

Sonia M. Dias<sup>1</sup>

## Recycling in Belo Horizonte, Brazil – An Overview of Inclusive Programming

Brazil is one of the world's most progressive countries in integrating waste pickers in solid waste management systems, and Belo Horizonte has led the way. The capital city of Minas Gerais State in southeastern Brazil, Belo Horizonte has a long tradition of strong municipal planning that dates back to its development in the nineteenth century as Brazil's first "planned" city. Waste management has been a municipal priority and concern in the city since 1900.

Belo Horizonte has been a pioneer in managing solid waste in Brazil. Socio-environmental concerns, such as improving the existing systems and generating income for the poor, encouraged improvements in solid waste management (SWM) systems in the city. This led to the adoption of an integrated solid waste management model in 1993, with a focus on promoting segregation at the sources, in order to minimize the harmful environmental impact caused by the waste itself and maximize the social and economic benefits for the city. The new integrated system brought wide-reaching improvements. These included enhancements to the operations at the existing landfill; selective collection and a recycling programme for civil construction waste; composting of organics; environmental education; improving working conditions for formal workers (sweepers and collectors); and



**A panoramic view of Belo Horizonte where waste management has been a municipal priority and concern in the city since 1900.**

Source: WIEGO photo library

<sup>1</sup> Sonia Dias is WIEGO's waste sector specialist working on the Urban Policies Programme. She can be contacted at [sonia.dias@wiego.org](mailto:sonia.dias@wiego.org).

integrating informal workers into the formal SWM system. At the municipal, state and national levels in Brazil, there has been a commitment to social inclusion of residents. The integration of the informal recycling sector in SWM systems is a good example of this. Since 2001, for example, Brazil has included *catador de material reciclável* (collector of recyclables) as a profession in the Brazilian Occupation Classification (CBO). Years earlier, Belo Horizonte had introduced legislation that made recycling, social inclusion, job creation and income generation the four main pillars of SWM.

The Public Cleansing Authority (SLU) has the mandate for providing all solid waste management services (sweeping, collection, disposal, treatment and transformation of garbage) for the entire City of Belo Horizonte, including the sale of its services, products and by-products. The SLU defines domestic waste as waste generated by households, as well as waste with similar characteristics generated by commercial establishments, institutions, and industry. Recycling activities focus on domestic solid waste and construction waste. Municipal collection covers 95 per cent of domestic waste in Belo Horizonte. The main feature of these recycling programmes is the integration of two categories of informal workers: the waste pickers<sup>2</sup> (*catadores*) of recyclables, and the informal collectors of debris (*carroceiros*). Organizations of these informal workers (*catadores* and *carroceiros*), together with representatives of the municipality and other organizations of the civil society, have joined one stakeholder forum: the Municipal Waste and Citizenship Forum.

This is the first in a series of Policy Briefs on this case. This first brief gives an overview of two recycling programmes in Belo Horizonte that engage informal workers – the *carroceiros* and the *catadores* – in their operations. The next brief in

### Belo Horizonte at a Glance

- **Population: 2,452,617 (IBGE 2009)**
- **Human Development Index (2000): 0,839**
- **Total tonnes municipal waste per year: 1,296,566 tonnes (SLU 2008)**
- **Percentage coverage of household waste collection: 95% (SLU 2008)**
- **Number of informal workers (*catadores*) in recycling: 2685 (Dias et al. 2010)**
- **Number of cooperatives/number of affiliates: 8/401**
- **Percentage of *catadores* organized into associations and cooperatives: 15%**

the series, Policy Brief 4, provides a detailed account of the genesis, characteristics, achievements and challenges of the policy of selected waste collection which integrates the *catadores*. A critical source of success of these programmes is the high level of organization and social mobilization of the waste pickers and their supporting non-governmental organizations. Policy Brief 5 outlines the background to this and traces the genesis and current operation of the Municipal Waste and Citizenship Forum in Belo Horizonte. The final piece – Policy Brief No 6 – provides an overview of the legal framework in Brazil that has enabled this innovative model of inclusion of informal waste collectors in municipal waste management.

This series aims to share information about people-centred approaches to solid waste management systems; in particular, it describes policies and practices that have resulted in securing and improving the livelihoods of informal workers. These briefs are intended to be demonstrations of new ideas, and not to serve as a model to be applied in its entirety elsewhere since the physical elements of solid waste systems as well as the policy, institutional, and governance frameworks differ from one place to the next. The level of organization of informal workers also varies. However, it is hoped that the example of Belo Horizonte will give waste pickers, their organizational leaders

and policy makers in other locations ideas that could be adapted to their local realities.

