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THE COMPREHENSIVE MANAGEMENT OF WATER AND SOLID WASTES**

Executive Summary

***WASTE COLLECTION FROM LARGE GENERATORS IN
RIO DE JANEIRO***

WORKING DOCUMENT

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Introduction

This work presents a case study of Rio de Janeiro's improvement of its urban trash and garbage services by bringing in private operators to collect the "extraordinary wastes" produced by the city's large generators, without relinquishing its authority to supervise and regulate critical aspects of that service. The costs involved were reduced at the same time. The paper analyzes the operational problems resulting from the adoption of this institutional model and its advantages and disadvantages for both users and public institutions.

The history of the city's trash and garbage collection is traced, together with the progressive changes in pertinent legislation up to the present time. The way waste producers have perceived and responded to Municipal measures is analyzed. The economic and financial impact of the collection service on the Municipality and the users shows that a broad sector of private business has been favored, the public Municipal trash and garbage enterprise has experienced economic relief, and the cost for large waste generators has been kept at reasonable levels.

The paper identifies the positive effects of the new system. The extended service is governed by environmental standards, thus benefiting the environment, while the creation of formal new jobs benefits the most vulnerable unskilled labor segments.

In conclusion, the paper stresses that the dissemination of examples of successful management like this case study can encourage municipal administrations in other Latin American cities to adopt similar initiatives, tailored to their individual social, economic and cultural conditions.

The trash and garbage collection system: development and results

Starting in the seventies and up until 1990, COMLURB, the municipal trash and garbage company, was responsible for collecting all solid wastes, except for those amounting to over 120 liters a day produced by establishments that were considered to be "large generators." These establishments had to collect and transport their wastes to the Municipal landfill in their own vehicles or hire COMLURB's "special collection" service at a higher cost. This was the system that monitored the final disposal of the solid wastes produced by the large generators and, in practice, it was very inefficient and difficult to operate.

COMLURB had no specific resources for its special trash and garbage collection service. It used its regular household waste collection labor, vehicles and equipment. The large waste generators, despite paying extra for their service, always came last. The

supermarkets and shopping centers, which generated large amounts of waste and had nowhere to store it on their premises, were those most hurt by the system.

With the passing of Municipal Decree 9287 in 1990, in response to protests over the special services and the excessively high rates charged for them, COMLURB ceased to be Rio de Janeiro's exclusive trash and garbage collector. Some unqualified private companies started, in the unregulated urban trash and garbage collection sector, to serve large supermarket and major hotel chains and other large waste generators requiring companies with an ample service capacity. COMLURB continued to provide fewer extraordinary collection services until 1993, when they were finally cancelled by a legal resolution that set the maximum volume of normal waste production at 100 liters or 50 kilograms a day. Private trash and garbage collectors would serve the market segment producing more than that volume, with COMLURB maintaining only a regulatory function.

The private special collection service was not immediately effective; nor were the establishments served by COMLURB immediately transferred to private trash and garbage collection companies. The large corporations, in particular, questioned the legality of resolution 03/93 in the courts and opposed the new provision because of the shortage of private services. In 1994, several companies purchased vehicles and hired sales personnel to sell their collection services to the large waste generators. Some of the latter, particularly bars, restaurants and small markets, decided at first to hire persons and vehicles that were not registered with COMLURB. As a result, their wastes were both collected and disposed of very irregularly in the city. Even so, by 1994 the city had five companies that were qualified, under the new provisions, to provide trash and garbage collection services to large waste generators. They collected a total of 13, 293.25 tons/month overall, which was equivalent to 7.2% of the total trash and garbage collection in Rio de Janeiro.

COMLURB had a large job between 1994 and 1998, supervising the private companies. While violators were frequently fined, the fines were systematically and successfully appealed because the authority had only one Municipal Decree as its legal backing. In 1998, Municipal Act 2630 set new limits for classifying small and large waste generators (120 liters or 60 Kg a day). The Technical Regulations (42-30-01) for that Law, published the same year, established the standards and procedures for large waste generators and the companies collecting and transporting those wastes. Under the new legislation, in 1998, 11% more extraordinary wastes were collected than in 1997; the total was 292,100 tons or 10.5% of all of the trash and garbage collected in the city of Rio de Janeiro. In short, between 1994 and 1998, the collection of waste from large generators rose 45.8%.

In 2001, Municipal Act 3273 approved the Urban Trash and Garbage Collection Regulations for the City of Rio de Janeiro. COMLURB's authority under Decree 9287 was increased, making its supervisory and proactive efforts to broaden service coverage more likely to succeed.¹ By the end of 2001, 12 (twelve) companies were authorized to collect the

¹ Other laws and regulations that are pertinent to this case are: (1) the Urban Trash and Garbage Regulations for the City of Rio de Janeiro (Regulations for Municipal Law 3273, April 19, 2002) stating that the generators are responsible for managing their Special Wastes, including the Extraordinary Wastes, and that they must comply with the relevant technical provisions and operational procedures; and (2) Technical Provisions 42-30-01 (provided for in that same Law 3273) stipulating the procedures for authorized companies to register extraordinary waste collection vehicles and equipment and collect and transport the wastes.

extraordinary trash and garbage. They handled a total of 355,890 tons, equivalent to 12% of the total trash and garbage collected in Rio de Janeiro. In 2002, 12 companies (fleet of 250 waste collection units) were serving 6,122 establishments, with an average monthly collection over the first nine months of 2002, of 31,146 tons. The companies that offer this service have invested not only in traditional vehicles, but also in special and alternative ones. They have installed stationary compactor boxes for large waste generators like supermarkets, to increase their productivity and reduce their customers' operating costs. Smaller trucks have been purchased to serve small customers like restaurants, banks and offices in the city center with its narrow streets.

