

Comparative Financial Analysis of Water Utilities in West Africa

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Abstract

Access to drinking water is a major issue in large cities of West Africa. Governments have a difficult equation to solve. They obviously want to offer their people the cheapest cubic meter. But they are constrained by an ambition to extend the water systems to less wealthy neighbourhoods as well as to provide sanitation services, in a context of very limited public funds. How to fix an acceptable tariff, taking into account the necessary required investments?

The study presented in this paper provides a financial analysis of water utilities in West Africa. It allows a comparison of performances on a number of key financial ratios related to operations, investment, bank financing and economic and financial returns. It ends with a comparison of tariff.

The conclusion focuses on the growth opportunity the water sector could represent in these countries. But this opportunity may only materialize if the EBITDA margin on water sales remains high. The options are limited: a periodic re-evaluation of tariffs or an improvement of technical performances. The comparative financial analysis attempts to highlight which is the most appropriate for each country.

1. Introduction

1.1 Presentation of the Study and the Different Utilities

The study focuses on water distribution utilities operating in cities from seven countries in West Africa (Benin, Burkina Faso, Ivory Coast, Mali, Niger, Senegal and Togo) and part of the Western African Economic and Monetary Union (WAEMU) (Note 1). They all use the same currency the CFA Franc or XOF. The water supply in the rural sector is not their responsibility.

Institutional set ups are very different from one country to another and can be distinguished between:

- Countries with a single public or publicly controlled utility in charge of both operations and asset management such as Benin, Burkina, Mali and Togo
- Countries with a private operating company and a public asset management company such as Ivory Coast, Niger and Senegal. Regarding Ivory Coast, it should be noted that the creation of ONEP, the asset management company, is relatively new (2006). Given the recent history, most of the capital works are still performed by the operating company SODECI, through a development fund housed in its balance sheet. The institutional framework as defined by the texts seems to be only partially implemented. The author was unable to obtain accounts of ONEP.

Table 1. Water distribution utilities WAEMU

Country	Company	Activity	Status	Website
Bénin	SONEB	Water and sanitation	Public	www.soneb.com
Burkina	ONEA	Water and sanitation	Public	www.oneabf.com
Ivory Coast	SODECI	Water and sanitation, operation	Private	www.sodeci.ci
	ONEP	Water, asset management	Public	www.brvm.org
Mali	EDM Mali	Water and electricity	Public and private	www.onep-ci.net
Niger	SEEN	Water, operation	Private	www.edm-sa.com
	SPEN	Water, asset management	Public	www.veoliaeau.com
Sénégal	SDE	Water, operation	Private	www.spen.ne
	SONES	Water, asset management	Public	www.sde.sn
	ONAS	Sanitation	Public	www.sones.sn
Togo	Togolaise des Eaux	Water and sanitation	Public	www.onas.sn

Source: Elaboration of the author, annual reports of companies.

The scope of the different companies is not always the same. It excludes sanitation in some countries, like Mali, Niger and Senegal. EDM Mali is also in charge of electricity as well as water (Note 2).

The study is based only on the audited accounts using the OHADA (Note 3) format and the annual reports of the last three years. The accounts are assumed to be sincere. Only ONEA Burkina and SODECI Ivory Coast (listed on the Abidjan stock exchange) publish their accounts on the internet. EDM Mali, SONEB Benin, SPEN Niger, SONES Senegal and Togolaise des eaux diffuse their report to a wide audience (Administration, Universities, Donor ...) (Note 4). The accounts of SDE Senegal and SEEN Niger (private companies operating the public service of water in Senegal and Niger) are restricted. For these countries, the study was based on the annual reports of the public asset management companies or regulation authorities in charge of their control.

OHADA format has allowed the establishment of a unique chart of accounts for all countries and facilitates the benchmarking of financial performances. However, the coexistence of integrated utilities, operating companies and asset management companies requires caution: accounting practices are sometimes different. Thus, the turnover of the operating companies (SDE Senegal, SEEN Niger) includes the fee paid to the asset management company (SONES Senegal, Niger SPEN) and sanitation company in the case of Senegal (ONAS Senegal). The amounts collected for the investment fund (Water Development Fund) and public debt service (National Water Fund) managed by SODECI Ivory Coast are not included in its turnover, but all investment works done with the funds collected are. Similarly, the grantor's right is recorded as other equity in EDM Mali's balance sheet but as other debt in SPEN Niger's balance sheet.

To allow comparison between countries, some figures were consolidated when it made sense and allowed to maintain the confidentiality of company accounts of private firms (SDE Senegal, SEEN Niger), in particular Sales and EBITDA.

Figure 1 gives an indication of the relative size of each company in terms of number of consumers, revenues (water sales plus operating subsidies) and total asset:

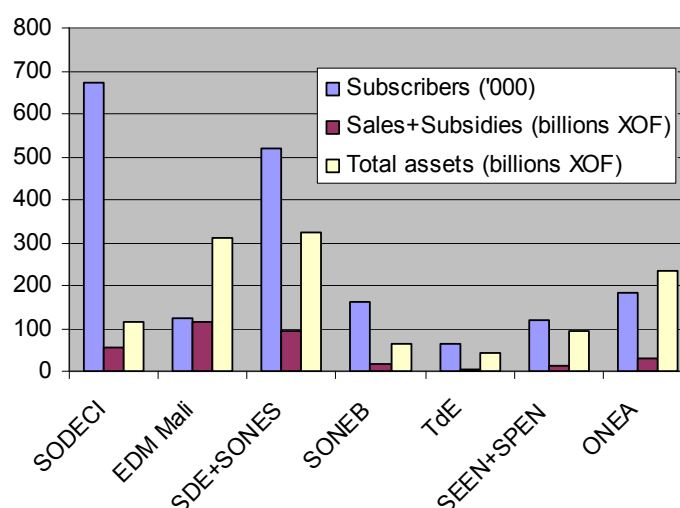


Figure 1. Relative size of utilities: number of consumers, revenue and total asset

Source: Annual reports of companies, annual accounts.

The situations are very different in terms of client numbers, turnover and balance sheet size. Therefore, this study is mainly based on a number of characteristic ratios, annexed at the end of this document, allowing a comparison between the performances of each company.

1.2 The Financial Vision of the Company and the Three Cash Flow Cycles

All companies produce accounts that reflect their business of the year. This financial translation is not always easy to interpret. And the very fact of summarising the business of a company by a translation in monetary units is of course simplistic and open to discussion.

But it is the language of financiers, bankers and investors, in a capitalist world. It is therefore necessary to master this language to be able to understand them and negotiate credit or equity. We must also admit that profit is the

object and purpose of their activity, even if, in the case of a water utility for instance, it might be argued that the objective should be to connect 100 % of citizens and offer the best service for the lowest price. It is up to politicians by the use of law to ensure that the objective of profit maximization coincides with those of citizens by regulating, taxing, subsidizing or redistributing.

This translation also implies that financial accounting statements and activity reports are accurate and conform to established standards in order to remain meaningful. For this study, the financial statements were assumed to be sincere and have not been restated.

According to P VERNIMMEN in *Corporate Finance*, the financier seeks to understand a business through the knowledge of cash flows deducted from the financial statements. It distinguishes the following cash flows in this order of priority:

- 1) The operating cycle
- 2) The investment cycle
- 3) The process of debt and equity financing

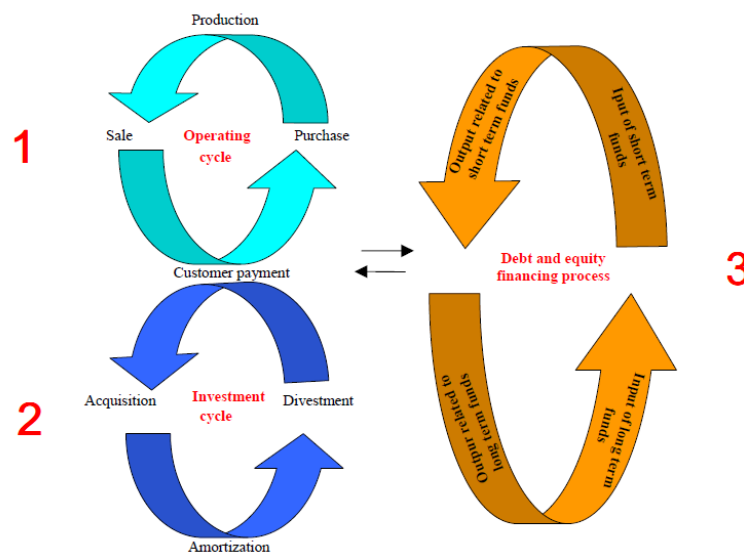


Figure 2. Different cash flow cycles in a company

Source: CEFEB.

