a review of performance of African water utilities, could support achieving the SDGs in the water sector in African countries.

## 2.1. Review of water and sanitation policies in Africa

The Sustainable Development Goals (SDGs) aim to achieve universal and equitable access to safe and affordable drinking water and sanitation for all by 2030. The SDGs are also calling on more sustainable use of water resources through, amongst others, improving water quality by reducing pollution by halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse. Access to safe, affordable drinking water is a human right and, as such, it is the duty of the water utility to ensure that this right is protected, upheld, and respected. Africa's urban population between years 2000 and 2015, increased by more than 80 percent from 206 million to 373 million people. Although access to piped water increased over the period (from 82 million urban dwellers with piped water in 2000 to 124 million in 2015), African utilities were not able to keep up with the rapid urbanization as reflected in the decline of piped water as a primary source of water supply in percentage terms. The urban population served with piped water on the premises declined from 40 percent in 2000 to 33 percent in 2015. The total population with improved services increased, but most of that increase came from an increase in the access to piped water off premises and self-supply. Meaning that the performance of water utilities has been seriously lagging behind as there seems to be no lack of demand for improved water supplies. (Danilenko et al., 2014).

The reason many utilities are lagging behind is due to failure to cover Operation and Maintenance costs, hence decline of enough funds to expand access. Dependence on government hinders their ability to improve financial performance. It is observed that generally the overall decline in performance

has not been investigated in much detail in Africa. Therefore, the drivers of success in utility performance are still rather elusive for two major reasons. The first is a lack of agreement on what constitutes good performance which leads to conflicts and trade-off. Second, lack of empirical work, there is little clarity on what drives performance in utilities. Water utilities in Africa vary greatly from their institutional setup, organization, and reporting requirements. Lack of empirical work in a great deal mean that sector professionals employ results from one utility or one country (often utilities in developed countries) to utilities in other countries with, often, very different institutional, political, and economic environments (Danilenko et al., 2014).

### 2.1.1 Institutional Performance Analysis

According to (Van den berg & Danilenko, 2017), institutional performance analysis uses of more general institutional data, such as type of service delivery (national, regional, or municipal service delivery), the presence of an (independent) regulatory agency, and the scope of services (that is, utility provides only water or provides multiple services).

Regulation of water utilities ensures good governance; the role of regulator is to provide protection to customers but does not translate to improvements in financial and operational sustainability or increase in coverage compared to utilities. Regulation is a tool for improved utility performance. Three forms of regulation exist (a) through government ministries or departments; (b) regulation by contract; and (c) a regulatory authority or agency. Many utilities in Africa are under the regime of regulatory agency such as utilities in Tanzania, Zambia, Kenya, Mozambique, Niger and few fall in other forms of regulations. A t-test analysis conducted by Van den berg & Danilenko (2017) shows that the presence of regulatory authority does not translate to better performance. Table 2.1 below shows the impact of a Regulatory Agency on Utility Performance, customer performance measured in terms of service quality is higher in utilities under regulatory authority while water coverage is lower in utilities under regulatory regime. Utilities with regulatory authority perform poorly in terms of financial and operational performance.

**Table 2.1 Impacts of a regulatory authority on utility performance**

| Indicator | With a regulatory agency | Without a regulatory agency | t-test | Significance |
|---|---|---|---|---|
| **Customer performance** | | | | |
| **Customer performance as measured by quality of service** | 0.69 | 0.63 | -3.25 | 0.0006 |
| **Water coverage** | 0.57 | 0.65 | 1.75 | 0.040 |
| **Financial performance (measured by OCCR)** | 1.06 | 1.05 | -0.28 | 0.612 |
| **Operational performance** | 0.68 | 0.76 | 3.01 | 0.001 |

**Source: Van den berg & Danilenko (2017)**

### 2.1.2. Water policy implementation in Cote d'Ivoire

In order to set up a new institutional and legal framework and adopt an integrated approach to water resources management, the government of Cote d'Ivoire adopted a law n° 98-755 of 23 December 1998 on the water code. The main object of the Water Code is the integrated management of water resources, hydraulic works and structures. As of 2012, the Government of Cote d'Ivoire (GOCI) had not passed the implementing regulations for the Water Code; without clarity of how the law is implemented, its standards remain unclear (N'Guessan 2012; Mémoué 2012). Currently, there is not validated water policy in Cote d'Ivoire. The code has eleven (11) principles which guides the integrated management of water resources and facilities and structures hydraulic.

1. the precautionary principle;

2. the principle of prevention;

3. the principle of correction;

4. the principle of participation;

5. the user pays principle;

6. the polluter pays principle;

7. the principle of planning and cooperation;

8. water, a vital natural resource, is part of the common heritage;

9. National

10. Respect for previously acquired rights constitutes the limit to the use of water resources;

11. the principle of participatory and integrated management of all stakeholders in the development of water resources, facilities and structures; hydraulic systems are admitted at all levels (planners, decision-makers, specialists, operators and users);

12. The existence of sacred waters is tolerated and their use in accordance with the general and the requirements of maintaining and strengthening social cohesion and of national unity.

The Ivorian government wishes to see the rate of access to drinking water increase from 82% to 95% by 2020. With this in mind, on February 6, 2020, the government announced it plans to give a budget of nearly CFA francs 291 billion (445 million euros) to the National Drinking Water Office (ONEP). The funds will be invested in the construction of drinking water supply networks. The installations aims to improve water supply to the population (Magoum, 2020). The investment is part of the government's "Water for All" programme, which aims to achieve a 100% national rate of access to drinking water by 2030. ONEP will direct 36 drinking water supply systems for the benefit of people living in semi-urban areas (Magoum, 2020).

#### Institutional

The water code is a piece of legislation that governs the use of surface water, ground water, rainfall and territorial seas in Cote d'Ivoire. Water resources are government's part of national heritage and the government is responsible for provision of integrated management of all water resources, facilities and structures. The government's water priorities are (1) providing drinking water; (2) protecting, conserving and managing water

resources; and (3) satisfying other human water-related needs. The government duties in water management are: maintaining quality of water resources, preventing waste, ensuring availability; preventing waterborne diseases; and developing and protecting water facilities and structures (GOCI 1998b).

Under the Water Code, the right to use water is connected to the right to use land. The code has an economic principle of water management by issuing usage fee to water users (GOCI 1998b). The water code allows for improved coordination and collaboration among stakeholders and decision makers. Since 2011, the Ministry of Water and Forests (MINEF) has been responsible for implementing the Water code. MINEF collaborates with other ministries in charge of economic infrastructure, environment, agriculture, health and animal resources and fisheries to ensure integrated management of Cote d'Ivoire's water resources (GOCI 2012d). As a result of uncoordinated approach to water management, in 1996, the State created the High Commission on water to lead water policy reform and coordination. In June 2012, the HCH approved the National Action Plan for Integrated Management of Water Resources (Plan d'Actions National de Gestion Intégrée des Ressources en Eau, or PLANGIRE), which further reforms the institutional framework on water management. The goal of PLANGIRE is to achieve water security and environmental sustainability through 2040 (N'Guessan 2012). There are four levels of institutions under the National Action Plan for Integrated Management of Water Resources: national, basin, regional/ departmental and local.

