



# WORKING PAPER

# 101

## TACKLING SOCIETY'S 'DETRITUS': STAKEHOLDER PARTNERSHIPS AND URBAN SERVICE DELIVERY IN INDIA

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# **TACKLING SOCIETY'S 'DETRITUS': STAKEHOLDER PARTNERSHIPS AND URBAN SERVICE DELIVERY IN INDIA<sup>a</sup>**

**Madhushree Sekher<sup>b</sup>**

## **Abstract**

*In view of the current emphasis in decentralisation on not only 'vertical restructuring' of powers and resources but also on analogous 'horizontal restructuring' the present paper examines the process of stakeholder partnerships in urban service delivery. Drawing on a case study of Bangalore, with focus on urban environment maintenance service, it argues that much more needs to be understood if institutional pluralism in local government is to become an effective development strategy.*

## **Introduction**

Inappropriate public policies, ill-designed programs and poor service delivery are the three stooges plaguing development initiatives in most developing countries. Reviews of development performance ascribe these dysfunctionalities to a range of problems such as lack of governmental commitment, neglect of institutional development and absence of beneficiary participation (Parker, 1995). At the same time, studies acknowledge that initiatives designed to place decentralised mechanisms for local development offer possibilities for overcoming such problems by empowering communities to direct their own development agenda with assistance from government, non-government organizations and donors (Dillinger, 1994; Crook and Manor, 1998, Litvack *et al*, 1998). While this acceptance of decentralization as a development alternative is not new, the current emphasis is on active involvement of many types of institutional arrangements in decentralization efforts. This distinguishes the present

- 
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interest from earlier attempts, including the situation during 1980s and 1990s when the thrust was primarily on elected local government institutions with devolved powers and responsibilities.

This broadening of the scope of decentralization, emphasizing not only 'vertical restructuring' of powers and resources between central and local governments but also an analogous 'horizontal restructuring', forms the basis for the current focus on stakeholder partnerships as a condition for resolving development improvidence. While 'vertical restructuring' increased democratic function at the local level, 'horizontal restructuring' widened the scope of political participation to include collaborators outside the government arena, such as private business, non-government organizations, community groups and individuals (Klee, 1999). Viewed in this context, the attention on stakeholder partnerships is in the manner in which local governments operate and address local development issues through shared policies involving a spectrum of relationships between the state, market and civil society (Klee, 1999; World Bank, 1999).

Emerging as a new democratic praxis following the Rio Earth Summit in 1992, stakeholder partnership, thus, offers a coordinated management perspective involving institutional pluralism in order to deal with the challenges of development and produce enduring solutions (Fischer and Hajer, 1999). As an alternative service delivery strategy, stakeholder partnership is now, arguably, the premier challenge facing policy makers and analysts interested in local development. However, a prerequisite for confronting this challenge is a clear set of ideas regarding existing partnerships, the factors motivating the partnerships, the nature of their activities and the conditions determining their establishment or hindering the process.

Against this background, in what follows, an attempt has been made to examine the process of stakeholder partnership in urban areas, specifically taking into consideration the service delivery sector. The focus is on urban environment maintenance service through refuse collection and disposal (Solid Waste Management). The paper is reflective in nature, drawing on the findings of a recently completed study on the process of urban solid waste management in India with the metropolitan city of Bangalore as the case study (for details, see Beukering *et al*, 1999). Making cities of the developing world livable is a daunting task facing development planners. A related problem receiving significant attention is the efficient management of the society's 'detritus' or solid waste. Using the aforementioned study as the base, the paper examines the characteristic of stakeholder partnerships in the delivery of public services; draws insights about the enabling environment for partnerships; and, thereupon, attempts to identify what future interventions are required to strengthen the delivery of public municipal services. The overall conclusion

of the paper is that, although stakeholder partnerships are an important facet of the decentralization process, much more needs to be understood if institutional pluralism in local government is to become an effective development strategy in the delivery of services in developing countries.

## **Rationale for Stakeholder Partnerships: An Overview**

The theoretical justification for stakeholder partnerships can be traced to the theory of co-production which emerged during the late 1970s. Initially conceptualised by researchers at the 'Workshop in Political Theory and Policy Analysis', Indiana University, to explain the ineffectiveness of institutional-centralization and the subsequent under-performance of decentralization-participation efforts in most Third World administrative systems, co-production implies a synergetic development process involving public agencies and other institutions facilitating clientele involvement (Ostrom and Ostrom, 1978; Whitaker, 1980; Parks *et al*, 1982; Wunsch, 1991a & 1991b; Ostrom, 1996a).

Seen right from the institution building and community development schools of 1950s and 1960s and, then again, during the participation focus studies of 1970s and in the more recent works on decentralization, the existing dominant theories of governance were basically organization-centered and offered only organizational remedies for development failures, such as - (i) organizational restructuring emphasizing power shifts (centralization, decentralization, participation, privatization etc), or (ii) increasing the organizational resources in terms of personnel numbers, budget size and technology availability (Wunsch, 1991a & 1991b). Inter-organizational variations, the complementarity in their functions and cooperation between them, the nature of goods and services desired and the conditions outside the organizations such as existing laws and regulations, demands and services by other organizations, patron-clientele systems and the like, were not taken into consideration (Wunsch, 1991b). Recognizing this lacunae in existing theorizations on governance, co-production stresses the need for an integrated process involving an interface between different stakeholders in the delivery of development services - those who produce the goods and services, as well as the 'consumers' (clientele group) who receive the services. This acceptance of co-productive relationships in governance acts as the basis for the argument for a polycentric rather than a monocentric administrative system (Ostrom *et al*, 1993). The current intensification of the demand for institutional reforms to strengthen the process of decentralised governance in many countries, providing for greater bargaining powers among levels of government, along with wider involvement of groups in society, is a manifestation of this recognition for

a polycentric administrative system and the consequent emphasis on stakeholder partnerships. But, as studies show, while the 'regular producer' of public goods and services is most frequently a government agent, whether it is the only producer, or there are collaborative partnerships, depends both on the nature of goods and services and on the incentives that encourage the active participation of others in its provision, financing, maintenance and careful use (Ostrom, 1996a).