The order of precedence follows this reasoning: if a company generates large cash surpluses from its operation, it will naturally be led to invest in order to increase its activity so as to produce more financial surpluses and the financiers will compete to bring the necessary funds for its growth. Conversely, a business losing money on its operation will have little incentive to increase its activity and it will be very hard to convince bankers and investors to hand out any funds.

An institutional set up allowing both an operating company and an asset management company simply implies that responsibility for managing the operating cycle is given to the first one. The operating company has the duty to maximise surplus from operation so as to be able to pay as large a fee as possible to the asset management company, in order that it can invest and access to debt and equity.

The document follows this logical order of priority in the financial analysis part: operating cycle, investment cycle and funding process. The last part is a reflection on the place of the water sector in the countries' economy, the price of water and the use of escalating tariff as an alternative to tax or a tool for redistributing wealth among the inhabitants of a country.

2. The Operating Cycle

Taking the example of a water distribution company, the operating cycle normally starts with the purchase of raw water, electricity, chemicals for water treatment. The raw water is treated, transported, delivered, and invoiced. Bills collected are used to pay salaries and inputs and thus the operating cycle is completed.

The operating cycle is the most important. The company will pursue the dual goal of maximizing on one hand the surplus of receipts over disbursements during a cycle, and on the other hand the speed of the cycle.

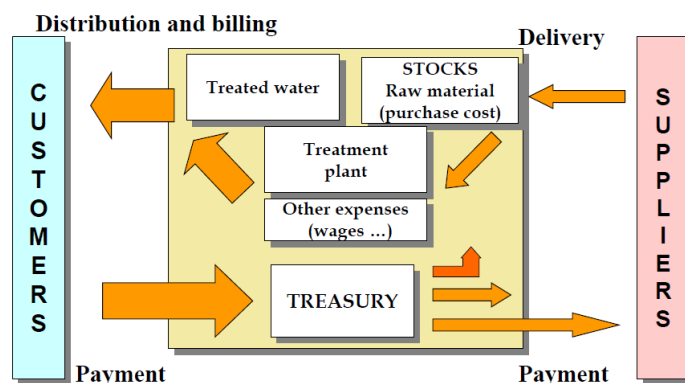


Figure 3. The operating cycle of a water company

Source: elaboration of CEFEB.

Turnover is a measure of the number of operating cycles performed in one year, that is to say the company's activity.

The gross operating surplus is the cash that will be generated by all the cycles of the year. The EBITDA margin (EBITDA/Sales) allows a comparison between companies. A negative EBITDA means the company ends up with less cash than at the beginning of the cycle. An order of magnitude for an average EBITDA margin could be 20%; this is what we see in Europe for public service companies (Note 5). Some phone companies' EBITDA margin exceeds 50%! To accomplish this, two solutions: increase the revenue or reduce the expenditure.

The cycles can be longer or shorter according to the firm. For a water company, the cycle's duration is the time spent between the delivery of chemical products for treating the raw water and the collection of the sale of that same raw water treated and transported. The company will reduce the cycle to minimize the amount needed to finance its inventories of raw materials and finished products, its invoices awaiting payment and to pay suppliers in a timely way. This amount is essentially made of the total of inventories plus the amount of customer invoices awaiting payment, less the amount of unpaid supplier's invoices: what is called the Working Capital Requirement (WCR). A company can always longer payment deadlines without complaint from customers if it can afford it. Conversely, if it does not pay its suppliers, it is exposed to a halt in deliveries. Typical ratios of customer receivables in % of sales, suppliers' payables in % of sales and Working Capital Requirement in % of sales are used to compare companies.

2.1 Margin of the Water Sector in West Africa

Figure 4 shows the margins for the period 2008 to 2010:

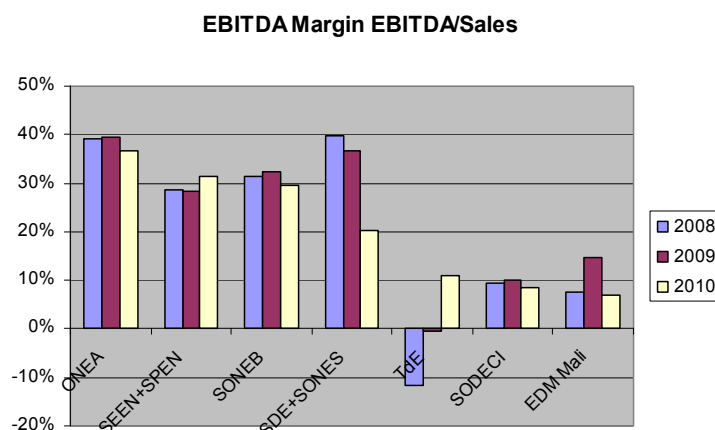


Figure 4. EBITDA margin: EBITDA / sales

Source: Annual reports of companies, annual accounts.

For Senegal and Niger, the margin is the EBITDA generated by both the operating companies and asset management companies on the consolidated water revenue (water sales and operating subsidies) for the sector in the country.

A negative margin, as in the case of the Togolaise des eaux in 2008, means that the company sells the m3 below production costs. It does not recover the sums required for payment of its main suppliers (electricity, chemical treatment products...) and wages. Unless rapid action is taken, the utility is doomed to cease operation over time.

The margins found in Burkina Faso, Benin and Niger could be considered adequate but not excessive, demonstrating a good regulation of the sector. Between 30% and 40%, they seem sufficient to encourage investment in this capital intensive sector of water. They give room for a moderate recourse to debt.

Thin margins like in the case of Togolaise des eaux and EDM Mali imply that the amounts remaining after payments to suppliers and wages are not enough to renew the infrastructure satisfactorily, let alone invest to increase the water service, except by relying on investment subsidies, which can only reduce the rate of network expansion. They may be considered insufficient.

The case of SODECI Ivory Coast is more complex to analyze. The relative weakness of the margin is calculated on an EBITDA, which includes a significant amount of capital works (which are not strictly operations) performed on the Development Fund or the Sanitation Contribution.

Sector margin recorded in Senegal in 2010, around 20%, could be considered average in a developing country requiring large investments.

The margins are explained by the difference between the following factors:

- Selling prices and operating subsidy;
- Production costs, highly dependent on the overall performance (technical and commercial losses) of the network.

2.1.1 Average Selling Price and Subsidy Per m3

The average selling price for each country and the operating subsidy (Note 6) per cubic meter are shown in Figure 5. The average selling price is calculated before tax based on water sales divided by the volume invoiced.

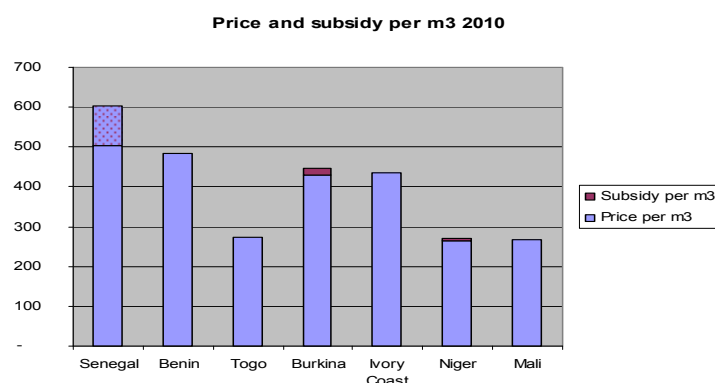


Figure 5. Price and subsidy per m3 in 2010 (XOF)

Source: Annual reports of companies, annual accounts.

It is possible to distinguish two groups: Togo, Mali and Niger, with an average price of less than 300 XOF/m3 on one hand and Senegal, Benin, Burkina Faso and Ivory Coast with a tariff between 400 and 600 XOF/m3. The excellent performance of the water sector in Niger in terms of price, without sacrificing the overall EBITDA margin, has to be outlined. Another aspect to be highlighted is the very high stability of prices in some countries, where the tariff has not been changed since 2001 (Togo), 2003 (Senegal excluding the tariff for administration) or 2004 (Ivory Coast and Mali). Given inflation, this means a very significant fall in prices for consumers in constant XOF.

