


Managing the Monster

URBAN WASTE AND GOVERNANCE IN AFRICA



EDITED BY ADEPOJU G. ONIBOKUN

**MANAGING
THE MONSTER**

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Urban Waste and Governance
in Africa

Edited by
Adepoju G. Onibokun

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Chapter 4

DAR ES SALAAM, TANZANIA

J.M. Lusugga Kironde

INTRODUCTION

Africa is currently undergoing rapid change. In most African countries, a major population-redistribution process is occurring as a result of rapid urbanization at a time when the economic performance of these countries is generally poor. Besieged by a plethora of problems, urban authorities are generally seen as incapable of dealing with the problems of rapid urbanization. One major area in which urban authorities appear to have failed to fulfil their duties is waste management. All African countries have laws requiring urban authorities to manage waste. Yet, in most urban areas, only a fraction of the waste generated daily is collected and safely disposed of by the authorities. Collection of solid waste is

usually confined to the city centre and high-income neighbourhoods, and even there the service is usually irregular. Most parts of the city never benefit from public solid-waste disposal. Only a tiny fraction of urban households or firms are connected to a sewer network or to local septic tanks, and even for these households and firms, emptying or treatment services hardly exist. Industrial waste is usually disposed of, untreated, into the environment.

Consequently, most urban residents and operators have to bury or burn their waste or dispose of it haphazardly. Common features of African urban areas are stinking heaps of uncollected waste; waste disposed of haphazardly by roadsides, in open spaces, or in valleys and drains; and waste water overflowing onto public lands. This situation was reflected in articles in East African newspapers in 1985 that referred to Dar es Salaam as a "garbage city" (*Sunday News* (Tanzania), 2 Nov 1985, p. 5) and a "litter city" (*African Events*, Nov 1985, pp. 3-5) and to Nairobi as a "city in a mess" (*Weekly Review* (Kenya), 25 Jan 1985, pp. 2-3).

This report looks at the whole problem of the governance of waste management in Dar es Salaam, the largest city in Tanzania. The report is based on a study of various documents related to the question of waste in the city and on discussions and interviews conducted with the general public, central- and local-government officials, politicians, business people, community leaders, formal and small-scale private waste collectors, scavengers, and other individuals, groups of individuals, and institutions connected with waste management. Observations were also made throughout the city.

If waste is unmanaged or poorly managed, it becomes a danger to health, a threat to the environment, a nuisance, an eroding factor in civic morals, and possibly a major social problem. Thus, waste management is an important issue of urban governance. It involves the success or failure of the authorities to deal with this waste, and the response of society to this success or failure.

This report is divided into four sections. The first provides the theoretical framework. The second analyzes the institutional framework for urban-waste management. The third is an evaluation of the efficiency and effectiveness of the combinations of partnerships for waste management in Dar es Salaam, and the fourth gives policy options and recommendations.

THE THEORETICAL FRAMEWORK: THE CONCEPT OF GOVERNANCE AND ITS RELEVANCE TO URBAN-WASTE MANAGEMENT

AN OVERVIEW OF THE CONCEPT OF GOVERNANCE

The notion of governance in everyday language refers broadly to the manner in which a government or state governs the territory and people under its jurisdiction. However, the current notion of governance transcends this traditional sense and sees governance as the task of running not only the government but any other public entity. Landell-Mills and Serageldin (1991, p. 14) referred to governance as

the exercise of political power to manage a nation's affairs. ... It encompasses the state's institutional and structural arrangements, decision-making processes, and implementation capacity, and the relationship between government officials and the public.

Although governance so broadly defined clearly covers all aspects of the complex and myriad relations between a government and a people, this definition still fails to highlight another aspect of governance, the role of civil society. The current conceptualization of governance sees it as encompassing the totality of the frameworks and processes for exercising state powers through official institutions and procedures, the relation between the exercise of these powers and society at large, and the organizations a society sets up to respond to the state and promote society's interests. This report uses Bratton and Rothchild's (1992) concept of governance, a relational concept emphasizing the nature of the interactions between the state and the social actors and those among the social actors.

Bratton and van de Walle (1992) argued that the prominence of the question of governance in recent years is due to a multitude of factors, including a backdrop of economic malaise; indignation over internal repression, corruption, and austerity; resentment of the state's unresponsiveness to popular demands; the collapse of the communist regimes in Europe; and various donor pressures for political reform (see also Bratton and Rothchild 1992). In part, the desire for openness and accountability is reinforced by a new awareness of the linkages between economic development and democratic processes (Mbembe 1989). This could be of crucial importance to urban governance in African cities, given the multiplicity of operators on the urban scene, including actors of the civil

society who make urban life tick but whose efforts and contributions are often ignored or even impeded by the state.

At the risk of oversimplification, it is possible to see urban governance at a subnational level in terms of a triadic relationship among central government, including national institutions; local government; and civil society. Civil society includes the private sector, nongovernmental organizations (NGOs), and community-based organizations (CBOs).

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THE CONCEPTS OF THE STATE AND CIVIL SOCIETY

There is considerable literature and debate on the concepts of the state and civil society, on how the two are related, and how the roles of civil society's constituent groups in democratization should be assessed. Although it is known that state power exists outside government, the state is taken in this report in the sense of central and local governments and public institutions, including political parties.

Chazan (1992) defined *civil society* as that part of society that interacts with the state. This view, however, is considered to be too restrictive, as many associations and groups are informal in character and do not strive directly to influence the state, but they are important in the whole issue of governance. Barkan et al. (1991) saw civil society as comprising those intermediary and autonomous organizations that function and sometimes flourish in the space between the state and the household. In the same vein, Starr (1990) argued that *civil society* refers to a social space distinct from government and that the government is but one of several institutions coexisting in a pluralist social fabric. With a slight reservation, a definition appropriate for this report is the one used by Weigle and Butterfield (1992, p. 1):

The independent self organisation of society, the constituent parts of which voluntarily engage in public activity to pursue individual, group, or national interests within the context of a legally defined state-society relationship.

The reservation is that the status of the civil society and its relationship with the state need not be legally defined or even recognized by the state.

Observers of urban governance (that is, the triadic relationship of central government, local government, and civil society) in

Africa have shown concern with the predominance of central over local authorities. This means that local governments are highly dependent on and controlled by central governments (Stren 1992), particularly in the areas of access to resources and political manoeuvrability.

Furthermore, the relationship between the state and civil society has been an uneasy one, with civil society having gained in importance to some extent as a result of the failure of the state to perform its role. Partly as a result of the failure of the public authorities to perform their duties, alternative systems of urban management, embedded in or part of civil society, have emerged or gained in importance, but with little encouragement from the authorities. The central and local governments show a lack of democracy, transparency, accountability, and cooperation with the public in their operations and processes and in their relationship with civil society. Areas of the failure of the authorities include infrastructure investment and maintenance, provision of services, provision of shelter and land for development, management of the urban economy, and management of the environment (Stren and White 1989). The problem of solid-, liquid-, and industrial-waste management has been a major manifestation of this failure.

