

Between market and partnerships: Urban Solid Waste Management and contributions to sustainable development?¹

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Abstract

The paper considers the extent to which new ways of delivering urban services contribute to urban sustainable development. Sustainable development is conceptualised in economic, social and environmental components. Market-led provision and public sector-civil society partnerships are examined, comparing Hyderabad, India with Nairobi, Kenya. Results show that strong variations in the strength of local government lead to contrasting results in the ways markets and partnerships function. In India, local authorities keep a firm grip on privatisation initiatives, whereas in Nairobi 'unplanned privatisation' occurs. Public sector-civil society initiatives are focussed on middle-class organisations in India, whereas in Nairobi, initiatives supported by international donors focussed on composting groups at the local dump. The role of the recycling commodity chain is not recognized, despite its contributions to both environmental and socio-economic concerns.



Introduction

In the 1980s, the fundamental rethinking of the alignment between state, market and civil society led to economists promoting market liberalisation and a retreat of the national state, and political and social scientists seeing the state as a co-ordinating agency in promoting (urban) development. Partnerships of government and private sector organisations, as well as with civil society organisations became a central topic (Arossi *et al.*, 1994; Hardoy, Mitlin, and Satterthwaite, 1992; Mitlin, 2001; Rakodi, 1999). Interest emerged as well in the political processes involved, and their influence on effective local governance (Baud, 2000; Helmsing, 2000; Putnam, 1993; Stoker, 2000; Orstrom, 1996).

In this article, the objective is to see how new patterns of re-alignment between state, civil society and the market occur in urban environmental service provision. Discussions on partnerships between different stakeholders is said to lead to greater effectiveness and sustainable development, and in developing countries has emerged notably around environmental management². A basic premise of this study is that the perspectives of local communities and small-scale economic actors are equally important to the perspectives of urban

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planners. A second premise is that changes in urban environmental services must be assessed not only by criteria of cost efficiency and service effectiveness, but also by considering issues of equality (in access), coverage, affordability, and environmental concerns.

Urban solid waste management (SWM) is taken as a case in point, because it is one of the services most easily converted to a private good, being divisible among consumers for services and payments (cf. Batley et al., 1996). The basic question posed here is to what extent changes in SWM systems contribute to aspects of sustainable development³. By unravelling the various aspects, it was possible to identify trade-offs between various components and how they affected goals of concerned actors. More specifically, issues considered are; (1) the main actors and partnerships found, (2) the influence of the regulatory framework, and (3) to what specific components of sustainable development the various SWM activities contribute.

Changing perspectives on urban services provision

Research on urban SWM in developing countries has developed both from the concern for increasing costs, as well as from concern for environmental impacts. The latter perspective covers three areas: problems for the environmental health and public health of urban citizens⁴, health and safety hazards for those working with solid waste, and problems of resource recovery and recycling of waste materials. These are coupled to the classic concerns of safe disposal of wastes that can be absorbed by local and regional sinks⁵.

The public health perspective developed in the nineteenth century in Europe and was exported to colonies around the world. Solid waste accumulating in densely populated urban areas posed health hazards, which local authorities sought to control by effective collection, transport and disposal⁶. The limits to this approach became increasingly clear in industrialised countries as waste flows grew beyond the limits of social acceptability and local absorption capacity (cf. Mitlin and Satterthwaite, 1997; Sachs, 1997).

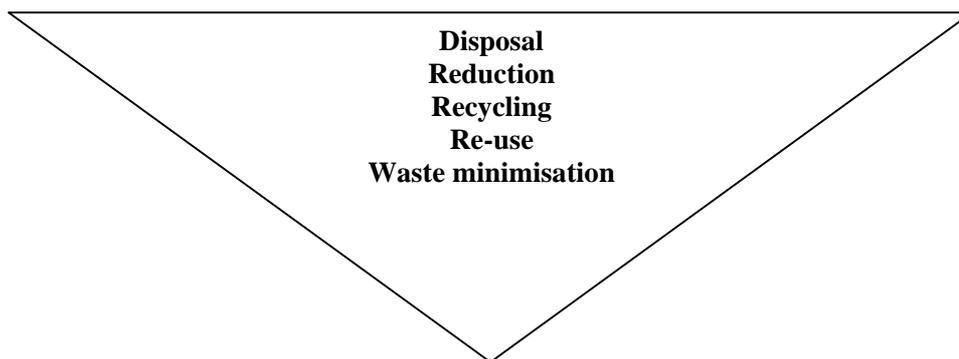
The public health perspective remains dominant in developing countries. Attention is focussed on reducing the costs through privatisation and cost recovery. Linking such measures with environmental sustainability has remained a largely theoretical discussion. Developing countries have made it clear that they give priority to issues of pollution (the so-called 'brown agenda') with a predominantly urban focus (UNCHS, 1996), rather than issues of natural resource depletion⁷. The brown agenda is defined as:

'... the immediate and most critical environmental problems which incur the heaviest costs on current generations, particularly the urban poor in terms of poor health, low productivity and reduced income and quality of life' (Bartone *et al.*, 1994: 5)

This implicitly combines environmental issues with quality of life improvements in urban areas in a sustainable development framework (cf. Baud and Schenk, 1994; Furedy, 1992, 1997; McGranahan and Satterthwaite, 2000). Although the emphasis on the 'green' agenda – preventing waste generation and reducing waste flows - is still weak, increasing waste flows make it imperative to focus on this problem.