For comparison purposes, an order of magnitude for average prices in Europe would be the order of 1 EUR to 1.5 EUR per m3 (650 XOF per m3 in 1000 XOF), sanitation excluded. Sanitation doubles the prices. Similarly, the reference of one USD/m3 (500 XOF per m3) is often put forward as minimum for operating cost recovery

(Note 7). It is not possible to draw definitive conclusions from these comparisons, the price per m³ appears to be very (maybe sometimes too?) competitive in the entire area of West Africa.

A second observation is the virtual absence of operating subsidy to water sector by States (Note 8). This result contrasts sharply with the electricity sector, a very strong consumer of public funds, particularly in Senegal, Benin and Ivory Coast (Note 9). The price of water appears therefore to be paid by consumers according to their consumption, not by the taxpayer. Associated with competitive prices, this is an encouraging result for the region.

However, this conclusion is misleading regarding Senegal, where a special tariff for administration, roughly equal to three times the average rate for large consumers, was established in 2010. This decision was taken to avoid a general tariff increase while preserving the overall financial stability of the sector. This special tariff for administration is equivalent to an operating subsidy to the water sector, with the disadvantage of a lack of transparency. Given the assumption of a government consumption equivalent to 10% of sales in volume, this is equivalent to an operating subsidy of 12 billion XOF or 100 XOF/m³. In other words, the rates should increase by about 20% for all users that are not part of the administration to keep the same revenues for the sector and to go back to the principle of customer-buyer.

A third observation relates to the different nature of the product sold. These average prices include a sanitation service in Dakar and Abidjan, where there is a significant wastewater network. This network is still embryonic in Ouagadougou and Cotonou and is not part of the scope of the considered utilities in other countries. Corrected of the fee paid to the state company in charge of sanitation in Senegal (ONAS), the average price per m³ in Senegal (around 500 XOF/m³) becomes very similar to that of Benin and Burkina. The average price recorded in Ivory Coast includes important sanitation in the economic capital Abidjan and therefore appears more competitive in comparison with Benin and Burkina Faso.

2.1.2 Competitiveness in Production Costs

Operating expenses paid in cash consist primarily of personnel expenses, chemicals for raw water treatment and finally electricity consumption for pumping raw water, treatment and especially the transport of water.

In comparison with the electricity sector which is at the mercy of the fluctuations in oil prices, the limited recourse to imported raw materials should be outlined as a major advantage of the water sector (Note 10). This may explain the relative stability of the margins over the period 2008-2010. This assumption is obviously not true for EDM Mali, which also ensures the electricity service that was hard hit by the increase in oil prices in 2010.

Expenses are significantly influenced by staff productivity (number of subscribers per agent) or the overall performance of networks (volume charged on volume produced). But these charges also depend heavily on the quality and proximity to water resources. The situation is obviously not the same in the sub Saharan countries (such as in Dakar, located in a semi arid region where raw water is sourced from the Senegal River located more than two hundred kilometres away) or in a rainy tropical zone bordering the Gulf of Guinea. An operating company has to make do with these geographical and physical factors. The volume sold per subscriber or the more or less extensive uses of public standpipes are also elements that can significantly influence the production costs. Therefore assessing the cost competitiveness of production costs in terms of the two indicators below requires caution.

The figure below shows the number of subscribers per employee:

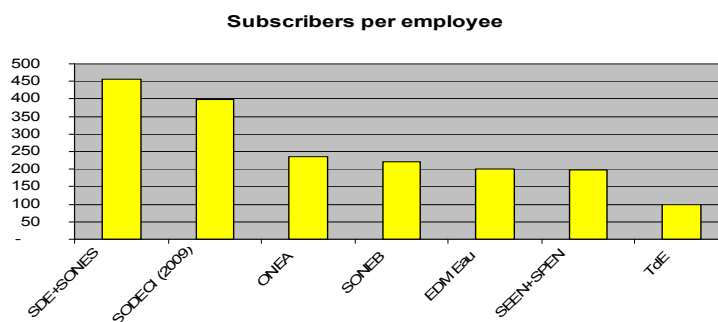


Figure 6. Number of subscribers per employee

Source: Annual reports of companies.

The generally accepted standard ranges from a minimum of 250 up to 500 subscribers per employee (Note 11). Considering this ratio, Togo stands out and might consider significant progress possible. The results are correct for other companies, even very good in Senegal and Ivory Coast.

The figure below shows the overall performance of networks (volume produced measured at the outlet of treatment plants on volume billed to clients) for different companies:

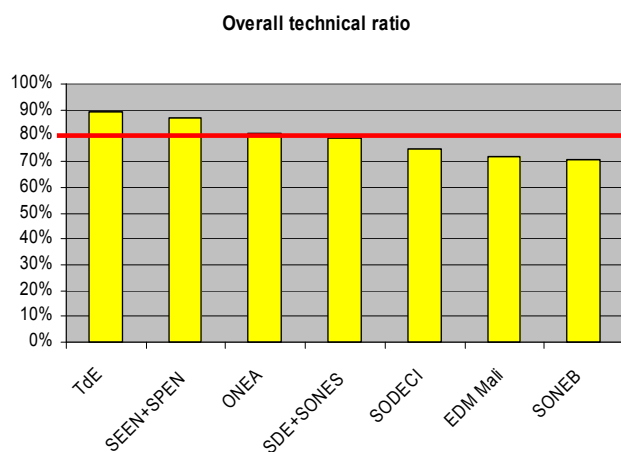


Figure 7. Overall technical ratios, 2010

Source: Annual reports of companies, annual accounts.

An overall performance of 80% is considered good (Note 12). Overall yields above 85 % displayed by Togolaise des eaux and SEEN Niger can be considered excellent. However the performance of Togolaise des eaux is not due to volumes measured but to flat-rate and volume charged to most consumers and therefore very misleading. Performances of SONEB Benin and Mali EDM, close to 70%, allow room for progress. A closer analysis of the losses reported to the length of the network reveals losses above 20m³/km/day for Mali. In this country, a specific project to reduce losses should lead to significant results.

In conclusion, the situation is generally very good in terms of price and fairly good in terms of technical performance and employee productivity in the WAEMU zone. Too low margins found in Mali and Togo (to a lesser extent in the Ivory Coast and Senegal) could be corrected:

- improving employee productivity (Togo) or technical and commercial performance (Mali, Ivory Coast),
- but more straightforwardly by regular increases of tariffs that remained constant for too many years and have now become very (perhaps too?) competitive.

2.2 Duration of Operating Cycle or Working Capital Needs of Major Water Distribution Companies in West Africa

The objective is to minimize the time required to complete the operating cycle, namely using the example of water distribution, the time between the treatment of raw water, transport of treated water and its customer delivery, meter reading, billing and collection, in order to complete the cycle with the payment of wages, electricity, treatment products...

In the specific case of water where volumes sold are huge, there is virtually no treated water storage. Therefore the control of the duration of the operating cycle is mostly limited to the control of the time elapsed between consumption and collection. During this period, the company has to measure consumptions, invoice and collect cash payment. The slower each of these steps, the larger the capital needed to finance the m³ delivered but not invoiced, or invoiced but not cashed. The working capital requirement (WCR) is a measure of the time needed to complete the cycle. To compare different companies, it is customary to compare the WCR, or key elements that constitute the WCR such as current assets, customers' receivables or suppliers' payables, needed for 100 units of Sales (i.e., WCR / Sales, current assets, customer's receivables or suppliers' payables expressed in months or % of Sales). The calculation of working capital requirement, however, has no significant meaning if the suppliers are not paid within a reasonable time.

The following Figure lists customers' receivables and suppliers' payables for 2010, as well as current assets in months of turnover:

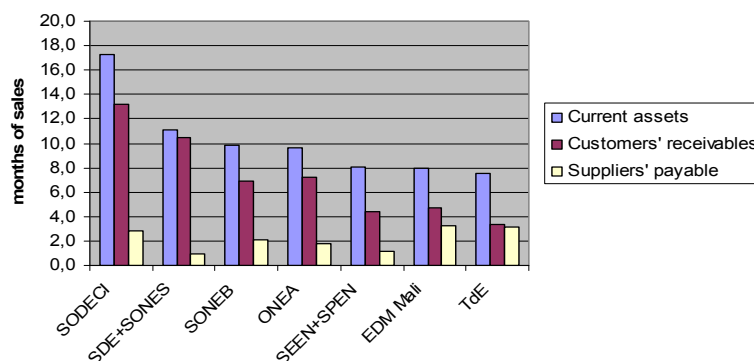


Figure 8. Working capital requirement: current assets, customers and suppliers

Source: Annual reports of companies, annual accounts.