Two types of institutional settings could determine the emergence of such a synergistic governance process. It could arise from a rule-governed environment giving credence to the complementarity between public, officials and communities (Nugent, 1993), or it could evolve from an informal contract strategy arrived at by an assemblage of actors, guided by their own interdependencies, for the cause of collective development (Greif, 1997). The first type of institutional setting is the more commonly acknowledged synergistic relationship providing for formal stakeholder partnerships. The second type of institutional setting provides for informal partnerships wherein stakeholders may come together to form partnerships depending on the incentive and disincentive structures accruing to the collaborating partners in the provision of goods or services. Very effectively highlighted by the rich literature on successful and unsuccessful efforts to organise public goods and manage common property resources (for details, see Ostrom, 1996a), the informal partnerships evolve from the day-to-day interaction of the actors involved and from the norms and loyalties embedded around them in their socio-cultural milieu. Empirical results indicate that government/ state inputs in such informal production partnerships are indirect, mostly in the nature of policy interventions or as a facilitator, leaving activities within the scope of local action for the citizens - those receiving the service (Evans, 1996; Ostrom, 1996a; Sekher, 2000).

The relevance of both formal and informal stakeholder partnerships in the delivery of public services is, thus, particularly well recognised, underlying relationships of complementarity, interdependency and reciprocity. The informal partnerships could involve community groups and committees. The formal partnerships, on the other hand, entail combinations of co-productive inputs between the government/state and other interest groups, including citizen groups, through direct or indirect representation determined by statutory provisions (rule of law). Implicit in this is the existence of interrelationships between different actors, either in the nature of only formal or informal partnerships or a combination of both, for the delivery of public goods and services cutting across public and private boundaries. Studies recognise that the formulation of policies, programs and projects to promote development, therefore, need to be sensitive to issues of differential impacts, political economy and the attitude and behaviour of different stakeholders (Evans, 2000).

Thus, designing institutional arrangements that induce successful stakeholder partnership strategies for delivering public goods and services is very important. This assumes particular relevance in the context of developing countries which are constrained by limited finances and inadequate services, added to low citizen inputs and an administrative system having a colonial hangover for 'sahib-doms' with bureaucracy wielding controlling authority. In such a situation, the motivating factor for stakeholder partnerships as an alternative development strategy lies in its potential to supplement capacity, create financial sustainability and promote efficient and cost effective service delivery, in addition to enhancing accountability, empowerment and community 'ownerships' of projects (Cranko *et al*, 1999).

However, the process of stakeholder partnerships as an alternative governance strategy involves certain methodological questions which ultimately have a bearing on the type of partnerships that evolve. These include - (i) the purpose for which a stakeholder partnership strategy is being used; (ii) the governance level at which the partnerships are operating; (iii) the sectoral focus of partnerships; (iv) the main stakeholders involved. Studies indicate that the purpose of stakeholder partnerships is basically two-fold: (i) to improve the effectiveness of policies and projects; and/or (ii) to address the social and distributional impacts of the policies and projects (Grimble *et al*, 1995). With regard to the first purpose, stakeholders may only include those groups whose interests, resources and position imply that they are likely to substantially affect the manner in which the projects really operate in practice. Where the purpose is to address social and distributional impacts, the partnerships could include all interest groups, including minorities and the poor who could be affected by the project implementation (Conroy *et al*, 1998). Likewise, it is, also acknowledged that efforts aimed to form partnerships of any group of people, organised or unorganised, for a common cause first need to be cognizant of their operational level - whether at the local community (micro) level, sub-state (provincial) level or state (central) level (Conroy *et al*, 1998; Grimble *et al*, 1995). Correspondingly, the possibility of four types of locale for stakeholder partnerships are recognised, namely - (i) local on-site; (ii) local off-site; (iii) sub-state (regional/ local government); and (iv) state or central government level (Conroy *et al*, 1998). At the same time, studies also recognise that partnerships have a sectoral characteristic, with different development sectors and activities involving different patterns of partnership structures (Litvack and Seddon, 2000). Broadly, four types of developmental sectors are identified, namely, infrastructure building, social services sector (e.g., health and education), local economic development activities and public service delivery such as refuse collection, water and sanitation, environment management and maintenance, and transport (Cranko *et al*, 1999). In the partnerships that evolve, government structures, including structures of decentralised

governance, are the service providers that mainly provide management inputs, policy interventions, and technical assistance. The non-government structures, while are also involved in service delivery to some extent, favour training and capacity building.

Public services can, thus, be delivered by different institutional structures, broadly categorised as -

- ◆ Government :                      central or local, involving departments, decentralised agencies and special purpose local authorities encompassing more than one local government or less area than a local government
  
- ◆ Private sector :                    through forms of public-private partnerships and service contracts
  
- ◆ Non-government organizations :      civil society groups - either formal registered development organizations or informal self-help groups

Many variants of partnerships are possible, with main stakeholders being - (i) the community/clientele group (represented directly or indirectly) at the local on-site level as primary stakeholder; (ii) community based organization, line agencies of the government, and decentralised local government structure at the local off-site level as secondary stakeholders; (iii) local government-private-nongovernment institutional arrangements at the sub-state/provincial levels; and (iv) government departments and international donor agencies at the state or national level (Seddon, 2000; Conroy *et al*, 1998).

The foregoing review clearly reveals that building successful stakeholder partnership strategy is a complex task. Part of the problem stems from the nature of public goods and services. Regulating and monitoring the provision and use of such goods and services in a sustainable manner involving different collaborating actors is dependent on the transformation of inputs made into outputs and the tradeoffs that a collaborator faces (Ostrom, 1996a). In other words, the success of partnership strategies to produce or deliver a service in the public sector relies on the incentive system which could be in the form of rates paid to public officials and the opportunity costs facing citizens for devoting inputs like knowledge, skills and time (Ostrom, 1996b). In addition, as discussed above, the sectors of activity and area of operation also modulate stakeholder partnerships. Although there are a number of development sectors, three areas are identified as lead components where strategies for stakeholder partnerships need to be prioritised (Cranko *et al*, 1999) -

- ◆ Basic service provision - water and sanitation, refuse collection, roads and environment maintenance
- ◆ Social service provision - health, housing and education
- ◆ Local economic development strategies focussing on the needs of the poor.