Local authorities limit SWM to collection, transportation and disposal (in dumpsites). A more environmentally oriented view includes re-use, recycling and recovery activities, and safe disposal of waste (in sanitary landfills or through incineration): the so-called waste hierarchy. This study utilizes the latter framework. This allows us to present alternative scenarios, showing the kinds of contributions different activities can make towards more environmentally sustainable development in the sector.

Figure 1. Waste management hierarchy



Source: Blore, 1999

Partnerships in SWM: potentials and liabilities

Partnerships can be analysed at different levels: politically as 'institutions' of governance; at the planning level as instruments for public policy; sociologically as forms of social capital; and economically as ways of reducing transaction costs. They include several dimensions: values, processes, and institutions (Pierre, 1998). There are a number of definitions of partnerships pertaining to urban governance (Baud *et al.*, 2001; Baud and Post, 2002; Devas, 1999; Peters, 1998). For our study, we use it as follows (Baud and Post, 2002; Baud, 2000):

1. It involves two or more actors, although not necessarily a public sector actor;
2. It refers to a more or less enduring relationship between the actors - based on a written or verbal agreement - regarding public goods provision;
3. There are benefits for all actors without assuming equality or equal benefits;
4. It is realised in concrete activities, in which each actor invests materially or immaterially;
5. The bargaining process can include potential areas of tension and conflict as well as co-operation;
6. The partnership concerns the provision of public goods, or a spin-off relating to a public good.

Although partnerships can benefit each of the actors involved in most unequal power relations exist, they also have an inherent tendency to evolve in response to changing circumstances.

Types of partnership arrangements in SWM

Public-private partnerships have received the most attention internationally and raise issues of public interest and acceptability (cf. Dillinger, 1994). Governments must still ensure appropriate standards, co-ordinate provision, provide a competitive environment, avoid monopoly control by private providers, and minimise corruption and inequity (Rondinelli and Iacono, 1996). Therefore, privatisation in service provision usually implies an arrangement, in which the responsibilities of both parties are laid down. Advantages are said to be savings on costs, less political interference, and lower levels of coercion (e.g. Ali, 1993; Bartone *et al.*, 1991; Fernandez, 1993; Post, 1999). Governments generally privatise SWM activities to large-scale, formal enterprises. There is an emphasis on strong contractual arrangements, which largely excludes informal businesses and communities from qualifying. Although their potential is increasingly acknowledged, few governments include them (Baud *et al.*, 2001).

Private-private arrangements focus mainly on waste trade, re-use and recycling. Studies have shown a strong concern with labour contracts and working conditions (Birkbeck, 1978; Furedy, 1990; Huysman, 1994; Sicular, 1992). During the 1990s, the fact that waste recovery not only provided income to large groups of urban poor, but also contributed to ecological aspects of sustainable development became more widely acknowledged (cf. Baud, Huysman and Schenk, 1996; Furedy, 1992). Finally, economic and environmental impacts of international trade and use of waste materials have been studied (Van Beukering, 2001; Van Beukering and Duraiappah, 1996).

Waste pickers, itinerant buyers, traders and small-scale recyclers carry out their activities in both co-operation and conflict. They depend on each other for credit and informal social security arrangements, but the informality also allows 'free rider' behaviour to go unpunished. Such activities take place in semi-legal conditions, with many enterprises remaining unregistered (Baud and Schenk, 1994; Jordens, 1996; Van Beukering, 1994) or only going partially through the process of full registration (Baron and Castricum, 1996).

The role of NGOs and CBOs (Community-Based Organisations) in working with local residential communities has been discussed widely in the literature. CBOs generally consist of residents organizing to improve waste collection, and emphasising 'green' aspects of sustainable development (Anand, 2000). They usually do not go much beyond the neighbourhood level in their activities (cf. Hordijk, 2000; Lee, 1998). NGOs more often aim at socially vulnerable groups, such as women and street children picking waste (Hunt, 1996; Huysman, 1994). They promote co-operatives, provide shelter, alternative training, and savings schemes.