### Technical

From 2009 to 2011, the government of Cote d'Ivoire made several improvements to the water sector to ensure access to safe drinking water in rural, suburban and urban areas. The government established the Presidential Emergency Program in 2011, that aimed to improve infrastructure post-electoral crisis. In urban areas, the government collaborated with partners to improve twenty water treatment stations (GOCI 2012e). As a member of the intergovernmental Niger Basin Authority, the government participated in the Niger-Hydrological Cycle Observing System (Niger-HYCOS) project, which aimed to collect data on water heights and flows in the Niger River Basin. During this first phase, the ABN installed two data collection platforms in Cote d'Ivoire. In 2011, the GOCI and ABN signed an agreement for implementation of Phase Two of the project (GOCI 2012e; WHYCOS 2007).

### Economic

The government of Cote d'Ivoire has classified water into five different categories: social; domestic; normal; industrial; and administrative and charges fee for each category which goes into the National Water Fund (FNE) and Water Development Fund (FDE) for operation, maintenance and development of new water systems (AfDB and OECD 2007). SODECI under the agreement with the State, collects tariff surcharge from connected customers and manages the fund for network expansion and household subsidizing. The contract calls for tariff revisions after every five years, but the process was delayed during the conflict and currently SODECI has not collected funds to sustain maintenance costs (Tremolet et al. 2002; Fall et al. 2009; Foster and Pushak 2010).

### Social

To access water supply services, the households in urban areas of Cote d'Ivoire must have a legal rights to the places where

they live. This is a challenge to residents in illegal settlements because they have no right to land, meaning SODECI cannot install water meters, hence they lack access to water services (AfDB and OECD 2007; Collignon et al. 2000; Kariuki et al. 2003; Gulyani and Connors 2002).

#### Environmental

The water code is linked with the 1996 Environmental Code, established by Law No. 96-766, which lays out the legal framework for protection of the environment against pollution and degradation, and contains provisions related to water management (Gadji 2003; FAO 2005). Côte d'Ivoire is a member of the Niger Basin Authority and the Volta Basin Authority, intergovernmental organizations that foster cooperation in managing and developing the resources of the Niger River Basin and Volta River Basin, respectively. Cote d'Ivoire ratified the Convention on Wetlands, an intergovernmental treaty committing members to protect and sustainably use wetlands (GOCI 1998b; ABN 2012; Modern Ghana 2006; Ramsar 2005).

### 2.1.3. Water policy implementation in Burkina Faso

The government of Burkina Faso has codified water resources management in two mains laws, which are the water management act 2001 which sets principles for integrated management of water resources and for development of various water uses, and 2004 Decentralization law which sets the responsibilities for the delivery of basic services including water supply and sanitation.

In 2016, the government adopted a National Water Supply and Sanitation Program (PN-AEPA) 2016-2030 to achieve the millennium development goals, so as to meet the drinking water needs of the population in terms of quantity and quality. The total cost of FCFA 1,461 billion (approximately $ 2.5 billion) was divided into three (3) phases; the PN-AEPA aims to increase the access rate from 65% in 2015 to 100% in 2030; but also to increase the proportion of the rural population served by standpipe from 8.7% in 2015 to 24% in 2030; and to increase the proportion of the rural population served by private connection (BP) by 0.3% in 2015 to 56% in 2030 ('Burkina Faso, 2019'). For the years 2020-2022, the government of Burkina Faso plans to invest approximately FCFA 84.7 billion for water and sanitation works. This was announced in October 21, 2019 ('Burkina Faso', 2019).

#### Institution

The government owns all the water resources, and water withdrawal requires permit from the government except for domestic purposes and with limited volumes. The ministry for Agriculture, Water and Fisheries are sole responsible for setting national policies for water supply. The National Water Utility (ONEA) is responsible for domestic water supply (Cotula 2006).

## 2.2 Review of performance of African water utilities

### 2.2.1 Technical Performance

#### Water supply coverage (%)

Which may be defined as the percentage or number of households connected to the distribution network. This is important in measuring the impact of NRW, because whenever there is possible leaks, the water supply is affected immediately (Veolia, 2016). Hence, the target of 90% water coverage was set by (WSP-Africa, 2009) for a well performing

utility.

### Non-Revenue Water (%)

The technical performance looks firstly at the level of non-revenue water. This is important because if NRW is kept low, the performance of utility increases. It is to note that a zero level of NRW is not technically possible nor economically feasible (Washali et al., 2020). A target reduction up to 25% is expected (WSP-Africa, 2009), while the one set by the American Water Association is 10% (AWWA, 2019).

### Metering (%)

This indicator is very important as it shows the number of connections with operating meters. It helps the utility to record the continuity of water supply throughout the day; and to manage the cost recovery through the set tariff structure. A target of 100% is expected (WSP-Africa, 2009).

### Bursts and leaks

Bursts and leaks represent the technical weakness of a water utility (Caroline, 2014). Counting them will give an idea of what to repair and how much it will cost (WSP-Africa, 2009).

### Water consumption

This indicator helps a lot in identifying how much of water is utilized per capita per day to be able to set the price with an aim at increasing production cost recovery, therefore increasing the ability to fund for asset management. The target is 76 l/c/day (WSP-Africa, 2009)

### Water quality and water quality management

NRW has a big effect on water quality and vice versa. There is a big chance for an old pipeline to burst causing leaks. If repair is not done in a short time, water quality can be affected. On the other hand, bad water quality affects the water meter's needle resulting into errors in the counter. The target is 100% (WSP-Africa, 2009).

## 2.2.2 Financial Performance

Collection efficiency and collection period

This is the key performance indicator that relates to the utility's ability to collect revenue from the bills it has issued to customers. The big number of people bills are issued to, the more revenue is collected. Collection period is the time it takes to collect the average bill. When it takes long to collect, it affects the financial stability of utilities. The target is 100% of bills collection (WSP-Africa, 2009).

### Operating cost coverage ratio

It is the ability of utility to recover the operation cost from the customer's bill. It is a good indicator because it helps the utility to measure its sustainability. According to (WSP-Africa, 2009), the internationally accepted norm is that operating cost coverage ratios (OCCRs) should be in the range of 130% to 160% or 1.2, with an allowance for asset rehabilitation and replacement, as well as debt payment. This may exclude the capital investment for expansions, additional water production.

### Unit Cost of production

Understanding, managing, reducing, and reporting O&M costs (that is, costs of production and distribution) is the first key step in improving utility efficiency as it forms the basis for analyzing expenditure and income requirements. If a water utility doesn't manage to keep the cost very low, it will be subjected to charging higher tariffs to be able to stay financially stable. Some of the practices of reducing cost includes but not limited, increasing the volume of water sold, reducing commercial and technical losses and increasing the number of metered connections



(WSP-Africa, 2009).

### Unit revenue

Total operating revenue expressed by annual water sold (WSP-Africa, 2009). This helps to quantify the water sales and revenues for billing purpose (Donkor, 2013).