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URBAN-WASTE MANAGEMENT IN A GOVERNANCE PERSPECTIVE

Some definitions

This report concentrates on solid, liquid, and industrial waste. Waste management refers to the storage, collection, transfer, recycling, and final disposal of waste. Solid waste is taken to include refuse from households, nonhazardous solid (not sludge or semi-solid) waste from industrial and commercial establishments, refuse from institutions (including nonpathogenic waste from hospitals), market waste, yard waste, and street sweepings. Liquid waste includes nonhazardous foul water and sewage generated by urban households and commercial and industrial establishments. Industrial waste is taken here to comprise liquid or solid waste of a hazardous nature produced by commercial and industrial establishments, including pathogenic waste from hospitals.

The public-good characteristics of urban-waste management

106 Waste management has importance in a governance perspective. High concentrations of population and economic activity in urban areas means that waste generated cannot be disposed of effectively on an individual basis. Waste has public-good characteristics because it can be disposed of on public or private land and thus cause a nuisance or become an environmental or health hazard affecting society, although the private households and firms that generate waste may consider themselves to have done their duty by removing waste from their private domain. Waste management benefits the whole community, and any resident can enjoy the benefit of the service without diminishing anyone else's benefit. Thus, waste management stands squarely in the public domain as a public good, and therefore citizens expect the governments responsible for waste management to act and keep the environment clean. Here, the divisions of power, responsibilities, and resources between levels of government and the relationships between levels of government and between these levels of government and civil society become important. The success of the authorities in waste management (as well as in other public services) hinges on the availability of resources and good governance, and it creates legitimacy for the state in the eyes of the public. Failure creates hostility and distances the public from the state. This has important implications for resource generation, democracy, transparency, and accountability.

ASPECTS OF URBAN GOVERNANCE IN TANZANIA

The question of waste management is closely tied to the evolution of local government in Tanzania, and this issue has shaped the triadic relationship of central government, local government, and civil society. The evolution of local government in Tanzania can be divided into four phases: the pre-local-government era (that is, before 1949), the predecentralization era (1949–71), the decentralization era (1971–82), and the postdecentralization era (since 1982).

The pre-local-government era (before 1949)

Up to 1946, Tanzania had no local governments in the modern sense. Power was concentrated in the central government and was

shared distantly with native authorities. Major urban areas like Dar es Salaam were managed by township authorities, appointed by the governor under the *Township Ordinance* of 1920 and funded directly by the central government. The *Township Ordinance* gave the governor powers to declare an area a township and to make rules for the health, order, and good government of the townships. Soon after the enactment of the *Township Ordinance*, Dar es Salaam and another 29 settlements in Tanganyika were declared to be townships.

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In the same year, *Sanitary Rules for the Township of Dar es Salaam* was published, and these rules became effective from 1 September 1920. These gave the Medical Officer of Health powers to ensure the suppression of mosquitoes and deal with sanitary nuisances and insanitary premises (Government Notice No. 39 of 5/8/1920). These rules were later incorporated into the Township Rules made under the *Township Ordinance* of 1920. They are still used by urban authorities to deal with urban waste, despite the repeal of the *Township Ordinance*.

The colonial system of urban management was based on racial segregation. Key public urban services were concentrated in areas set aside for Europeans, whereas areas set aside for Africans received the least service (Kironde 1995). The colonial government strictly controlled the settlement of urban areas, which enabled it to exercise a measure of effective control over urban development, including the provision of services.

Up to the late 1950s, urban management hinged on the issue of public health. Medical officers of health were prominent in urban management. The early Executive Officer of the Dar es Salaam Township Authority, for example, from 1923 to 1930, was a doctor of medicine who also served prominently on the Central Town Planning and Building Committee. This was an advisory body set up to consider most town-development proposals and issues related to urban management, and its recommendations were usually accepted. Medical considerations were usually put forward to justify racial-segregation policies, changes of township boundaries, land-reclamation and drainage schemes, land servicing, differentiated land-use schemes, building regulations, etc.

The predecentralization era (1949–71)

By 1946, the agitation for local-authority status for Dar es Salaam that had been going on since the 1930s was finally translated into the *Municipalities Ordinance*. The central government enacted this legislation with Dar es Salaam in mind and used it to transfer many central-government powers and responsibilities of urban management to the municipal council of Dar es Salaam, which came into existence in 1949. These included powers for solid-waste management and for undertaking and charging for sewerage and other sanitary services.

Lower tiers of local government — that is, town councils, county councils, and district councils — could be formed under the *Local Government Ordinance* of 1953, which was superseded by the *Local Government (District Authorities) Act* of 1982 for rural authorities and the *Local Government (Urban Authorities) Act* of 1982 for urban authorities. Like the municipal council, these authorities were given powers to raise revenue, to make bylaws, and to deal with many matters of local governance, including waste management. At the time of Independence, in 1961, Tanzania had 11 urban councils, but their number grew to 15 by the time of decentralization, in 1971.

Urban authorities of the 1960s had three major problems (Dryden 1968):

- The elected councillors were for the most part ill-equipped to shoulder their responsibilities (in general, they were poorly educated, had little knowledge of the purpose and practice of local government, and were uncertain of their roles as councillors within the system);
- The quality of local-authority employees was in general poor; and
- Local authorities lacked adequate finances to improve and expand the services for which they were responsible.

Besides, corruption and misuse of funds were evident in many councils.

In 1965, Tanzania adopted a one-party political system. The party became very strong and influenced all spheres of life. Local authorities were integrated into the national-party apparatus. All urban-government councillors had to be members of the party. The

posts of elected mayor, for municipal councils, and chair, for town councils, were abolished, and the District Party Chair took over their authorities. With such changes, urban councils continued to operate under the guidance and general supervision of the central government through the Ministry of Local Government.

Although local governments were clearly having problems, the central government did little to strengthen them and, if anything, took some steps that undermined local governments. For example, in 1969, for reasons of political expediency, the central government abolished the poll tax, which had been a major source of revenue for local governments. In the light of the continued weaknesses of local governments, the central government was only too glad see them abolished in 1971.

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The decentralization era (1971–82)

A major change in local administration took place in 1971 with the adoption of a policy of decentralization. What this meant, however, was the abolition of all local governments between 1972 and 1974 and their replacement by central authority.

Essentially, the stated intention of decentralization was to transfer some of the central government's administrative and financial authority to the regions and districts. Although the stated aims of decentralization were to give power to the people, speed up decision-making, and bring about rapid development by stimulating grassroots participation in decision-making and planning, all observers agree that the major achievement of decentralization was to take power away from the people and to concentrate it in the central government. The decentralization policy is largely regarded as having failed for two main reasons:

- Power was usurped by the central-government bureaucracy at the district and regional levels (unlike local authorities, this bureaucracy was accountable, not to the people, but to the central government, and local areas controlled neither the personnel nor the funds they were allocated); and
- Although one of the original goals of decentralization was economic development through greater managerial efficiency, this goal was not achieved, as people felt alienated from the system.

