

Practical paper

Performance indicators and customer management: ACEA benchmarking experiences in water services in Latin America

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ABSTRACT

The paper presents the results of a study conducted by ACEA, the Italian water and energy utility based in Rome, in collaboration with the ENGREF (Ecole Nationale du Génie Rural des Eaux et des Forêts) on the use of performance indicators in the improvement of customer management in three Latin America water utilities, subsidiaries of ACEA (Acea Dominicana, Aguas de San Pedro and Aguazul Bogotá).

The paper illustrates how contractual and internal performance indicators are being employed to encourage self-improvement and better efficiency. The analysis suggests that the use of performance indicators by private operators is greatly driven by the regulator actions to measure their performance. Moreover, the effective use of contractual indicators is greatly dependant on the availability of initial data.

The second part of the article presents a benchmark exercise carried out between the three companies. Performance indicators focusing on commercial departments activities were defined and measured. The comparison permits the identification of improvement margins and provides reference data.

Key words | benchmarking, customer management, Latin America, performance indicators, water supply, utility

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PERFORMANCE INDICATORS AND CUSTOMER MANAGEMENT IN WATER SERVICES IN LATIN AMERICA

Water services management in Latin America is undergoing a challenging stage under the pressure of rapid population growth.

In the last decades, many Latin American countries have accompanied the delegation of their services to private companies with the implementation of local or national regulators, to ensure that the service provider adequately takes the public interest into account. One of the duties of the regulator is to measure the performance of the service in order to preserve the general interest and the technical efficiency.

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A benchmarking group of regulators has been created: Asociación de Entes Reguladores de Agua Potable y Saneamiento de las Américas (ADERASA). One main consequence of the development of this benchmarking network of regulators is an increasing incentive to implement performance indicators (PIs) and comparisons in water services in Latin America. Performance indicators are not only a tool for the regulator. They can also be a powerful management tool for the operator themselves. The success of IWA PI manuals demonstrates the interest of the professionals for this kind of tools (Matos *et al.* 2003; Alegre *et al.* 2006).

The study is centred on customer management which proves to be essential in the long-term viability of the firm (Breuil 2004). Indeed diffused illegal uses cause major networks malfunctioning and financial losses. In this context, customers management (customer survey, water metering, billing and collection, customers care) becomes extremely important to guarantee cash in-flow, where from comes the availability of direct and indirect financial resources. Moreover, good customer relations and information increase the confidence of users in the service provider and their willingness to pay for the service.

Three case studies, coming from the international experience of ACEA, illustrate the implementation of performance indicators in the commercial management of Latin America water services. In the analysis we distinguish four different types of indicators and functions:

1. *Contractual indicators* used by the regulator/contracting authority to evaluate the results of the operator, set objectives and establish its remuneration.
2. *Internal indicators* constructed within the service provider to evaluate regularly its performance, point-out problems and take management decisions.
3. *Performance standards towards the costumers* measure the level of service guaranteed to the customers. Reimbursement in case of non-respect can be fixed.
4. *Benchmark indicators* measured for comparisons between water services in order to establish best practices, reference values and find possible improvements through comparison.

THE THREE CASE STUDIES

Acea Dominicana manages a 7 years service contract with the CAASD (*Corporación de Agua y Alcantarillado de Santo Domingo*) for the customer management in the North and East of Santo Domingo, Dominican Republic. The goals of the contract are to improve commercial management increasing the collection rate and installing individual customer meters. The service contract fixes the remuneration of *Acea Dominicana* proportionally to water bills collection. Fines can be set if service level targets are not reached. *Acea Dominicana* has to deal with a poor level of technical service: water is distributed a few hours a day and many households are illegally connected to the network. Consequently, unaccounted for water is very high (see Table 1).

Aguas de San Pedro has a 30 years concession contract with the Municipality of San Pedro de Sula, Honduras, for water and wastewater services management. The company is responsible for both operational management and investment implementation and financing. The company is directly remunerated through the water tariff which is revised every third year as a function of the investments realised and the business plan. The level of the service is quite good, with close to 100% of the houses connected with continuous service and about 70% of consumption metered. Average water consumption is high, even compared with European levels, whereas the tariff is the lowest of the three cases (see Table 1).

Aguazul Bogotá is responsible for customer management services in two out of five zones of Bogotá, Colombia. It is also responsible for water distribution network

Table 1 | Case studies comparisons (2004 data)

	Acea Dominicana	Aguas de San Pedro	Aguazul Bogotá
Inhabitants of the area served	1.5 millions	0.4 millions	2.8 millions
Customers billed	102.866	94.298	573.083
Water billed	26 million m ³ /year	48 million m ³ /year	98 million m ³ /year
Water billed/inhabitant /day	47 l/inhab./day*	315 l/inhab. /day	96 l/inhab. /day
Unaccounted for water	89%	48%	38%
Hours of water distribution	Max 2 hours three times a week	24 h	24 h
Users with meters	4.5%	69%	99.5%
Tariff for 15 m ³ /month consumpt.	0.20 US\$/m ³	0.16 US\$/m ³	0.33 US\$/m ³
Minimum legal salary	220 US\$/month	155 US\$/month	152 US\$/month

*In case of *Acea Dominicana*, the data is not representative of the consumption, as a large part of population is not legally connected to the system.

operation and maintenance in one zone of the town. The activities are carried out under a 5 years contractual agreement with the *Acueducto de Bogotá*. Aguazul Bogotá remuneration is linked to collection of water bills and specific goals set on a series of performance indicators. Aguazul Bogotá is operating in good technical conditions with the entire water consumption metered and low water losses. Conversely water tariffs are high compared to the other two towns and the country's cost of life (see Table 1).