### Water tariffs and Subsidy

This indicator shows the utility's ability to subsidize for the poor. It involves the tariffs setting structure as well as all the resources or funds to subsidize water services either from the Government, Non-Governmental Organizations and people among themselves (WSP-Africa, 2009)

### Service to the poor

This involves the number of connections expanded for the poor communities. Provision of service to the poor is still a major challenge to all African utilities (Karamage, 2016). This is mostly felt in urban areas where people are likely to move to in quest of money and development. Most of the time, you find low-income families congested in unplanned or informal settlements, sometimes not safe; which makes it difficult to expand water services to them (USAID, AfWA, 2015). This also becomes worse in case of repairing/ replacing deteriorated pipes. In situations like this, people try to find other sources of water such as untreated water from rivers or lakes or worse, theft of water, therefore increasing the rate of NRW. Improving service to the poor can make a great impact to the performance of water utility (WSP-Africa, 2009).

### Overall Efficiency Indicator

The volume of water produced for which a utility is able to recover revenue was termed the "overall efficiency indicator" (OEI). It is calculated as (1-NRW)*Collection efficiency. Despite that it is intuitive, it is a good indicator because if a utility has low OEI, it encounters the high average cost per m3 of water sold, either an increase in tariffs to cover the cost or increased subsidies. There is also inability to sustain and/or extend services to the poor (WSP-Africa, 2009).

## 2.2.3 Customer Performance

### Continuity of supply

This refers to the average hours of water supply services per day. The higher the NRW, the less continuity of water supply (USAID/AfWA, 2015). It is considered that poor continuity of supply is a disincentive to serve the poor as utilities are incentivized to seek to maximize revenues by selling water to higher- income consumers (domestic and industrial). The target is 24 hours (WSP-Africa, 2009).

### Customer satisfaction rate/complaints

Customer satisfaction on water supply service is the main target of every water supply utility (Donkor, 2013). In addition, knowing the number of all complaints made by customers for the services provided helps utilities analyze the services they are giving and hence, draw measures for better performance. However, this indicator is variable. It can range from the continuity of supply, tariffs set, broken pipes or leaks, non-operating meters, and so on (WSP-Africa, 2009).

### Community participation

This indicator shows the rate of awareness and active community engagement towards ensuring better services (Lai, 2017). It includes best practices such as number of trainings offered by the community on how to reduce NRW, good communication as well as reporting the leaks, bursts, and possible thefts or errors in metering (USAID/WBI, 2010) and (Veolia,

2016).

### 2.2.4 Institutional Performance

**Staff productivity**

This indicator shows the total number of staff per thousand connections. A well performing utility needs less than 6 staff/ 1000 connections (WSP-Africa, 2009).

**Capacity building**

This shows a percentage of staff members that participate in training. The ability of a utility to offer training to it its staff members helps to minimize all internal risks related to unskilled employees (Christiaensen et al., 2017). The more the staff receive training about NRW reduction, the more NRW will be well managed (WSP-Africa, 2009).

**Water governance**

These are policies and strategies to deal with NRW (USAID/AfWA, 2015). It can range from institutional and regulatory framework, to organizational structure as well as to setting out and enforcing policies towards reducing NRW. A well performing utility also have clear policies and practices.

# 3

# WATER SECTOR INSTITUTIONAL SETUP IN BURKINA FASO

## 3.1. Institutional operation of ONEA in Burkina Faso

ONEA currently manages 56 centers in Burkina Faso. Its relations with the State are governed by a three-year plan contract and a specification which sets the conditions for the creation, operation and protection of water and sanitation infrastructure under ONEA management. The relations between ONEA and the users of the public service are, for their part, governed by water and sanitation service regulations which inform users of the operation of the service and which define the rights and obligations of each party. Being a public utility, ONEA's technical operation is supervised by the Ministry of Water and Sanitation (MEA), while its management is supervised by the Ministry of Industry, Trade and Handicrafts, and finally the Ministry of Economy and Finance. Burkina Faso has become a benchmarking point for African water utilities due to its performance in water management (USAID/WBI, 2010).

Report from (USAID/WBI, 2010) states that Ouagadougou, capital of Burkina Faso and managed by ONEA, is well performing public utility for the region, with a management emphasis on efficiency. Basic data to construct a water balance is available and accurate such as a well-placed production metering, with electromagnetic meters installed after 2005; a customer meter replacement program was completed in 2007; customers are fully metered and there are no individual roof tanks; a service contract has resulted in a customer census, a meter workshop, improved collection efficiency and redesign of service connections; commercial losses from illegal connections, meter under-registration, meter tampering and meter reading and data handling errors could be quantified; and finally, verification of physical losses was done by carrying out measurements over 24 hours in one large zone.

Reaching out to customers always help collect information on time, therefore reducing the NRW and improving the water quality as well as regular supply. Operating a 24/7 customer call centre with dedicated toll-free lines for customers to report leaks encourages the public to provide information on any problems with the water supply. In Ouagadougou, Burkina Faso, members of the public are encouraged by the water utility, ONEA, to report visible leaks using a readily visible, easy to remember and free number 11-11 (USAID/WBI, 2010). ONEA has 5 permanent repair crews, on shift at the same time as the call centre staff and available to react to leaks quickly. In 2005, in direct response to call centre leads, the teams repaired 1,090 mains leaks and 3,496 house connections, all repaired within four (4) hours from the time of receiving a call. In Ouagadougou, customers are fully metered, and, although there are no individual roof tanks customer meter accuracy was seen as a weakness. A service contract was initiated in 2001, resulting in: A customer census to establish correct billing records and improved collection efficiency; A meter workshop to support a regular customer meter sampling and testing program; A meter replacement program and total customer meter replacement; Redesign of service connections; Installation of a modern IT customer management and billing system; Improved control of metering and corruption at community fountains.

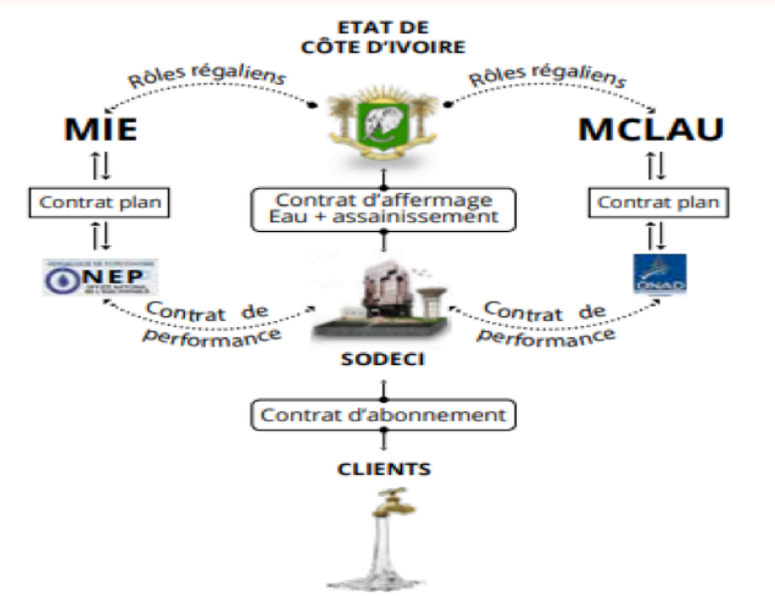
## 3.2. Institutional Operation of SODECI in Cote d'Ivoire

