

WATER SUPPLY AND SANITATION IN PORTO ALEGRE /BRAZIL

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Porto Alegre is the Capital of the state of Rio Grande do Sul, in the south of Brazil. It has about 1,400,000 inhabitants. The water and sewerage services are in charge of the Water and Sanitation Municipal Department (DMAE), that plans, supervises, executes and maintains the equipment and facilities for raw water intake, treatment and distribution of water, as well as to the collection and treatment of the sewage.

Porto Alegre City prides itself for having the best quality of life in Brazil, according to the human development index created by the United Nations Development Program (UNDP). Between 1991 and 1995, the city scored an index of 0.736, which is remarkably high especially in comparison to similarly sized cities in developing countries. In 1999, this rose to 0.792, which is comparable to the typical 0.80 rating obtained by capital cities of developed countries. Water supply and sanitary sewage systems play a key role in Porto Alegre's high ratings.

The city, for instance, has one of the lowest rates of infant death in the whole country: 13.8 deaths per thousand births, as compared to the national infant mortality rate of 65 deaths per thousand births. There is a direct correlation between low infant mortality and improvements in the levels of water and sanitation.

History of water service in Porto Alegre:

The history of water and sanitation services in Porto Alegre shows the typical pattern of development, with private contractors starting services in the 19th century, being taken over by municipalities in the early 20th century.

In 1861, a private company, Hidráulica Porto-alegrense, was awarded a contract for the operation of the city's water supply. At the same time Companhia Hidráulica Guahybense was set up to serve the unconnected neighborhoods. Cholera epidemics of 1857 and 1876 persuaded the municipality to provide sanitation services, but the first part of the urban sewerage system was only completed in 1912. In 1904, the city council took over Companhia Hidráulica Guahybense, and later Hidráulica Porto-alegrense, and created an administrative department of the city council.

In 1961, Porto Alegre city council decided to transform the water department into an autonomous and financially independent municipally-owned undertaking, the Departamento Municipal de Água e Esgotos (DMAE). This decision created the first key feature of DMAE, its autonomy from the general budget of the municipality.

The decision was taken to allow DMAE to obtain a US\$ 3.15m loan from the Inter-American Development Bank (IADB). The Bank would lend the money only at certain conditions.

In the same year the water tariff changed from being a property tax, related to the value of the building, to being linked to water consumption.

The Brazilian context

Brazil is a federal country, with 27 states with their own elected governments, and elected municipalities in the cities and towns. Water is partly provided by the large regional state water companies, and partly by municipalities. Out of 27 state capitals, 25 are served by public companies - 23 regional and 2 municipal – and 2 are served by partly privatised companies.

Performance:

Today, the Municipal water supply system provides 99.5% of its population with treated water (about 549,619 households). The basic price for 1000 litres in the households category is US\$ 0,30, which is one of the cheapest in the country.

The remaining 0.5% of the population is not connected to the network as these people reside in illegal settlements, areas subject to geological risk or liable to flooding, environmental preservation areas, etc, and is supplied – by DMAE - with water by tank trucks.

In 1990, DMAE provided sewerage services to some 70% of households, and by 2002 it had extended service coverage to 84%.

Wastewater treatment increased from 2% in 1990 to 27% today and it is under negotiation to get a loan in order to elevate this rate to 77% within five years with the construction of the Serraria wastewater treatment plant, which will cost US\$ 57 m. This investment also covers the expansion of the present sewerage network to collect partially, and treat all wastewater produced by the central and southern areas of the city.

In 1989 DMAE has embarked on an ambitious program to restore safe bathing along the shores and beaches of Lake Guaíba. The first results are about to be seen, as of December 1992 at Lami beach. Last september it was safe bathing in beaches like Belém Novo The same objective would have been achieved in Ipanema after five years from the beginning of the Serraria Wastewater Pant construction, which is under negotiation.

Labour

In October 2001 DMAE employed 2,484 workers, a low figure which is partly a result of contracting out of works. This gives a ratio of about 3 employees per 1000 households served with water and sanitary sewage.

Contracting out works

DMAE contracts out construction and other works through competitive tender, including: Water connection services, sewage connection services, paving recovery, transportation services, machinery and equipment rental, vehicles rental, data processing services.

The majority of works contracted out are awarded to Brazilian companies (around 95% including a small amount of works carried out by local subsidiaries of foreign multinationals).