As a standard in France, customers pay and suppliers are paid on average within two months according to studies by the Bank of France. These delays may vary depending on the business culture of the countries: downwards (USA, Germany where immediate cash payment is common) or upward (Italy) but the trend is downward in most industrialized countries. In comparison with international practices, the situation is not good in many WAEMU countries and, moreover, seems to get worse in 2010 compared to 2009 in all countries, except Togo.

Everywhere, the lengthy settlement of their water bills by the States, the administrations and other public bodies (such as hospitals, universities, local government ...) are highlighted as the main cause of the extraordinary amount of customers receivables. These figures are of particular concern in Ivory Coast, especially if you take into account that they do not reflect 30 billions XOF of State receivables securitized by order of the government and therefore considered as a long term financial investment! This is easily explained by the political situation in the country at the time.

Water companies are very aware of this problem. They have established specific procedures and key performance indicators, even specialized units. Some states also seem to have taken the problem seriously and are trying to improve their practice (such as Burkina Faso, Niger or Mali). The deterioration is especially noticeable in Benin and Senegal, where the decision to set up an administration tariff three times the normal tariff has not helped the situation.

Before even talking about subsidy, the biggest help a State could give to its water utility is to behave as an exemplary customer, complying strictly or even anticipating (Note 13) the deadline for payments of its bills. This also presents the advantage of being without impact on the State operating budget.

3. The Investment Cycle

After an overall conclusion regarding the operating cycle, quite encouraging in terms of margins but with significant delays collection, the following paragraph details the investment cycle.

Considering we are dealing with developing countries, the task of expanding the network is important. It is evidenced by the increase of subscribers, 11% on average between 2008 and 2010, resumed in Figure 9. For the entire WAEMU zone, the annual number of new subscribers is about one hundred thousand per year.

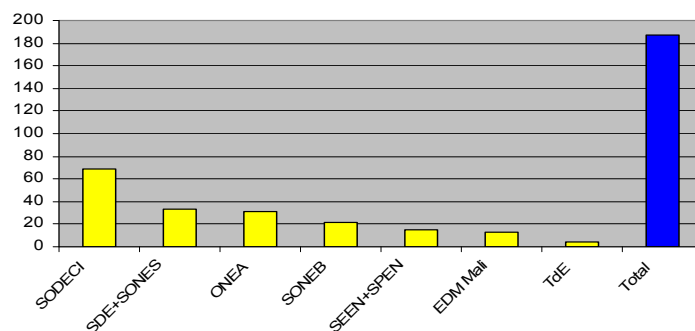


Figure 9. Increase in number of subscribers between 2008 and 2010

Source: Annual reports of companies.

In value terms, the investment effort of each company for 2008-2010 is detailed in Figure 10:

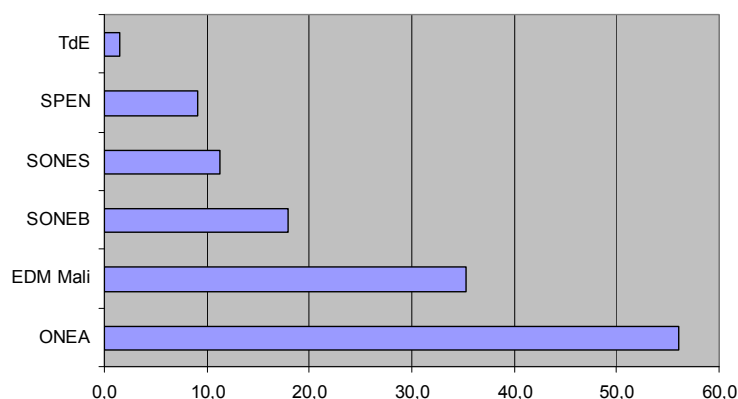


Figure 10. Increase in gross assets 2008-2010 (in billions of XOF)

Source: Annual reports of companies, annual accounts.

In countries where both an operating company and asset management company exist, only the asset management company was considered. Operating companies are indeed not supposed to hold significant fixed assets.

Regarding Ivory Coast, investments on the working tool (treatment plants and networks) are made mainly by SODECI on behalf of the State. They do not appear on the balance sheet of SODECI, nor of ONEP for that matter. It is therefore difficult to reach any conclusion reading the annual accounts on investments undertaken. They are therefore not included in the figure. For the record, the figures for Mali are for the two sectors of water and electricity.

In relative terms, the most significant efforts concern ONEA Burkina, which seems to receive important support from donors, and SONEB Benin. Other countries have comparatively much smaller investment programs, which could be explained by low margins generated by the sector.

The following figure shows the current state of the companies' fixed assets (Note 14) measured by Net fixed assets/ Gross fixed assets.

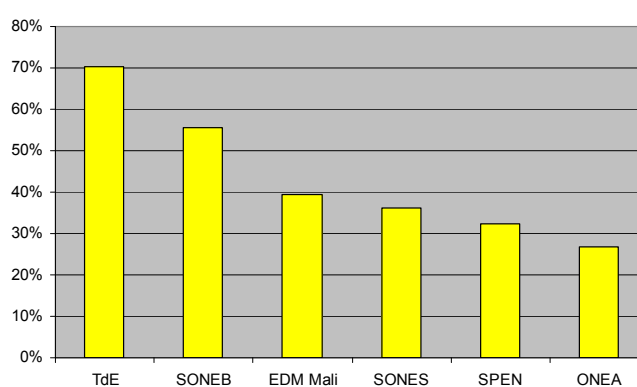


Figure 11. Fixed assets, coefficient of decay 2010

Source: Annual reports of companies, annual accounts.

A coefficient of decay close to 100 % means that the companies' assets are nearly fully depreciated and therefore probably worn out. By presenting a ratio below 50%, it appears the companies have a relatively new working tool (ONEA Burkina, SPEN Niger, SONES Senegal and EDM Mali). The Togolaise des eaux is an exception, which suggests an aged infrastructure.

The summary of the indicators presented above gives us a hint on the rate of investment, high in Burkina Faso, growing in Benin, but slowing in Niger, Senegal and Mali. It is extremely low in Togo.

4. The Process of Debt and Equity Financing

Having discussed in paragraph 2 the operating cycle and in paragraph 3 the investment cycle, we will detail how these companies are financed by adopting successively the perspective of a banker and an equity investor.

4.1 The Perspective of the Banker

Bankers are concerned mainly by the following issues:

- The financial structure of the company, the share of shareholders' equity, Long and Medium Term (LMTD) and Short-Term Debt (STD);
- Production of cash generated by the operating cycle (i.e. gross operating surplus or EBITDA), will it be sufficient to pay interest and even more importantly to repay the capital of medium and long term debts?
- Is this production of cash sustainable?

4.1.1 Financial Structure

Figure 12 shows the financial structures of each company at end of year 2010.

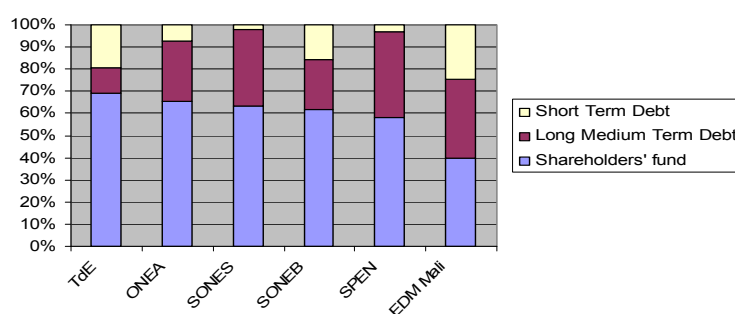


Figure 12. Structure of the balance sheet 2010 (in % of total balance)

Source: Annual reports of companies, annual accounts.

For consistency with EDM Mali, the grantor's right in SPEN Niger balance sheet was reclassified as other equity (Note 15). From a financial standpoint, it is also more logical given the fact that such a "debt" is payable in kind and does not involve any movement of cash.

Companies all appear largely capitalized. They have a solid structure with their own resources exceeding the amount of their long term liabilities. Logically, the asset management companies such as SONES Senegal and Niger SPEN have virtually no short-term debt. Overall balance sheets show that companies have had little use of debt in their history. This is certainly one of the reasons for the relatively competitive prices in the West Africa region: a well-capitalized public company with little debt does not need to generate significant operating surpluses to service the debt and the distribute dividends.

4.1.2 Debt Service

Figure 13 shows the two main ratios that allow bankers to assess the ability of a company to honour the service of its debt.