Urban services and contributions to sustainable development: an operational framework

There is tremendous controversy concerning the relation between human needs and ecological sustainability, and acceptable trade-offs between them. This is apparent in the contrast between the advocates of green and brown agendas. The former emphasize ecosystem health, the impact of cities on rural resources and surrounding regions, and the threat posed by urban consumption for future generations. The latter focus on environmental hazards and social justice, and are more

concerned with immediate problems faced by the urban poor (McGranahan and Satterthwaite, 2000).

We work from an understanding of sustainable development that combines both, and makes the trade-offs explicit. The definition of sustainable development in this study combines goals of ecological sustainability with a concern for meeting current human needs (Hardoy, Mitlin, and Satterthwaite, 2001; Satterthwaite, 1997). Striving for ecological sustainability implies that the use of non-renewable resources should be minimised, renewable resources should be used in such a way that regeneration of the resource is ensured, and the capacity of local and global sinks not be exceeded⁸. We have linked SWM to the discussion on sustainable development, by making operational the three broad goals of ecological sustainability, socio-economic equality, and improving environmental health. Because SWM typically forms part of the brown agenda and its impacts are largely local, 'localized' criteria were used to analyse the various activities and partnerships in the SWM sector.

With respect to ecological sustainability, SWM systems need to work towards:

- minimizing the waste generated;
- maximizing reuse and recycling; and
- disposing of remaining waste in a controlled fashion in order not exceeding the capacity of local sinks.

The socio-economic dimensions encompass four criteria:

- Financial viability and affordability for local authorities, consumers, and/or entrepreneurs involved (these may conflict);
- Employment providing a living wage and a certain level of job security to SWM workers;
- Legitimacy from the perspective of the authorities (legal) and the public (social); and
- Effective monitoring and enforcement of standards.

Environmental health criteria include:

- Greater effectiveness in achieving a clean urban environment;
- Minimize occupational health hazards for workers in SWM; and
- Minimize environmental health hazards to (wo)men and animals.

Research methodology

By studying two domains within the whole range of SWM activities as part of the larger system, the interaction between domains and the conflicts and trade-offs between each activity could be analysed. This made a more integrated assessment of contributions to sustainable development possible. The domains chosen for this article are (1) collection and transportation, and privatisation initiatives, and (2) sorting, trade and recycling of inorganic waste⁹.

Comparative case studies were carried out in Hyderabad and Nairobi. Both cities share a common heritage in terms of British colonial administration, but currently differ sharply in strength of local government. They also differ in size, with Hyderabad having around 4.2 million people¹⁰ and Nairobi 2.5 million people. The case studies highlight contrasts and similarities.

A comparative fieldwork approach was carried out by a multi-disciplinary team, including economists, human geographers, planners, and environmental scientists. To develop a common understanding of the issues, team workshops were held at each stage. Different sources of data were used; literature, fieldwork for primary collection of data and a workshop with stakeholders on fieldwork results in Nairobi. Data on environmental aspects concerns people's perceptions on environmental aspects, rather than physical evidence. The comparative approach brought out contrasts in the institutional and organisational context, which would have been lost in a single case study. The joint building up of the research design led to analytical cohesion and built up essential team spirit across regional and disciplinary divides. Finally, the use of qualitative and quantitative data was found to be essential in making complementary insights possible.

Solid waste collection: contextual factors

These studies indicate the importance of local political and administrative settings for effective solid waste collection (SWC). In India, the central government issued new Municipal Solid Waste Rules in 2000, the Andhra Pradesh Clean and Green Campaign was launched in 1998, and the Municipal Corporation of Hyderabad (MCH) initiated large-scale privatisation. By this, the MCH has increased spatial coverage and quality of SWC services, at lower costs per tonne. In contrast, in Nairobi local government is largely unaccountable and inefficient, with SWC virtually ignored by authorities. Difficulties in the country's political system (at the time of the study) were aggravated by the continuous political struggle between the Nairobi City Council (NCC) and the central government, which controls funds for local authorities. Privatisation of SWC services occurred spontaneously in response to consumer demand, unaccompanied by any public sector safeguards for quality and standards.

The impact of contextual factors is visible in the trial and error process that preceded the unit system of privatisation adopted in Hyderabad. Rigid contract specifications and performance monitoring were introduced to correct earlier corruption and abuse. However, technological innovations with cost saving potential cannot be introduced as number of workers and types of vehicles and equipment are specified. Authorities also actively prevent concentration of power in the hands of a few contractors by limiting the area of the contract. Although this increases transaction costs, it enables local authorities to keep firm control over contractors. However, short contract duration and small areas also prevent economies of scale. The specific contracting mode adopted in Hyderabad fits the political-administrative circumstances there, but it does not allow for the full economic benefits of privatisation. It is also so inflexible that slums remain conspicuously underserved.

In Nairobi, larger companies deal with high-and middle-income areas for higher fees, and various small ones service low-income areas at corresponding prices. This situation underscores the potential of the private sector to accommodate the needs of various population groups, if the potential of small-scale enterprises is acknowledged (Baud, 2000).