## Recycling of Materials from Domestic Waste

The municipality recovers non-organic recyclable materials from the domestic solid waste stream through three main channels: a) drop-off system; b) curb-side separated collection of recyclables in residential areas; c) door-to door collection from non-residential facilities.

All collected materials (mainly plastic, paper and metals) are brought to warehouses of waste pickers' cooperatives. Here, the materials are processed before moving up the recycling chain. All cooperatives have scales, personal protection equipment, and big bags. Some have shredders and fork lift trucks. Materials are sold to industry in Belo Horizonte or within the state of Minas Gerais. The cooperatives receive all the money from sales, which is then shared between the associates.

This *official integrated recycling system* combines the work of the formal sector and the semi-formal sector (cooperatives) through the three main channels described in further detail on the following page.

<sup>2</sup> In Brazil, waste pickers are called *catadores de material reciclável* (collectors of recyclables) and the CBO describes an individual with this job as “someone who might collect recyclables in streets or at disposal sites, work as a sorter and/or other recycling related activities either in cooperatives or junk shops.”

## 1. Door-to-door Collection of Recyclables by Cooperatives from Non-residential Generators

Two of the eight cooperatives of waste pickers involved with the municipal recycling scheme collect recyclable materials from commercial establishments and offices, especially in downtown Belo Horizonte, using push-carts. One of these – ASMARE – has its own carpentry workshop where carts are made and repaired.

In addition, recyclables are collected from larger generators such as industries and public offices using vehicles owned by the cooperatives. The collected material is taken to warehouses for further handling. In 2008, 5,100 tons were collected through the cooperatives, which made up 52 per cent of all collected recyclables.



**Door-to-door collection of recyclables from commercial establishments by waste picker cooperatives, some using push-carts. 5,100 tons were collected through these cooperatives in 2008, making up 52% of all collected recyclables in the city.** Source: Sonia Dias

## 2. The Drop-off System

There are 150 delivery sites scattered throughout the city – locally known as *Local de Entrega Voluntaria* (LEV) – where people can bring recyclables and place them in different containers for plastic, paper, metals and glass. The SLU staff empty about 450 containers each week and the materials are transported to warehouses for further handling. Introduced in 1993, this system collects between 60 and 140 tons of recyclables each month. For example, in 2008, 1,300 tons were collected through this system; this represents 13 per cent of all collected recyclables in the city. However, one challenge has been that many of the recycling containers are damaged, usually by non-organized waste pickers searching for recyclables.



**Drop-off receptacles. The SLU empty about 450 containers each week and 1,300 tons were collected through these delivery sites in 2008, making up 13% of all collected recyclables in the city.** Source: SLU

### 3. Curbside Collection of Recyclables by SLU

The SLU started this system in 2003. Initially, it served 80,000 people; it now collects from over 148,000 people and in 2008, 3,900 tons of recyclables were collected either directly by SLU or by third parties contracted by SLU. The collected materials are taken to warehouses, run by the cooperatives of semi-formal waste pickers, where they are processed and sold to industry.

Curbside collection by the municipality. 3,900 tons of recyclables were collected in this manner during 2008. Source SLU



### Sorting of Recyclable Waste

Collected recyclable waste materials are brought to the recycling warehouses of one of the eight waste pickers' cooperatives, where the materials are sorted, baled, shredded, packaged,

and stored. Most recycling warehouses were adapted, not purpose-built for these activities. As a result, there have been challenges with handling and flow of materials. However, new warehouses are being built that are specially designed for recycling activities and have mechanical discharge and sorting systems. These will be better suited for

waste pickers' needs and improve the efficiency of the system.

Coopersoli Barreiro recycling warehouse – sorting device where materials are sorted, baled, shredded, packaged, and stored. Source: SLU





## Recycling of Construction and Demolition Waste

The by-laws of the City of Belo Horizonte state that business owners are responsible for disposing of construction and demolition waste. This waste was often dumped illegally by business owners, causing many environmental problems. Therefore, in 1993 the municipality of Belo Horizonte through its Public Cleansing Agency (SLU) implemented the *Environmental Recovery and Recycling of Civil Construction*

*Wastes Programme* with the intention of combining income generation and preservation of the urban environment. A special feature of the Programme is the inclusion of *carroceiros*, informal collectors of construction and demolition waste.