During the decentralization period, the treasury funded the entire budget of urban councils. Nevertheless, major deterioration occurred in urban services and infrastructure. Services like water, power supply, sewage disposal, refuse collection, road and drain provision and maintenance, land-use regulation, fire protection, and malaria control deteriorated badly, and the public raised an outcry over worsening urban conditions. This deterioration was a result of the destruction of existing administrative arrangements, the replacement of experienced human resources in local service by inexperienced people from the central government, and a heavy bias against urban areas in government budgetary allocations (Mbago 1985; Kulaba 1989).

Although it is possible that undue emphasis is put on the deleterious effects of the decentralization policy on urban management (as factors like the poor national economic situation also played a role), decentralization doubtless made a bad situation worse. In 1976, the central government was already showing concern over the deterioration of urban conditions and set up a committee to study the situation and give recommendations. As a result of the committee's recommendations, the local authorities were restored, beginning with Dar es Salaam, under interim legislation in 1978. Permanent legislation restored this and the rest of the councils in 1982.

It has been observed, however, that the restoration of local governments was done hastily, without any clear knowledge of what went wrong earlier with these authorities and with little public debate on the issue. Moreover, restoration was not followed by policies to strengthen urban governments, such as allowing them more autonomy to enhance their revenue-raising capacities.

The decentralization policy promoted the central government's tendency to centralize its authority, and these effects still linger, despite the restoration of local government.

The postdecentralization era (since 1982)

The Constitution of Tanzania stipulates that the national government must establish local-government authorities at all levels, in accordance with laws passed by Parliament. It further stipulates that the primary objective of local government is to devolve power to the people. The Constitution requires all authorities to involve

the people in development activities, to provide local-government services, to maintain law and order, and to strengthen democracy.

The current legislation enabling the formation of urban governments and control of their operations is the *Local Government (Urban Authorities) Act* of 1982. According to this law, every urban authority is governed by a council made up of elected councillors, local members of Parliament, and five or six members nominated by the Minister for Local Government. Urban authorities are classified as town, municipal, and city councils. Town councils are headed by a chair, and municipal or city councils are headed by mayors. Both chairs and mayors are elected from among the councillors. Urban authorities govern through standing committees, which are made up of councillors and a number of officials. Committees set up policy and sanction and evaluate implementation. Besides committees, councils have departments. These are usually of a technical nature and are part of the administrative setup of the council. They are made up of technical and administrative staff. Most urban councils in Tanzania have at least seven committees, that is, Administration and Finance, Health and Social Welfare, Education and Culture, Works and Communication, Town/Urban Planning, Trade and Economic Planning, and Human Resources Deployment.

At the operational level, the work of the council is carried out under the guidance of a city director, appointed by the country's president. The city director is the chief executive of the council and is personally accountable for its use of funds. The heads of the various departments form the management team of each urban authority, which is chaired by a director. The relationships between councils and city directors has not been smooth in many urban areas, particularly with the chair or mayors usurping the powers of the city directors and making themselves the chief executives of the councils and with councillors usurping powers of officials. In Dar es Salaam, this sour relationship has resulted into a high turnover of directors: between 1978 and 1994, Dar es Salaam changed city directors 10 times, giving an average tenure of 1.5 years. This has denied Dar es Salaam the continuity in leadership needed to build a stable management tradition.

For administrative purposes, each urban area is an urban district (except Dar es Salaam, which is both a city and a region and is divided into three districts). An urban district is a part of a larger political district that normally also has a rural component. It is also

an electoral constituency with an elected member of Parliament. The district commissioner is the political head of the political district. The urban council is responsible for the "urban area proper," again except in Dar es Salaam, where the council deals with the whole region (including rural wards). The district commissioner is responsible for the administration, planning, and development of villages and the suburban areas of the district. This situation has led to some confusion, and many times the roles of the district commissioners, the regional commissioner, and the local authorities overlap and sometimes conflict. This has been the case particularly in Dar es Salaam.

Currently, Tanzania has 19 urban areas with local authority status, that is, 9 town councils, 9 municipalities, and 1 city council. On top of that, 66 township authorities are administered by district councils. The municipalities of Mwanza, Mbeya, and Arusha are currently seeking city status.

The central-local-government relationship and its implications for the governance of waste management

Under current legislation, the central government has a number of controls over urban authorities. The central government confers local-authority status on any urban area. The central government appoints senior personnel to run urban authorities, and the Minister for Local Government approves the urban authorities' bylaws, budgets, and proposals to tap new sources of revenue or increase existing taxes. The government also occasionally issues directives affecting urban authorities. Of crucial importance is the fact that much of the revenue of the urban authorities comes directly from the central government. Moreover, several central-government ministries and a number of national parastatals have a lot of crucial roles to play in areas under the jurisdiction of urban councils, including road construction, drainage, water and electricity supply, land-use regulations (particularly, land-use planning and land allocation), and environmental management. For example, depending on the status of the road, road construction and maintenance may be the responsibility of the Ministry of Works, the regional engineer, or the urban councils. Responsibility for drainage lies with the Ministry of Communication and Works and with the Ministry of Water, Energy and Minerals (MWEM), as well as with the

councils. Water is supplied by a parastatal organization (the National Urban Water Authority [NUWA]) in Dar es Salaam and by the regional water engineer in other towns. Electricity is supplied by a national parastatal organization, and responsibility for land-use planning, allocation, and control lies with the Ministry of Lands, Housing and Urban Development (MLHUD), as well as with councils.

Several observers have decried this situation, pointing out that it denies the urban authorities the autonomy they are supposed to have and leads to confusion, conflict, and problems with coordination, control, and ultimate accountability (Kulaba 1989; Tanzania 1991).

The central-local-government relationship has important implications for the governance of urban-waste management. For example, the central government is responsible for approval of bylaws related to urban management, allocation of land for waste disposal, and a lot of the investment in infrastructure, such as drains, sewers, roads, and treatment plants, although local authorities can easily be blamed if the central government fails to perform its duties.

The problem of financing urban authorities

Two major factors influencing the performance of urban authorities are the types of revenue they can raise and the ways they spend this revenue.

The *Local Government Finances Act* of 1982 gives urban authorities powers to raise local revenue. Sources of local revenue include development levies, market dues, business licences, property taxes, road tolls, and user charges. The central government envisaged that urban authorities would depend on themselves to a large extent, except in the provision of services, in which function they acted as agents of the central government (for example, in the provision of primary education and health services). With very few exceptions, urban authorities in Tanzania have continued to rely heavily on the central government for most of their revenue. Therefore, their ability to manage urban development has depended on how much the central government can allocate to each urban authority, and this has not been much (Tanzania 1992).