Nairobi and Hyderabad differ in the role of residents' CBOs in SWC. In Hyderabad, CBO efforts are considerable. The support the MCH gives the Voluntary Garbage Collection Scheme (VGDS) politically and financially is a major reason for its success. Residential welfare associations maintaining strict control has also contributed, especially in middle and high-

income neighbourhoods. In Nairobi, the impact of CBOs is smaller. CBOs try to compensate the lack of services to slums. The (local) government keeps aloof, providing some moral support in local clean-up campaigns. In general, CBO-local authority relationships are non-existent or antagonistic.

Solid waste collection: outcomes

The various actors vary in their contribution to components of urban sustainable development. Socio-economically, local actors in both cities use labour-intensive methods of SWC, whereas many privatisation exercises promoted by international agencies are based on sophisticated, labour-saving technologies. The methods in Hyderabad and Nairobi are cheap and well adapted to prevailing physical circumstances and have the advantage that they can include small-scale enterprises.

However, profitability cannot be taken for granted. In Hyderabad, the economic viability of private SWC was ensured in the contracts designed by the MCH, which includes a 10% net profit for the contractor. In actual fact profit margins were both slightly higher or lower depending on the balance between savings from small infractions and resulting penalties and bribes paid. In Nairobi, in contrast, economic viability of privatised SWC is seriously impaired, as companies engage in open competition for their scattered clients. There is no division of rights among providers, usually considered necessary for cost-effective servicing. Many 'brief-case' companies offer services to residents in low-income sections of the city at low fees but without any guarantee of regularity.

Both the spontaneous and planned privatisation expanded employment by enlarging the areas serviced. However, labour conditions in the private sector are inferior to those in government service. In Nairobi the differences are less pronounced than in Hyderabad because public sector employment is badly paid. In Hyderabad, the differences threaten the security of current public sector employees, as workers in the private SWC companies are worse off than the MCH workers.

Productive efficiency (in terms of costs per tonne of collected and disposed waste or in terms of number of workers per tonne) has increased through privatisation in SWC. Furthermore, most of the time private operators turn out to be effective service providers and consumers are satisfied with their work.

The allocative efficiency (the degree to which charges cover costs) between the cities is not readily comparable. In Hyderabad, the record of allocative efficiency is very poor. Introducing service charges is considered politically unfeasible, so the entire system relies on financing from the general municipal budget. It remains to be seen whether the system can be sustained, as SWM expenses already constitute one-fifth of the entire municipal budget, and external financing is needed for all major investments to improve the system. Only the neighbourhood scheme scores positively in terms of allocative efficiency, attesting to residents' willingness to contribute financially to good SWC.

In Nairobi people are charged for waste collection through their water bills but receive little or no NCC service. Those hiring private services therefore pay twice. For individual private providers, allocative efficiency is good as fees cover the direct expenses incurred. The problem is that privatisation on the basis of the full cost recovery in Nairobi leads to the exclusion of those who cannot afford commercial rates. In addition, the indirect costs of privatised SWC – using up part of the capacity of the municipal dump, environmental externalities – are not taken into consideration.

The viability of collection efforts in slum areas in both cities depends on active involvement of CBOs. Self-help and youth groups that also engage in other community services provide services, obtaining income from composting and selling inorganic waste materials. The CBO financial viability is low, with financial support by donor agencies. Moreover, NGOs face difficulties in getting slum dwellers in Hyderabad to pay for services.

Environmental hazards in Nairobi are greater than in Hyderabad. Only 25% of total waste is collected in Nairobi, compared to 70% in Hyderabad. Although privatisation has led to more effective collection, in Nairobi, it has also led to uncontrolled dumping practices among private operators, to reduce transportation costs and avoid dealings with dump gangs. In Hyderabad, private contractors dump in a controlled fashion. Separation of waste streams, especially of hazardous and ordinary wastes, is still minimal. A major worry is the lack of official dumping sites. The new sites under consideration in both locations are at a considerable distance. Increased transportation costs are likely to lead to more indiscriminate dumping. The ecological hazards of open dumping are still considered marginal in local SWC practice, due to lack of awareness and financial constraints.

Solid waste collection: system concerns

The co-ordination and interaction with other domains within the system as a whole was done to assess system outcomes. A major strength of SWC in Hyderabad is that all residents living in planned areas of the city receive basic SWC services. However, areas desiring a higher level of services have to organize this themselves. The VGDS, which offers house-to-house collection in return for payment, makes this possible under a separate community-based system. Therefore, opportunities for coordination and cost saving which one firm could realize are lost. In Nairobi, the lack of coordination is a far greater problem in the context of spontaneous privatisation, in which an overall regulatory framework and a monitoring agency are lacking. This constitutes a threat to the public interest.