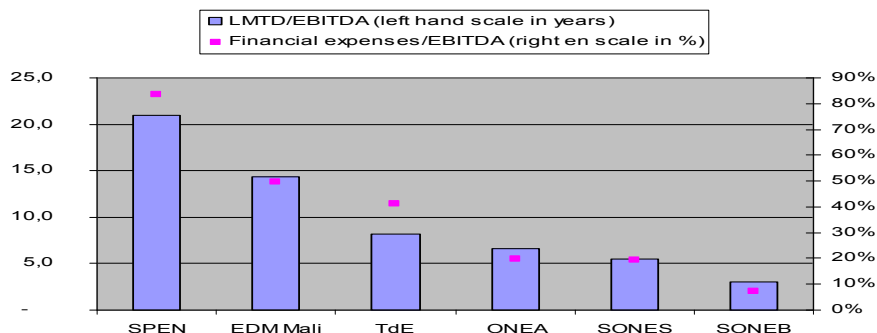


Figure 13. Debt service

Source: Annual reports of companies, annual accounts.

The share of financial expenses in the EBITDA can be read on the right-hand scale and should not exceed the limit of 40% according to Bank of France, the rest being the cash necessary to capital repayment of debt. Three companies do not comply with this maximum: Togolaise des eaux, EDM Mali and especially SPEN Niger.

The ability of EBITDA to fully repay the long and medium term debt is expressed in years and can be read on the left-hand scale. For European listed companies, this ratio is usually less than two years on average. However, this ratio should be compared with the average maturity of the long and medium term debt, which can be very important if these companies are financed on soft terms and long maturity from donors such as World Bank or Agence française de développement. The values observed for EDM Mali or SPEN Niger are well above what a cautious banker would judge acceptable.

Considering these two ratios, three companies (SONEB Benin, SONES Senegal and ONEA Burkina) present an interesting borrowing capacity for a banker. A significant improvement of the fee served to SPEN Niger or the EBITDA margin of EDM Mali appear necessary to enable them to service the existing debt.

4.1.3 Sustainability of EBITDA

Please refer to paragraph 2 detailing the operating cycle and Figure 4 showing the EBITDA margins (consolidated if applicable) over the period.

As noted above, a large share of goods and services constituting the water service (salaries, work, electricity ...) are locally sourced and their cost relatively stable over time, unlike for example in the electricity sector where the costs of thermal generation are changing as fast as the price of oil. Therefore, it is relatively easier for the water sector companies to control their EBITDA margin over time. From the point of view of banker this is a very good point for the sector.

Naturally, EDM Mali, which operates on the two sectors of water and electricity, has to make up for the high volatility in oil prices and can not claim to be part of this category. The suddenly increasing or decreasing EBITDA margin is a major risk factor from the viewpoint of the banker. This is a factor militating in favour of the separation of water and electricity services that took place January 1st, 2011.

At first sight, the increase of the margin of Togolaise des eaux is encouraging. But on further analysis however, this increase appears to be due to the elimination of cross-debts with the States, public companies unable to pay their water bill or the electricity utility. This improvement should be considered punctual and circumstantial.

Regarding SONES Senegal, the banker will naturally scrutinize that the payment of the fee by the operating company is paid on due date and is not conditional on payment by the State of its water bill (that is bound to increase sharply due to the introduction of a specific tariff for administration). Figure 8 presented above on the number of months of customer receivable tends to prove the limited capacity of the State to honour its water bill on time.

4.2 The Perspective of the Equity Investor

4.2.1 Public Shareholders

Table 2 shows the profitability (also called Return on Capital Employed -ROCE) and the financial returns (also called Return on Equity-ROE) for all companies for 2010.

Table 2. Return on capital employed, return on equity

	ROCE	ROE
SONES Senegal	1.8%	1.0%
SPEN Niger	1.3%	-6.0%
SONEB Benin	0.9%	3.0%
ONEA Burkina	0.1%	0.8%
EDM Mali	-2.3%	0.0%
Togolaise des eaux	-11.9%	-8.5%
ONEP	ND	ND

Source: Annual reports of companies, annual accounts.

For Senegal, Niger, Benin and Burkina, returns on capital employed are small and reflect an operating income almost at equilibrium, calibrated to service the debt and no more. The negative returns on capital employed

recorded in Mali and Togo reflect inadequate margins as already discussed earlier which implies a compromised debt service.

The lack of financial returns is not surprising since the State's role of developer takes precedence over that of equity investor. The aim is indeed to extend the water service to the whole country and not to increase the profitability of its equity investment. Negative financial returns (SPEN and Togolaise des eaux) imply, without even thinking about dividends, the difficulties of servicing the existing debt, which is a preoccupation.

4.2.2 Private Shareholders

SODECI Ivory Coast, a private company operating the network listed on the BRVM (Note 16), this naturally presents radically different results: profitability is extremely small (1.5%) but financial returns are very significant: over 20% in 2010. This financial return might seem attractive compared with the one of State companies as detailed above. However it is in line with the financial return of European companies in the same sector (for public service sector, average ROCE are 14% and average ROE 11%). And this is not considering country risk. Appreciation of whether a given financial return is fair is normally the responsibility of the regulating authority considering SODECI operates a public service monopoly.

The accounts of SDE Senegal and SEEN Niger, although you might consider transparency could be applied to companies operating a public service, are still restricted and are not published by contracting authorities (Note 17). Also their economic and financial returns are not included in this study to maintain confidentiality.

5. Reflections on the Water Tariff

This last chapter goes beyond a strict comparative financial analysis or benchmarking of financial performance. It aims to push further reflection into the different water tariffs applied in WAEMU countries.

It begins with a question of the place occupied by the water sector in the economy of each country. Then it gives an indication of the ability to pay, by comparing the average price of the cubic meter to GDP per capita. It goes on with a benchmarking of the different escalating tariffs and analysis of the strategies followed. Finally it concludes with the preoccupying situation of standpipes users.

5.1 The Water Sector Contributes Very Little To the National Wealth

The sum of value added of all the firms corrected of operating subsidies is the Gross Domestic Product. It is the wealth created annually that will be distributed to employees (salaries and benefits), to the State and therefore to society (taxes), to shareholders (dividends) and bankers (financial expenses). If the value added corrected of operating subsidies given by the State is negative, the business is a cost to society.

The sector accounts for around 0.3% of GDP in most countries. In Mali, this value is double but also represents both the electricity and water sector. It is lower in Togo and Ivory Coast where margins are minimal. Overall, the share of the water sector seems very small compared for example to the telecommunication sector. For comparison, the only contribution to Senegal GDP of SONATEL SA (the main telecommunication operator) in 2008 was 2.3% of GDP and the contribution of SONATEL group represented 12.4% of revenues of the State budget in 2009 (Note 18).

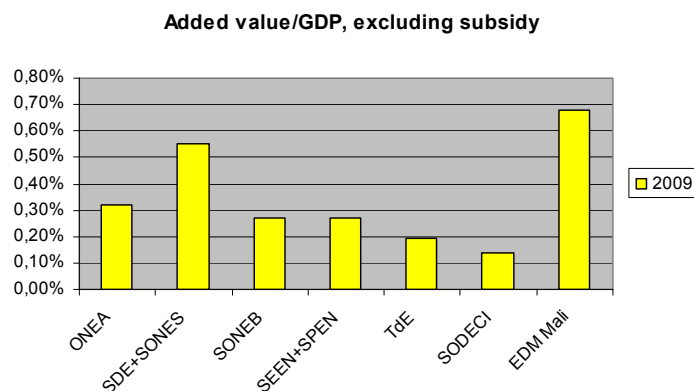


Figure 14. Value-added as % of GDP exclusive of operating subsidies

Source: Annual reports of companies, annual accounts.

This small contribution to national wealth might be caused more by a very low connection rate than by the low prices charged and weak margin applied in the water sector, except for Togo and Ivory Coast.

The water sector is an area full of opportunity for growth and, because of its monopolistic situation, sheltered from global competition. A tariff that would authorize honest margins and a reasonable value added could allow the creation of national champions of growth, like most of the African telecommunication companies. The question remains whether existing rates, which are fixed by Government, are not too competitive and therefore limit the place of the water sector in its contribution to national wealth.

5.2 Average Price Per m3 and GDP Per Capita

Figure 5 above showed the average price per cubic meter of water supported by customers and the share of operating subsidy paid for each cubic meter sold.