## **Delivery of Urban Waste Collection and Disposal Service**

Though a number of studies are underway with specific relevance to decentralised governance, much has yet to be learned about the disparate institutional settings and partnerships involved in public service delivery (Litvack and Seddon, 2000). As part of this endeavour, this paper analyses stakeholder partnerships in the delivery of basic services in urban areas, particularly labour intensive services. The focus is on refuse collection and garbage disposal service, referred here as Solid Waste Management (SWM). It is presumed that the following brief analysis of the waste flow in our cities would throw insights about the characteristic of different stakeholders and the existing interface among them in delivery of labour intensive public services.

The justification for urban SWM is engraved in the need to ameliorate environmental degradation in the cities. However, the natural tendency of humans to over-use common property (in this case, the public dumping pits/ public dustbins) implies the possibility that social optimal outcomes in the sphere of SWM may be undermined, creating incentives for 'free-riding'. Therefore, there is a perceived need for institutional interventions to ensure the collection and disposal of waste generated in a manner that is not only environmentally acceptable but also adds value such that society gains. This entails the involvement of all main stakeholders representing a variety of organizational structures and relationships -

- The waste processors such as formal and informal recyclers
- Waste generators such as households, industry, agriculture and market
- Government institutions such as waste managers and planners.

In most developing countries, including India, urban SWM comes under the auspices of the local municipal bodies who are the main formal stakeholders responsible for the collection, removal and disposal of garbage from public places and for the maintenance of dumping grounds. Sometimes the private formal sector, such as contractors and small and large reprocessing enterprises, as well as the non-government and

community-based organizations (NGOs and CBOs), assist the municipal authorities in collecting, treating and disposing waste. Alongside the formal sector, in developing countries the resource recovery and recycling activities are also marked by the involvement of the informal sector comprising of waste pickers, itinerant waste buyers (IWBs) and middlemen like junk dealers and wholesalers.

The material flow stream underlying SWM process from generation of waste to its ultimate disposal comprises the following:

- ◆ generation
- ◆ collection/transportation
- ◆ processing
- ◆ disposal

Accordingly, SWM encompasses the full range of activities for these streams, involving a range of management options such as - (i) prevention, either by reducing the content of waste or by reusing it; (ii) recycling the waste into secondary raw material or as a source of energy; (iii) disposal through land-filling. But, reality does not adhere to these environmentally sound options. Indeed, in developing countries, a large quantity of waste is dumped in an uncontrolled manner or burnt in the open air, causing high levels of environmental damage.

In terms of waste generation, on the global level, it was estimated that approximately 1.3 billion metric tonnes of urban solid waste was generated in 1990, averaging about two-thirds of a kilo per person per day (Beede and Bloom, 1995). But, the daily per capita generation of solid waste in the low income countries was less than in the higher income countries, with the latter accounting for about one-fifth of global urban waste (Beede and Bloom, 1995). Contrarily, the cities in the poorer developing countries produced waste with higher densities and moisture content (Cointreau *et al*, 1984). The high-income countries mostly produced luxury waste such as paper, cardboard, plastics and heavier organic material. The difference in waste composition implies that waste management efforts need to take into consideration the 'waste type' if they are to be effective. For instance, considering the fact that the waste content in developing countries is highly organic and prone to rapid decay, the emphasis of the SWM process in these countries needs to be on refuse collection. But, unlike the situation in most developed countries where waste collection services have expanded to the extent that over 90 per cent of the population (and 100 per cent of the urban population) have access to it, this is not the case in developing countries (UNEP, 1991). Limited finances and ever increasing demand for service provision handicap the municipal services in developing countries. It is thus apparent that SWM services in developing countries like India need to be

decentralised with the involvement of NGOs, private groups and the public, as it is expected that reduced government role would lower costs and increase efficiency of collection systems. Greater community share would give an opportunity to small scale enterprises and the informal sector to have a bigger role in the SWM process, particularly in primary collection of waste - removal of waste from sources and transporting it to the nearest disposal or transfer point. Studies show that such small-scale initiatives are less capital intensive (Bartone *et al*, 1990).

In recent years there has been a surge of interest in waste recovery and recycling in both the developing and developed world. However, while among the industrialised countries recycling activities are on the increase, in developing countries, which are still grappling with the basic task of collecting garbage (providing the basic service), recycling of waste is carried out in direct response to industrial demand for materials to use as raw materials. What is being recycled has some commercial sale value (Cointreau and de Kadt, 1991). However, an important feature of waste recovery and recycling in the low-income developing countries is the involvement of the informal sector. Studies reveal that this sector is mainly engaged in the recovery and re-sale of most recyclables, and is highly labour intensive (Cointreau, 1987; Furedy, 1989; Cointreau and de Kadt, 1991; Huysman and Baud, 1994). But, notwithstanding their significant contribution to waste recovery and recycling process, their role in urban waste management is not recognised and their earnings continue to be meagre (Cointreau and de Kadt, 1991).

Thus, in the developing countries waste recovery and recycling processes are based on market considerations. The emphasis is on creating economic value out of waste which has a positive impact on their resource poor economies. But, there is the other aspect - providing source of livelihood to many economically deprived persons who would otherwise be unemployed. This shows that any effort to strengthen urban refuse collection and disposal services in developing countries needs to take into consideration both the economic and social dimensions underlying the process, that is, the need to increase recycling activities and to safeguard the benefits which the informal sector derives from it, respectively. In this endeavour, the state can play the role of a facilitator.

## **Managing Urban Solid Waste: Indian Scenario**

With about 17 per cent of the global population and a staggering urban population of about 27 per cent of the country's total population (World Bank, 1998), urban waste management services in India represent a formidable challenge. Although there is a dearth of precise and reliable data on waste generated in India, it is roughly estimated that the country produces about 30 million tonnes of urban solid waste annually, averaging about 0.33 kilograms per person (Government of India, 1998). It is also

estimated that the per capita waste generated in an Indian Metropolitan city increases by 1.3 per cent per year (Shekdar *et al*, 1991).