A system weakness in both cities is the lack of combined environmental and public health policy within the sector. No guidelines exist on the waste management hierarchy. In Nairobi, both positive and negative externalities of collaboration across activities are purely coincidental. In Hyderabad, the authorities are preoccupied with conventional concerns for environmental health, service efficiency and effectiveness. Nevertheless, conditions to merge perspectives seem to be more favourable. In the VGDS scheme, an attempt is made to combine classic SWC concerns with broader socio-economic and environmental goals.

Recycling and re-use of inorganic waste: contextual factors

Different regulatory frameworks affect sorting, trade and waste recycling carried out in commodity chains dominated by enterprises using waste as raw materials. These concern local byelaws on SWM, labour and factory regulations, and the regulations for importing raw materials.

These studies confirm that local authorities have not introduced any 'greening' of local government byelaws on SWM. Waste material recovery and recycling are not part of the regulatory framework. This means that current activities in that sector remain outside the government purview, and take place solely out of economic considerations. When economic reasons disappear, the recycling sector will also be reduced.

Trading and recycling waste materials is undertaken in a context of too little employment with a living wage, and enterprises producing products not requiring quality raw materials. This situation has long existed in India, and is more recent in Nairobi, as the economy deteriorated. The activities take place in enterprises and employment ranging on a continuum from formal to very informal. This makes the survival activities of waste pickers and itinerant buyers possible, as they do not adhere to labour and factory regulations. Such activities are likely to become uneconomical if the regulatory context for production and employment changes, although such changes are unlikely in either country.

National regulations limiting raw material imports have made it difficult for entrepreneurs to obtain virgin materials. International efforts to reduce import barriers have led to lower tariff levels in both countries, so that alternative sources have become available. This has negatively affected the recycling of domestic waste materials; in Kenya, the plastics market has collapsed. The effects are felt in Kenya more than in India, as the market for waste materials is less developed.

Privatisation was the most recent change in the regulatory context. Although this process should have affected access to waste for recycling in both cities, the studies found no major closing off of access as yet. In both cities, the private sector waste collection companies also earn from their waste trading activities.

Re-use, recovery and recycling of inorganic waste: outcomes

Similar materials form the basis of the recovery and recycling chains in both Hyderabad and Nairobi; glass, paper, plastic and metal being important categories. However, the complexity of the commodity chains is much higher in Hyderabad. Lower levels of demand and profitability for recycled materials in Nairobi do not allow wholesalers to specialise in one material but require them to spread risks by dealing in several types of materials; in Hyderabad, wholesalers commonly specialise.

Different profitability is also reflected in the structure of demand for waste materials among recycling units. In Hyderabad, a large number of mainly small companies (7 out of 10 have < 50 workers) buy waste materials for producing new goods; they show an average profit level of

10%. In Nairobi, in contrast, only one large-scale company (several hundred workers) buys any given material, thus gaining a monopoly over pricing and volumes. This leads to large fluctuations in price and demand for waste materials in Kenya. The exception is scrap metal, in which small enterprises also have a role in the recycling.

Recycling enterprises and wholesalers supplying them usually operate on the formal side of the law. In both cities, they require licences to operate, but can also manage through informal payments to inspectors and police. The itinerant buyers, and waste pickers supplying the dealers, operate completely informally, and are vulnerable to harassment by police and others. This reduces the profitability of their activities.

In both cities, recycling enterprises combine waste materials with virgin materials in production. Reduced prices of virgin imported plastic have led entrepreneurs in Nairobi to change the composition of their inputs; similarly, in Hyderabad imports of higher quality paper from abroad led to less demand for domestic waste paper. The size and differentiation in markets for waste materials in India provide buffers for the type of price fluctuations found in Nairobi. The trade-off between cost and quality makes entrepreneurs decide whether or not to continue using secondary materials.

The employment generated in both cities throughout the commodity chain differs sharply in quality among the various groups. Street and dump pickers sell waste at a survival level, obtaining cash and goods in kind from their picking. This occupation has emerged in large numbers in Nairobi since 1985, whereas it has existed much longer in India. Men dominate among street pickers; women among dump pickers in both cities; they generally earn less than men. The pickers are illegal in both cities, with no protection from harassment by police and populace. Their main form of social security is loans from the dealers to whom they sell. Itinerant buyers tend to earn higher incomes than waste pickers; their ties with shopkeepers providing goods or capital give them somewhat greater security.

Their working conditions are unsafe and unhealthy, as they do not take protective measures. Among pickers and itinerant buyers, there is little upward mobility to employment at the next level in the commodity chain; in fact, there is increasing competition for waste materials in both cities.

