

Role of informal sector recycling in waste management in developing countries

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Abstract

Many thousands of people in developing country cities depend on recycling materials from waste for their livelihoods. With the focus of the Millennium Development Goals on poverty reduction, and of waste strategies on improving recycling rates, one of the major challenges in solid waste management in developing countries is how best to work with this informal sector to improve their livelihoods, working conditions and efficiency in recycling.

The general characteristics of informal recycling are reviewed, highlighting both positive and negative aspects. Despite the health and social problems associated with informal recycling, it provides significant economic benefits that need to be retained. Experience shows that it can be highly counterproductive to establish new formal waste recycling systems without taking into account informal systems that already exist. The preferred option is to integrate the informal sector into waste management planning, building on their practices and experience, while working to improve efficiency and the living and working conditions of those involved. Issues associated with integrating informal recycling into the formal waste management sector are discussed.

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Introduction

The informal sector is characterised by small-scale, labour-intensive, largely unregulated and unregistered, low-technology manufacturing or provision of services (Wilson, Whiteman, & Tormin, 2001). Informal sector entrepreneurs or enterprises do not pay taxes, have no trading license and are not included in social welfare or government insurance schemes (Haan, Coad, & Lardinois, 1998). In the context of municipal solid waste management (MSWM), the informal recycling sector refers to the waste recycling activities of scavengers and waste pickers. These terms are used to describe those involved in the extraction of recyclable and reusable materials from mixed waste. These activities epitomise the informal sector as this is labour-intensive, low-technology, low-paid, unrecorded and unregulated work, often completed by individuals or family groups.

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More complicated organisations can form, such as micro and small enterprises (MSEs) involving groups of up to 10 (micro), or 20 (small) people, operating with low capital investment. They provide primary collection and processing of collected materials into intermediate or final products, using creativity and innovation to respond cost effectively to market needs (Ahmed & Ali, 2004).

Specific socio-economic conditions prevail in many economically developing countries, including rapid population growth, migration to urban areas, lack of sufficient funds and affordable services and generally a low-skilled labour force. Solid waste management systems are often poorly run and operate to low standards. They can be unreliable, provide inadequate coverage and may conflict with other urban services. Developing country cities often collect only between 50% and 80% of waste generated, with open dumping the only disposal method available (Medina & Dows, 2000). Insufficient collection, uncontrolled street collection points and improper disposal in open dumps allow refuse to be readily available for informal waste recycling through scavenging/waste picking.

The attitude of the formal waste management sector to informal recycling is often very negative, regarding it as backward, unhygienic and generally incompatible with a modern waste management system. On the other hand, one of the aims of modern waste management is to move ‘up the waste hierarchy,’ i.e. reduce the reliance on disposal and increase recycling: it would seem ironic to move forward by deliberately eliminating what can be a rather efficient, existing recycling system. Also, the Millennium Development Goals (UN, 2005) focus development efforts on poverty reduction, and again it would seem counter-intuitive to try to move forward by removing the means of livelihood from a major section of the urban poor.

This paper reviews the role of informal waste recycling in achieving more sustainable waste management in developing countries. It identifies both the benefits the informal recycling sector provides to the local economy and its characteristics of concern. Public policy changes required to integrate informal recycling with the formal waste management sector are discussed.

Informal waste recycling in developing countries

Informal waste recycling is carried out by poor and marginalised social groups who resort to scavenging/waste picking for income generation and some even for everyday survival. This is widespread throughout urban areas of the developing world and it is reported that up to 2% of the population in Asian and Latin American cities depend on waste picking to earn their livelihood (Medina, 2000). This is an adaptive response to scarcity by disadvantaged populations. Informal recyclers often form discrete social groups or belong to minorities, examples of which include the Zabbaleen in Egypt, Pepenadores, Catroneros and Buscabotes in Mexico, Basuriegos, Cartoneros, Traperos and Chatarreros in Colombia, Chamberos in Ecuador, Buzos in Costa Rica and Cirujas in Argentina (Medina and Dows, 2000; Berthier, 2003).

In cities with a formal, municipal waste collection and disposal system, at least four main categories of informal waste recycling can be identified, depending on where and how material recovery takes place (Fig. 1):

- (a) *Itinerant waste buyers*: Waste collectors who often go from door to door, collecting sorted dry recyclable materials from householders or domestic servants, which they buy or barter and then transport to a recycling shop of some kind. Apart from their labour, they invest capital to acquire and run a vehicle. This activity is widespread all over the world. Fig. 1 shows the ‘3-wheelers’, or tricycles used in Bangkok. China, in particular, is highly dependent on this mode of informal recycling (Li, 2002).
- (b) *Street waste picking*: Secondary raw materials are recovered from mixed waste thrown on the streets or from communal bins before collection.
- (c) *Municipal waste collection crew*: Secondary raw materials are recovered from vehicles transporting MSW to disposal sites. This practice is widespread, e.g. in Mexico, Colombia, Thailand and the Philippines.
- (d) *Waste picking from dumps*: Waste pickers/scavengers sort through wastes prior to being covered, as shown in Fig. 2. This is often associated with communities that live in shacks, built from waste construction materials, on or near the dump. Scavenging at dumps occurs in cities throughout the economically developing world including Manila, Mexico City, Cape Town, Bangalore, Guadalajara, Rio de Janeiro, Dar es Salaam, Guatemala City and many others (Bernache, 2003).

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