

Showcase of Sanitation

In 1999, SEMASA became the first autonomous environmental authority in the country to administer all areas of sanitation: water, sewage, solid waste and urban drainage. More recently, SEMASA became responsible for civil defence and environmental management in the municipality. This service integration secured a sophisticated arrangement of internal subsidy, through which departments, whose costs are not covered by revenues, pass to be sustained by other surplus services, creating better conditions for universal provision.

The visitor book for the Municipal Service of Environmental Sanitation of Santo André (SEMASA) continues to receive new entries. They are operators of sanitation services, NGOs, researchers from various states of Brazil and foreigners who want to have a closer look at the sanitation model implemented by SEMASA. A special department was created at the Autonomous Service to address requests for visits, receive visitors and direct them according to their area of interest. Today, SEMASA is also an information centre on successful programs, similar to a showcase for sanitary service providers.

The text describing SEMASA's mission conveys that its objective to become a national resource for sanitation has been achieved. In 1969, SEMASA was created, replacing the Water and Sewage Department, the old body directly administered by city hall.

Focusing on the objectives of SEMASA's creation, sanitary infrastructure was expanded to meet the accelerated growth of the urban centres fomented by an economy founded on the Brazilian miracle.

Under such chaotic growth conditions, there was no space for serious planning. The sanitation service was rather basic and concentrated on water and sewage. Santo André opted to maintain the municipal administration and invested in water and sanitation and environment. Thirty years later, SEMASA became the first organisation, nationally, to integrate all dimensions of sanitation: water supply, sanitary sewage, and waste and rainwater management. In 2001, SEMASA incorporated the Municipality's Civil Defence, and at the end of 2003 took over responsibility for environmental licensing, previously a responsibility of the state; thus, constructing a new paradigm of service supply to the population by improving technical and administrative resources.

Santo André was the cradle of militant syndicalism in the 60s, which attained decent salaries for industrial workers. The pensions and funds available to that part of the population allowed the creation of private businesses, which made the economy a stimulator of better services. In 35 years, SEMASA accompanied the change of the

Santo André, São Paulo

Population estimate, 2005: 669,592 inhabitants / Index of urban water service: 98% / Index of urban sewer service: 96% / Index of waste collection and treatment: 100% / Index of selective collection: 100% in the urban area / Water consumption measurement index: 97% / Number of water connections: 179,805 / Number of sewage connections: 167,501 / Rate of analyses for the presence of coliforms outside the limit: 0.4% / Length of water supply network: 1,768km / Length of sewage collection network: 1,134km / Total cost of the service per m³ invoiced: R\$ 1.41 / Average tariff charged: R\$ 1.86 per m³ / Invoice Revenue Loss Index: 30.2% / Total Loss Index: 27.6% / Productivity Index: 4.1 workers per thousand water and sewer connections / Gross annual operational revenue (direct and indirect): R\$ 95,960,621.00 / Gross annual cost of the service: R\$ 66,566,028.00 / Annual utilisation cost: R\$ 64,842,329.00 / GDP per capita: R\$ 11,708.00 (ABC is the third biggest market in Brazil after Sao Paulo and Rio de Janeiro) / Number of residences in slums: 27,230 / Number of slums: 139 /

Source: SNIS 2003, IBGE 2000 and SEMASA

financial landscape of Santo André from an economy strictly linked to industry, to the development of the service sector, which, today, represents the biggest part of the municipality's GDP production.

Some sections of the city present low quality of life indexes. There are 27,000 residences concentrated in 139 slums. In Greater ABC, the urban zones of seven municipalities are practically linked between themselves. More than half of the 179 km² of the Santo André municipality overlaps with spring protection areas.

The contamination of the springs and the high population density of the metropolitan area makes it necessary to receive most of the water supplied in Santo André from the Piracicaba River area through the Cantareira System. Of the 160 million litres of water distributed in the city every day, 95% is treated by the Sanitation Company of the State of Sao Paulo (SABESP), with the remaining 5% being captured and treated by SEMASA itself in the Water Treatment Plant of Guarara. There is no contract regulating the relationship with the State Company, not even a fixed price agreed for the supplied water.