As in most low-income developing countries, urban solid waste in India comprises mainly of organic matter which amounts to between 30 and 75 per cent of total generation (Venkateswaran, 1994). The percentage of luxury waste materials such as paper, plastic, metals and glass is comparatively low. Besides the fact that poorer economies produce less luxury waste materials, the low content of such waste items in a developing country like India can also be explained by the fact that traditionally such discarded materials are segregated at source for reuse.

The SWM practices in India involve a number of agents, which can be broadly categorised into formal and informal sectors. The municipal body<sup>1</sup> is the main stakeholder involved in the urban SWM system of the country. Although other sub-systems, such as private organizations engaged in waste processing and recycling system are actively involved in the country's waste management process, their activity is dependent on the operation of the municipal body (Sudhir *et al*, 1996). But, in spite of an estimated 10 to 40 per cent of the municipal budget being utilised for SWM, it is generally argued that the waste management system in India is starved of resources considering the increasing demands made on it in the wake of growing urbanization (Shekdar *et al*, 1992). Because of the poor finances, inadequate infrastructure and machinery, and lack of humanpower, the services eventually provided by the municipal authority are largely inefficient (Furedy, 1994). On an average, as much as 30 per cent of disposed waste remains uncollected at different points within the cities (*India Today*, 1994).

Further, as in most developing countries, there is an active informal network in the SWM process in Indian cities comprising waste pickers, itinerant waste buyers and junk dealers. Existing as a parallel system to the formal process and highly labour intensive, it is guided mainly by market forces which effect the waste trading and recycling enterprises (Beukering, 1994). Although there are varying estimates of the quantum of waste recovery taking place by the informal sector ranging from 6 to 7 per cent of waste generated to around 15 per cent (Bhide, 1990; Souza, 1991), there is little doubt that this sector makes a significant contribution to the overall waste management process in Indian cities.

This brief review of the SWM scenario in India reiterates the fact that interventions for improving the delivery of SWM services in the country through stakeholders partnerships need to address three important issues -

- Revamping of the formal sector recognising the social and economic dimensions of the role of informal sector in the process

- Changing the predominantly technological approach to SWM system which views waste management as a responsibility of the municipal body and treats waste picking as illegal
- Providing for the integration of informal practices with the existing formal system.

A review of existing literature reveals that a number of innovative urban SWM experiments are being initiated in the country by both the government (municipality) and non-government institutions (Baud *et al*, 1994; Shah, 1997). The different experiments in SWM which are underway in the country are instances of applied phenomenology - responses to a generally perceived experience about the inability of the municipal system to tackle the problems of urban waste effectively. The practices can be primarily classified on the following lines -

- i) Ensuring people's participation in the collection, segregation and disposal of garbage by forming eco-clubs or neighbourhood associations as seen in cities like Bangalore, Hyderabad and Chennai.
- ii) Encouraging the involvement of NGOs in working on various environmental programmes and areas related to urban SWM, including educating the public about the importance of better waste management. A typical example, often referred to in different studies, is the case of Exnora International operating in many Indian cities (actively in Chennai) to improve cleanliness through a loose membership of local community based groups and by organising civic amenities and sanitary facilities on a voluntary self-help basis. Such NGO initiatives are active in different cities of the country. Though it is difficult to make a clear-cut classification of the numerous NGOs active in the urban waste management scenario, they can be broadly grouped as - those dealing with social issues latent in the SWM process; those focussing on participatory principles in SWM; and those emphasising awareness building activities.
- iii) Developing public - private partnerships leading to privatisation of some aspects of garbage collection, recovery and disposal. This practice assumes significance in recent times in view of the constraints faced by local municipalities in managing urban waste. Studies make references to companies like Terra-Firma and Sunrise Industries in Bangalore, and EXCEL Industries in Mumbai which are collaborating with city municipalities in garbage treatment and its conversion into useful manure. In some cities like Bangalore, for instance, garbage collection on contract basis to private contractors is also being explored by the municipality.

- iv) Initiating provisions aimed at administrative restructuring of the urban local bodies (municipalities) to enable them to discharge their specific responsibilities more efficiently. From a national perspective, the constitutional 74th Amendment Act has initiated institutional changes to decentralise urban local governance. More specifically, from an organisational perspective, changes are also being introduced in some cities by municipal authorities themselves for better management of urban waste. The most significant example which is now generating a lot of academic interest is the city of Surat where the municipal corporation has succeeded in modernising the city's SWM practices in the post-plague period. Three types of administrative changes initiated by the city municipal corporation can be identified - motivating the municipality staff and improving their capacity by imparting training to them and through application of improved methods such as introducing modern waste bins, special lorries for transportation of garbage etc; ensuring close monitoring and supervision of the waste management practices by the higher level officers in the municipality and inculcating a work culture within the system with the senior officers providing the lead; and, introducing structural changes within the municipal administration aimed at decentralising authority and responsibilities, increasing staff strength in the sanitary department and making the organisational decision-making process more participatory through frequent meetings among the staff and, between the executive and elected wing of the Corporation.
- v) Application of technological innovations for effecting better recovery and disposal of waste. Some of the known technologies observed in Indian cities are incineration, conversion to biogas, refuse derived fuel, fuel palletisation and composting. In this regard, the efforts of the municipal corporation of Shimla can be cited as an example which has embarked upon four projects for scientific management of the city's solid waste - bio-conversion of waste into organic fertiliser, energy from waste through methanogenesis, incineration of hospital waste and hazardous material, and recycling of paper, plastics and other useful waste.

However, though a number of innovative SWM experiments are underway in the country, these are basically location-specific viable options after an analysis and identification of the local problem areas. Such experiments complement and supplement the efforts of the municipal authority in managing the urban waste and need to be adopted on a wider scale through institutional interventions to strengthen service delivery.

