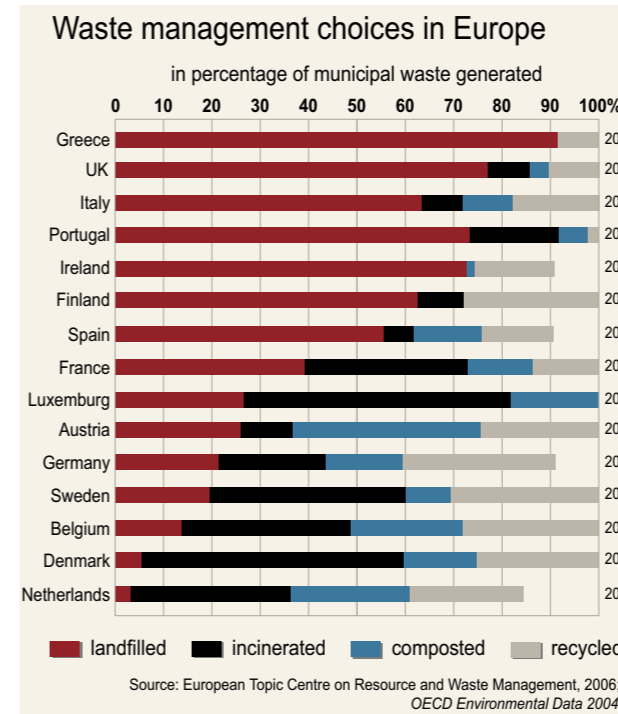
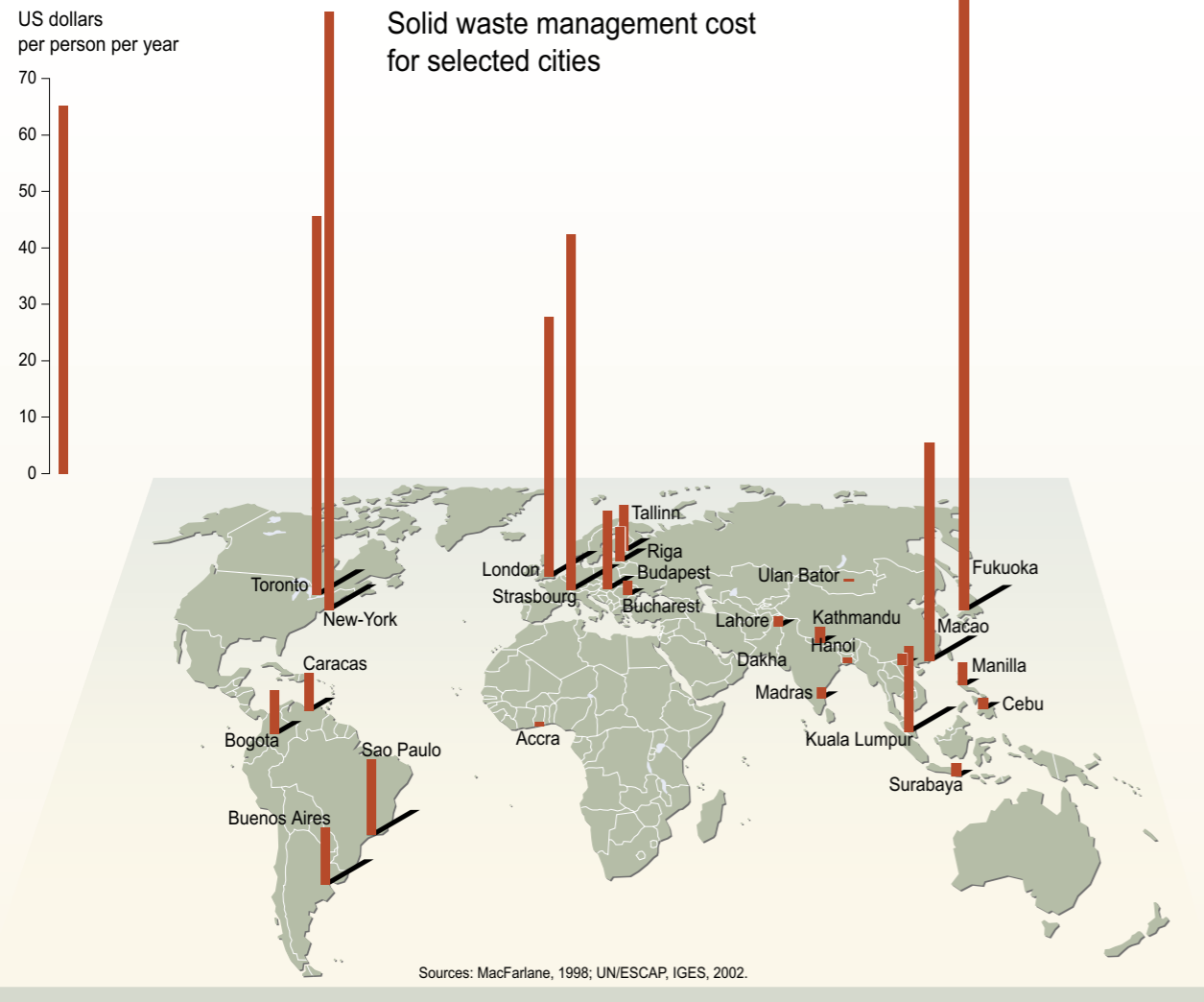