Since 1997, the Intermunicipal Consortium of the Greater ABC, which includes seven municipalities of the metropolitan area (Diadema, Maua, Ribeirao Pires, Rio Grande da Serra, Santo André, Sao Bernardo do Campo and Sao Caetano do Sul), intends to extend urban planning in the region, with the participation of the municipalities, the state government and civil society. For that, the consortium requires SABESP to present the budget for the planned actions. The work of independent experts established the value of the tariffs that has been passed by Santo André for the budget of SABESP.

Until 2012, all sewage collected by the municipality of Santo André should be treated in the Sewage Treatment Plant of Greater ABC, which was inaugurated in June 1998 and is operated by SABESP. The period was determined by the Conduct Adjustment Accord (TAC), which is under confirmation between SEMASA and the Public Ministry. Today, SEMASA already transfers 40% of the sewage to the Sewage Treatment Plant (ETE) of ABC. An agreement with SABESP in the beginning of the nineties determined that Santo André will only pay for the treatment after the company concludes all related works.

SEMASA instituted nine civil defence nuclei (NUDEC) in 11 neighbourhoods of the city and prioritised high-risk areas, such as those threatened by flooding and sliding. In the picture, representatives of NUDEC are alongside partners from the Fire Brigades and the Eletropaulo Company. The new concept teaches the population how to prevent risk situations and how to act in dangerous circumstances by adopting a proactive attitude. The residents are trained by teams from Civil Defence and the Community Relationships Administration, which is linked to the communication department of SEMASA, with the assistance of health professionals from the city hall and the Fire Brigades.

Intermunicipal Subsidy

Economic growth is one of the biggest achievements of SEMASA. It allows the redirection of tariff revenues to other areas, as a type of internal cross-subsidy system.

As Carlos Pedro Bastos, assistant of the superintendence of SEMASA remembers, “that vision allowed the optimisation of SEMASA's investments. The resources are distributed according to each area's priority. In 1997, for instance, we needed to respond swiftly to the issue of floods. This was a big challenge for the city and also one of the demands of the Participatory Budget”.

He further remembers that there was heavy investment in the works, mainly with tariff resources from the water and sewage systems, since the tariff of the drainage system just covered the maintenance of the services. But, Carlos Pedro notes that the cross-subsidy system is only viable because SEMASA is a public company. “Sanitation is a basic need. We have to provide quality service at the lowest possible cost to the citizen, but without expecting to generate profit”.

The first Urban Drainage Master Plan in the country

This project is the materialisation of a vision to transform reality. Planning is the strong weapon of SEMASA, which was the first to develop an Urban Drainage Master Plan in the country, in 1998, with short, medium and long term interventions. Since the body assumed the management of rainwater drainage, the areas prone to flooding and inundation in the municipality decreased from 70 to 40.

The plan oriented interventions, such as the construction of new culverts, inundation prevention works, de-silting, construction and recovery of detention tanks; cleaning of culverts; donation of land to build the first detention tank in partnership with the State Government; prevent sewage overflow in days of rain and the construction of 15 small detention tanks (“pools”), under a kernel bed, with metallic nets and operating by gravity.

The Water Supply and Sanitary Sewage Master Plan of 1990 was also a breakthrough. The Sewage Master Plan’s horizon reaches 2015. Starting from the diagnosis of the sanitary problems, the municipality acted to organise the sanitary basins and detailed problems related to basements, residential complexes, spring areas and environmental protection.

The well detailed projects will also contribute to fund raising.