A case analysis of waste management practices in Bangalore city, studied as a proxy for similar growth driven urban centers in the country (for details, see Beukering *et al*, 1999), threw specific insights on such patterns of stakeholder partnerships in the delivery of the service. Broadly, in the study, the stakeholders in the city's SWM process were grouped as waste processors (all agents directly active in waste processing - that is, service producers) and waste generators (all agents generating waste and consuming services provided by the waste processors - that is, consumers of service).<sup>2</sup>

- The waste processors consisted of waste pickers, itinerant waste buyers (IWB), middlemen (junk dealers and wholesalers), city municipal corporation and various recycling units, both private and government. While the first three agents listed as producers constitute the informal network, the City Corporation and the recycling units are formal agents.<sup>3</sup>
- The waste generating category comprised four types of agents, namely households, commercial establishments (markets and hotels), institutions (offices, educational institutions and hospitals) and industries (large, medium and small).

The study estimated that Bangalore generates about 3613 tonnes of solid waste per day. Commercial establishments are the major contributors accounting for about 39 per cent of the total, while households contribute about 18 per cent. The waste generated by various institutions located in the city accounted for only about 4 per cent. Although industries<sup>4</sup> also generate a significant amount of solid waste, it was evident that most of this is high quality recyclables and is recovered for recycling and reuse. Only a small per cent found its way into the city waste stream. Reflecting the national scenario, the city's solid waste largely consisted of organic and other biodegradable matter (43 per cent of the total generation). Comparatively, the percentage of recyclables like paper, glass, plastics, metals, cardboard/packaging material and rubber, was lower (36 per cent). Of the total waste generated, about 1451 tonnes of waste per day got collected in public dustbins located at different points in the city. While 312 tonnes of waste from the PDB was recovered by waste pickers, 939 tonnes of waste from PDB was collected by municipality (either by itself or private contractors) and dumped in open spaces and on road sides outside the city.<sup>5</sup> Remaining 200 tonnes of PDB waste (mostly comprising of vegetable waste from markets) were directly sent to large composting units such as Karnataka Composting Development Corporation (a government concern) and private units located in the city for composting. The analysis showed that about 245 tonnes of waste per day was dumped or burnt by the generators themselves (gone/unaccounted waste). This included debris and unorganised waste which remained uncollected in the city (Table 1).

**Table 1: Refuse Collection and Disposal, and Agents Involved**

	Total waste generated	— 3,613 tonnes per day
1.	Waste collected by Municipality/Private contractors from public dustbins and dumped	— 939 tonnes per day
2.	Waste collected by Municipality/ Private contractors from public dustbins and used for composting (send to large composting units)	— 200 tonnes per day
3.	Waste recovered by waste pickers from public dustbins	— 312 tonnes per day
4.	Waste collected by CBOs directly from households for composting	— 56 tonnes per day
5.	Waste traded for recycling (middlemen & IWB)	— 1,139 tonnes per day
6.	Reused waste	— 722 tonnes per day
7.	Uncollected (unorganised waste)	— 245 tonnes per day

*Source:* adapted from Beukering *et al.*(1999).

The case study revealed that about 65 per cent of the total waste generated in the city was collected for recovery<sup>6</sup> (about 2329 tonnes per day). While 722 tonnes per day were reused, the remaining went for recycling (Table 1). Agents involved in the collection and recovery process were waste pickers, IWB, middlemen, the municipality, and recycling units (both small and large). While the three agents in the informal sector and the municipality were directly involved in the waste collection activities, the waste was processed by the recycling units which received the recyclable waste from both middlemen and the municipality. In addition, community based organizations (small recycling units) collected 56 tonnes of waste directly from households for composting. The waste recovered for recycling through middlemen and waste pickers accounted for about 40 per cent of the total waste generated (middlemen - 1139 tonnes per day and waste pickers - 312 tonnes per day). The middlemen accumulated recyclables from the consumers and IWBs. The waste pickers took their collection either to the middlemen or sold it directly to small recycling units in the city.

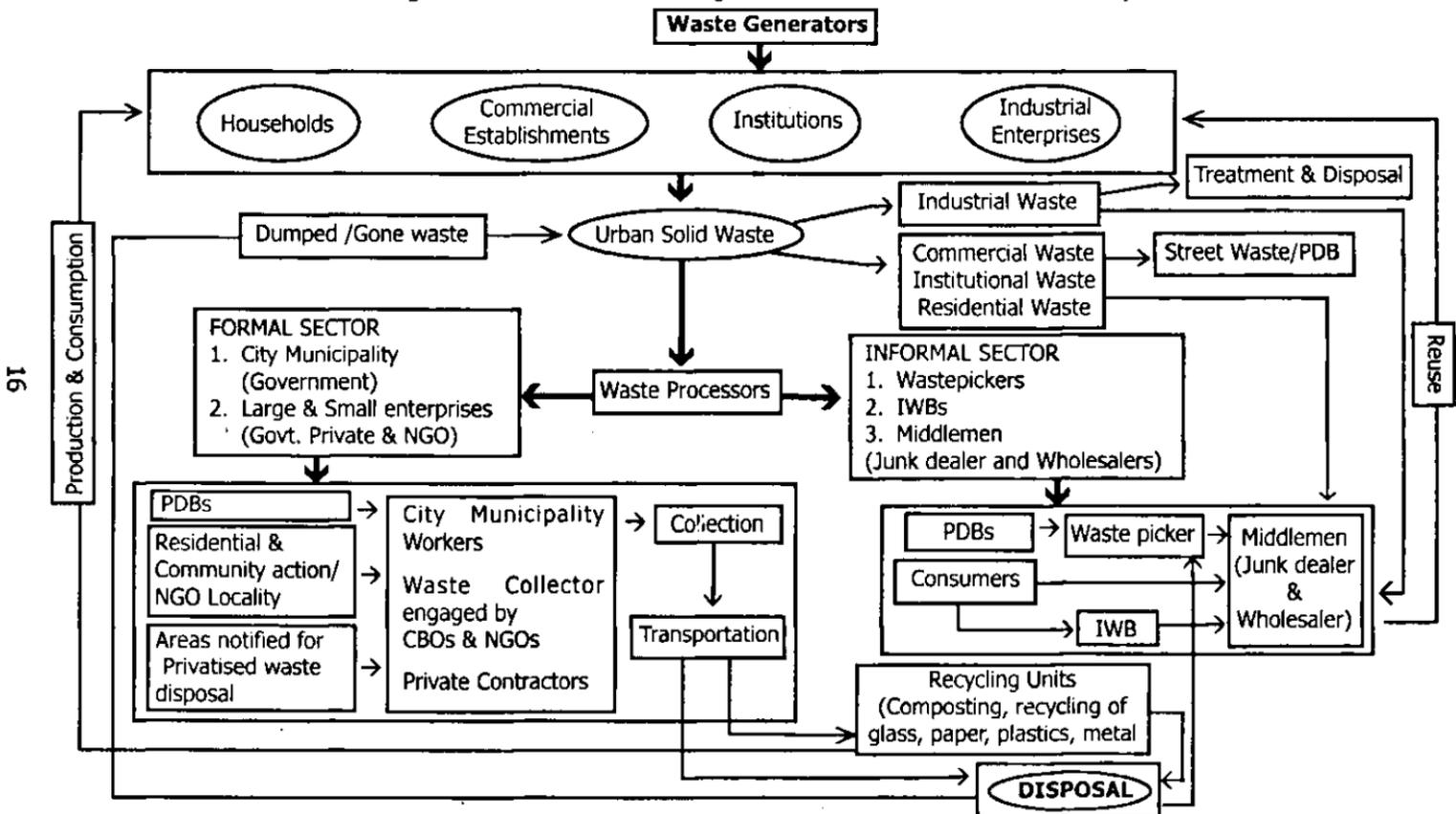
The contribution of the waste pickers in the informal waste recovery process in the city needs special reference. Based on available data, the study estimated that there are roughly 25,000 waste pickers whose average per capita collection was about 15 kilograms per day. Collecting about 312 tonnes of waste per day, the waste pickers recovered about 21 per cent of the 1451 tonnes of waste that went into public dustbins.