Between 1981/82 and 1989/90, for example, the Dar es Salaam City Council (DCC) requested 61.350 billion TZS from the central government but received only 554.2 million TZS (that is only 9% of the requested amount was granted) (in 1998, 665.8 Tanzanian shillings [TZS] = 1 United States dollar [USD]). Underfunding occurs even where the government is supposed to give the councils the full cost of providing services. For example, it cost 1 200 TZS/year to educate a primary-school child in 1991. The central government was supposed to fully cover this cost. Instead, it allocated to the councils only 200 TZS/year per child (Daily News 1991).

The position of the central government on possible efforts by urban governments to raise their own revenue has been ambiguous:

- The central government takes a long time, sometimes several years, to approve bylaws designed to empower urban councils to levy local revenues;
- Many times, the central government has approved rates much lower than those proposed by the urban governments;
- The political will has been lacking to encourage effective local taxes in general and development levies and property taxes in particular (Chaligha 1987; Mkongola 1988; Kulaba 1989; Bukurura 1991);
- The central government sometimes collects taxes that it should share with urban governments but does not give the urban authorities their share (this has been noted in the cases of land rent and road tolls);
- It has been argued that the central government takes for itself the taxes that are lucrative and easy to collect, leaving the difficult ones to local governments (Kulaba 1989); and
- The central government has encroached to some extent on types of tax, such as property tax, that are usually the reserve of local governments.

However, it has also been observed that urban authorities, including Dar es Salaam, have been lax in collecting revenue, even

when they have the powers to do so, preferring to rely on government subsidies. This results both in the councils' dependence on central government and in their independence from their area residents. In fact, it is evident that councils, such as that of Dar es Salaam, prefer types of revenue that do not bring them face to face with their area residents, such as road tolls on fuel.

Further examples of DCC's finances illustrate the problem. In 1993, the DCC had a total income of 3.1 billion TZS, of which 2.1 billion TZS (66.8%) comprised subsidies. By September 1994, the DCC had an income of 2.8 billion TZS, of which 2.02 billion TZS (73.2%) comprised subsidies. In 1995, the DCC had a budget of 6.62 billion TZS, of which 4.6 billion TZS (69.1%) comprised subsidies. Thus, it can be seen that the DCC is highly dependent on central-government subsidies.

At the same time, considerable evidence indicates that the DCC does not collect its rightful share of revenue. For example, the development levy is supposed to be paid by every able-bodied person more than 18 years of age, but between 1990 and 1993, the DCC collected a low of 90.4 million TZS (in 1990) and a high of 164.5 million TZS (in 1991). If the population is taken as 2.6 million people and it is assumed that one-half of these people pay the minimum 250 TZS/year levied by the DCC, at least 325 million TZS should be raised through this levy per annum. It must be added that a levy of 250 TZS/year per person is extremely low by any standards. Another example is that of property tax. In the 4-year period 1990–93, the property taxes collected by the DCC ranged from a low of 38.5 million TZS (in 1991) to a high of 128 million TZS (in 1993). Yet, with more than 400 000 properties within its boundaries, the DCC should be able to raise at least 400 million TZS (if a conservative tax of 1 000 TZS per property is assumed). Yet another example is the taxi-registration fee. In 1993, the DCC was able to raise only 0.34 million TZS with taxi-registration fees, although 17.3 million TZS had been raised in 1991 from the same source. The majority of taxis in Dar es Salaam are unregistered and operate without a taxicab licence. It is possible to analyze other sources of revenue and to show that the DCC collects only a fraction of the possible income from the sources available. The reasons for this include inefficiency but also hinge on the lack of accountability and transparency of the DCC to the residents of Dar es Salaam.

116 Although revenue collection is poor, the pattern of expenditure can also be queried. It has been shown that much of the DCC's expenditure goes to salaries and nonperforming assets like motor vehicles. Thus, out of 3.1 billion TZS spent in 1993, 2.22 billion TZS (72%) was spent on personal emoluments; and out of the 4.42 billion TZS spent in 1994, 2.7 billion TZS (60.3%) went to salaries alone. Outside personal emoluments and allowances, the second highest item of expenditure within each of the DCC's committees was that of plant, vehicles, and craft. An analysis of the value of DCC's assets showed that in 1992 and 1993, 71.5 and 70.9%, respectively, of the fixed assets were accounted for by plant, vehicles, and craft. As will be shown below, performing plant and vehicles, such as those required for waste disposal, form only a small part of this. Of the 133.8 million TZS worth of fixed assets acquired in 1993, 63.9% was accounted for by plant and motor vehicles. The DCC's own funds were used to buy two Toyota™ Landcruisers¹. The rest of the plant and vehicles, a grader and a loader, were donated by Japan.

It is also noteworthy that the Administration and Finance Committee spent 67.3 million TZS in 1993 on plant, vehicles, and craft but that on the same item of expenditure the preventive section of the Health and Social Welfare Committee, which is responsible for waste management, spent only 38 million TZS. The reverse would have been more logical. Furthermore, it is of interest to note that in 1993, councillors' allowances and transportation accounted for 115.63 million TZS. Assuming 70 councillors, this works out at 137 655 TZS/month per councillor, which is an income very few Tanzanians earn. The Minister for Local Government recently observed that the allowance budget for councillors in Dar es Salaam was greater than that allocated to the city's primary schools (*Sunday News* [Tanzania], 20 Aug 1995).

The central-urban-government relationship in Tanzania is unconducive to local autonomy, particularly in revenue collection. But urban authorities, such as the DCC, do not take full advantage of the revenue sources available to them. Their use of the available sources of revenue does not reflect any priority given to providing the necessary services. This situation adversely affects urban governance in general and waste management in particular. The

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central government does not appear to be keen to remedy this problem. One outcome of this is that the central government has considered privatization as an option for the delivery of urban services, as well as considering an increase in the role of civil society in many urban-management functions.

Other problems with urban authorities in Tanzania

In addition to the problems of finances and central-government control of local governments, other problems impede good urban governance in Tanzania. Some of these are the poor quality of councillors, corruption, and citizen apathy.

Poor quality of councillors — Although the situation is changing, several observers have remarked that many councillors in urban authorities have both little income and low levels of formal education. Some are actually unemployed. Therefore, they may not be very articulate or knowledgeable about their roles as councillors.

People have said that some crafty mayors or chairs have taken advantage of this situation to buy the allegiance of councillors, thereby maximizing attendance at council meetings, for which councillors are paid a sitting allowance. The councillors therefore tend to owe their allegiance more to the councils than to the electorate. Under such circumstances, issues like waste management do not get the attention they deserve.

Corruption — Corruption is a feature of African governments. It is said to permeate to the highest echelons of government in most African countries (Harsch 1993). In Tanzania, corruption has been decried at both national- and local-government levels in recent years. According to Mwapachu (1995), corruption has taken root in Tanzania and manifests itself across the social fabric, involving the leaders and people of all walks of life.