PERFORMANCE INDICATORS

The survey of existing performance indicators in the three companies, started from contractual indicators.

In Acea Dominicana an indicator of general result is measured monthly as a function of the collection rate (weighting 40%), index of extension and quality of billing (weighting 35%), index of metering extension and quality (weighting 15%) and customer complaints (weighting 5%, percentage between number of reclamations and total number of users). Fines are set if the indicator of general results is lower than predefined targets.

In Aguazul Bogotá the remuneration is proportional to three indexes which measure the performances in collection rate, the water losses reduction, the quality of the service (complaints on bills, customer care, leakage repairs: percentage of repairs done in less than 48 hours).

Moreover, the remuneration formula includes a deduction in case of non-compliance with a large number of service standards.

Aguas de San Pedro concession contract defines medium-long term objectives in terms of service coverage, metering, quality of water, with fines in case of non-respect.

A wider use of contractual indicators and monitoring was found in Acea Dominicana and Aguazul Bogotá than in Aguas de San Pedro. Apart from specific situations, the difference can be explained considering the nature of the contracts. In the case of the service contract, as in Acea Dominicana and Aguazul Bogotá, the contractor is charged only for specific activities, and the compliance with the task assigned needs to be constantly monitored to fix the remuneration.

In Acea Dominicana and Aguazul Bogotá cases, some indicators are not applied being under renegotiation, mainly

in connection with two types of problems that arose. Firstly, initial data used to set the targets were found not reliable when the private operator started to work. Secondly, performance measured through the indicators was importantly influenced by conditions out of the responsibility of the operator, and, therefore, were not considered a fair measure of its performance. In Santo Domingo, the development of billing was linked to a separate project for meters installation and water pipe development, which has taken longer than expected to be implemented.

The contract type and indicators seem also to orient the use of internal indicators.

Acea Dominicana internal indicators focus on the processes which have the greatest impact on the company remuneration; these are mainly the ones linked to collection rate. For example, there is a special index on collection rate from large consumption customers, which counts for 45% of the total bills paid.

In Bogotá, where the contractual engagements require high and increasing quality standards, a complete quality management system has been implemented to monitor and improve the activity.

In Aguas de San Pedro, an indicator pool has been constructed mainly as an internal management control and decision tool.

Performance indicators can help to improve the company process operationally. For example, in Bogota, contractual indicators imply an organisation based on others more detailed in each part of the project. When the target, for example leakage repair time, is usually exceeded, the process to realise it is adapted and modified in order to reach indicator level goals (communication to the leakage team, number of teams, etc.).

We can finally observe that there is no indicator used for performance standards toward the clients, that is, on the contrary, the tendency in Europe. England is a well-known example with the development of the Guaranteed Standard Schemes, under Ofwat regulation, but other examples can also be observed in other countries (for example the Guaranteed Schemes voluntary implemented by operators in France and the Service Chart included in some Italian ATO concession contracts). In the contexts studied, the strategy to build a good company "image" and raise customer confidence seems to be still mainly linked to the

provision of a good basic service and the establishment of direct relations with customers (water use information and awareness campaigns and meetings with neighbourhood associations) rather than fix a quality standard.

BENCHMARK EXERCISE

After having analysed the existing indicators, a benchmark exercise was carried out to identify improvement margins and provide reference data. A review of references showed that many benchmarking tools have been developed (IBNET 2005) but they do not provide a specific focus on customer management. For example, the IBNET tool developed by the World Bank is providing an increasing number of water services benchmark references from developing countries. Therefore the comparative analysis was limited to the three case studies.

A set of indicators which are significant and could be generally measured in a water service customer department was defined. We calculated two types of indicators: the first measures the efficiency of the activities organisation; the second integrates cost and revenue analysis.

While interpreting and using the results of comparative analysis, it is important to keep in mind each service characteristics, in terms of dimension, contractual and regulatory context, extension and organisation of the

activity. Special attention has to be given to indicators which integrate cost and revenue because the cost and tariff level can be different from one country to another. To underline the importance of this aspect, it can be noticed that in Santo Domingo the ratio between water tariff and minimum legal salary is half of the one in Bogotá (Table 2).

The first efficiency indicator measured is the number of customers per employee. Acea Dominicana and Aguas de San Pedro have little more than 1,000 customers/employee, while in Aguazul Bogotá the number is about three times more. This is partially because in Bogotá water is billed every two months while in the other two cases it is billed monthly. Looking at the number of bills per employee, the three companies give a much similar value, with still a better result in Aguazul Bogotá where the billing process appears more efficiently organised (Table 2).