Employment in enterprises is confined to dealers and recycling units. Dealers employ mainly family labour in both cities. The differentiation among dealers is much greater in India than in Nairobi, although in both cities they form the link between recycling units and the pickers and itinerant buyers. Large wholesalers employ casual and contract labour in India for sorting activities, done by women and children. Recycling units provide contract work in both cities. In India, on average, the number of workers employed in the recycling units is 50, of which almost forty percent are women. Again, safety and health measures are absent for workers. Only more permanent workers are provided with medical insurance and other non-monetary benefits.

The legitimacy of the trade and recycling sector is low as regards the collection and trading activities. The recycling enterprises are registered, which provides greater legitimacy to them.

However, neither the government nor the entrepreneurs themselves recognize their contributions to environmental sustainability.

This study shows that waste recovery is not limited to domestic or municipal waste streams; wastes from institutions and enterprises are preferred sources, providing high quality unmixed waste. Therefore, efforts to increase waste segregation at source in institutions and enterprises remains an important channel to increase resource recovery. It also suggests that attempts to limit private access to waste streams are misplaced for promoting greater resource recovery.

Recycling and re-use of inorganic waste: system concerns

Major system concerns relate to the lack of coordination between waste recovery and recycling and the SWC system. This should be of growing concern, as lack of space for waste disposal is already a problem local authorities cannot solve. Increasing effective collection only exacerbates disposal problems, whereas increasing waste recovery and recycling can contribute substantially to reducing waste flows.

Promoting co-operation and partnerships between the private sector and local government remains unlikely, as long as the regulatory framework for SWM does not include goals for waste recovery and recycling. Now, operating on the border of or on the wrong side of the law concerning tax and employment regulations makes entrepreneurs, traders, itinerant buyers and pickers very reluctant to become more formalised. Nevertheless, if waste recovery is to be increased, the regulatory framework has to provide additional incentives to generator to segregate waste, and to waste recycling enterprises to expand use of secondary materials. Finally, the issue of balancing open imports of raw materials with promoting recovery of local waste material as input needs to be put on the agenda in such a way that the quality of production is not affected, and the amount of materials recovered maximised.

International experiences in such initiatives (e.g. SKAT) suggest that emphasizing environmental issues in SWM, and building on existing systems of recovery are the preferred option, rather than trying to introduce expensive, high-tech solutions from abroad.

Governance, partnerships and social capital in both cities

The extent to which new initiatives in SWM can contribute to urban sustainable development is related to governance, partnerships and social capital. A major question is what safeguards the public interest within various types of partnerships¹¹. Our study shows that partnerships are effective arrangements. In Hyderabad, distrust exists among public and private actors, but the local state's legitimacy and reliability goes almost unquestioned. A feeling of mutual trust and respect exists between private contractors that are performing well and a council that lives up to its financial obligations. Furthermore, the MCH supported the community-based partnership as addition to its own service. Both public and private actors in Hyderabad are strengthening social capital in local governance.

Although both governments are liberalising their economy and transferring responsibilities to the private sector, the Kenyan state suffers from a crisis of legitimacy, so that private and civil

society actors are reluctant to engage in partnerships. The trust necessary for collaboration across the public-private divide is missing (Mwangi, 2001; Ostrom, 1996). In Nairobi, the social capital that constitutes the basis for mutually beneficial state-society collaboration has been severely eroded.

This does not mean that the transition to power sharing in collective affairs comes easily. The wider political commitment to the idea of partnering is still problematic. In Hyderabad, authorities are still hesitant to transfer public sector responsibilities to market or civil society. The country's history of state-led development slows reforms that challenge the state's leading role. This demonstrates the strong path-dependence of institutional reform, in adapting official regulations as well as changing the mind set of those responsible for implementation. In Nairobi, considerable pressure is exercised on the authorities to enter into partnerships by international agencies, but attitudes are still largely negative.

It is often claimed that privatisation requires the 'guiding hand of the state' to become effective. This implies that local authorities have to reorient their administrative machinery to such tasks. In Hyderabad, the local state is better equipped for its supervisory responsibilities. After the first privatisation initiatives produced mixed results, the local body quickly learned from its mistakes and adapted accordingly. In Nairobi, these pre-conditions are not fulfilled, and no adequate basis for the public sector to develop partnerships with the private sector exists.

The comparative strength or weakness of the public partner is also important in determining the extent to which each partner can bargain and take decisions on their own behalf. The MCH on the other hand, is sufficiently solvent and independent to be considered a robust partner. The NCC is incapable of acting as a principal. Its chronic lack of financial means, together with its antagonistic relationship with the central government, disqualify the NCC as partner.

Private commercial and community actors also have to qualify. Currently, there is a total lack of partnership between small private recycling enterprises, waste pickers, and dealers and the local authorities, because the authorities refuse to recognize them. Currently, no way to cut across this divide emerges from the case studies; and there is little evidence from elsewhere (Baud *et al.*, 2001). Nevertheless, in view of environmental considerations, it remains important to look into this issue further.