Cote d'Ivoire committed since 1973 to solve the problem of access to safe drinking water under the national program of hydraulics. With that, a contract was signed with Societe de Distribution d'Eau de la Cote d'Ivoire (SODECI) in 1987 with the aim of improving life of the

population in Cote d'Ivoire. SODECI installed eight (8) water treatment plants in the city of Abidjan, with seventy seven (77) forages with large diameters and the capacity of 312,000 m3/ day of potable water (Lazare, 2015; Thiriez et al., 2011). Despite the effort the government has put in, Access to drinking water in Cote d'Ivoire remains a major challenge, particularly for populations living in urban extension areas (Djaliah, 2018) as stated that this is associated with high cost of water distribution connections, as well as inadequate infrastructures that allow regular water supply to the increasing population and urban activities. In the wake of Millennium Development Goals MDG7 with its target 7C that seeks to halve by 2015, the proportion of people of Cote d'Ivoire without sustainable access to safe drinking water and basic sanitation, the Government of Cote d'Ivoire (GoCI) invested an amount of F.CFA 440 milliards for a period of three (3) years (2012-2015) with the purpose of reinforcing actions of sensitization and providing sustainable solutions in the sector of reducing Non-revenue water within water utilities (Diabagate, 2016). More so, the Government of Cote d'Ivoire incorporated the Private Public Partnership (PPP) with other stakeholders such as ONEP, SODECI, African Development Bank as well as the World Bank (World Bank, 2019) with the purpose of enhancing the works of improving access to water supply and most specifically, increasing infrastructure for water distribution and mitigating the impact of climate change while also working on reducing the Non-Revenue Water of which the increasing level has significant effect on the technical, financial, customer and institutional performance (World Bank, 2019).

SODECI water governance is under the supervision of the MCLAU and MIE delegated by the State of Cote d'Ivoire which has signed the contract of affermage or lease contract for exploitation of water and sanitation in urban sectors, as illustrated in the figure 2.12 (SODECI-RDD, 2017). These two Ministries work with ONAD and ONEP respectively under the contract plan; where in return ONAD and ONEP are in charge of supervision of SODECI with performance- based contracts. Finally, SODECI ensures the provision of water and sanitation to the customers under a contract of subscription.

**Figure 3.1: Institution framework and water governance of SODECI. (SODECI-RDD, 2017)**



# 4

# ANALYSIS OF QUALITY OF SERVICE DELIVERY IN BURKINA FASO AND CÔTE D'IVOIRE

## 4.1 SWOT

**Table 4.1: SWOT analysis for ONEA**

| STRENGTH | WEAKNESS | OPPORTUNITY | THREAT |
|---|---|---|---|
| **Technical**<br>• 92.44 %: drinking water in urban areas<br>• M&E every 6 months<br>• Water balance | **Technical**<br>• 9000 leaks/month<br>•Number of frauds are completely unknown | **Technical**<br>• Technical & financial partners<br>• National Public Health Laboratory& AfWA | **Technical**<br>• Scarcity of water resources<br>• Climate change |
| **Financial**<br>• Efficient bill collection<br>• Prioritize maintenance charge<br>• 200,000 Usd/year for NRW reduction | **Financial**<br>• Economic loss of around 200,000 USD/month<br>• Rare economic assessments of losses | **Financial**<br>• Strong support from TFPs (Technical & financial partners)<br>• Financing contract with the State | **Financial**<br>• The instability of the state budget lines<br>• The increasing investment cost |
| **Customer**<br>• Easy call line 11-11<br>• Installed devices to ease connections | **Customer**<br>• Insufficient Knowledge transfer to all stakeholders | **Customer**<br>• Training of staff about customer service | **Customer**<br>• Increased water demand<br>• Spontaneous housing |
| **Institutional**<br>• Legal and Institutional Framework<br>• A department in charge of NRW | **Institutional**<br>• Need for skills transfer to municipalities, which are not yet able to assume it | **Institutional**<br>• National water policy defined by the MEA<br>• Decentralization<br>• Government and donors | **Institutional**<br>• Increasing population<br>• Climate change<br>• The state budget |

**Table 4.2: SWOT analysis for SODECI**

| STRENGTH | WEAKNESS | OPPORTUNITY | THREAT |
|---|---|---|---|
| **Technical Performance**<br>• 71% access to drinking water in urban areas<br>• Expanding water supply networks | **Technical Performance**<br>• Leaks: aging pipes<br>• 36% NRW<br>• Unimproved operating performance<br>• Few/No updated data on the websites (IBNet) | **Technical Performance**<br>• Available water resources<br>• Donors finance new technologies | **Technical Performance**<br>• Military-political situation<br>• Climate change |
| **Financial Performance**<br>• 1 million usd/year for commercial losses<br>• 70 million usd for technical losses | **Financial Performance**<br>• Mobilization of funding necessary to achieve the water for all | **Financial Performance**<br>• PPP with State of Cote d'Ivoire, donors and multilateral organizations | **Financial Performance**<br>• Control of the production costs<br>• The water tariff<br>• Lack of investment |
| **Customer Performance**<br>• Call line (175) for alerts<br>• Online subscription and payment of water bill | **Customer Performance**<br>• Guarantee of the quality of service provided to customers | **Customer Performance**<br>• Projects to expand connections in Abidjan and sub-districts. | **Customer Performance**<br>• Continuity of drinking water service for the populations served |
| **Institutional performance**<br>• Institutional framework<br>• Organizational Structure | **Institutional performance**<br>• Organization structure: No department is in charge of water losses reduction | **Institutional performance**<br>• Capacity building: every year<br>• AfWA: good practices and benchmarking | **Institutional performance**<br>• Climate change and population growth |

## 4.2. Water and Sanitation

There is clear organizational, institutional and regulatory frameworks that govern the missions and performances of the institutions involved in water sector in the two countries. ONEP goes further in its organizational structure by ensuring gender equality is integrated. The two ministries have demonstrated similarities in managing, monitoring and evaluating of the quality of service delivery by signing contracts and agreement with water sector institutions; the MOH has signed a lease contract with SODECI and at the same time ONEP has signed a project management agreement with the MOH to monitor SODECI's performance. In Burkina Faso, the Ministry of Water and Sanitation signs a three- year plan contract with ONEA. The contracts define, guide and bind all actions intended for water services provisions and attainment of different targets set. To ensure compliance with obligations set, both ministries have set strategies that binds the institutions to periodically report their performance through reports and meeting.