Complaints on commercial part per customer vary from 0.4 to 1.8 complaints/bill/year. The number of complaints is not necessarily connected to the level of service: high water price and percentage of metering seems to cause a higher number of complaints.

As the number of bills seems the more significant organisational driver, it was chosen for unit cost analysis. Aguazul Bogotá, that in term of bill per employee is the most efficient company, has the higher staff cost per bill with 0.5 US\$/bill. Vice versa Acea Dominicana, which has the lower number of bills per employee, has the lowest staff cost

Table 2 | Benchmark indicators, values calculated on 2004 annual data

Indicators	Acea Dominicana	Aguas de San Pedro	Aguazul Bogotá
<i>Activity efficiency indicators</i>			
Customers/employee*	1,030	1,109	3,452
Bills/employee/month*	1,063	1,040	1,656
Meter reading/meter readers/month	3,133	3,924	3,717
Complaints/bills*	0.38	0.91	1.8
<i>Cost and revenues indicators</i>			
Employee cost in US\$/bill	0.23	0.32	0.50
Total cost in US\$/bill	0.82	0.64	1.11
Total cost/ revenues (%)	5.6%	7.1%	2.5%
<i>Collection</i>			
Revenues collected/revenues billed	58% [†]	91%	88%
Total cost/revenues collected	27%	7.7%	3.3%

*Number of employee of the customer management activity excluding meter readers.

[†]Calculated without taking into account the cumulated debt that in this company is billed every time.

per bill. That is because the average salary in Bogotá is more than double that in Acea Dominicana. The more efficient organization in Aguazul Bogotá has as counterbalance a higher average salary and the overall result is a more expensive service that should anyway be evaluated against a higher service level required by the contract.

In terms of total cost per bill Acea Dominicana pass from the third to the second position, because of the high relevance on cost other than staff, which counts for 80% of total costs, while they are about 50% in the other two cases. That is partly due to the relevant cost for meter installation, an activity carried out as outsourcing.

Considering the ratio between costs over revenues, Aguazul Bogotá which has the highest cost per bill, is the company where customer management absorbs the lowest part of the revenues (2.5%). That is due to higher tariff and revenues per customer in Bogotá. Conversely in Aguas de San Pedro, which has the lower cost per bill but also the lowest tariff, customer management costs represent the highest percentage of revenues, with 7.1% (Figure 1).

The collection rate was then integrated in the analysis, to obtain an estimate of the ratio between costs and incomes actually available. Acea Dominicana collection rate is lower than the other companies, but it has already improved significantly since the beginning of the project. Comparing the collection rate of Aguas de San Pedro (91%) and Aguazul Bogotá (88%), it has to be considered that collection rates can be greatly influenced by the weight of the water bill on the household revenues, which is higher in Bogotá than in San Pedro.

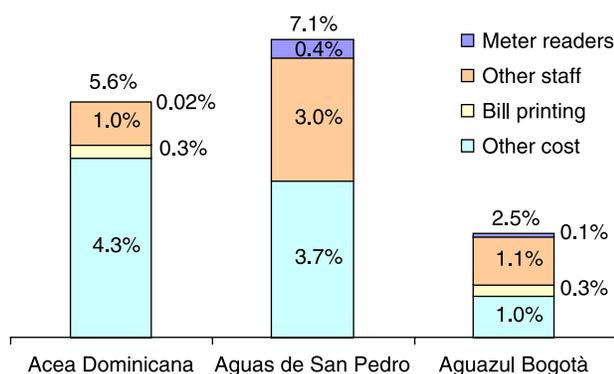


Figure 1 | Customer management costs as percentage of water tariff revenues (2004 data).

Finally, it can be observed that a low collection rate implies a high ratio between costs and incomes (amount collected). In the case of Acea Dominicana the customer management total costs are only the 5.6% of billed revenues but they represent 26% of the income actually available, because of the very low collection rate.

CONCLUSION

The three case studies illustrate that contractual and internal performance indicators are being used effectively for the improvement of customer management in water services in Latin America. Conversely no example of engagement towards the customers was found yet.

The analysis suggests that the use of performance indicators by private operators is greatly driven by the regulator actions to measure the performances of the service provider. As far as a well-defined set of contractual indicators being in place, the use of internal performance monitoring has greater relevance. Moreover, when contractual indicators are widely used the regulator has larger and more direct access to data on the service.

However, effective use of contractual indicators may encounter major difficulties, as the lack of reliable initial data may impede their effective application. The definition of performance indicators should always consider well the effective data available.

Benchmark references are a useful support in the definition of contractual and internal indicators and targets. The benchmark exercise conducted between the three companies studied provides reference data specifically focusing on customer management.

The exercise also underlines that the definition and use of benchmark references shall pay great attention to each context characteristics. In particular service perimeter of activity and organisation, as well as the country cost and tariff levels, are relevant elements to be carefully considered when analysing comparison indicators.

Finally, the benchmark exercise proved to be an important method to identify improvement margins in the three organisations studied. It was also an occasion to exchange experiences between the companies and identify best practices.

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