



FROM WASTE TO PUBLIC SPACE

By Stela Goldenstein

Stela Goldenstein describes how solid waste management in São Paulo is reducing the city's carbon emissions and allowing for investments in public space.

City governments are institutions with great potential for reducing carbon emissions, and recent innovations in treating solid waste in São Paulo provides an instructive example. The city has reduced methane emissions through intervention in the disposal of urban solid waste, mainly domestic rubbish. Unlike the irregular and extremely large outdoor *lixões*, domestic waste in São Paulo is collected in landfills in environmentally protected areas which avoid human contamination or damage to the soil and ground water tables. The city operates two such solid waste landfills: Bandeirantes in the north-western part of the city, and São João in the South-East. Each receives around 7,000 tons of domestic solid waste daily, in addition to the sludge generated through sewage from the state water company.

Slow decomposition of organic matter present in the solid waste produces a biogas, rich in methane, which permeates the layers of material covering the landfills and is released into the atmosphere, thus contributing to the greenhouse effect. Here, a system for collecting, filtering, pressuring, and burning the gas in thermal electric plants prevents it from being released into the atmosphere. In addition, 80 per cent of the collected biogas is used to generate electrical power at electric plants located on site. By the end of 2008, seven per cent of households in São Paulo will be supplied by energy thus generated. The result is a twofold environmental gain: in addition to reducing the amount of methane released into the atmosphere, the need for new sources of energy is reduced.

The Kyoto Protocol, which requires industrialised countries to meet targets for reduced emissions of greenhouse gases either within their own territory or

through investment in developing countries, made this project possible. The United Nations Clean Development Mechanism, which granted São Paulo the carbon credits to sell to companies and institutions in countries seeking emission control targets, has in effect helped to fund environmental controls already in place in São Paulo.

Today, the project's biogas control certification is equivalent to controls of 3,106,211 tons of carbon, a sum close to the total carbon credits generated by all the other certified projects in Brazil combined. With the highest landfill control certification in the world (1,150,144 tons), the Bandeirantes landfill generates the highest benefit percentage for the State of São Paulo: half the credits are sold at public international auctions to ensure transparency and the highest price for the city. Recently, purchase of São Paulo's Certificates of Emission Reduction (CER) generated almost € 28 million for the city.

These proceeds are then invested in urban and environmental improvements to the areas surrounding the landfills – areas where their impact is directly experienced. The neighbourhoods of Perus and Pirituba in the North-West, and São Mateus and Sapopemba in the South-East, are receiving parks, public squares and other measures to control erosion and to improve access to quality space for the low-rent population living there. Public hearings organised by the municipal government allow for the direct participation of residents in the vetting of how and where to invest financial resources obtained from the sale of the CER.

Additional credits and future auctions are expected to produce further social and physical improvements to the

urban landscape, proving that the landfills are assets to be maintained, valued and utilised throughout their life span. This project is thus proving to be a safer and more economical solution than incineration plants. Even so, São Paulo will need to work with other *prefeituras* in the

metropolitan area to implement and share new landfills at even more distant sites.

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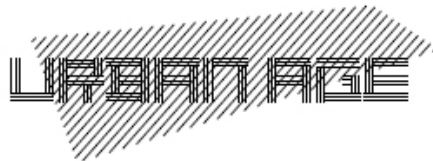
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