Within inorganic waste recycling commodity chains, (commercial) partnerships are well established in both cities. They build up social capital by contributing to the continuity of such activities. They also provide informal forms of social security, through the loans given by dealers to pickers and itinerant buyers. Although the employment created within these commodity chains is not protected by legislation, safety and health aspects can be improved.

Despite the enthusiasm among academics and policy-makers about community involvement, CBOs are not automatically perceived as potential partners by local governments. Much depends on the strength of local democracy and the level of community organisation (Schenk, Baud and Bhuvaneshwari, 1998). In Hyderabad, CBOs were more widely acknowledged. Through the VGDS they indirectly engaged with a sizeable group of waste pickers. However, the support suffered from a middle-class bias. In Nairobi, collaboration with CBOs was restricted to

tolerance. Decisive hindrances are that many CBOs operate in unrecognised slums and that their interventions do not always satisfy existing standards.

The comparative strength of entrepreneurs and residents in dealing with the authorities partly depends on their level of organisation. Most private sector collection enterprises in our study are micro or small business units lacking the power to pressure governments. In Hyderabad, the level of organisation among collection enterprises was better than in Nairobi, resulting in greater effectiveness in negotiating with authorities. Networking among resident organisations is a promising avenue for pressuring governments.

Potentials and limits of partnerships

The study indicates that partnerships require a conducive physical, socio-economic, and political environment. Political commitment is needed, and the administrative structure and culture have to be geared to participatory modes of management. Financial support is needed in order to carry out activities effectively. The strong institutional context in Hyderabad is a necessary condition for partnerships with the private sector. In contrast, in Nairobi, private sector firms have to develop 'regulatory rules' themselves. This result supports conclusions from other research, in which the new coordinating role of government is emphasised in making private sector partnerships effective (Batley et al., 1996).

The potential for partnerships between local government and the private sector in waste recycling is limited. Regulatory frameworks promoting the waste management hierarchy are lacking in India and Kenya. This is compounded by governments, who do not recognize small-scale and informal enterprises and waste pickers/traders as potential partners. This is a pity, because cooperation could lead to increasing levels of resource recovery, as well as higher levels of employment for waste pickers, itinerant buyers and dealers.

The results suggest that the enthusiasm about community initiatives in urban service delivery in the literature is perhaps exaggerated. Although there are many examples of community action in our cases, it mostly concerns either one-time initiatives or small-scale activities at neighbourhood level. Therefore, the overall contribution of such activities to sustainable development remains rather limited. In addition, most community collective action depends on NGO support and/or the devotion of un(der)paid workers, both uncertain elements. A major force preventing upscaling of collective action through NGOs is the lack of coordination and partnership in SWM activities with local authorities.

Conclusions

A basic issue preventing the SWM sector from contributing more to sustainable development goals is the segmentation of state responsibilities concerning policy initiatives integrating environmental health and ecological concerns do not exist. Coordination across government departments would be an alternative, but is notoriously difficult. This situation is particularly difficult in SWC, which is mandated to local Public Health Departments. In contrast, environmental issues are officially mandated to provincial or national departments, focusing on

national or global environmental issues. This means that no level of government has a clear mandate to promote waste separation and recycling by households.

Recycling is economically motivated and largely informal, making it difficult to draw into any system where the government plays a role. When these activities are regulated, they come under the jurisdiction of Departments of Economic Affairs, whose main mandate is financial regulation, and Departments of Employment and Social Affairs, enforcing labour standards. The former are just discovering environmental regulation, whereas the latter mainly focus on safety and health issues. Together, these factors confound any attempt towards a more integrated SWM policy.

In short, the entire debate on sustainable development notwithstanding, the actual impact it has had on urban environmental policies is meagre. This is particularly true for the 'green' agenda. Requirements for promoting such an integrated policy include a national framework and the requirements set out by Satterthwaite and McGranahan (2000) to reconcile the green and brown agendas – a wide use of open and participatory methods of designing environmental policies; national policies and guidelines that support urban development, and a good knowledge of the state of the environment.

A second issue is the conflict between scale levels for which a mandate is given, which prevents integration of different aspects of sustainable development. Recycling/reuse of inorganic waste is regulated primarily at national (or regional) level, while solid waste collection is a local responsibility. The limited spatial mandate of city authorities presents a problem in integrating environmental aspects. It implies that a new regulatory framework is needed, in which local authorities receive a mandate for a wider spatial area in some respects, or the necessary powers to coordinate activities with other (district) authorities.

A third issue concerns conflicts in financing different aspects contributing to sustainable development in SWM. Local authorities set their priorities in SWM on the basis of financial stability and continuity. This conflicts with considerations of equality and total coverage in collection, with its implications for environmental health, as also investments in systems for increased waste separation and recycling.