One oft-cited definition characterizes corruption as “behaviour which deviates from the formal duties of a public role because of private-regarding ... pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence” (Nye 1967, p. 419). Corruption encompasses outright theft, embezzlement of funds, other appropriation of state property, nepotism, favours to personal acquaintances, and abuse of public authority and position to exact payment and privileges (United Nations 1990). The extent of corruption in urban government in Tanzania

is not well documented, but corruption is often cited and decried. Manifestations of corruption include embezzlement of funds, over-invoicing, dubious land-management and tender-awarding practices, exaction of payment for services rendered or for granting licences, and exaction of payment to condone malpractices.

Citizen apathy — Although urban governments perform badly and they could be accused of corruption and inefficiency, it is rather surprising that citizens are generally apathetic about urban-government issues. Few citizens take any interest in council affairs, for example, by attending council meetings, reading council minutes, or taking the councils to task. Mbago (1985) noted that the urban population has generally shown little interest in local elections. In his study of the 1983 elections in Dar es Salaam, he found that out of the 634 123 people expected to register, only 179 434 (28 %) actually did so, and only 76 319 (12 %) turned out to vote.

Similar apathy was shown during local-government elections of October 1994, despite the restoration of multipartyism. In Dar es Salaam, for example, 700 000 people (a definite underestimate) were expected to register for local elections. Only 175 638 (25.1 %) (an absolute figure, lower than that registered in 1983) did so (Maliyamkono 1995). In the majority of cases (54 %), people did not register because they did not believe that the elections would bring about any change. This point was also highlighted by Mbago (1985). The second major group (15 %) thought that elections were a waste of time (Maliyamkono 1995). It appears therefore that people have little confidence in local-government elections. Lack of interest in local elections may have greatly contributed to the election of councillors who feel that they owe their allegiance more to the councils than to the electorate and who therefore pay little attention to issues that citizens may consider pressing.

THE EMERGING CIVIL SOCIETY

Civic organizations have been an important feature of the social and economic life in Tanzanian urban areas since colonial times. Many of these organizations were based on ideas of tribal or hometown identity and of helping new urbanites to cope. These organizations were suppressed during the first decade of independence. The economic problems of the 1980s led to the resurgence of

home-area development associations, but an increasing number of these civil organizations are entirely urban and neighbourhood oriented. Because people identify more and more with urban areas, organizations are cropping up with the aim of addressing local issues and filling in the lacunae created by nonperforming urban authorities.

In terms of infrastructure investment and maintenance, groups have sprung up in Dar es Salaam that invest in and maintain roads and other services, for example. Civic bodies have emerged to promote and protect the interests of private bus operators and informal business owners. Other such bodies have developed to look after the environment of their areas. Some of these have benefited from association with donors and foreign NGOs (Kyessi and Sheuya 1993; Mbyopyo 1993; Byekwaso 1994).

The relation between councils and these emerging civil associations is lukewarm. In most instances, the DCC does not cooperate with these operators. Many of the self-help efforts lack the legal framework and technical know-how to achieve their goals, and support from the councils would be most helpful. This issue will be revisited in relation to the governance of waste management in the next section.

ANALYSIS OF THE INSTITUTIONAL ARRANGEMENTS FOR URBAN WASTE MANAGEMENT IN TANZANIA IN GENERAL AND IN DAR ES SALAAM IN PARTICULAR

THE ROLE OF THE CENTRAL GOVERNMENT AND NATIONAL INSTITUTIONS

Although waste management could be considered a local issue, the central government and national institutions play a big role and carry considerable responsibility in the whole system of urban waste management:

- The Prime Minister's Office (PMO) is the overseer of all local authorities through the Ministry of State for Local Government. The PMO approves the budgets of local governments and sees them through Parliament. The PMO approves the allocation of funds from the Treasury to local governments and handles any negotiations for external

assistance. Moreover, all bylaws made by local governments must be approved by the PMO, such as bylaws to keep the environment clean or to charge various levies. The efficiency of the relationship between the PMO and urban authorities has a major effect on the governance of waste management.

- The MLHUD is responsible for urban development, housing, land policy, land-use planning, and land administration. The MLHUD is responsible for preparing or approving land-use schemes, including those concerning land required for waste management. The MLHUD handles such matters as compulsory land acquisition and grants of land rights.
- The National Planning Commission is responsible for preparing national development plans and for seeing them through Parliament. This Commission has an urban development section and formulates plans that may involve major investments, such as in infrastructure.
- The Ministry of Communications and Works has considerable powers and responsibilities for road construction and maintenance in many urban areas, including construction and maintenance of drains.
- The MWEM is responsible for both the supply of water and the overall design and construction of sewers in urban areas. It is also responsible for operating low-cost sanitation units. The Dar es Salaam Sewage and Sanitation Department (DSSD) operates in part under the MWEM.
- The Ministry of Health has overall responsibility for public health and special responsibility, though the government chemist, for analyzing hazardous waste, especially that produced by industries.
- The Ministry of Natural Resources, Tourism and Environment oversees issues related to the environment, including the prevention of pollution resulting from the indiscriminate disposal of waste.
- The Ministry of Trade and Industries (MTI) licences businesses and industries and can sue polluters.

- The Ministry of Agriculture and Livestock is responsible for and can control pesticide pollution of ground- and surface-water systems and provides technical assistance on pollution control.
- The National Environmental Management Council (NEMC), whose main role is to sensitize society on environmental issues, exerts regulation and control where necessary, advises government, and coordinates environmental issues. NEMC deals with all aspects of the environment, including control of pollution with hazardous waste.

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It will be clear that the central government has a major role in urban-waste management, chiefly at the level of policy formulation, but also at the operational level. Besides, in view of the unsatisfactory situation of waste management in Dar es Salaam, the central government has had sometimes to intervene directly to clean the city. The recent major intervention was the emergency cleanup of the city carried out in 1993/94, when the central government provided contingent resources to move tonnes of accumulated waste.

THE ROLE OF THE URBAN AUTHORITIES IN WASTE MANAGEMENT

Urban councils are charged with most day-to-day duties and responsibilities in dealing with urban waste. These duties and responsibilities are spelled out in a number of pieces of legislation.

The legal framework

Solid waste — The *Local Government (Urban Authorities) Act* of 1982 gives considerable responsibility to urban authorities for waste collection and disposal. It requires urban authorities to, among other things, “remove refuse and filth from any public or private place” (s. 55(g)). Also, urban authorities are required to provide and maintain public dustbins and other receptacles for the temporary deposit and collection of rubbish. Section 55(i) provides for the prevention and abatement of public nuisances that may be injurious to public health or to good order. Urban authorities are also empowered to ensure that residents keep their premises and surroundings clean. This responsibility derives from the Township

Rules, made under the *Township Ordinance* of 1920. These rules have been retained over time and are operative under the *Local Government (Urban Authorities) Act*. To meet these responsibilities, the DCC drafted a number of bylaws relating to waste management. The most important of these are the *Dar es Salaam (Collection and Disposal of Refuse) Bye Laws* of 1993. Other related bylaws include the *Dar es Salaam City Council (Hawking and Street Trading) Amendment Bye Laws* of 1991 and the *Dar es Salaam City Council (Animals, City Area) Bye Laws* of 1990.