*Carroceiros* use horse-drawn carts to transport collected construction debris. Previously, much of the construction waste collected would be disposed of in illegal dump sites. This, in turn, attracted additional illegal dumping of ordinary domestic waste, exacerbating the negative environmental impacts. In 1994, a municipal survey identified 134 illegal dump sites. From the outset of the *Environmental Recovery and Recycling of Civil Construction Wastes Programme*,

**Illegal dumping is minimized and income generation in the informal sector stimulated through paying *carroceiros* to transport waste to designated units.** Source: Leslie Tuttle

the municipality provided awareness-raising training to 400 *carroceiros* on the negative impact of illegal dumping. The programme also organized and registered these workers. Now citizens have access to this municipal registry, and can call upon *carroceiros'* services for the removal of construction waste, tree pruning remains or even old furniture. Households pay a fee per trip (US\$8-12) directly to the *carroceiros* to transport this special waste to the designated reception units.



There are 29 decentralized units (URPVs) for receiving small volumes of debris. They are each able to take up to two cubic metres of bulky waste daily. Source: Leslie Tuttle

The Programme has a number of components.

A key component involves the **support and/or organization of cooperatives of informal debris collectors, and the legal allocation and authorized provision of 29 decentralized depots for receiving small volumes of debris** called URPVs (*Unidades de Recepção de Pequenos Volumes*). These units can take up to two cubic metres daily of bulky waste (including tree pruning waste). Domestic waste is not accepted by the *carroceiros* or at the URPVs. Debris from URPVs is then taken to the recycling units by the city trucks.

A support provided to *carroceiros* is **the licensing of horse carts**. Municipal Decree 10.293 (12/08/2000) states that horse carts should be registered and licensed each year free of costs to the informal workers. The informal collector of debris is given an identity card and the Municipal Secretariat for Health provides a vaccination card for the horse. The SLU, meanwhile, is responsible for checking that all the material collected and transported by the *carroceiros* meets the regulations.

Further there is veterinary support for *carroceiros*' horses. This stems from a partnership with the Veterinary School of the Federal University of Minas Gerais, where the *carroceiros* receive animal health care assistance for their horses (vaccination and medical care). The horses are also registered and branded. The University also does research to improve the strength and ability of the horse breeds.

Finally, there are three civil construction recycling units that process construction waste taken from the decentralized reception units, from the public sector construction activities, and also from large private construction companies that have "separation at the source" programmes at their construction and demolition sites. In 2008, the three processing units together received and processed 132,934 tons of construction waste, which accounted for 15 per cent



All informal workers must be licensed and register their horse carts every year free of charge to receive an identity card and vaccination card for their horse. Further veterinary support is also provided from the Veterinary School of the Federal University of Minas Gerais. Source: Leslie Tuttle

of this waste stream and 6.5 per cent of all processed waste in Belo Horizonte. These recycling units process bricks and other construction materials out of the debris.

The remaining construction waste goes to the sanitary landfill operated by the Municipality of Belo Horizonte. Tree pruning waste is transported to a small composting facility (capacity of 20 tons/day) at the municipal waste treatment centre, where it is co-processed using a windrow composting technology that also uses organic waste collected from supermarkets and open vegetable markets. A strong monitoring and quality control process is in place to assure a good product suitable for agricultural use. In 2008, 2,300 tons were processed – 1,400 tons from markets and 900 tons from tree trimmings. The nearly 900 tons of compost produced last year were used in the landscaping project of the landfill, as well as by the municipal nursery and public gardens.

## Other Programmes

Belo Horizonte's approach to Solid Waste Management includes two additional elements:

- **Community Cleaner Programme:** This includes the residents of low-income settlements as the main service providers for municipal cleaning jobs, which are mainly sweeping and weeding of streets.
- **Food Programme:** This is the collection and distribution of safe but non-sellable foodstuffs from supermarkets, greengrocers, and street vegetable sellers to crèches, hostels, homes for the elderly and other institutions.

These programmes are not specifically targeted at waste pickers but show that the solid waste model of Belo Horizonte goes beyond informal workers to include other urban poor.

## Conclusion

Like many other cities, Belo Horizonte's methods of dealing with solid waste are designed mainly to ensure public health and focus on waste collection and safe disposal. In 1993 – long before the 2010 approval of Brazil's National Solid Waste Policy which ensures the rights of informal recyclers (see Policy Brief 8 for more details on this) – Belo Horizonte was already using a progressive approach to solid waste management. Its Organic Law and other related legislation included recycling, social inclusion, job creation and income generation as the four main pillars of SWM. The municipality supports organizations of *catadores* in different ways through the Municipal Budget, using the budgets of the Cleansing Agency and the Municipal Secretariat for Social Assistance.

Why has Belo Horizonte been so successful in including informal workers in the waste management processes of the city? One reason is that institutionally, SWM has a well-established and all-inclusive position within the municipal hierarchy. The SLU has been operating for more than three decades at a high level of independence. It previously reported directly to the Mayor and, more recently, reports to the Municipal Secretariat of Urban Policies. The SLU's long-term relationships have provided a means to combine human capital and institutional memory around SWM issues and have contributed to the innovative approach in SWM undertaken since the early 1990s.