DMAE as an autonomous municipal organisation

Despite being wholly owned by the municipality of Porto Alegre, DMAE enjoys:

- separate legal personality from the city hall,
- operational autonomy and
- financial independence.

As an autonomous public body can make its own decisions on how to invest revenues it collected, and such decisions are not directly subject to interference or deliberation by the municipality. But the city government retains significant power, since the Mayor appoints the General Director of DMAE, and the representatives on its Deliberative Council.

Financial independence

DMAE's finances are ring-fenced – so it receives no subsidies, and makes no payments to the municipality itself, not even to cross-subsidise other public services. The only sums transferred to the municipality are to pay for services provided by other departments, whose charges are collected through the water bill, as is the case for rainwater drainage, for example. As a result DMAE has to be financially self-sufficient, covering all its expenses from its own income. It produces its own accounts, separate from the municipality.

DMAE's distinct legal personality and financial self-sufficiency allow it to borrow the required investment finance without the support of the municipality – this was the original point of creating DMAE in 1961. DMAE pursues a no-dividend policy under which all profits made are reinvested into the system. The founding statute specifically required DMAE to reinvest at least 25% of its yearly revenues.

As a municipal undertaking, DMAE enjoys tax-exempt status – unlike PLCs - which allows it to keep lower water prices only to fit current expenses and investments. The department is also exempt from a number of taxes levied on state water companies and transferred on to consumers through pricing. For example, those include profits tax and social dues, both calculated on the basis of profits.

Management structure

There are three key elements in the management structure of DMAE. First is the general management, headed by the General Director, who is appointed by the Mayor of Porto Alegre, to a four year turn.

The director-general in turn appoints senior managers among the Department staffs, composing the so-called Technical Management Council (around thirty people). He also has the option to hire to the Department staff during his term, about 25 people, which stick with his management principles. They are spread all over the Department, and eventually some of them can be nominated as senior managers. All other posts are publicly advertised and selected. All salaries have to be approved by the city council.

The **Technical Management Council** meet weekly, being responsible for analysing projects and internal works of the Department, discussing annual budget and deciding the priorities. It also provides advice and technical support and information to the Deliberative Council.

Finally there is the important *Deliberative Council*, which controls and approves all operations and decisions taken by DMAE, exercising some oversight and final management functions. Chaired by DMAE's CEO, with power to approve all major decisions to be adopted by DMAE, as well as to advise on a number of secondary matters.

The Council is made up of representatives of different civil society organisations, which go from Engineering Society to Medical Association and Environment Protection State Association, reflecting different political views and interests so as to introduce a number of checks and balances in DMAE's management.

The members of the Council and their substitutes are appointed by the mayor from a list of three nominations for each of the organisations represented. The members remain in office for three years and 1/3 of the members are renewed yearly. The Council meets weekly, with a minimum quorum of 7 for usual matters, and convenes for extraordinary meetings, if requested by its Chairman or by the Council itself. The minutes of the meetings are available to the public.

The Council is responsible for approving works plans; tenders; contracts and agreements entered into by DMAE; water supply and sanitation tariffs; budgetary proposals (*proposta anual de orçamento*); annual financial reports (*informe econômico financeiro*); financial operations; divestiture of property and unusable materials; the company's policy on personnel and human resources, when requested by the CEO. It should be noted that these powers do not cover the contracts with DMAE's employees.

In addition to these management structures, DMAE is subject to two further forms of accountability. First, it is subject to audit by State Government. Secondly, it is expected to reflect the popular will on the allocation and reinvestment of its revenues, as expressed through the Participatory Budget.

Participatory Budget:

The Participatory Budget process (*Orçamento Participativo*) is a form of direct democracy, allowing citizens to participate in the neighbourhood they live in or within a particular thematic area and choose which of their priorities the municipality should implement. This process is not limited to the water sector but applies to all the activities of the municipality of Porto Alegre.

The Participatory Budget takes place in the 16 areas in which the city is divided into six thematic areas. Citizens meet to vote, deciding in which priorities the available resources should be invested, with each of the short-listed priorities being evaluated on a cost/benefit basis. Citizens meetings take place in two rounds, with a total of 44 meetings per year.

Decisions made within PB produced significant effects in increasing municipal revenue. This has come mostly from easier identification of where the taxes would specifically come from, and how they are spent. Because the application of these resources is defined by the population, it has become easier to rely on the well-defined tax base of Porto Alegre.