## **Partnerships in the Delivery of Urban Waste Management Services: Emerging Patterns**

Clearly there are several inter-sectoral partnerships and inter-related activities within a city's SWM system. Figure 1 highlights and summarises the important dimensions of the urban waste management process and the interrelationships involved. An analysis of the inter-dependencies reveals a complex situation involving a number of stakeholders, including the public and activities in processing and disposing the city waste (Table 2). This analysis of different stakeholder partnerships is from an institutional perspective, wherein the interrelationships are viewed as institutions, both formal and informal, involved in the process.

Broadly, the relationships exist between - two or more agents in the formal sector; formal and informal agents; and, among the informal agents. The nature of the relationships varies accordingly. Among the formal actors, collaboration is driven by incentives for 'institution' building. The relationship ranges from formalised patterns where the linkages are quite strong to more voluntaristic networking and co-operation. The partnerships between formal and informal actors are either commercial and guided by profit or developmental wherein the incentive is 'service motivation'. Among the informal actors the relationships are primarily commercial and are based, on one hand, by subsistence and income earning factors and, on the other, by profit considerations. The stakeholder relationships in the system are illustrated in Figure 2.

**Figure 1 : Urban Waste Management Process and Interrelationships**



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*Note* → Stake holders; → Process; NGOs-Non Governmental Organisation; CBOs-Community Based Organisations; IWB-Itinerant Waste Buyers; PDBs-Public Dustbins

The nature of stakeholder relationships existing in the overall urban SWM process can be broadly grouped as -

- ◆ Regulatory (formalised and contractual relationship guided by government interventions)
- ◆ Conditional (Commercial relationship based on principle of reciprocity - supply of recyclables for a price)
- ◆ Voluntary (Co-operative and developmental relationships arising from people's or a person's own perception of a certain situation and a sense of interdependency).

This situation can be explained in terms of the specific nature of the services required within the SWM process. Statutorily, keeping the city clean is a responsibility of the civic administration; but it alone cannot perform this activity. The SWM process has various dimensions which require the involvement of the private, non-government and informal sectors. For better delivery of the public service, this necessitates co-operation and co-ordination among the various sectors, rather than an insular approach. The interdependencies are illustrated in Table 2.

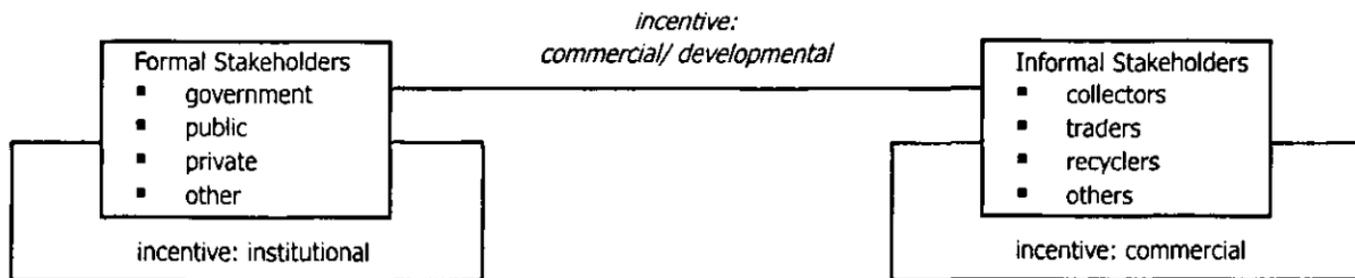
However, one fact that needs to be stressed here is that, in addition to institutional intervention, the delivery of waste management service is shaped to a large extent by the source of waste and its composition. As mentioned earlier in the brief waste flow analysis of Bangalore city, the major waste generators, other than industries, are the commercial establishments and households which produce more organic and biodegradable waste (a feature common to most cities of developing countries). But, a large resource pool of organic waste is left unused. Although composting as a method of waste recovery does exist in the city, the percentage of waste composted is low when compared to the total compostable waste generated in the city. This can be primarily attributed to the fact that a large percentage of organic and biodegradable waste generated is unsegregated and hence unsuitable for composting. Another reason is that while recyclables have an extensive trading network, the market for organic waste is limited. Similarly, while there is a market for recycled products, the market for compost as a fertilizer is relatively undeveloped.