The Township Rules impose the following requirements:

- Rule 23 requires the occupier of any building to provide a receptacle to store refuse. Receptacles must be maintained to the satisfaction of the city inspectors. Garbage bins should be placed alongside roads for collection.
- Rule 24 empowers the DCC to require a person to remove the accumulated refuse he or she deposits anywhere.
- Rule 25 prohibits the throwing of refuse on any street or in any public area. Sanctions are a fine of up to 400 TZS or 4 months' imprisonment.
- Rule 27 requires the occupier of any plot or building to keep the surroundings free from accumulated refuse.

The *Dar es Salaam (Collection and Disposal of Refuse) Bye Laws* were passed to enable the privatization of waste disposal. They require occupiers of premises to maintain receptacles to keep waste and bind the DCC to collect and dispose of waste. Among other things, these bylaws prohibit people from causing a nuisance and throwing or depositing waste on streets or in open spaces not designated as collection points. The DCC may require an offender to remedy the situation.

However, the DCC cannot enforce these rules and bylaws and is itself unable to fulfil its own duties. Moreover, it could be argued that these rules are outdated, having been enacted during the colonial period. They do not reflect the circumstances prevailing today in urban areas.

Liquid-waste — With regard to liquid waste, the *Local Government (Urban Authorities) Act* sets the following requirements:

- Section 54(2)(g) requires urban councils to provide for “the disposal of all sewage from all premises and houses in its area so as to prevent injury to health”;

- Section 54(2)(i) requires urban councils to provide for the prevention of any nuisance that may be injurious to public health;
- Section 54(2)(k) requires the urban councils “to make, keep, and maintain clean and in good order, all streets and sewers”; and
- The schedule made under s. 55(2) requires urban councils to prevent the pollution of water in any river, stream, watercourse, etc.

In Dar es Salaam, responsibilities for liquid-waste management are delegated in accordance with the DCC’s *Sanitation and Service Bye Laws* to the DSSD, which is responsible for constructing, maintaining, operating, and managing collector sewers and local oxidization ponds. These bylaws define charges for individual services, like pit emptying and sewer connections. The DSSD deals with, among other things, sewerage and low-cost sanitation.

The *Public Health (Sewerage and Drainage) Ordinance* of 1955 gives local authorities powers in dealing with public sewers, drainage, and latrines in new and existing buildings.

The *Water Utilisation Act* of 1974, as amended in 1981, gives the Central Water Board and the regional water boards, created under its provisions, powers to control the pollution of water bodies through emission of effluents. In Dar es Salaam, these powers are vested in the NUWA.

Industrial waste — Most of the legislation cited above also applies to industrial waste. Other relevant legislation is as follows:

- Under the *National Industries Licensing and Registration Act* of 1967, licencing authorities have some powers to prevent environmental pollution by industries; and
- The *National Environmental Management Act* of 1983 created the NEMC and provides it with powers to monitor and regulate environmental pollution.

It will thus be clear that there is a reasonable legislative base to deal with urban-waste management. Nevertheless, much of this legislation goes unenforced, and some of it is completely out of date, especially in terms of sanctions provided to deal with offenders. Also, implementation is adversely affected by power overlaps.

Institutional setup

Solid waste — Three DCC departments have responsibility for solid-waste management: Health, Engineering, and Urban Planning (Figure 1). Immediate responsibility for solid- and liquid-waste management lies with the Health Department. This is divided into three subdepartments: Curative Services, Preventive Services, and Social Welfare Services. The Preventive Services subdepartment is further divided into five sections: Malaria Control, Cleansing, Buildings, Food and Water, and Inspectorate. The Cleansing Section is the executing body for waste (including liquid waste) collection and disposal, street sweeping, and, with the assistance of the city engineer, unblocking drains. This section is also responsible for formulating policy on solid-waste management. Nevertheless, it will be clear from the above that waste disposal is given relatively little weight in the organizational setup of the DCC, being tucked down into a section of a subdepartment of the Health and Social Welfare Department.

Each of Dar es Salaam's three districts (Kinondoni, Temeke, and Ilala) has its own day-to-day setup for solid-waste management, headed by the health officer, after whom come the foreperson, the heads, and the cleaners. All daily operations are based at site offices in the three districts. The activities of city cleansing are supervised by the Health Standing Committee, which plans, evaluates, and advises on all matters concerning health, including waste removal and disposal. To see waste removal as a health issue is perhaps to take a narrow focus, as it subsumes other aspects of waste generation and management. The concentration on cleansing does not bring into the forefront important aspects, such as waste generation and recycling. It is noteworthy that the private sector, CBOs, and the public are not included in the waste-management setup of the DCC.

The Engineering Department is responsible for matters related to vehicles, plants, and equipment, as well as purely engineering issues, such as roads leading to disposal sites. The Urban Planning Department is responsible for setting aside land for waste collection and disposal, and in these matters it must liaise with the MLHUD (Figure 2).

Any proposal from the Cleansing Section passes through various stages before it can be approved. Starting from the section itself, the proposal goes to the Health Department, then to the Health Standing Committee, the Administration and Finance