Water can not of course be considered a commodity like any other. Official recognition of a right to water is rising everywhere in the world and should ultimately lead to a price for basic water and sanitation services affordable to the poorest. The volumes involved are commonly estimated at 50 litres per person per day, or about 18 to 20 m3 per year per capita. Affordability is often defined as the proportion of income spent on water and sanitation services but there is no consensus what an acceptable level could be (5 to 10 % of household revenue?).

A measure the accessibility of the tariff applied would be to compare the average price of 20 cubic meters to the GDP per capita of each country. An individual's ability to pay can be approximated by the purchase cost of 20 m3 compared to GDP per capita. This is shown in Figure 15.

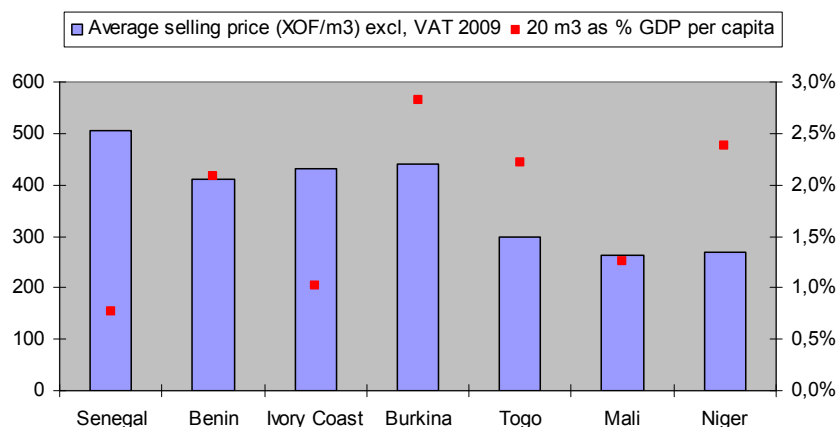


Figure 15. Average selling price of 20 m3 expressed as a % GDP per capita

Source: Annual Survey of Companies, Report of the BCEAO, the author calculated.

Compared to the national wealth, the average price per m3 could appear in the WAEMU zone to be relatively more expensive in Burkina and Niger and cheaper in Ivory Coast, Mali and Senegal. GDP per capita is an average and could be taken as an indication of capacity to pay or the revenue of each citizen. The figure shows that all countries are on average well below a threshold of 5% of household income (Note 19). But, as always when dealing with average, caution should be the rule and it will not be true for every single household.

Indeed GDP per capita gives very little indication of the disposable revenue of the poorest inhabitants. This is the main reason why all countries considered in the study have put in place an escalating tariff. This system allows a lower price for a monthly volume less than 3 m3 in Ivory Coast (to be exact 9 m3 per quarter) and up to 20 m3 in Mali. Conversely for high volumes beyond 20 m3 in Senegal and up to 60 m3, the rate applied is intended to be deterrent.

5.3 Increasing-Block Tariff, an Instrument of Redistribution to the Poorest or of Deterrence for Large Consumers?

For the remainder of this section:

- the average price is the ratio of water revenue (excluding tax) to volume sold. It is not possible to know the average price including VAT, because the amount of VAT on water sold varies with the volume purchased and can not be read in the annual accounts.

- the price per m³ of the first block is calculated for an annual domestic consumption of 100 m³. It includes the rental of the meter and all taxes, including sanitation tax where applicable.
- the price per m³ of the last block is the marginal cost for a m³. It includes all taxes, including sanitation tax where applicable. It does not include the rental of the meter or any fixed fee already paid with the first block.

Figure 16 allows comparison between the average price, the price of the first and last block (Note 20).

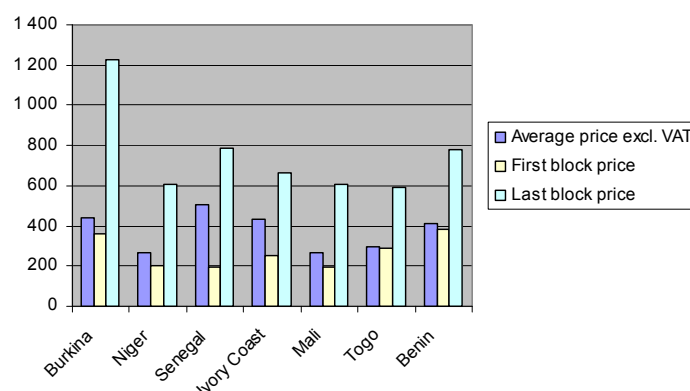


Figure 16. Increasing-block tariff

Source: Tariffs, official decrees relating to water price to the subscribers and standpipes users.

The following table highlights the multiples between the price of first and last blocks, as well as the average price. Two different kinds of policies can be distinguished: one more favourable to small consumers and the other one deterrent to large consumers.

Table 3. The multiples

2010	Benin	Burkina	Mali	Niger	Ivory Coast	Senegal	Togo
Multiple average price/first block	1.1	1.2	1.4	1.3	1.7	2.6	1.0
Multiple last block/average price	1.9	2.8	2.3	2.3	1.5	1.6	2.0
Multiple last block / first block	2.0	3.4	3.1	3.0	2.7	4.1	2.0

Source: Tariffs, official decrees relating to water price to the subscribers and standpipes users.

Senegal, where the average price is more than three times the price of the first block, is rather in favour of small consumers. Conversely, Burkina, where the price of the last block is close to three times the average price, should tend to greatly reduce excessive consumption. All other countries are close to a mean where the average price is 1.5 times the price of the first block and the price of the last block would be double the average price.

The use of escalating tariff is justified by governments in order to organize redistribution to poorer consumers. Thus the first block is often called social block.

However, the hypothesis “weak consumer equals poor consumer” is not always true. In fact, it seems that regardless of their consumption, the vast majority of customers of urban water utilities are wealthy. According to Foster & Briceno-Garmendia (2010) in *African Infrastructures*, over 80% of households connected to the water network belong to the two richest quintiles of the population. They could be described as the “connected urban people”, a qualification that is illustrative of their relative position to the rest of society of the countries considered. On the other hand, if household consumption may depend on the level of wealth (garden, swimming pool, washing machines ...), it is also related to household size and/or number of households using a single connection.

Using a block deterrent to penalize large consumers or industrial consumers in order to force them to contribute to the water service beyond their share in the overall consumption is a policy that appears reasonable. It is justified especially in countries where water resources are limited and must be shared by all, as is the case in the Saharan countries.

5.4 Users of Public Standpipes, Ignored by the Regulation?

Few people would dispute the fact that users of standpipes are probably the most disadvantaged customers of water companies. However, the price charged to end users at public standpipes is always higher than the price of first block (Note 21). The only exception is Burkina. And this even though the standpipe prices are regulated everywhere, except in Togo and Benin. The explanation may lie in the fact that the public standpipes are usually linked to the water utilities network, except in Benin and Togo where small private operators run public standpipes with water sourced from the shallow water table.

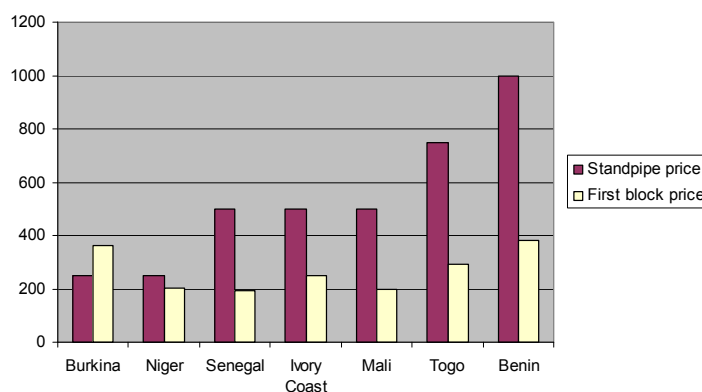


Figure 17. Tariff of the first block and tariff at public standpipe

Source: Tariffs, official decrees relating to water price to the subscribers and standpipes' end users.

These tariffs, especially in the case of standpipes sourcing water from the utilities, are surprising for two reasons:

- The first one is that the standpipes are for the less wealthy clientele, located mostly in the poorest neighbourhoods.
- The second reason is that the service is far from being the same: the delivery of a cubic meter of treated water to the closest standpipe against cash payment can not be compared to the delivery of a cubic meter to the client's home invoiced at least a month later.

From an economic point of view, selling water for cash at a standpipe requires less investment and costs less to operate and therefore should be charged cheaper. This cheaper technical solution is indeed the one recommended in the Water chapter of the book published by World Bank *Africa's Infrastructure* to quickly extend the water service in Africa.