The policy implementation in both countries allows collaboration and consultation with different actors and stakeholders in water sector; furthermore capacity building of actors and stakeholders is done periodically via training so as to improve the knowledge and performance of water sector actors. To date, the national water policy in both countries have gaps that have hindered effective water service delivery. Although Burkina Faso is benchmarked as one of the best performing utilities in Africa, the impacts of the gaps in water policy are quite evident. In 2009, decentralization in rural water supply took place, giving rural municipalities responsibilities in managing and ensuring rural water supply and sanitation, while ONEA is remaining the main supplier in urban areas. However, decentralization was not complete as central and local governments needed to improve their service delivery capacity before undertaking the provision of public services such as water and sanitation (World Bank, 2018). This explains the failure of local authorities to implement projects due to lack of enough skills and financial resources and so many projects delegated to municipalities are carried out by the national agencies. The setbacks in policy further affects the water sector budget causing insufficient funds for expansion of waterworks and non-operationalization of national programs. According to World Bank report, 2019, Cote d'Ivoire, the political crisis greatly affected the water and sanitation policy; underinvestment and proper maintenance during the period led to a drop in water production in the country, causing poor water access between 2000 and 2011. Even though services resumed properly from 2014 and large investment programs to close the gaps were established, reliability and sustainability of service delivery dropped during the crisis and the impacts are still acute and evident to date. The policy lacks management and maintenance aspects for hydraulic infrastructure in rural areas, and this can further explain the lagging behind of rural water coverage in the country.

On ensuring quality water service delivery, the two ministries have taken the role of contracting authority by signing contracts and agreements that aims to improve the water sector performance. From the results, it is noticed the different kinds of partnerships the two ministries have developed with water utilities. The public-private partnership that the MoH in Cote d'Ivoire has with SODECI has been named as the oldest running partnership in developing countries and a success story

for many other countries in Africa. The Ministry of water and sanitation in Burkina Faso has a public-public partnership with ONEA, which has been named as one of the successful partnerships in Sub-Saharan Africa.

Although the two partnerships are success stories for many other water utilities in Africa, they are faced with many challenges in managing the partnership with respective water utilities. Since SODECI is a private company, the MOH faces challenges in negotiating water tariff and control of factor costs with SODECI. Merely being a technical supervisor, the MOH has highlighted the challenge of not being able to guarantee the quality and quantity of drinking water, quality of services provided to customers and continuity of drinking water services for the population served. At the same lack of transparency from SODECI on operations and lease contract with the government hinders proper management and improvement of SODECI's performance. The public-public partnership in Burkina Faso is faced with challenges of the lack of an effective and strong structure for monitoring the performance of ONEA.

## 4.3. Status of NRW in Burkina Faso and Cote d'Ivoire

Figure 4.1 shows the different levels of NRW for both Burkina Faso and Cote d'Ivoire within seven (7) years, from 2012 to 2018. Comparison used data from IB-net 2017. On this platform, data for NRW in SODECI reaches up to 2014, while that of ONEA extends to 2016. The use of data from the (World Bank, 2019) was helpful to fill in the year gap.

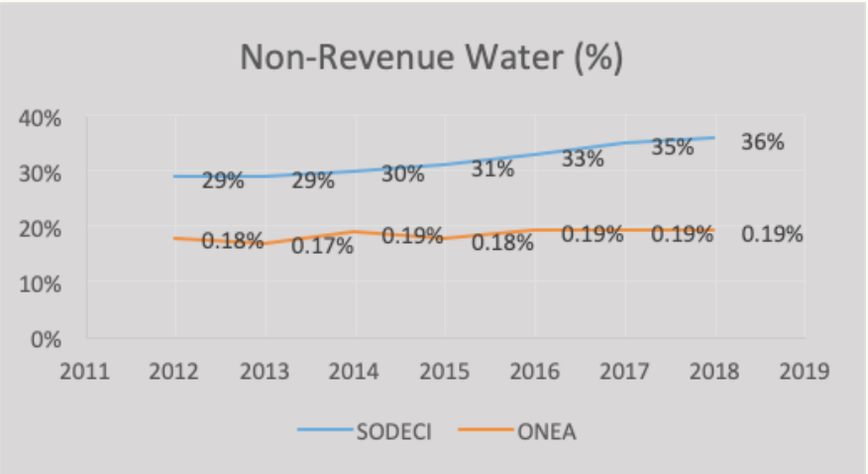



**Figure 4.1: Comparison between levels of NRW in ONEA (Burkina Faso) and SODECI (Cote d'Ivoire)**

*NRW level in Cote d'Ivoire kept increasing since 2012 from 29% to 36% in 2018. On the other hand, the level of NRW in Burkina Faso has not been high since 2012, but rather kept increasing. However, ONEA has managed to keep a constant low level of NRW of 19.30 % since 2016. According to the standard set by Water Operators Partnership Africa, a well-performing utility should keep NRW level at 25% or below (WSP-Africa, 2009¬).*

## IMPACT OF NRW ON THE TECHNICAL, FINANCIAL, CUSTOMER AND INSTITUTIONAL PERFORMANCE OF SODECI AND ONEA

### ● *Technical Performance*

**Table 4.1: Comparison of the Technical Performance of SODECI and ONEA**

| Technical Performance | Definition | SODECI | ONEA |
|---|---|---|---|
| **Water supply coverage (%)** | Households connected | 71% | 92.44% |
| **NRW (%)** | Volume of water lost | 36% | 19.3% |
| **Metering (%)** | Nbr of connections with operating meters | 98.44% | 100% |
| **Burst, leaks and theft** | Nbr of pipe breaks, leaks and fraud | 1.5 break/km/yr<br>1092 frauds/yr | 2.95 break/km/yr<br>9000 leaks/month<br>Unknown frauds/yr |
| **Water quality monitoring (%)** | Physical, chemical and bacteriological test | 96% | 100% |

From a technical perspective, findings showed that ONEA's good technical performance allows it to keep constant the level of NRW. However, there is a need to reduce the number of leaks (9000 leaks) and keep track of the frauds as the study shows that the number of frauds is unknown to ONEA. The ideal vision is to reduce commercial losses first (billing and metering errors) before addressing the technical water losses as the later requires a massive amount of investment (WSP-Africa, 2009). Thus, it is urged to keep checking and validating the regular system input meters (USAID/AfWA, 2015). SODECI also showed tremendous progress in the technical sector, but there is still room for improvement especially on water supply coverage where data shows 71%, with a 36% NRW recorded which even shows several frauds as high as 1092 in Abidjan (SODECI, 2016).

## ● *Financial performance*

**Table4.2: Comparison of the Financial Performance of SODECI and ONEA**

| Financial Performance | Definition | SODECI | ONEA |
|---|---|---|---|
| **Collection efficiency** | % of bills paid | 97.4% | 98% |
| **Operating cost coverage ratio** | Cost of NRW reduction | 1M US$/yr: commercial losses<br>70M US$/yr: technical losses | 200,000 US$/ month: commercial and technical losses |
| **Unit Cost of production** | Annual water expenses | 0.94 US$/m3 sold | 0.73 US$/m3 sold |
| **Unit revenue** | Annual water sold | ---------- | 0.90 US$/m3 |
| **Water tariffs & subsidies** | Water pricing | 401 FCFA/m3 | 504 FCFA/m3<br>0-8 m3 at 188 FCFA/ m3 for standpipes |
| **Service to the poor** | Expanded connections for poor | ---------- | 11 |

On the financial performance, results showed that ONEA invests USD 200,000 monthly on reducing NRW in general, while SODECI allocates USD 1 million and USD 70 million annually for commercial and technical losses reduction respectively. This shows how failure to reduce NRW has a significant impact on utilities' financial sustainability (Karamage, 2016). Owing to the fact that ONEA cannot account for the number of frauds, it is arguably possible that the investment on NRW reduction is small; which explains the fact that NRW level has not been reducing for over three (3) years. Furthermore, the water tariff structure that allows recovery of investment and subsidy to the poor can help improve the financial sustainability of SODECI.