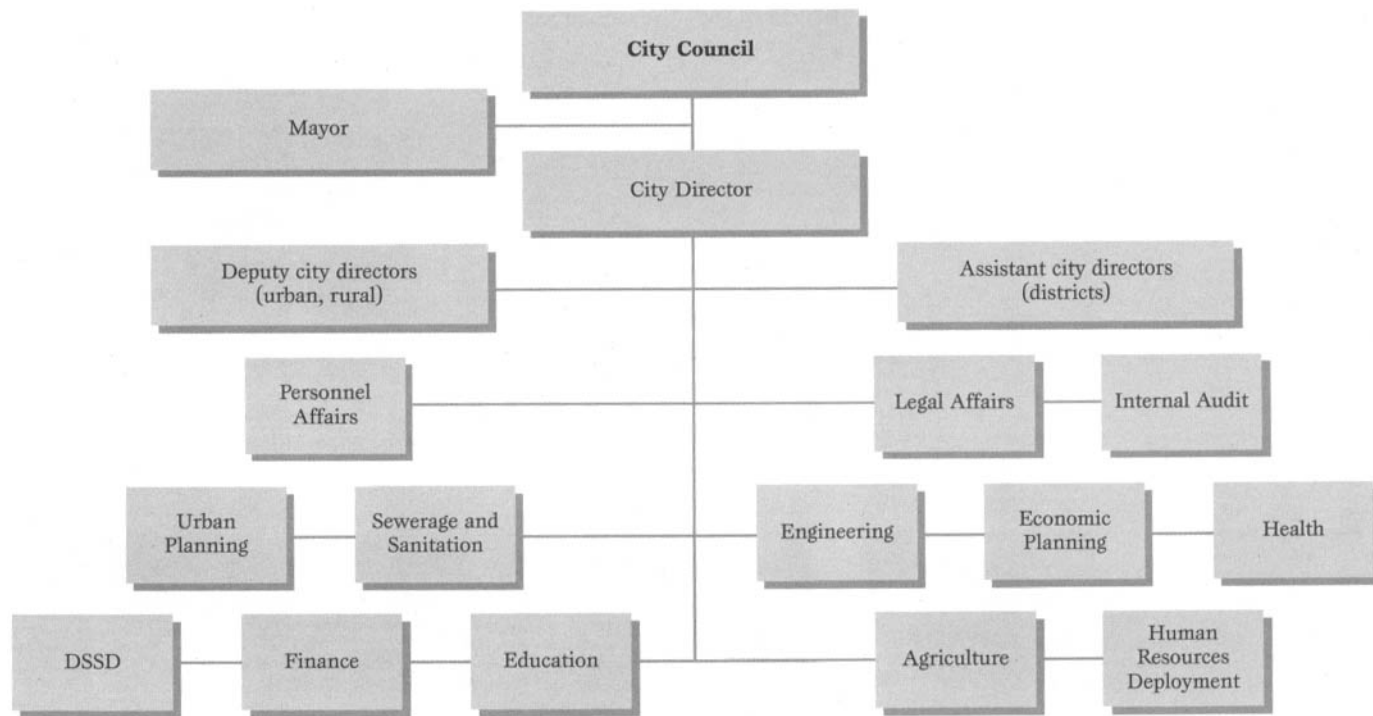


Figure 1. The structure of the Dar es Salaam City Council. Source: Dar es Salaam City Council.

Note: DSSD, Dar es Salaam Sewage and Sanitation Department.



Figure 2. The waste-management structure of the Dar es Salaam Health Department. Source: Dar es Salaam City Council.

Committee, the full DCC, the Regional Development Committee, the Minister for Local Government, and then finally to Parliament. This procedure can take a year or more to complete. As well, the Cleansing Section completely lacks autonomy, even in crucial matters such as the purchase of fuel or spare parts. It does not have a separate budget, and any money that it collects goes to the DCC's general revenue.

Since mid-1994 the DCC has privatized waste collection in the city centre. This is discussed in detail later in this section.

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Liquid waste — Two DCC departments deal with liquid waste: the semi-independent DSSD and the Health Department. The Health Department was discussed above. Because of the dearth of resources, the DSSD now accomplishes the actual day-to-day management of liquid waste.

The DSSD was established with the help of the World Bank and was, at first, located in the MLHUD. It was later transferred to the MWEM, and now it is a semiautonomous department under the DCC. The DSSD has five divisions (Figure 3):

- Sewerage, which deals with sewers and pollution control;
- Finance, which is responsible for tariff administration and cost recovery;
- Low Cost Sanitation, which deals with VIP latrine construction, cesspit-truck emptying, and health education and promotion;
- Mechanical and Electrical, which is responsible for maintenance and the mechanical and electrical parts of the sewer system; and
- Administration, which deals with general matters of administration.

As with solid waste, liquid waste is under the Cleansing Section of the Preventive Services subdepartment of the Health Department. For each of Dar es Salaam's three districts, liquid-waste management is headed by the health officer, under whose authority are the foreperson or head, the drivers, and the labourers. Powers and functions overlap considerably between the Health Department and the DSSD, particularly as the DSSD is related to the MWEM.

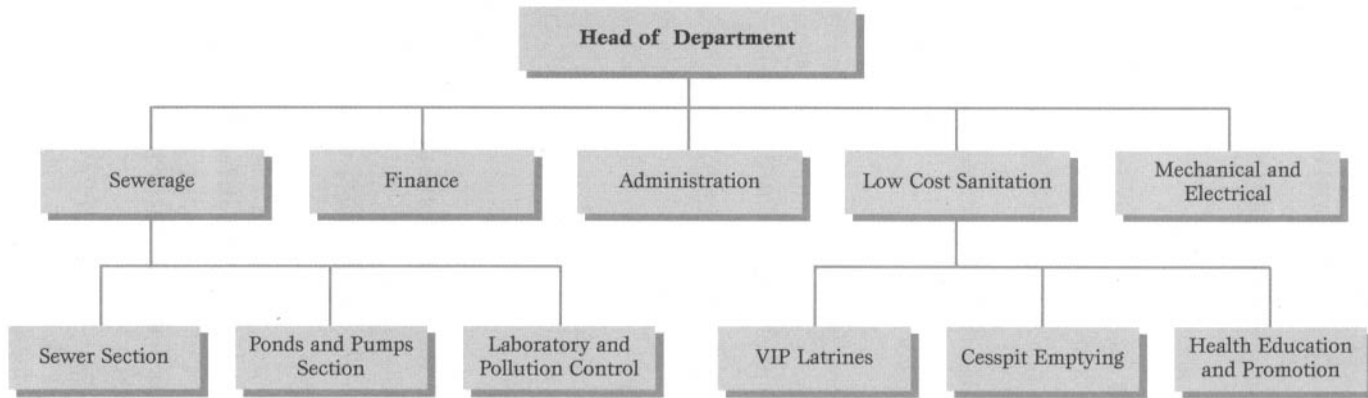


Figure 3. The structure of the Dar es Salaam Sewerage and Sanitation Department. Source: Dar es Salaam City Council.

Industrial waste — The setup described above for solid and liquid wastes applies to industrial waste as well. Nevertheless, many industries have their own private arrangements for dealing with wastes, including local treatment, discharge into water bodies, and transportation to the city landfill.

THE ROLE OF THE PRIVATE FORMAL SECTOR IN WASTE MANAGEMENT

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Although, as pointed out above, the private sector is considered part of civil society, it is dealt with here as a separate entity.

Various firms, industries, and institutions have their own in-house arrangements for dealing with waste, including the Kariakoo Market Corporation, which handles waste from the largest market in Dar es Salaam, at Kariakoo; the University of Dar es Salaam; the Tanzania Telephone Company; the National Housing Corporation; and the National Bank of Commerce. Some private companies also offer services for solid- or liquid-waste removal to individuals, firms, and institutions, but their overall impact is still limited.

The privatization of solid-waste collection in the city centre of Dar es Salaam

Of major interest, however, is the decision by the DCC to privatize solid-waste collection in the 10 wards of the central area of the city in 1994. The privatization of solid-waste collection in Dar es Salaam is closely related to the activities of the Sustainable Dar es Salaam Project (SDP).

The SDP started its operations in Dar es Salaam under the auspices of the Habitat Sustainable Cities Programme. Its main aim is to bring together the various actors on the urban scene, including central and local governments, the private sector, various donor organizations, and the CBOs, to agree on strategies to address the environmental problems of cities.