Currently, financial priorities of local authorities are directed to reducing their own costs. The negative trade-off of privatisation is that environmental concerns are not included in the regulations for private collection enterprises, and private contractors usually do no waste separation. This implies that waste flows for final disposal will increase, reducing environmental sustainability. In privatisation efforts, existing labour standards are usually not effectively enforced; the effect depends on comparisons with the quality of public sector employment. On the positive side, overall coverage of collection can well be improved through this process, contributing to higher levels of environmental health.

Cost recovery can increase financial viability, but in an urban context with large numbers of low-income households, it is unlikely that total costs can be recovered this way. Many poor residents cannot be charged according to their use of services, and ignoring them has detrimental effects

on overall public health and ecological sustainability. Therefore, the government has to subsidize the system to promote total coverage.

A fourth issue concerns the lack of responsibility that local authorities continue to display towards the needs of residents living in unplanned/spontaneous settlements. Exclusion of 'illegal' parts of the city leads to environmental health risks, which are especially dangerous in view of the limited potential of commercial servicing in such districts. Governmental preoccupation with safeguarding public health is seriously compromised by this neglect, which also has negative spill over effects on serviced areas.

Finally, the segmentation of domains leads to fluctuations in resource/materials recycling. The macro-economic context affects the relative prices for domestic and imported resources/materials; if imported virgin materials are available at equal or lower prices than domestic used materials, there will be no effective demand for resources recovered from waste. Although little is known yet about the macro-economic context of pricing materials, this is an important area for further research.

Several issues remain to be researched. How can the 'waste management hierarchy' gain more recognition and acceptance by governments in developing countries? The question concerns not only analysis of the trade-offs inherent in the pluriform goals of such an approach, but also how research results can be fed more effectively into policymaking and administrative processes.

How can 'upscaling of partnerships' be promoted, and what conditions are needed to do so effectively? Particularly the issue of three-way partnerships, in which NGOs can and do play an intermediary role between local government and groups of people working in informal employment or non-recognized activities is an area to be explored further. Future studies need to analyse how the linkages between urban SWM concerns and the region in which the city is located can be made more effective. They include possible changes in the regulatory framework, allowing local urban authorities to obtain mandates to tackle wider environmental issues. Further study on trade flows of various waste materials within and between countries can contribute to our understanding of integrated sustainable waste management in the future.

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Endnotes

¹ This article draws on a study entitled, A Contribution to the Design of Enabling strategies in Urban Environmental Management: the case of Solid Waste Management in Nairobi, Kenya and Hyderabad, India, funded by the EU INCO-DC Programme project ERB3514PL961518, and carried out by teams from AGIDS, at the University of Amsterdam as lead partner, IIED in London, Centre for Economic and Social Studies in Hyderabad, and a team linked to Moi University in Eldoret, Kenya. The book based on this study, submitted to Kluwer, is a joint effort of all team members.

² This contrasts with developed countries, where public-private partnerships occur more often in large-scale infrastructure and construction projects.

³ Waste is defined as materials, which have lost their value to their first owners (Cointreau, 1984). In this article attention is focussed only on waste that comes into the municipal stream, generated by institutions, industries, and households. Municipal waste streams do not fully reflect waste generation patterns.

⁴ The term environmental health is used nowadays instead of public health, as it was felt that public health was linked too much to direct medical provisions (Hardoy, Mitlin, Satterthwaite, 2001). However, SWM has always

been an integral part of the Public Health Department in the British administrative system, and still is so in the countries under study. Therefore, we use the term environmental health for the general discussion, but retain the term public health when referring to the specific situation in Nairobi and Hyderabad.

⁵ These are currently coupled to the concern in the North to reduce use of resources in production, and segregate waste materials at source to increase the possibilities of waste recovery.

⁶ The Health departments did this, in both British and French administration systems.

⁷ i.e. the prime environmental worries in the North.

⁸ The original IIED model left relatively undefined the institutional arrangements needed to realise those needs. A more recent article does discuss institutional arrangements relating to urban environmental issues, suggesting that urban managers need to take into account two areas for which they currently have no mandate. These include: 1) minimising the transfer of environmental costs to inhabitants and ecosystems surrounding the city; and 2) ensuring progress toward 'sustainable consumption' (Satterthwaite, 1997).

⁹ The larger study also included re-use and composting of organic waste, but has been left outside the scope of this paper. That issue was guided particularly by our colleague Dr. C. Furedy.

¹⁰ As per 2001 census, the population of Hyderabad Metropolitan Area (including the nine municipalities around it) was about 6.5 million. Official Nairobi figures date from 1989, but internet sources indicate the population figure mentioned.

¹¹ Sometimes this leads authors to state that in partnership arrangements at least one of the partners should be public (Peters, 1998).