Comparing the management of water services in Colombia's small towns and villages

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Water and sanitation services in small towns and villages can be managed as well as in towns and cities. This article compares performance indicators for public, private, mixed-ownership and community-based organizations providing WSS to Colombia's small towns and villages.

Little information is available worldwide on utility companies that provide services to small settlements, and what kind of company delivers the best services. This article provides a comparative assessment of the management of different kinds of water supply companies serving communities of fewer than 2400 users (i.e. about 12 500 inhabitants) in Colombia.

The main source of information for this study is the 1998 Management and Result Plans (MRPs: the Ministry of Development requires water and sewerage companies to submit information on their operating, administrative and financial management).[1] For comparison purposes, the review was complemented with both the 'National Survey of Drinking Water and Basic Sanitation'[2] and the 'Public Policy Report'[3] of this sector. It also included information from the Water Regulatory Commission (CRA) published in their sector overview 'Water in Figures',[4] which specifically focuses on evaluating operation and labour performance.

Little information is available worldwide on utility companies that provide services to such small settlements

In this study information has been analysed on 444 public utility companies in Colombia, representing 37 per cent of the companies registered in this country which serve fewer than 12 500 inhabitants. The different kinds of companies that were analysed are: public companies (66 per cent), private companies (11 per cent), mixed-ownership companies (16 per cent), and community-based companies (7 per cent).

Water-supply performance

The operational performance of water-supply services has been measured by the following four indicators: unaccounted-for water, coverage of micro-metering, average consumption per client, and average number of hours of supply per day.

As far as the rate of unaccounted-for water is concerned, it was found that the companies in the sample with a micro-metering system in place (i.e. 214 out of the 444 companies) suffered losses slightly below the national average level, i.e. 36.4 vs. 39 per cent (see Table 1). The accuracy of the sample information may be questioned, however, given the rate of 51.3 per cent supplied by the Ministry of Development and UNICEF joint programme for unaccounted-for water losses. This discrepancy reflects the present information difficulties in this sector. Water losses:

may lead to reductions in water usage and wastewater generation, which have environmental consequences

affect financial profitability because a lower water usage means less revenue

reduce the useful life of the system infrastructure.

Reviewing this indicator by kind of company, it was found that community-based companies have an organizational structure that produces the best results, i.e. they have an unaccounted water rate of 19.8 per cent, which is considered an excellent result. On the other hand, private management shows better results than mixed-ownership or public companies (see Table 1).

For all companies in towns with fewer than 12 500 inhabitants, the water metering coverage, which is closely related to the degree of unaccounted water, is low compared to the national average recorded by the National Survey of the Drinking Water and Basic Sanitation Sector, i.e. 37.2

Table 1 Water supply operating indicators for companies serving communities of fewer than 2400 users (as of June 1998)

Type of company	Unaccounted-for water (%)	Metering coverage (%)	Monthly average usage per subscriber (m^3)	No. of hours of service per day (average)
Public	38.8	31.9	26.5	18.6
Private	28.0	43.9	23.2	15.5
Mixed-ownership	38.4	52.1	30.7	19.0
Community	19.8	48.0	28.0	21.7
Average	36.4	37.2	27.2	18.5

Source: Management Plans and Results Database for companies with fewer than 2500 users (Min. of Development). Author's calculations

compared to 77.9 per cent.[2] For this indicator, both mixed-ownership companies and *community-based organizations* have the highest score (see Table 1).

Concerning *average usage per subscriber* – an indicator of major environmental significance – there is a mean of 27.2 m^3 per user a month (about 900 litres per day per household, or approximately 150 litres per person per day), which is lower than the average of 31.5 m^3 calculated using a sample consisting of 15 large cities.[4] It is worth noting that, because of the national economic crisis in Colombia and the significant increase in utility tariffs, there has been a remarkable decline in average utility usage since 1998.

Although community-based and mixed-ownership companies are above the sample average, this information is based only on towns and villages where micro-metering is available, which may introduce a bias because this kind of monitoring system is not widely available.

Lastly, one of the main problems in the water sector is the lack of continuity of water supply. This is due mainly to: (1) the system's vulnerability associated with extreme weather conditions; (2) the low capacity of water supply sources; and (3) failures in both the water-treatment facilities and the distribution networks.[3]

On average, the locations in the sample have a water supply continuity rate of 18.5 hours a day. Taking into account the kind of organizational structure, community-based companies show a significant performance level of 21.7 hours a day, which is as high as the national average of 21.3 hours a day.[5] In this regard private management has a poor performance (15.5 hours/day).

Labour efficiency

The number of employees may be viewed from two perspectives: first, as a value generator and second as a key component of the expenses, affecting the financial viability of companies. In this analysis two factors have been looked at: the average number of employees and the number of employees per 1000 users. With respect to the first indicator it was found that, on average, utility companies with fewer than 2400 users have 3.8 employees. This rate is broken down into 2.7 employees for water supply systems and the remaining 1.1 employees working on sewerage systems. If we look at these figures by type of company, community-based private companies and private enterprises have 3.7 and 2.6 employees, respectively. This indicator is highest for mixed-ownership companies, which have 5.6 employees for water supply and sewerage. The low number of employees at community-based companies can be explained by non-compensated work done by many members of their boards. This allows the companies to be more suitable and sustainable in small towns and villages.

Community-based management had a good performance level overall

The second key indicator is the number of employees engaged in water and sewerage for every 1000 subscribers. The average figure of 5.8 employees is slightly higher than the national average of 4.3 workers as estimated by the sector's National Survey of 1996.[1] This indicator shows a less efficient performance, however, compared to international standards that recommend five employees per 1000 subscribers.

Mixed-ownership companies appear to have the most efficient use of labour, i.e. 4.1 employees per 1000 subscribers. The other kinds of organizational structures have a similar level. Only community-based companies have a slightly higher number of 6 employees per 1000 subscribers.

Conclusions

Although problems in water supply and sewerage management are more or less similar across the country, management by small companies showed better results in some of the indicators compared to larger companies and the national average.

The companies in the sample had certain operating indicators – *unaccounted-for water rate* and *average usage per subscriber* – which were better than the national average, but they also showed worse results for: *nominal water-metering coverage; number of employees per 1000 subscribers;* and *continuous water-supply rate*.

Community-based management had a good performance level overall. It had positive results in the following indicators: *water-supply metering rate, unaccounted water rate* and *continuous water-supply rate*. The results in the *monthly average usage per subscriber* and *the number of employees per 1000 subscribers* are more or less the same as the national average. With respect to other kinds of companies, mixed-ownership companies had some positive results, but this review did not find very positive results in small private or public companies.

Investment in WSS in Colombia's villages and small towns has resulted in good management performance, and this kind of investment should be continued. The results also suggest that community-based organizations may be a viable option.

References

1 Ministry of Development (1998) 'Base de datos de los Planes de Gestión y Resultados (PLP) para las empresas de menos de 2.400 usuarios', Bogotá, Colombia. This was compared with: the Ministry of Development (1999) 'National survey of drinking water and basic sanitation'; the Ministry of Development (2000) 'Public policy report' of this sector; and information from the Water Regulatory Commission (CRA), which specifically focuses on evaluating operation and labour performance. A detailed version of this study is available in the Community Management menu at www.cinara.org.co

2 Ministry of Development (1999).

3 Ministry of Development (2000). Informe de Política Pública para el Sector, Bogotá, Colombia.

4 CRA (1997) *El agua en cifras* (Water in figures) magazine, No. 2 of August 1997.

5 Ministry of Development (1999).

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