

URBAN ENVIRONMENT

WASTE



A growing problem

Increases in the volume of urban waste are due principally to increasingly affluent lifestyles, rather than urban growth. Municipal solid waste production continues to grow both in per capita and overall terms. In 1997, waste production in Rio de Janeiro, Brazil, was 8,042 tonnes/day compared to 6,200 tonnes/day in 1994, despite the fact that population growth during that period was practically zero. In Norway, waste production increased by three percent per annum between 1992 and 1996, while in the USA the figure was 4.5 percent per annum for a similar period.

During the latter part of the 1990's, annual waste

production ranged from 300-800 kg per person in the more developed countries to less than 200 kg per person in the least developed countries. Furthermore, the composition of waste differs between high and low-income settlements, affecting both recycling and the commercial feasibility of private waste management. The proportion of hazardous household waste, and wastes from small industries and medical clinics, also continues to increase.

Increasing costs

Municipal authorities often spend between 20 and 30 percent of their budgets on cleaning and waste disposal, with around 70 percent related to transportation costs. These cost increases are exacerbated by poor garbage vehicle routing and inadequate maintenance. Increasing land prices and reduced availability of suitable disposal options in or around urban centres steadily make safe waste disposal more difficult and costly. Long haulage distances significantly reduce profits for private waste management companies.

Municipal authorities have become aware of the high costs incurred by inefficient collection and disposal of solid waste, and many projects are seeking more efficient options. Solid waste recycling or incineration technologies are now available to municipalities and, consequently, there has been progress in formal solid waste disposal in most countries.

Local and appropriate technologies

Despite many good practices from around the world, inappropriate technologies, particularly for solid waste collection and disposal, still exist in many developing countries. Donor-provided equipment is often inappropriate to the nature of the waste, while collection vehicles are frequently ill-suited to extremes in climate or road conditions, resulting in a large proportion of vehicles being out of use. Poor handling and lack of maintenance of equipment is a major cause of breakdowns. For example, Harare, Zimbabwe, reported in 1999 that only 7 of its fleet of 90 garbage trucks were on the road. However, in many developing countries highly efficient solid waste collection and disposal equipment are being produced through locally developed technologies, and some bottlenecks in the collection and disposal of solid waste have been reduced.

Service to the poor

Although the small-scale private waste management sector is often forgotten, it can play a key role in a

city's overall waste management strategy. Privatization contracts and legislation should be flexible enough to permit the entry of small-scale service providers, particularly in lower-income areas. In Delhi, 100,000–150,000 ragpickers currently collect 12–15 percent of the 6,000 tonnes of waste generated daily. Rationalization of waste collection, however, would be insufficient without creating sanitary disposal capacities, in the form of either sanitary landfill sites, or recycling or incineration plants.

Waste recycling and reuse

In cities of developing regions, as much as 70 percent of waste is organic material. Not only is this a reclaimable resource in itself, but recycling can also help reduce demand for valuable and scarce landfill space. In addition, organic waste disposed to landfill greatly increases greenhouse gas emissions. In cities where its use in agriculture is a possibility, composting would be a sensible option.

Technological advances in recycling have been made in the developed world with increased use of recycled materials - the improved quality of recycled paper is a good example. For more developed regions, strict regulation for disposal of organic wastes is the preferred option. For example, in the UK, five regulatory options have been proposed:

- a total ban on land filling of biodegradable waste;
- a ban on landfill of paper, card and putrescent waste from municipal sources;
- restrictions on the tonnage disposed at a particular landfill;
- permits for disposal of biodegradable waste; and
- increasing the landfill tax on disposal of biodegradable material.

National and Local Policy

Local authorities often see solid waste management as a poor cousin of other basic services, because they can barely recover operating costs. There is an urgent need to increase awareness of the importance of solid waste management and its contribution to a healthy living environment. National and local governments should stimulate public awareness and encourage waste producers to take more responsibility for treatment and disposal.

An efficient urban solid waste management service should be comprised of appropriate combinations of public, private and community involvement, while focusing on simple management information systems that allow the waste management sector to use a range of local service providers. In developing countries, informal sector waste recycling needs more promotion. Small-scale waste recycling initiatives provide much-needed income for the urban poor.

Although many countries are undertaking recycling initiatives, too little attention is paid to waste minimization. A large source of waste in the highly industrialized countries is the marketing and packaging industries. Waste minimization in these industries could have major impacts.

The global coordination of solid waste management should focus on clearer definitions of monitoring and evaluation, particularly the use of indicators that can promote recycling and reuse of organic wastes. Suitable indicators currently being considered by European governments that should be incorporated in national legislation include:

- Municipal recovery rates;
- Household recycling rates;
- Household waste composted; and
- Home composting participation rates.

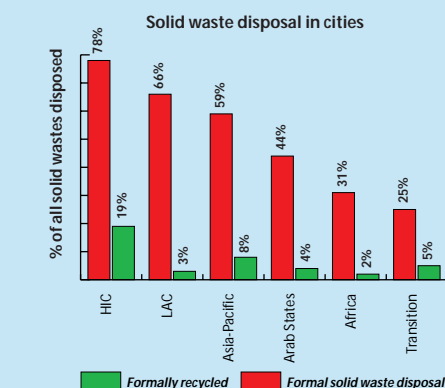
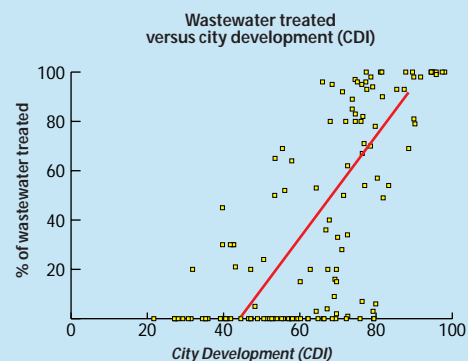
Proper landfill management requires demonstrating how landfill taxes and other such economic instruments can help local authorities maintain stricter environmental standards. Solid waste management equipment producers need to ensure that they produce equipment suited to the differing needs of cities and local authorities around the world. Information on good practices from the informal solid waste sector should be factored into the management strategies of cities.

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City Garbage Recyclers (CGR) - Nairobi, Kenya

The aim of the CGR project was to mobilize the low-income settlement of Maringo in domestic waste management and encourage environmental conservation through waste recycling. Domestic waste is collected and manually separated into organic and inorganic: the former is turned into fertilizer for sale to local farmers, while the latter is sold as raw materials for recycling or made into alternatives to fuel wood. CGR conducts awareness campaigns, trains NGOs in waste management, and generates work and income for the Estate's residents.

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