But regulation of the tariff to users of standpipes, when it exists, does not seem to be concerned about this reality (except in Burkina). However, the existing inequity allowed by the system at least proves the ability of these standpipes' users to pay the normal first block tariff, if they retain control of their consumption and expenditure on a daily basis. That is to say: the possibility to buy water in small quantities (on average 20 litres) and to pay on a daily basis.

Clearly, connecting these users to the network and give them the opportunity to pay for the cubic meter at standard rates would be both a great social progress and significant saving for these households. But what is equally important, these new connections should preserve the financial equilibrium of the water utilities. The main constraint is to allow former standpipes' users to buy small quantities against cash payment. But a technical solution exists. It has already been experimented on for several years and on a large scale in Soweto in South Africa: the water prepayment meter (Note 22).

6. Conclusion

There is no doubt that the cubic meter of drinking water delivered at home is a highly sought product and service in West Africa. Sanitation is barely beginning. These markets should continue to grow at a rapid pace for the coming decades due to the high rate of growth of population and cities. Few products have such potential for these developing economies, which could no longer be just driven by exports of raw materials but by the growth of their internal market.

To encourage significant investment and attract funding, water utilities must be allowed sufficient margins. The alternative of relying on operating subsidies from government or development aid from donor countries (whose generosity could deteriorate at the same rate as their public finances) appears less and less credible.

Several countries (such Burkina Faso, Niger or Benin) seem to be well aware of this equation, adjusting tariffs to allow attractive margins sufficient for the extension of the water service. Overall on the whole of the WAEMU zone, the technical performances of water utilities appear rather satisfactory. The thin margins found in some countries (Togo in particular) seem primarily the result of a too constrained tariff or a tariff that has not been revised for sometime over a decade.

One of the recurrent problems of the sector in the WAEMU zone is linked to well overdue payments of the States, local government or public entities. Before even talking about subsidy, the best support to the water sector a government could offer would be to behave as a model customer, paying its water bill on time. Some states have made a significant effort in this direction (Burkina Faso, Niger in particular) but this is not the case in all countries considered.

Investments, particularly in terms of network expansion are significant, especially in the countries where margins and profitability of the assets are good. Thus, the rate of growth of subscribers is over 10% of the area. It reaches 15% in Benin and Niger and even 20% in Burkina. The level of investment seems to have stalled in Senegal and is preoccupying in Togo.

Regarding funding, public utilities and asset management companies are mainly financed by capital funds and have little use of debt. Two companies stand out in terms of strong debt capacity (SONEB Benin and ONEA Burkina). They should not experience any problem to raise debt in order to finance their investment programs, should they wish to. From the shareholder's perspective, financial returns of public utilities and asset management companies is close to zero. But in the case of a public shareholder, the objective extending the water service at no cost to the state budget is already an interesting result.

On the subject of tariff, the average price in the WAEMU zone is always less than 600 XOF/m³. This price could be considered very competitive for all countries where it allows significantly positive margins (Burkina Faso, Benin and Senegal) and insufficient in other countries.

The increasing-block tariff is applied throughout the area. The strategies pursued with escalating tariff are of two kinds. One strategy relies on the idea of helping the poor by providing a very cheap social block (Senegal). Conversely, the other strategy aims to control large consumers with a deterrent block (Burkina). Other countries seem to apply a mix of both strategies. In any case, the tariff appears to be the main source of funds for financing the extension of the water and sanitation service, before States' taxes or donors transfers. The increasing-block tariff, especially in the form penalizing large consumers, could indeed be considered a relatively simple alternative to tax financing. And this for two reasons: the connected urban people are relatively richer and the water resource in Saharan countries is rare and should be shared.

The most disturbing finding concerns the price paid by end users of standpipes connected to the water utilities. This price is superior in several countries to the price of the social block, and sometimes even to the average price. And this goes for a much lower quality service (delivery far from home, cash payment). The inequity of these practices however proves the financial feasibility of connecting these people's homes at the normal tariff (less expensive) on the condition to pay cash and buy small amounts of water (Note 23). The technical solution exists: the water prepayment meter.

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Notes

Note 1. The currency used in the eight states of the WAEMU (Benin, Burkina Faso, Guinea Bissau, Ivory Coast, Mali, Niger, Senegal, and Togo) is the same. According to norm ISO 4217, this common currency is denominated by the three letters XOF, in the same way that EUR stands for Euro and USD for United States Dollar. Change is fixed with the Euro: 1 billion XOF is equal to 1 524 490.27 EUR.

Note 2. As of January 2011, water activities were separated from EDM Mali. There is now a public operating company (SOMAGEP) and an asset management company (SOMAPEP) for water in addition to EDM Mali for electricity (both operating and asset management company).

Note 3. Organisation for Harmonisation in Africa of Business Law. It has, in particular, led to a common chart of accounts.

Note 4. Due to the lack of information available, EAGB (Electricidade e Aguas de Guinea-Bissau) could not be included in this study.

Note 5. Vernimmen, Corporate finance, section 1 on financial analysis.

Note 6. The average tariff is calculated as the sum of water sales (line TA of the income statement OHADA format) plus work sales (line TC of the income statement OHADA format) on the number of m3 sold.

Note 7. Please refer to the chapter on water in the report FOSTER, V., C. BRICEÑO-GARMENDIA (2010) *Africa's Infrastructure*, World Bank, Washington

Note 8. The operating subsidy received by EDM Mali concerns the electricity sector only and is justified by the sudden increase in oil prices in 2010.

Note 9. FRITSCH R. (2011). *Comparative financial analysis of electricity utilities in West Africa*, Energy Policy October 2011, Elsevier.

Note 10. FRITSCH R. (2011). *Comparative financial analysis of electricity utilities in West Africa*, Energy Policy October 2011, Elsevier.

Note 11. FOSTER, V., C. BRICEÑO-GARMENDIA (2010). *Africa's Infrastructure*, World Bank, Washington, see chapter on water.

Note 12. FOSTER, V., C. BRICEÑO-GARMENDIA (2010). *Africa's Infrastructure*, World Bank, Washington, see chapter on water.

Note 13. Several states, recognizing the long delays for settlement of public bills, make a monthly cash transfer based on their annual budget prevision computed in conjunction with the water distribution company. A final adjustment is based on actual consumption at the end of the year.

Note 14. measured by the coefficient of decay = $1 - \text{Net fixed assets} / \text{Gross fixed assets}$.

Note 15. The state transfers to the asset management company both the infrastructures (treatment plant, distribution network ...) and a resource for the same amount: the grantor's right. In correlation with the inclusion of assets in the balance sheet of the concessionaire, it is necessary to include in the liabilities the corresponding funding resource, which is not a debt but an element of other equity, under the name of *the grantor's right payable in kind*. The special nature of this funding resource necessitates the use of a specific item in the balance sheet, intermediate between Equity and Borrowings: Other equity. Source www.ohada.com.

Note 16. BRVM: Bourse Régionale des Valeurs Mobilières, regional stock exchange of the WAEMU region located in Abidjan.

Note 17. In many countries, the accounts of private companies operating a public service are published or made available on demand. This could be the case in Senegal and Niger if the lease contracts mentioned this obligation or if the operating company decided to do so, for the sake of transparency.

Note 18. SONATEL annual reports 2008 and 2009

Note 19. The figure of 5 % is given in the chapter on water of FOSTER, V., C. BRICEÑO-GARMENDIA (2010) African Infrastructures, World Bank, Washington

Note 20. Please carefully note that the average price is calculated without taxes. The tariffs for the first and last block includes additional elements, in particular taxes where applicable. Therefore, the tariff for the first block with taxes might appear to be higher than the average price without tax (as in Togo), but the comparison remains of interest.

Note 21. The price of the first block was calculated for consumption of 100 m3 per year including where applicable meter rental and all taxes or surcharges.

Note 22. The Gcin'Amanzi project funded by the French Development Agency for the district of Soweto (162,000 households with water prepayment meter) uses this technological innovation.

Note 23. The quantities most commonly purchased at public standpipes are around 20 litres (20 litres jerry can, 25 litres basin ...).