**Table 2: Existing Stakeholder Partnerships in Bangalore for Managing Solid Wastes**

Partnerships	Agents Involved	Activities	Nature Of Relationship	Incentives
Government-Government	Municipality - Government recycling unit	Collection & supply of Biodegradable waste for composting	Formalised	Government policy
Government-Public	Municipality - NGOs/CBOs	Supporting micro composting activities undertaken by NGOs/CBOs by providing institutional backing. Creating an interface between government & non-government efforts through SWABIMAN7 platform.	Networking	Government policy & NGO initiatives
Government-Private	Municipality - Private Contractors & recycling units	Privatizing waste collection & disposal. Privatizing waste processing (recycling & composting).	Contractual Supportive	Government policy & economic compulsions
Public-Public	NGOs/CBOs - Citizens	Increasing civic awareness among the public. Promoting people co-operation at neighborhood level in keeping their environs clean.	Co-operative	Voluntarism & service motivation
Informal-Informal	Scavengers/ IWBs - Junk Dealers & Wholesalers	Conduit for waste recovery from source - first step in the recovery process	Commercial	Subsistence & Profit
Informal-Formal	Junk Dealers & Wholesalers - Small & large recycling units	Conduit for waste processing from middlemen to the recyclers - second step in the recovery process	Commercial	Profit

Partnerships	Agents Involved	Activities	Nature Of Relationship	Incentives
Informal-Government	Scavengers/IWBs/Junk Dealers & Wholesalers - Municipality	Externalised involvement of the informal network in waste recovery - complimenting the activities of the municipality	Weak relationship (Parallel existence)	No interrelationship and hence no incentives
Informal-Public	Scavengers/IWBs/Junk Dealers & Wholesalers - NGOs/CBOs	Recognizing waste pickers' contributions & developing their capacities	Developmental	Service Motivation
Consumers-Informal	Households/ Institutions/ Commercial establishments/ Industries - IWBs/Junk Dealers & Wholesalers	Collection of recyclables	Commercial	Profit

**Figure 2: Relationships in the delivery of waste management services**



## **Concluding Remarks: An Agenda for Future Action**

The above analysis of urban refuse collection and disposal service brings out various issues which need to receive priority in future efforts aimed at tackling grime in the cities. The priority areas include -

- Inadequate municipal services
- Unscientific disposal system
- Lack of civic awareness/waste management leading to unsegregated waste generation and littering
- Existence of an extensive informal network driven mainly by market forces and functioning at subsistence level
- Insufficient capacity for waste processing, particularly organic waste which is most abundant
- A small market for recycled waste products.

As of now, no concerted efforts have been made in this direction. Considering that a number of marginal and poor sections are active in the process as informal labour, any strategy aimed at strengthening waste management services needs to be cost effective and beneficial to society, as well as allow for income generating opportunities to the poor along its route.

However, no amount of urban planning will translate into reality unless the government takes the required initiative and makes the necessary inputs available, which do not have to be only financial in nature. For instance, the government can make a formal commitment for an integrated service delivery approach, providing for stakeholder partnerships in the service delivery. There is, thus a need for enhancing the inputs of not only the government but also the public and for coordinating the efforts of different collaborators operating within a decentralised participatory framework. Accordingly, the following four-pronged strategy is identified to address the problem of urban waste management.

In the final analysis it needs to be reiterated that an important constraint facing urban planning for the delivery of public services, particularly in developing countries, is the lack of data. Whatever information is available, is often unreliable, scattered and unorganised. The type of service required, the different stakeholders involved and their needs as well as their contributions are generally unknown to government officials. As a result, planning for public service delivery is a difficult task.

Strategies	Measures	Interventions
1	2	3
<ul style="list-style-type: none"> <li>Increasing waste segregation through source separation</li> </ul>	<ul style="list-style-type: none"> <li>Create public awareness</li> </ul>	<ul style="list-style-type: none"> <li>Use of media and newspaper</li> <li>Role of NGOs/CBOs</li> <li>Facilitating collection from source</li> </ul>
<ul style="list-style-type: none"> <li>Strengthening institutional Interventions</li> </ul>	<ul style="list-style-type: none"> <li>Increasing NGOs' involvement and encouraging community participation</li> <li>Privatization of municipal solid waste systems</li> <li>Integrating the contributions of Informal sector, particularly waste pickers' contribution, in the process of waste removal and recovery</li> <li>Developing and strengthening regulatory mechanisms, especially relating to hazardous waste</li> </ul>	<ul style="list-style-type: none"> <li>Strengthening the municipality SWM system by increasing its resources (levying taxes on related services) and its authority by giving it policing powers to prevent public littering and ensure public conformity to civic regulations</li> <li>Policy changes in the urban local government allowing for interface with the non-government and private organizations</li> <li>Recognised community representation in the municipal solid waste system (formation of ward or area committees with people's representation)</li> <li>Official policy for door-to-door collection either under the municipality, or a community organization, or through private initiatives</li> </ul>
<ul style="list-style-type: none"> <li>Increasing waste recovery</li> </ul>	<ul style="list-style-type: none"> <li>Enhancing capacities of waste processing and recycling units</li> </ul>	<ul style="list-style-type: none"> <li>Government policies for providing facilities and exemptions to the recycling units to enable them to increase their production and to sell their products at a competitive price</li> </ul>
<ul style="list-style-type: none"> <li>Popularizing reuse practices</li> </ul>	<ul style="list-style-type: none"> <li>Government itself setting an example</li> <li>Educating Public</li> </ul>	<ul style="list-style-type: none"> <li>Writing down this in the government's purchase rules</li> <li>Advertisements in TV &amp; assistance to NGOs to demonstrate in the community</li> </ul>

Thus, the need for an integrated public service delivery process through stakeholder partnerships cannot be denied. Although in theory there is sufficient reason to assume that stakeholder partnerships as a development strategy can be effective in developing countries, there is need for further research on these lines to understand if institutional pluralism in decentralised governance can deliver public services in the expected manner. Further, since country circumstances differ, the policy and institutional instruments for strengthening stakeholder partnerships have to be shaped to specific needs.