## ● *Customer Performance*

**Table 4.3: Comparison of the Customer Performance of SODECI and ONEA**

| Customer Performance | Definition | SODECI | ONEA |
|---|---|---|---|
| **Continuity of water supply** | Average hours of water supply per day | 20 hours/day | 23 hours/day |
| **Customer complaints** | Rate of complaints and handling | 8959 repairs/yr<br>98% of complaints handling | 0.6% complaints<br>96% complaints handling within 3 days |
| **Customer satisfaction** | Rate of satisfaction | ---------- | 90% |
| **Community engagement** | Communication/ NRW awareness | Alert hotline: 175 | Alert hotline: 11-11 |

For the customer performance, both utilities have call centres that help communicate with customers in case of leaks alerts and other customer- control complaints. Within this sector, the study also found that ONEA continuity of water supply is 23 hours per day, while SODECI is 20 hours per day (ICEA-Espelia, 2018). This implies that both utilities should check on the possible NRW to enable water supply of 24 hours and improve their communication with the customers for possible alerts on NRW.

## ● *Institutional Performance*

**Table 4.4: Comparison of the Institutional Performance of SODECI and ONEA**

| Customer Performance | Definition | SODECI | ONEA |
|---|---|---|---|
| **Institutional Performance** | Nbr of staff/1000 connections | 2 staff/1000 connections | 2.7 staff/1000 connections |
| **Capacity building** | Annual staff training | 100% training done | 100% annual training |
| **Water governance** | Institutional framework and organizational structure | Private company<br>No chief in charge of NRW | Public company<br>Department in charge of NRW |

With regards to the institutional performance, both utilities have good organizational structures. However, SODECI does not show which department and who is in charge of NRW reduction. Also, both utilities organize training of staff as part of increasing the capacity building. More so, both SODECI and ONEA managed to keep the number of staff per 1000 connections at the standard limit. This, as explained by (WSP-Africa, 2009), less staff/1000 connections means more productivity, showing that both utilities are putting efforts in reaching the standard goals of African water utilities performance on staff productivity.

# 5

# CONCLUSION

This book analyzes the impact of policies and water management system on water quality service delivery in Africa by taking case studies of Cote d'Ivoire and Burkina Faso water utilities. A SWOT analysis was done to analyze the strength, weakness, opportunity and threat for each water sector institutions. It also looked at the influence of policies on Non- Revenue Water (NRW) management within the utilities. It can be concluded that utility management systems and policies implementation plays a significant role on the performance of water quality service delivery in African countries. SODECI and ONEA have been benchmarked as the good performing utilities in Africa having a public- private partnership and public- public partnership respectively. However, there are still gaps and challenges in each institution in delivering water quality services to the community.

To improve the performance of water and sanitation services delivery, both countries implemented reforms in management structures of water utilities. The gaps in national water policies both in Cote d'Ivoire and Burkina Faso have hindered water quality service delivery, especially when it comes to reducing the NRW. Both countries introduced decentralization as a way to improve rural water coverage; however, failure to clearly separate functions, strengthen and capacitate municipalities has caused both countries to lag behind with Burkina Faso performing behind Cote d'Ivoire. The gaps in policy impacts water sector budget, the continuous stagnant tariffs in both countries affect financial sustainability of the sector hindering further expansion of the water networks, and also affect O & M costs coverage. Sanitation is as equally as important as water supply in order to achieve SDG 6; however, sanitation coverage is lagging behind for both countries, especially in rural areas. Although many efforts and initiatives have been implemented by both countries to improve sanitation services including raising awareness to the community, we can't escape from the fact that sanitation sector has not been an attractive sector for most investors impeding its performance. The two partnership regimes, despite the good performance, are faced with challenges. Results indicated deficiencies in coordination and monitoring the operations, quality of services and affermage or lease contract between the MOH and SODECI coupled with lack of transparency on the operation and performance from the private operator and a lack of data about water losses, hence the high level of NRW. Furthermore, the public-public partnership faces setback by lacking effective and strong structure to monitor ONEA performance as well as the unknown number of water thefts making the utility to fail to reduce the NRW level. All these challenges affect proper management and improvement of performance.

Sustainability of good water quality service delivery are hindered with rapid population growth, urbanization and climate change in respective countries; with water sources being the same and no replenishment, and in view of financial instability of the water sector, it is evident reaching a one hundred percentage (100%) water and sanitation coverage might be a dream that will never be achieved by 2030 unless new measures are implemented soon enough. In conclusion there is not a more desirable form of partnership in water sector, both private-public and public-public are as important in fostering good water quality services. The success is possible for each institutional structure if proper management systems and policies are implemented at national, local, and utility level.

# 6

# RECOMMENDATIONS

The following recommendations will enhance the provision of good water quality services to populations of Burkina Faso and Cote d'Ivoire and will serve as an example to other African water utilities:

### Institutional performance

Government as a regulator must put in place comprehensive strategies and plans to addressing the inadequacies in institutional and regulatory frameworks that impede good services provision. The governments in both countries should address the gaps in national water policy that hinder good service delivery especially in rural areas. It is essential for the governments in respective countries to address the poor management structures that adds to limited prioritization and knowledge in service delivery to low- income communities Setting up of strong institution structures and competent management teams to regularly monitor the performance of water utilities.

Strengthen capacities of local actors in terms of water governance, sanitation and hygiene through periodic training and raising awareness to increase access to water and sanitation. It is necessary for all actors involved in water and sanitation service delivery to be on the same level of knowledge and understanding of national water policies of the respective countries.
Institutionalization of NRW in all African water utilities could address the issue of underperformance caused by high level of NRW.

### Operational performance

It is necessary for the public partners to regularly evaluate the contracts signed in delivering water and sanitation services to the population. Short- term contracts can be another way forward for public-private partnership to increase competitiveness and efficiency in water service delivery. Holding the water utilities accountable for the lack of transparency and poor performance. To achieve good service delivery, it is important if a single entity is responsible for both operation and investment. Separation of heritage ownership and operation has proven to bring some setbacks in Cote d'Ivoire between SODECI and ONEP causing lack of consistency.

To improve rural water coverage, it is crucial to capacitate municipalities and allow full decentralization to take place. Proper management and maintenance of rural water infrastructure is very important to allow continued water supply to rural areas. It is important for water utilities to invest in data management information systems, as transparency in data is crucial in improving services and monitoring performances. The water sector utilities should invest in new technologies that are reliable, efficient and easy to use to attract more customers for water supply and sanitation services.

### Financial performance

The governments should negotiate tariffs regularly with water utility operators as the water demand is increasing due to population growth, so as to enable them to fully recover O & M costs and contribute to capital investment and extend water networks especially for urban poor and rural communities and minimize gaps in service delivery. For instance, a dialogue mechanism between SODECI and all stakeholders could be a way forward to solving the issue of NRW, especially on setting the water tariffs for operational cost recovery and asset management.