Another reason is the high level of organization and social mobilization of the waste pickers and their supporting NGOs. The example



**Cleaning and packing of vegetables for the Food Programme, which collects safe but non-sellable foodstuffs and distributes them to crèches, hostels, homes for the elderly and other institutions.** Source: SLU

set by ASMARE, the first association formed in Belo Horizonte in 1990, inspired other groups of *catadores* and the *carroceiros* to be formed in the city. The *catadores* are able to voice their demands and to form strategic alliances and this has pushed an inclusive agenda for SWM. In addition, the two existing Waste and Citizenship Forums (the Minas Gerais State Forum and the Municipal Forum of Belo Horizonte) provide a platform where interests and concerns from civil society actors and public officials can be brought for public debate.

This Policy Brief has given an overview of the solid waste policy of Belo Horizonte, explaining its broad features. The policy includes two categories of informal workers – the collectors of recyclables (*catadores*) and collectors of civil construction waste (*carroceiros*). Challenges faced by the recycling programmes are explained in Policy Brief 6, 7 and 8. The contribution of informal workers to building strong and sustainable solid waste systems, the reduction of carbon emissions, and a cleaner and healthier environment for everyone has guaranteed a strong and continuing commitment to social inclusion in Belo Horizonte.

## References

This article is drawn primarily from two sources:

Dias, S. M. 2009. *Trajelórias e Memórias dos Fóruns Lixo e Cidadania no Brasil: Experimentos Singulares de Justiça Social e Governança Participativa*. 2009. (Tese de Doutorado), Faculdade de Filosofia e Ciências Humanas, Universidade Federal de Minas Gerais. (Trajectories and Memories of the Waste and Citizenship Forums – Unique Experiments of Social Justice and Participatory Governance, PhD Thesis, State University of Minas Gerais).

Dias, S. M., J. Ijgosse and R.T.V. Barros. 2010. Belo Horizonte City Profile. In UN Habitat, *Solid Waste Management in the World's Cities. Water and Sanitation in the World's Cities 2010*. London: Earthscan.

### Other sources:

Dias, S. M. and F.C.G. Alves. 2008. "Integration of the Informal Recycling Sector in Solid Waste Management in Brazil." Study prepared for GTZ's sector project "Promotion of Concepts for Pro-Poor and Environmentally Friendly Closed-Loop Approaches in Solid Waste Management." (Available at [www.gtz.org](http://www.gtz.org).)

Dias, S. M. 2002. *Construindo a cidadania: Avanços e Limites do Projeto de Coleta Seletiva de Belo Horizonte em parceria com a ASMARE*. (Dissertação de Mestrado). Instituto de Geociências, Universidade Federal de Minas Gerais.

Dias, S. M. 2000. "Integrating Waste Pickers - Catadores for Sustainable Recycling." Paper presented at the workshop "Planning for Sustainable and Integrated Solid Waste Management," SKAT, Manila, Philippines (September). (Available at [www.cwgn.net](http://www.cwgn.net).)

### Acknowledgements:

I am grateful to the following people for their collaboration: to Caroline Skinner and Leslie Vryenhoek for their fabulous team work in editing; to Demetria Tsoutouras, Lucia Fernandez, Melanie Samson, Laxmi Narayan and Chris Bonner for their valuable comments in the first draft; and to Anna Gaylard and Jess Nicholson for the design and layout. I am deeply grateful to all waste pickers, NGOs and public officers who gave me their time and knowledge.

**WIEGO Policy Briefs offer information on policies and organizational practices that affect the informal economy. This series supports advocacy processes and disseminates better practices and ideas, contributing to a worker- and livelihood-centered approach to development.**

**ABOUT WIEGO: Women in Informal Employment: Globalizing and Organizing is a global research-policy-action network that seeks to improve the status of the working poor, especially women, in the informal economy. WIEGO draws its membership from membership-based organisations of informal workers, researchers and statisticians working on the informal economy. For more information see [www.wiego.org](http://www.wiego.org).**

**ABOUT INCLUSIVE CITIES: Launched in 2008, the Inclusive Cities project aims to strengthen membership-based organisations (MBOs) of the working poor in the areas of organising, policy analysis and advocacy, in order to ensure that urban informal workers have the tools necessary to make themselves heard within urban planning processes. Inclusive Cities is a collaboration between MBOs of the working poor, international alliances of MBOs and those supporting the work of MBOs. For more information see [www.inclusive.cities.org](http://www.inclusive.cities.org).**