Participation in the PB is voluntary and universal. It is a deliberative and transparent process, decisions made are documented, published and strictly implemented. The documentation of the decisions is presented in the “year end” report, which allows the public to monitor the implementation of the decisions made within PB. Billboards are placed in the city centre showing how the budget was spent, and how projects appropriated for were implemented. The information is now made available on the Porto Alegre City website as well. This allows for social control of the population over the government.

Participatory budgeting in water

When demands for water and sanitation are discussed, the Participatory Budget meetings take place under the guidance of DMAE, which explains the technical criteria for the selection and implementation of works, but are also an occasion for DMAE to be exposed to the criticism and suggestions of the public.

Once citizens have made their decision on the priorities for investments, the technical feasibility of such decisions are analysed by DMAE according to a set of criteria approved by the Participatory Budget Council (*Conselho do Orçamento Participativo*). On the basis of the decisions made through the Budgetary Process, DMAE elaborates an investment plan, which requires the approval of the

Participatory Budget Council, not only from the technical but also from the financial point of view.

Following the adoption of the investment plan, a number of commissions are set up within the Participatory Budget Council to monitor the implementation of the works until completion. In the year 2000, 38 “accompanying” commissions were established and the number was expected to rise to 41 in 2001.

Pricing policies

Pricing in Porto Alegre, including pricing of water supply, sanitation and complementary services, is designed to cover all operating costs, investments and capital costs. In order to bring forward resources to develop water and sewage works, DMAE get long term loans which are fully repaid with tariff resources. The pricing formula is designed to allow for expansion and upgrade of the system while taking into account social considerations, through subsidised social tariffs for low-income consumers.

The ‘no dividend’ policy, which allows the minimisation of prices for a given amount of investment, certainly contributes to the relatively low tariff charged by DMAE.

However, it should be noted that the pricing formula does not cover investment depreciation. The depreciation is not accounted for in DMAE’s business plan: DMAE’s accounts are prepared under public accounting conventions (municipal law) and so do not provide for depreciation.

The pricing formula for water supply has a three-range progressive structure, which is related to the water volume consumed. Charges are calculated, monthly, according to the following formulae:

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| 1 -Consumption up to 20 m ³ | $(BP \times C/H) \times H$ |
| 2 - Consumption between 21 m ³ and 1.000 m ³ | $\{BP \times 0,2711 \times [(C/H)^{1,43577}]\} \times E$ |
| 3 - Consumption over 1.000 m ³ | $(BP \times C/H \times 5,5) \times H$ |

Where:

BP - Basic Price (water m³ price)

C - Consumption (volumes consumed)

H - Households

Conversely, the pricing formula for sewerage provides for a flat rate irrespective of consumption, as described below.

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|--|---------------------------------------|
| 4 - The sewage collection is charged as: | $(BP \times C/H \times 0,8) \times H$ |
|--|---------------------------------------|

In all the above formulae, the value of the basic price BP varies according to the different categories of users: households, commercial and industrial consumers, and public administration. Water is provided free only for municipal entities, under a Municipal law.

The pricing formula applied to low-income households is subsidised. More precisely, the **social charge** applies to single-family households of up to 40 m², community households built by the state and municipal housing programs and some welfare institutions and charitable organisations, among others. Such users pay the price correspondent to 4m³ for the first 10 m³ consumed. If consumption exceeds the threshold of 10 m³, the formula used is linear and not progressive, so that the basic price is applied to all cubic meters exceeding the first 10m³.

A total of 65.650 households are affected by the social tariffs.

In 2001, 10% of total bills were uncollected: most of these were issued either to domestic consumers or public administration. In case of failure to pay, DMAE make every effort to warn the customers and try to negotiate with easy conditions before proceeding with the cut-offs, in order to prevent social or health problems.

There is no fund set up to mitigate non-payment of bills

Actual problems and future challenges:

DMAE has a constant worrying with the maintainance of the financial, economic, technological and social sustainability. Among the projects developed that constitute the Strategical Planning of DMAE, I can mention:

-The Water loss management program that was created in 1996. Unaccounted-for Water (UWF) in Porto Alegre has been declining, from about 50% in 1991 to about 35% in 2002.

-The technological development program, mainly automation of the systems, for reducing operating costs and optimise water supply and sewerage system.

Conclusions:

In spite of these difficulties we think that DMAE is a good example of how a municipally- owned undertaking may achieve efficiency and outstanding performance without changing its status and ownership. In this sense, transparency, accountability and public participation appear as the catalyst for DMAE's success and call for attention to its institutional structure.