Appendix A

Comparison of Performance of Water Sector in West Africa

	SONEB			ONEA			EDM Mali			SEEN+SPEN			SODECI			SDE+SONES			TUE		
	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010	2008	2009	2010
Subscribers ('000)	142	155	163	151	166	182	111	117	123	104	113	119	602	636	671	486	502	520	61	63	66
Subscribers/1 000 inhabitants	17	18	#DIV/0!	10	11	#DIV/0!	9	9	#DIV/0!	7	8	#DIV/0!	28	29	#DIV/0!	41	41	#DIV/0!	11	11	#DIV/0!
Consumption/inhabitant (m3/year)	3.4	3.3	#DIV/0!	2.9	3.0	#DIV/0!	4.4	4.3	#DIV/0!	3.0	3.1	#DIV/0!	6.3	6.3	#DIV/0!	9.3	9.1	#DIV/0!	2.8	3.2	#DIV/0!
Production (m3/day)	100 296	106 433	111 608	144 425	153 956	165 482	208 112	219 962	236 438	133 186	143 546	148 874	481 868	496 674	498 197	378 478	383 114	403 068	51 455	58 310	56 178
Volume product (Km3)	36 608	38 848	40 737	52 715	56 194	60 401	75 231	80 140	86 300	48 613	52 394	54 339	175 882	181 286	181 842	138 144	139 837	147 120	18 781	21 283	20 505
Volume sold (Km3)	27 882	28 070	28 789	43 128	46 022	48 860	55 804	58 705	61 800	41 110	44 225	47 091	136 230	140 032	136 467	109 200	110 400	116 300	15 749	18 056	18 333
Loss (m3/day)	5.3	6.2	6.4	4.8	4.8	5.1	18.5	19.6	21.9	7.1	7.4	6.2	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	2.6	2.7	1.8
Subscribers/employee	206	245	222	223	232	235	71	74	78	192	190	207	380	399	#DIV/0!	427	446	456	92	98	98
Overall technical ratio	76%	72%	71%	82%	82%	81%	74%	73%	72%	85%	84%	87%	77%	77%	75%	79%	79%	79%	84%	85%	89%
(XOF/m3)	363	411	484	447	441	429	268	264	266	262	268	264	426	433	435	518	504	603	305	299	272
100 m3 as % GDP per capita	10%	11%	#DIV/0!	18%	17%	#DIV/0!	9%	9%	#DIV/0!	15%	16%	#DIV/0!	9%	9%	#DIV/0!	10%	10%	#DIV/0!	12%	11%	#DIV/0!
Subsidy (XOF/m3)	0	0	1	17	46	18	61	0	78	0	11	7	0	0	0	0	0	0	0	0	0
Added value as % of GDP (excl. Subsidy)	0.2%	0.3%	#DIV/0!	0.4%	0.3%	#DIV/0!	0.4%	0.7%	#DIV/0!	0.2%	0.2%	#DIV/0!	0.1%	0.1%	#DIV/0!	0.3%	0.3%	#DIV/0!	0.1%	0.2%	#DIV/0!
Turnover (Billions XOF)	12	15	16	23	24	27	89	98	110	12	12	13	51	54	54	60	59	73	5	6	6
EBITDA margin, EBITDA/Sales	31%	32%	30%	39%	39%	37%	8%	15%	7%	21%	17%	20%	9%	10%	8%	8%	12%	5%	-12%	-1%	11%
Productivity (Sales+Subsidy)/Total assets	26%	27%	26%	11%	11%	12%	35%	35%	37%	26%	27%	35%	45%	47%	47%	106%	96%	86%	10%	12%	13%
Customer receivable (months of sales)	5.7	4.7	7.0	6.6	7.0	7.2	4.4	4.1	4.8	3.5	4.0	4.4	13.6	10.5	13.2	7.2	8.4	10.5	11.5	10.3	3.3
Suppliers' payables (month of Sales)	2.2	1.3	2.1	1.5	1.8	1.7	3.3	2.1	3.2	1.0	1.5	1.2	4.0	3.9	2.8	1.4	1.2	0.9	12.2	13.2	3.2
Current asset (month of Sales)	11.7	8.2	9.8	9.4	10.4	9.6	6.5	6.4	7.9	7.1	8.0	8.1	22.3	15.8	17.3	8.1	9.3	11.1	18.3	18.3	7.6
WCR/Sales	33%	11%	22%	19%	9%	19%	11%	17%	18%	20%	23%	19%	51%	6%	15%	2%	6%	2%	-71%	16%	-181%
Decay ratio (1-Gross asset/Net asset)	59%	56%	55%	25%	27%	27%	37%	38%	39%	53%	59%	65%	66%	47%	49%	#DIV/0!	59%	59%	65%	68%	70%
Shareholders' fund (% Balance sheet)	67%	67%	62%	66%	64%	65%	44%	45%	40%	18%	20%	22%	9%	10%	11%	9%	10%	7%	67%	63%	69%
LMT Debt (% Balance sheet)	17%	18%	23%	28%	27%	28%	37%	36%	36%	39%	36%	34%	24%	24%	24%	21%	21%	15%	10%	10%	12%
ST Debt (% Balance sheet)	17%	15%	15%	6%	9%	7%	19%	19%	25%	43%	44%	45%	67%	66%	65%	#REF!	#REF!	#REF!	22%	27%	19%
LMT Debt/EBITDA	2.1	2.1	3.0	6.7	6.6	6.6	14.7	6.8	14.4	1.8	2.2	2.0	5.8	5.2	6.1	0.7	0.7	0.8	-8.8	-144.3	8.2
Net financial expenses/EBITDA	3%	3%	7%	25%	24%	20%	43%	22%	50%	32%	62%	61%	9%	13%	10%	260%	181%	382%	-55%	-834%	41%
ROCE	-1.1%	1.5%	0.9%	0.4%	0.6%	0.1%	-4.0%	0.5%	-2.3%	26.2%	26.7%	35.2%	2.5%	4.1%	1.5%	10.2%	5.4%	9.8%	-12.6%	-9.2%	-11.9%
ROE	1.1%	2.5%	3.0%	0.8%	1.0%	0.8%	-4.8%	-0.3%	0.0%	27.3%	29.6%	30.5%	9.0%	11.1%	21.4%	0.0%	0.0%	0.0%	-11.0%	-8.4%	-8.5%

Source: Compiled by the author, corporate activity reports, financial statements.

Appendix B

Element on Water Tariffs, West Africa

2010	Benin	Burkina	Mali	Niger	Ivory Coast	Senegal	Togo
Subscribers (2010)	162 956	182 412	123 395	119 213	670 904	519 756	65 891
Subscribers/1 000 inhabitants (2009)	18	11	9	8	29	41	11
Consumption/inhabitants (m3, 2009)	3	3	4	3	6	9	3
Consumption/Subscriber (m3/months, 2010)	15	22	42	33	17	19	23
GDP per capita (KXOF, 2009)	365	258	310	172	489	497	263
Average selling price (XOF/m3) excl. VAT 2009	411	441	264	268	433	504	299
100 m3 on average	41 087	44 113	26 407	26 768	43 275	50 442	29 924
Average price of a 100 m3 as % GDP per capita	11%	17%	9%	16%	9%	10%	11%
Subsidy/m3	0	46	0	11	0	0	0
Last year of household tariff increase	jul-09	jul-08	mai-04	jun-11	aug-04	jan-03	2001
Standpipe operator price (XOF/m3) incl. VAT	389	198	113	133	250	322	
Standpipe end user price (XOF/m3)	1000	250	500	250	500	500	750
Regulated?	No	Yes	Yes	Yes	Yes	Yes	No
Fixed fee: meter rental, billing ... (XOF/month) incl. VAT	474	1 180	686	595	750	0	850
First block price incl. VAT	198	213	113	133	0	191	190
Threshold first block(m3/month)	5	8	20	10	3	10	10
100 m3 over a year incl. VAT	38 104	36 406	19 532	20 440	25 000	19 132	29 195
First block price incl. all fixed fee and VAT	381	364	195	204	250	191	292
First block 100 m3 as % GDP per capita incl. all fees and taxes	10,4%	14,1%	6,3%	11,9%	5,1%	3,9%	11,1%
20 m3 as % GDP per capita	2,1%	2,8%	1,3%	2,4%	1,0%	0,8%	2,2%
Last block marginal price (XOF/m3)	776	1 227	604	608	664	789	590
Threshold last block (m3/month)	50	30	60	40	30	20	100
100 m3, marginal cost all fees and taxes included	77 644	122 720	60 400	60 770	66 400	78 867	59 000
Multiple average price/first block	1,1	1,2	1,4	1,3	1,7	2,6	1,0
Multiple last block/average price	1,9	2,8	2,3	2,3	1,5	1,6	2,0
Multiple last block / first block	2,0	3,4	3,1	3,0	2,7	4,1	2,0

Source: Compiled by the author, annual reports of companies, tariffs.

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