Dump, bury or burn?

Not long ago the amount and composition of waste was such that it could be simply diluted and dispersed into the environment. Most items were reused and only a few remained, that would not decompose naturally. With industrialisation and rising urban density, a new concept followed: collect and dump out of sight. The aim was to eliminate waste or at least protect the population from it. This generally involved either openly burning it (still practised today in many countries, this is a major source of toxic gas emissions such as dioxins and furans) or dumping it on specially designated landfill sites. In most countries landfill is still the most popular option. It is the second largest source of greenhouse gas emissions in the US (after fossil fuel combustion).

As garbage piles up, however much space we set aside for landfill, we are beginning to realise that producing waste at this rate is no longer viable. It is time for the three "Rs": Reduce, Reuse, Recycle and integrated waste management. Waste management strategies are as diverse as waste itself. But whatever we do there is no escaping the "waste of waste" (unless we rein in our greed and buy less). Incineration residue, even from plants properly equipped with filters, represents about a quarter of the original volume. The residues partly consist of highly concentrated ashes containing hazardous substances.



Managing hazardous waste

Everyday products increasingly contain hazardous chemicals or use them in their production process. Hazardous waste must be monitored and controlled from source to final disposal. Output can be reduced by not mixing hazardous and non-hazardous waste. But, again, the most effective solution is not to produce it in the first place.

Los Cartoneros, Buenos Aires' waste scavengers

The World Bank estimates that in low-income countries around the globe about two per cent of the population make a living by selling salvaged materials. Informal waste collection systems have many environmental and economic benefits, reducing the need for landfill, and saving energy and natural resources.

The number of waste scavengers depends on economic conditions, unemployment and city waste management policies. Waste recovery rates tend to reflect fluctuations in prices for recycled materials.

In Buenos Aires informal waste collectors recover 9 to 17 per cent of municipal waste, representing an estimated saving for the municipality of US\$30 000 to US\$70 000 a day or US\$3.5 to US\$7 per collector. Scavenger households earn an average of US\$58.4 a week. Despite their role in the economy, the working conditions of Buenos Aires cartoneros and their counterparts in other cities in the developing world are very poor, working mainly at night, without any protection such as masks or gloves.

An IOM/UNICEF study estimates that children or teenagers account for roughly half the waste scavengers working in the Argentinian cities. It is considered that Buenos Aires has some 8 800 cartoneros, 4 300 of whom are children or teenagers.



ON THE WEB

Association of Cities and Regions for Recycling and sustainable Resource management (ACR+):
www.acrplus.org
Example of national waste reduction initiative:
www.zerowaste.nz
Interactive game to understand waste management by the US Environmental Protection Agency:
www.epa.gov/recyclecity

Energy from waste

Rubbish can be burned in special incinerators using the resulting energy to produce steam for heating buildings or generating electricity. Many factories use this technique to cut waste output and generate some of the energy required for production processes (see paper factory on page 12). One tonne of rubbish produces as much heat energy as 250 kilograms of coal. The US now burns 15 percent of its solid waste – 14 percent in waste-to-energy plants and the rest in conventional incinerators. Burning waste substantially reduces the amount of trash going to landfill. But waste-to-energy plants cause air pollution. And some critics of such plants fear that burning waste will hamper recycling programmes.

The study reveals that 90 per cent of minors working as collectors do it more than once a week, and for more than three hours a day. Their occupation raises several concerns for their well-being. They often suffer health problems due to poor living conditions and exposure to waste. Family income may be too low to pay school fees, pushing them into the streets at an early age. The low social status of scavengers discriminates against them and reduces their chances of social advancement.