Model

“My primary profession is to work in industrial electronics and automation in the area of iron mineral processing at the Valle do Rio Doce Company (CVRD). I was informed of SEMASA’s work in the area of automation during ASSEMAE’s assembly in Santo André. Aiming to automatise the SAAE of Itabira, I visited some sanitation companies already with an automation system. I went to Santo André to get to know more intimately the telemetric and remote control systems of SEMASA where I got ideas for the development of our system. There, you can see clearly the importance of automation in water distribution, which improves the efficiency of the service and reduces water losses and energy consumption, one of the principal items in the expenditure of sanitation services. We have reached our objective.”

Marcos Antonio Domingues, director president of the Water and Sewage Autonomous Service of Itabira, Minas Gerais, between 2001 and 2004, currently director president of the Urban Development Company of Itabira (ITAURB), which is responsible for the municipality’s cleaning system.

Automation contributes to water loss prevention

The telemetric system of SEMASA allows, through computers, the real-time monitoring of the situation in the eight distribution reservoirs regarding water flow, level and pressure. The Autonomous Service also remotely controls pumps and valves. Telemetry and remote controlling are two valuable instruments of the Autonomous Service to combat water losses. Furthermore, remote measurement of the consumption of big consumers is in the testing and trials phase.

The leakage detection capacity and repair speed also contribute to the reduction of water loss. The repairs are carried out within 24 hours, which is possible through the use of geophones that identify and track leakages in the network.

SEMASA was the first sanitation service to create an electronic and geo-positioning register of water, sewage and drainage networks. Already operating for many years, today the system enables, by accessing a satellite image of the city, to check the services and visualise the network. The system will be expanded to include all the services provided by the Autonomous Service. Carlos Pedro Bastos points out that “as every register is electronic and every water account is connected to a supply sector or sub-sector, we can easily detect water losses. Such

monitoring allows us to act swiftly and handle losses, thus keeping them below 30%, which is a good rate, if we consider that we are in a metropolitan area”.

Furthermore, SEMASA saves potable water by reusing water to wash its fleet of cars.; thus providing more water for the irrigation of parks and gardens, urban cleaning and washing of underground networks. The Autonomous Service formed its own Multidisciplinary Assessment Committee on Water Losses.

The technology level achieved in all services requires continuous training of all the involved personnel. As Carlos Pedro Bastos affirms, “it is common to lose skilled employees to the private sector, attracted by the quality of our operational staff”.

Sanitation, a tool of environmental management

In 2003, the agreement signed by city hall and the State Company of Environmental Sanitation Technology (CETESB) authorised SEMASA to carry out environmental licensing through the Autonomous Service’s Department of Environmental Management. The industrial, commercial, service and institutional activities which pose a pollution threat are under the control of SEMASA, which keeps the technical-environmental register of actions related to the monitoring of the maximum limits of pollutants emissions, noise pollution, sewage release in hydrographical basins, authorisation for cutting and pruning isolated trees and vegetation control in the basins.

State Decree 47.397 states that municipalities with environmental departments and qualified employees can decentralise environmental licensing for activities that have local impact. In 1998, Santo André established its own Policy of Environmental Management and Sanitation.

With the participation of the population, SEMASA currently produces its own Environmental Management Plan (PLAGESAN), which is the municipal body for the implementation of environmental policies. A cooperation agreement with the United Nations Environment Programme (UNEP) contributed to the development of the plan. According to the agreement, SEMASA can use the GeoCity methodology, which displays through charts and varied colouration, areas in a critical state, in danger and requiring attention, or areas not facing environmental risks.

SEMASA and the Municipal Council of Environmental Management (COMUGESAN) participate in a deliberative and advisory body that administers the Municipal Policy of Environmental Management and Sanitation of Santo André. Constituted of members of civil society, the advisory body proposes, deliberates, supervises and licenses activities with a risk of pollution.

The Reference Centre of Environmental Sanitation of Santo André, situated at the headquarters of SEMASA, was selected to implement Project “Green Room” Having been selected, the centre became the Centre of Environmental Information with the support of the Ministry of Environment. Brazil already has 111 “Green Rooms”.