## Notes

- 1 The 74th Constitutional Amendment Act (1993) provides for three types of urban local body (municipal bodies). They are - (i) Nagar Panchayats for transitional areas, (ii) Municipal Councils for small urban areas and (iii) City Municipal Corporations for larger urban areas.
- 2 The study was in the nature of a benchmark survey, extrapolating the data collected to get the estimates for the city. For the purpose of data collection, a limited sample survey was carried out for some stakeholders and, wherever possible, existing data were used. The primary survey was limited to the waste-generating category, while for the waste processors available secondary data were used. Sample survey was carried out for households, hotels, markets, institutions and industries. Further data about waste generation was collected only from the organised sectors. Waste from debris, burnt waste, street wastes, etc were not taken into account, as sufficient data about them were not available and consequently extrapolating the waste generated by them for the city was difficult. Therefore, the survey was limited and data generated can be viewed as educated 'guesstimates' to get broad trends.
- 3 This division is arbitrary. Informal stakeholders are generally characterised as those who are not registered with municipality and who do not pay tax. For a number of recycling plants, this characteristic also holds. Moreover, they often employ informal workers. However, since the majority of recycling plants in Bangalore are registered, they were grouped as part of the formal sector in this study.
- 4 In this study other types of industrial waste like sludge, effluents, etc., which are major pollutants, were not taken into consideration. As the focus of this study was on urban solid waste, only the solid waste generated by industries was considered.
- 5 Although the city has nine landfill sites leased by the state government for 50 years to the City Corporation, these were currently not used for landfilling due to local opposition and concern about potential health risks.
- 6 The high level of 65 per cent is rather deceiving, part of the compostable waste materials collected by the municipality is delivered to farmers around the city who use it to enrich their soil. This may be considered as a form

of composting, as done in this analysis. Otherwise, it could be considered as a form of disposal. In that case it should be subtracted from the recycled portion.

- 7 SWABIMAN is a program for people's participation to solve the civic problems at the local level. It has a core membership drawn from environment friendly NGOs operating in Bangalore. It works with the BCC on various issues pertaining to provision of civic amenities.

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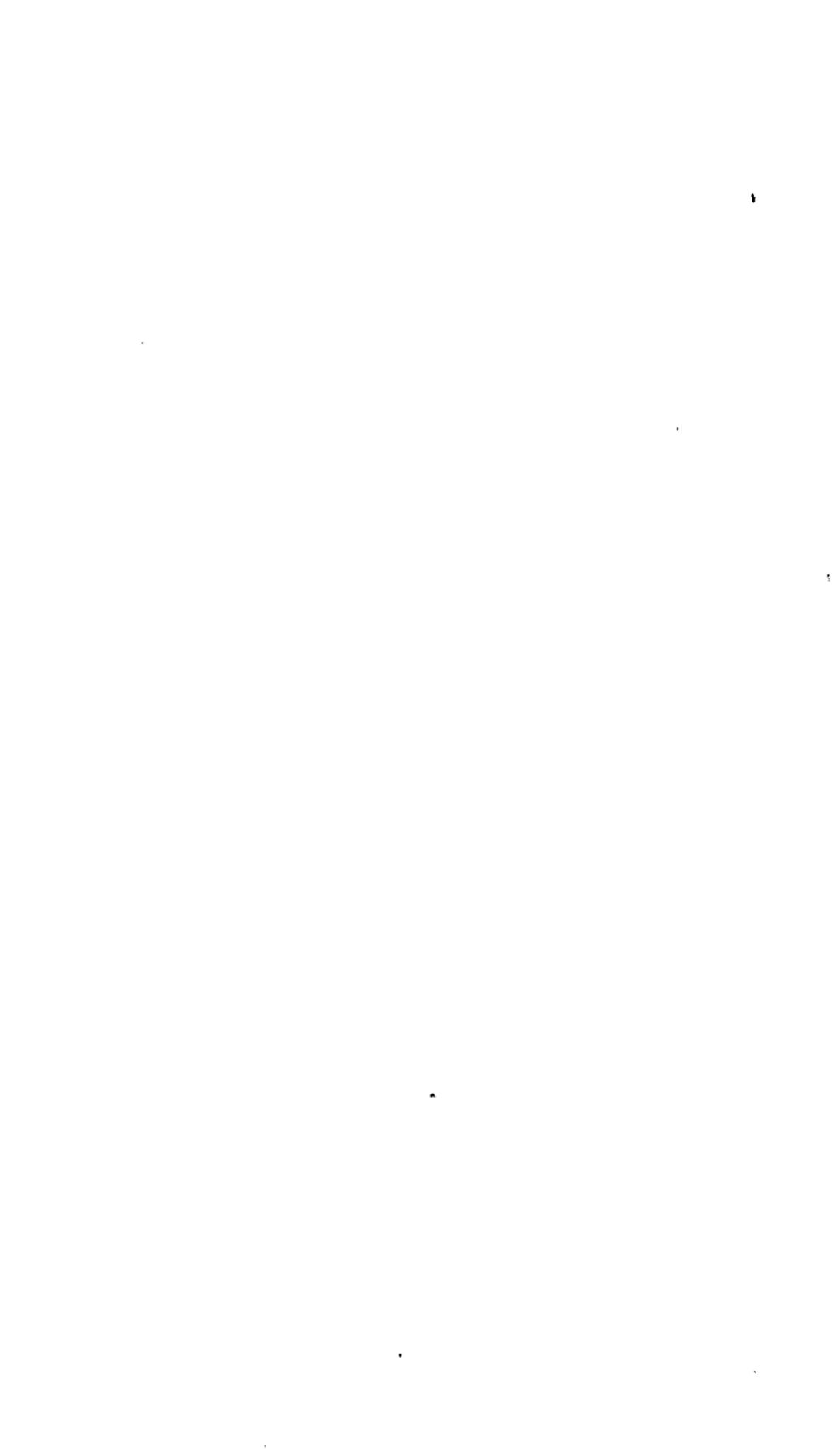
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