Water sector budget should set aside enough financial funds to support the operations of water utilities, especially investing in sanitation services which is still lagging behind for both countries respectively. As water is perceived as a risk business, government interventions are crucial in establishing strong commercial approaches that will attract more investors especially for sanitation services.

### Customer performance

It is important for the policies set to address and prioritize the communities living in unplanned and peri urban areas with water supply and sanitation services through cross subsidies and incentives to increase water coverage.

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# APPENDICES

# APPENDIX 1

## The African Water Association (AfWA)

The African Water Association (AfWA) is an International NON-PROFIT ORGANIZATION which aims to cover all facets of the water cycle. The Institution's mission is to serve as a continental network for Sanitation and Water professionals and to share best practices for sustainable management. Advisory Member with Consultative Status of the United Nations' Economic and Social Commission since 2004, AfWA is a professional Association of Organizations, Utilities and Operators working in the Water, Sanitation and Environment related sector in Africa. AfWA has more than 100 - Member Utilities in over 40 countries in Africa, and is headquartered in Abidjan, CÔTE D'IVOIRE – West Africa (AfWA, 2016).

## Background history of AfWA

Afwa started off as UAWS, which was created in the late 1970's after many negotiations. The motivation and objective for creation was due to decreased rainfall and population growth, sanitation and different problems facing water sector. The preparatory meeting was in Abidjan in February 1979. Several presidents across Africa have led the fate of UAWS, hence giving the union a continental call. The Union came to reality after the first congress held in Abidjan in February 1980, eighteen (18) new members joined, new agreements on various issues and appointment of important positions in the Union.

In March 1988, the Union's headquarters was set to be in Abidjan, Côte d'Ivoire and the functions and administrative secretary was to be taken care by the Société de Distribution d'Eau de la Côte-d'Ivoire (SODECI, water supply utility of Cote d'Ivoire).
Until to date, many congresses have been held (about twelve), seminars and workshops have been organized on various topics dealing with water, sanitation and environment. The congresses are international involving experts from all over the world. In early 2000's, new lines of actions of the Union were set. UAWS changed its name to the Association Africaine de l'Eau (AAE) in French and African Water Association (AfWA) in English on 25th April 2003. Individual members such as professionals, scholars, researchers and everyone who worked on water, sanitation and environment sector joined the union. Water Utility Partnership (WUP) programme was launched in 1996 on the reforming of water sector in Africa International conference. It is an African regional capacity building programme with a focus on urban and peri-urban water utilities. The programme was initiated by the African Water Association (AfWA), the Regional center for Low Cost Water and Sanitation (CREPA), the Training, Research and Networking for Development (TREND) and the World Bank. For more than 30 years now, the Organization currently known as the African Water Association (AfWA) wants to win the challenge for sustainable access to portable water and sanitation services for African populations (AfWA, 2016).

## Mission and objectives of AfWA

• To coordinate the search for knowledge and latest developments in the technical, legal, administrative and economic fields for Drinking water production, supply and of sanitation,

• To promote the exchange of information on methods, processes and procedures of drinking water production and supply and sanitation,

• To initiate, encourage and promote any action of cooperation and exchange in professional training.

## How it works

AfWA is now the unique lead-representation of the professional organizations in the water and sanitation sector in Africa. The Association contributes to the sector agenda-setting, policy development, needs' identification, promote innovation and new approaches. By so doing, AfWA seeks to be at the upfront in implementing the African Head of State Sharm El-Sheikh 2008 Declaration, aiming at enhancing coverage on water and sanitation in Africa to achieve the MDGs target and the now SDGs.

Over the years, AfWA has sought to facilitate capacity development of utilities and influence sector policy by providing sound professional outlook on emerging issues and engage other actors (AfWA, 2016).

The African Water Association aims to:

• Provide its members with the results of studies, research and surveys in all branches of activity in the drinking water, sanitation and environment sector;

• Encourage measures of general interest that will help upgrade professional skills;

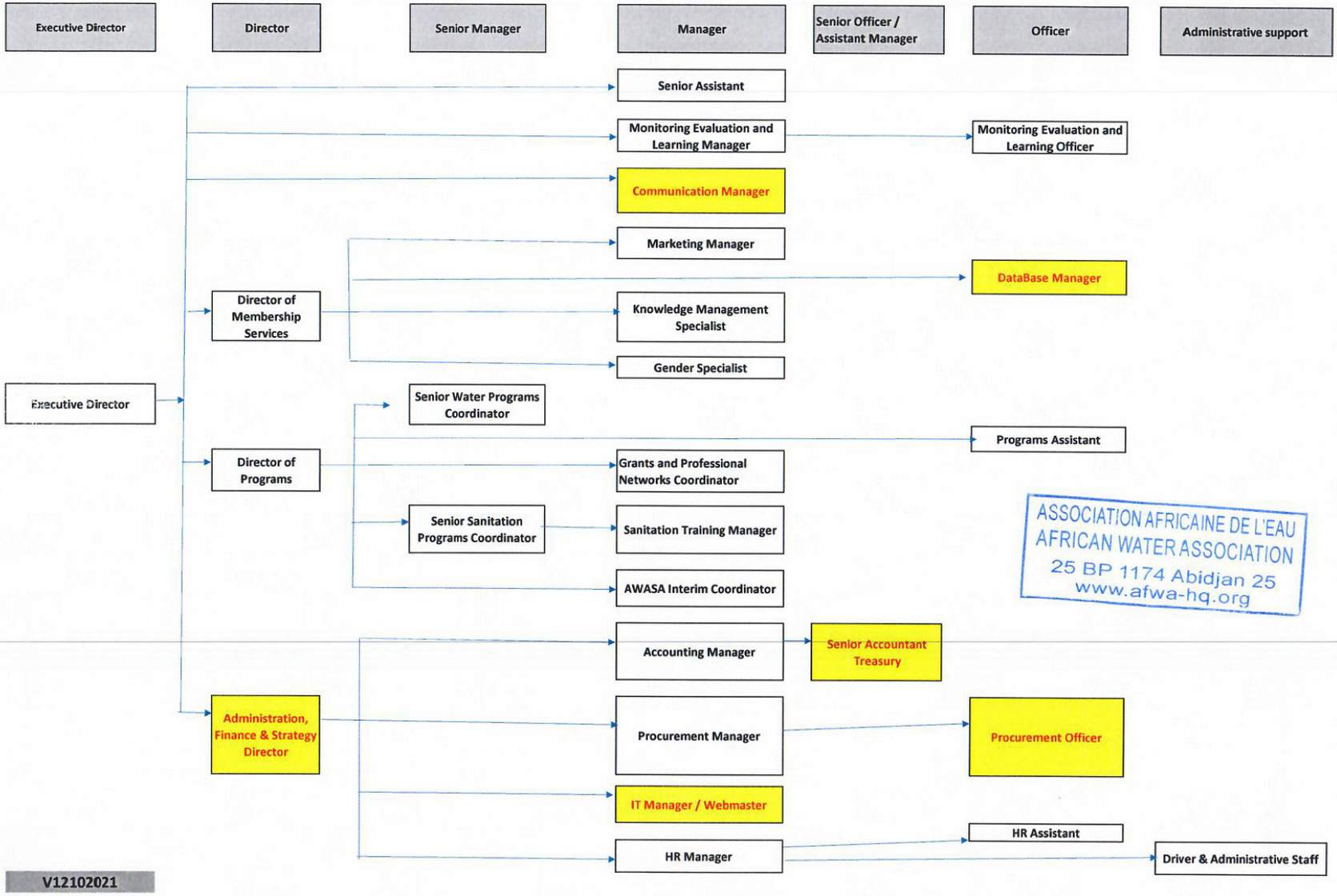
• Maintain close relations with all regional, continental and international organs devoted to issues relating to the objectives of the Association;

• Organize congresses, symposia, seminars, workshops and technical sessions;

• Institute awards and distinctions to promote and stimulate members' performances.