The municipal sanitary embankment operated by SEMASA obtained 9.3 - the highest score given by IQR of CETESB to a sanitary embankment in the metropolitan area of Sao Paulo. The garbage collection trucks are equipped with GPS systems, which monitor, via satellite, the routes and the service completion time.

The third demand of the Participatory Budget

The public policy making of SEMASA is a dynamic and participative process, involving various sectors of civil society. Since 1990, the Participatory Budget (OP) continues being the main orientation factor of projects in the municipality. From 1998 to 2005, OP received around 300 requests and attended 264 of them, with 42 still pending. Sanitation projects, mainly drainage works, represent 12.51% of these requests and demanded R\$ 39.74 million, occupying the third place for submitted requests. Around 80,000 people have already participated in the plenary sessions.

As Marcelo Bispo, technical assistant of the superintendence of SEMASA affirms, “today, the OP process is more adjusted. We manage to better evaluate the various demands of the population and clarify which ones the Public Authority has the capacity to hear or fulfil and how it all fits into the city’s planning. Our interventions in the sanitation area followed SEMASA’s master plan. It was a moment where we managed to associate all the technical planning done in the Autonomous Service with the requests of the population, therefore demonstrating how this intervention should be carried out properly”. For Marcelo Bispo, the Participatory Budget, besides transforming the population’s perception of the city, is also responsible for a significant change in the culture of the technicians working on public service: “you notice the difference in the way the technician communicates with the population. He has to speak properly to the people and explain the project in the meetings so that all can understand”.

The population of Santo André not covered by sanitation services, lives predominantly in unregulated or undefined status areas, as illegal settlements and slums. SEMASA develops a specific integrated sanitation programme, regarding water supply, collection and removal of sewage, rainwater drainage, collection and final deposition of solid waste, sanitary and environmental education in those places.

The integrated sanitation service in slums is provided in partnership with the Secretaries of: Housing, Social Inclusion, Health, Education and Professional Development, Development and Regional Action, Juridical Issues, Culture, Sports and Leisure, Participatory Budget, and Planning and Government. The City Hall is responsible for land regulation, streets, gutters and pavements maintenance. Around 26,000 inhabitants have already attended the programme.

According to Marcelo Bispo, technical assistant of the superintendence of SEMASA, “you notice the difference in the way the technician communicates with the population. He has to speak properly to the people and explain the project in the meetings so that all can understand”.

Quality focused on the user

The detailed description of functions and instructions creates the conditions for absolute compliance by the collaborators, with the quality certification NBR ISO 9001, which was granted to all services provided by SEMASA, in 1996. Service quality depends on the identification of the user’s needs and the creation of communication channels for feedbacks on the satisfaction of these needs. In order to acquire the certification it is necessary to define and monitor the main processes. As Carlos Pedro Bastos informs, “we have adopted 21 key indicators which are discussed in the highest level of the administration council, In addition to 100 more administrative indicators. The system of administration, through indicators, is subject to control and rather transparent. The quality certification guarantees the continuation of the procedures.”

As Sebastiao Ney Vaz Junior, superintendent of SEMASA points out, “SEMASA follows a modern way of administration using indicators. This way you can have a picture of the system and intervene exactly at the problematic point or points. For that to happen, it is very important that these indicators accurately represent the company’s operation and only as such the results and improvements can be real”.

As Isabel Cristina da Silva de Souza, responsible for Quality Control of SEMASA illustrates, “in quality control, all the involved parties: users, providers, employees have to be accompanied. Without that monitoring it is only service for service. You carry out, but do not improve. If you do not systematise and evaluate these actions, you will not improve the service”.

At the beginning the service indicator allowed 10% of complaints for the total number of bills. With the improvement of the service, the indicator was reduced to 7%, later 5%. Now, it is less than 4% of complaints on the total number of emitted invoices, which currently reaches 162,000.

The Community Relationships Sector, which is linked to the Social Communication Coordination of SEMASA, is responsible for the creation of communication channels with the organised social groups.

With the collaboration of Mariangela Devienne