Economic and financial aspects

Service to large waste generators is based on a price and rate scale set by the private companies, in accordance with the type, number and capacity of the trash and garbage bags and containers that are collected. The prices vary widely because this market is highly competitive and dynamic. Customer surveys show that the oldest clients tend to pay higher prices than those with more recent contracts with the same company. The companies charge a fixed rate set by contract for a minimum waste collection. Any surplus is paid for at a higher preset rate.

Trash and garbage collection prices for large waste generators has declined steadily, from an average of R\$ 0.30/kg in 1994 to an average of R\$ 0.13/kg in 2003. Unit collection prices vary according to container type and capacity, as follows:

- For 100-liter plastic bags, the prices vary up to 33%, from R\$ 0.90 or US\$ 0.26, to R\$ 1.20 or US\$ 0.35 per bag removed.²
- For 240-liter plastic containers, the prices vary up to 71%, with a minimum of R\$ 2.45 or US\$ 0.70, and a maximum of R\$ 6.20 or US\$ 1.77 per container removed.
- For 1,200-liter metal containers, the price is R\$ 25.00 or US\$ 7.00 per container removed.
- For waste in stationary compactor boxes with a 15 m³ capacity, the price is R\$ 500.00 or US\$ 142.85 per box removed.

Private trash and garbage companies earn large profits, even after paying COMLURB for use of its transfer station, transportation service and final disposal of the wastes (this represents only 8.7 % of the companies' revenues). Ten of the twelve companies that provide trash and garbage collection services to large waste generators have operated in the market without interruption. This service has lightened COMLURB's burden and has proven to be

² Considering an average exchange rate of R\$ 3.50 (three reals and fifty centavos) per dollar.

extremely profitable. The rates today are much lower (nearly ten times less than what COMLURB would be charging now, under the previous system), and cover a much larger percentage of waste generators that the Municipal trash and garbage collection company would had to continue serving otherwise.

The users' willingness to pay has never been a problem because the amount involved is very small in comparison with their earnings. Since the service is good, few are overdue in their payments.³ A study of restaurants, for example, found that they pay only about 0.5% of their monthly revenues for extraordinary trash and garbage collection –equivalent to one-tenth of their electric bill.

Environmental and social aspects

Private extraordinary waste collection has produced considerable environmental and social benefits. The most important environmental effects include the following:

- ?? Vehicles authorized under technical provisions to provide this service must respect emission limits for atmospheric and acoustic contamination and comply strictly with pertinent legislation. When COMLURB was responsible for operations, and even less so when unauthorized vehicles participated in the service, emission control was not enforced. Authorized vehicles must be kept clean, deodorized and painted at all times and the waste must always be stored in standard containers, avoiding their spillage in the streets.
- ?? Today, all extraordinary wastes end up in sanitary landfills, which was not the case in the past. All collection and transportation operations must comply with the technical provisions; otherwise, the offending company will be fined and may even lose its operating license.
- ?? Extraordinary waste collection has boosted the recycling of appropriate materials. Some authorized trash and garbage collection companies have set up differentiated collection services (i.e. cardboard at shopping centers), thus facilitating recycling.

The change in management for the collection, transportation and final disposal of extraordinary solid wastes has opened up approximately 600 direct jobs --as drivers, collectors, maintenance mechanics and sales and administrative service professionals,--without COMLURB having had to dismiss any of its workers as a result of the new system. Furthermore, the wages and social benefits paid represent significant earnings for these newly employed unskilled workers.

Lessons learned

³ Payment of the charge directly to the service provider, rather than jointly with other municipal charges (i.e. housing taxes), as was the case when COMLURB offered the service, has a positive effect on the waste generator's perception of the service, and therefore on its willingness to pay for it.

COMLURB's opening of the extraordinary waste collection market has had positive results: service costs have been reduced and a priority sector for municipal services has been encouraged; new direct jobs have been created; COMLURB has been freed from having to collect and transport extraordinary wastes; and the environment has benefited from the reduction in irregular waste disposal and the growth of concern among their generators over the quantity and type of solid wastes produced.

At first, to get more waste generators to join the system, the establishments and the unregistered companies providing the trash and garbage collection services had to be closely supervised. Fines were imposed and gradually reduced as the waste generators demonstrated their compliance with the system. Initiatives of this kind require, especially in the beginning, an efficient supervisory system to monitor the large waste generators and the unregistered trash and garbage collectors, with supervision of the sanitary landfills to identify the origin of the wastes transported by each collection vehicle.

The final recommendations to be made include the following:

- ?? The private sector should participate in accordance with free market conditions. Prices should be freely arranged between the contracting and contracted parties without municipal involvement, but always under government supervision and regulations.
- ?? Private sector participation in the collection of extraordinary wastes is highly positive for medium-sized and large municipalities, for it frees the municipal trash and garbage collection service from that job.
- ?? Municipalities should prepare regulations that effectively impede trash and garbage collection companies from dirtying the public streets by prohibiting waste collection at just any time of any day or the use of trash and garbage collection vehicles that are not suitable for the types of waste to be collected.
- ?? Differentiated services are needed for specific customer needs: the use of special or alternative equipment, the provision of services on specified days or at scheduled times, and the supply of special containers that are appropriate for the wastes involved.
- ?? The operation of trash and garbage collection systems under conditions of open competition benefits customers by allowing them to choose from among several companies the one that offers the most advantageous conditions and the best prices.
- ?? Waste collection from large generators, as it was developed in Rio de Janeiro, is an effective mechanism for obtaining economic, environmental and social gains, to be shared among municipal authorities, the service providers, the waste generators and the general population.