### AfWA members in Africa

## AfWA's ORGANIZATIONAL CHART




ASSOCIATION AFRICAINE DE L'EAU
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# APPENDIX 2

## QUESTIONNAIRE FOR MINISTRY OF HYDRAULICS

### References of the person answering the questions

- Name/Surname :
- Position :
- Contact (s) (email and/or telephone):

### Introductory Questions

1. What is the main function of the Ministry of Hydraulics in the water sector in Cote d'Ivoire?
2. How is the ministry organized to ensure its performance on its mission/role
3. What are the priority needs of the Ministry of Hydraulics to provide efficient water services in rural areas?
4. In your opinion, what are the setbacks (gaps) of the water and sanitation policy in Cote d'Ivoire?
5. In your opinion, how effective is the implementation of water and sanitation policies?

### Institutional Performance

1. What is the role of the Ministry in monitoring the daily activities of SODECI and ONEP in the provision of the water service?
2. What are the challenges of working with private institutions like SODECI?
3. How is the ministry ready to cover the whole of Côte d'Ivoire with water supply in the event that SODECI no longer functions?
4. Questions of financing the water sector?
5. How is capacity building of sector stakeholders ensured? What role does the Ministry play in this direction?

# APPENDIX 3

## QUESTIONNAIRE FOR SODECI

### References of the person (s) answering the questions

- Name/Surname :
- Position :
- Contact (s) (email and/or telephone):

### Operational performance

1. Is there any specific strategy for SODECI to address NRW? If so, who is involved? What is the annual cost? If not why?
2. How many leaks, illegal connections and counting errors are reported per year? And how is SODECI dealing with the situation?
3. What methods has SODECI used to reduce the level of NRW?
4. What has the level of NRW been for the past 5 years?
5. What are the plans to increase the level of NRW management in the future?

### Financial performance

1. What is the water tariff structure adopted by SODECI?
2. How are water prices related to the per capita income of the population served?
3. What is the amount of income that SODECI derives from the water supplied? Is this enough to fully cover the operating and maintenance costs?
4. What are the economic losses associated with NRW?
5. How does the institution deal with economic losses?

### Customer performance

1. What is the coverage of water connections in urban areas and by urban area?
2. What methods do you use to ensure efficient delivery of water services?

### Institutional performance

1. What technologies has SOCEDI adopted to provide quality services to the community in the face of climate change and population growth?
2. What are SODECI's priority needs to ensure quality service to populations?



# APPENDIX 4

## QUESTIONNAIRE FOR ONAD

### References of the person (s) answering the questions

- Name/Surname :
- Position :
- Contact (s) (email and/or telephone):

### Operational performance

1. How does ONAD ensure the long-term operation of sanitation services?
2. What is the coverage of sanitation services in urban areas?

### Financial performance

1. What measures have been taken by ONAD to maximize funds for sanitation projects / activities?
2. How is the pricing structured to cover the operating and maintenance costs of sanitation services?

### Customer performance

1. How does ONAD collaborate with the community to ensure that awareness-raising and sanitation practices are well implemented?

### Institutional performance

1. How does ONAD work with its partners to provide adequate sanitation services to the community?
2. What are the methods applied by ONAD for monitoring daily sanitation services?
3. What are the strategies used to maximize assets management in the face of various challenges such as climate change and population growth?
4. What are the main challenges facing ONAD? And how do they respond to it?
5. How effective is the sanitation policy in contributing to the objectives of ONAD?
6. How does AfWA add value to ONAD?
7. What strategies does ONAD use to ensure the achievement of its objectives?
8. How is capacity building of sector's stakeholders ensured? What role does ONAD play in this?

# APPENDIX 5

## QUESTIONNAIRE FOR ONEP

### References of the person (s) answering the questions

- Name/Surname :
- Position :
- Contact (s) (email and/or telephone):

### Operational performance

1. Is there a specific ONEP strategy to deal with the problem of Non-Revenue Water (NRW)? If yes, who is involved? What is the annual cost? If not, why?
2. What measures have been taken by ONEP to sensitize the community to the problem of NRW?
3. What are the main causes of leaks and how is ONEP handling the issue?

### Financial performance

1. What is the cost of water resource management (repair / replacement of water distribution equipment)?
2. How is ONEP maximizing investment in the renewal of the most deteriorated pipes and joints?

### Institutional performance

1. What strategies have been put in place to monitor SODECI's performance in providing water to populations?
2. What strategies have been put in place to maintain the relationship with donors or financial partners?
3. How does ONEP allocate and monitor the budget to best meet SODECI's needs?
4. What is the window of opportunity available to ONEP for adopting new technologies in terms of investment in water?
5. What are the challenges ONEP has to face?
6. How does ONEP approach the challenges encountered?
7. How does AfWA add value to ONEP?
8. How is the capacity building of sector's stakeholders ensured? What role does ONEP play in this?

# APPENDIX 6

## QUESTIONNAIRE FOR THE NATIONAL OFFICE OF WATER AND SANITATION (ONEA)

### References of the person (s) answering the questions

- Name/Surname :
- Position :
- Contact (s) (email and/or telephone):

### Operational performance

1. Is there a specific strategy for ONEA to deal with the problem of Non-Revenue Water (NRW)? If yes, who is involved? What is the annual cost? If not, why?
2. How many leaks, illegal connections and counting errors are reported per year? And how is ONEA coping with the situation?
3. What methods has ONEA used to reduce the level of NRW?
4. What has been the level of NRW in the past 5 years?
5. What are the plans to increase the level of NRW management in the future?

### Financial performance

1. What is the water tariff structure adopted by ONEA?
2. How are water prices linked to the per capita income of the population served?
3. How much income does ONEA get from the water supplied? Is it enough to fully cover the operating and maintenance costs?
4. What are the economic losses linked to NRW?
5. How does the institution deal with economic losses?

### Customer Performance

1. What is the coverage of water connections in urban areas and by urban area?
2. What methods do you use to ensure the efficiency of the provision of water services?

### Institutional performance

1. What technologies have ONEA adopted to provide quality services to the community in the face of climate change and population growth?
2. What are the priority needs of ONEA to provide quality service to populations?
3. What are the challenges of working with public partners, and how can we meet them?
4. To what extent is capacity building done to increase staff productivity?
5. How does AfWA add value to ONEA?
6. How is capacity building of sector's stakeholders ensured? What role does ONEA play in this?



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