In August 1992, the SDP organized the Dar es Salaam City Consultation on Environmental Issues. The City Consultation identified waste management as a priority environmental issue to be addressed immediately, recommending that cross-sectoral, multi-institutional working groups be established to implement a five-point strategy of intervention. This initiative included launching an emergency cleanup of the city; privatizing the collection system;

managing disposal sites; establishing community-based collection systems; and encouraging waste recycling. To achieve this strategy, five working groups were set up: emergency cleanup; privatization; management of disposal sites; recycling; and community collection. This strategy was revised, and currently the focus is on three working groups: strengthening privatization, strengthening disposal sites, and recycling.

With this framework, the SDP was instrumental in bringing about the emergency cleanup of Dar es Salaam in 1993/94 (for which the central government and the donor community provided considerable resources) and the privatization of waste collection in the city centre in 1994. Currently, the SDP is overseeing and formulating policies related to waste management in Dar es Salaam. The SDP is an example of how important an impact a foreign institution can have on the governance of Dar es Salaam.

Privatization was made possible after passage of the *Dar es Salaam (Collection and Disposal of Refuse) Bye Laws*, in 1993, which enabled the DCC to impose refuse-collection charges (RCCs) on the occupants of premises where refuse is collected. Failure to pay RCCs may lead to a court suit. The bylaws also stipulate that no business licence is to be issued unless RCCs have been paid. A private contractor, Multinet, is responsible for street sweeping and also for the collection and transfer of solid waste from the privatized area to the landfill site.

The relationship between the private contractor and the DCC

Privatization of solid-waste management in Dar es Salaam's central area has been in operation now for more than a year, and it is possible to make some observations. It is important to remark that relations between the DCC and the private contractor have been far from cordial as envisaged when the privatization began.

In fact, the DCC appeared to be not very keen on the privatization but to accept it because external agencies proposed it and perhaps also because the donor community could be expected to support privatization with resources. The following observations would tend to support the view that the DCC was reluctant to embark on privatization:

- The DCC dillydallied in taking action to ensure that the RCCs were linked to business licences, as envisaged under

the privatization proposals, and that, in this respect, there was cooperation with the MTI, and it failed to establish another system that would operate.

- The DCC failed to set up a public education campaign on the whole privatization exercise and its benefits.
- The DCC failed to take action against RCC defaulters.
- The DCC failed to act on most of the proposals put forward by the consultants to smooth the privatization exercise.
- Under the terms of the privatization contract, the DCC was supposed to vacate its depot at Temeke, which would then be occupied by Multinet, and Multinet was supposed to construct an alternative building for staff and activities displaced from Temeke. But neither the DCC nor Multinet fulfilled its part of the agreement. Their signing of the lease agreement was also delayed considerably.
- It took a long time for the DCC to sign the various agreements required under the privatization contract.
- In the privatization contract, Multinet was supposed to rent the DCC's vehicles, but it has not been paying. As of January 1994, the DCC was owed 21.8 million TZS in rent for the period from 1 July to 31 December. As well, the DCC has owed Multinet 29.7 million TZS for collecting refuse from city markets, schools, dispensaries, and the city hall itself and for other services rendered between 1 July and January 1995. Both of these claims have since more than doubled, and neither has settled. Recently, the DCC withdrew its vehicles from Multinet, leaving the contractor stranded.
- In early 1995, Multinet was facing the wrath of the income-tax people, who were threatening to seize Multinet's assets to cover its liability for sales tax, stamp duty, and withheld tax. By June, the DCC had done nothing to obtain a tax exemption or at least an amicable understanding with the tax people with respect to Multinet, although in actuality, Multinet was collecting the RCCs on behalf of the DCC.

The whole privatization contract was the subject of scrutiny by the new councillors elected in October 1994. The councillors felt that the contract had something fishy about it and that the DCC had made a bad deal. This feeling was increased by the fact that the contractor had not paid a penny to the DCC, despite the terms of the contract (*Uhuru*, 13 May 1995). This led to the suspension of various key DCC officials, including the city's solicitor, health officer, town planner, and acting city director.

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It was envisaged that the privatization of waste management in the city centre would be a profitable venture and be extended to cover the rest of the city. However, the experience with privatization has not been very encouraging, chiefly as a result of the poor relationship between the DCC and the private contractor.

THE ROLE OF THE REST OF THE EMERGING CIVIL SOCIETY

All said and done, the DCC, together with the private contractor and the formal private sector and institutions, collects only about 10 % of all the solid waste generated in the city. This section looks at the various ways society deals with its waste. It is worth mentioning that there has been no major popular protest from the people of Dar es Salaam about the authorities' failure to collect waste. Nevertheless, a study of the newspapers reveals that the press has expressed considerable concern over uncollected waste. In one local daily, the issue of accumulating waste in Dar es Salaam was highlighted at least four times in the month of July 1995 alone (see *Majira*, 3, 6, 17, and 24 Jul 1995). A visit by the new mayor of Dar es Salaam to various markets revealed that markets, although used by the public, were among the dirtiest places in the city, with accumulated waste and filthy toilets (*Nipashe*, 28 Jul 1995).

However, notable protests took place to force the DCC to move from its old dumping place in the area of the Tabata community and to abandon those earmarked for it in Kunduchi and Mbagala, as highlighted below. Otherwise, society has learned to live with the inadequacies of the formal system for collecting waste and has put in place a number of ways of dealing with the problem. Some of these are described below.

Partnerships with the DCC

The DCC and waste generators have formed a number of partnerships for waste collection and disposal. The following are examples:

- A number of business people, especially hoteliers, are known to pay the DCC some fees or to give incentives to its workers to collect their waste, as and when required.
- Traders at some markets collect money to hire waste-collecting vehicles. For example, traders at the Buguruni market formed a cooperative (Wauza Mazao Buguruni Cooperative Society). These people operate a fund they collect from themselves, which they use to hire vehicles, including those of the DCC, to collect market waste. The charge paid per trip is 6 000 TZS.
- In some parts of the city, as in the drive-in area, the DCC has set aside a place where waste can be dumped. Waste is collected from the generators by various means, including hand carts. At the dump, the DCC has stationed a skip and two employees, who put together the waste and then burn it. Occasionally, the DCC collects the skip and the waste that may have accumulated around it.

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The roles of NGOs and CBOs

The role of the NGOs in waste management in Dar es Salaam is still limited, but it is growing. A number of CBOs have been established or are in the process of formation in the communities of Dar es Salaam, Buguruni, Kigogo, Kijitonyama, Tabata, Hanna Nassif, Sinza, and Changanyikeni. These CBOs mobilize local and foreign resources to address environmental problems in their areas. Areas of concern have included road and drain construction, drainage, tree planting, and waste management (Gossi 1994). The SDP is also instrumental in encouraging the formation of NGOs and CBOs. Already in the area of Hannah Nassif such civic bodies have been formed to deal with waste management.

The Tabata Development Fund CBO deserves special mention. It was formed after the successful efforts of the people of Tabata to move the city dumping site from their area and was registered as a CBO in March 1993. It has so far managed to mobilize peoples' efforts, raise resources, and encourage partnerships to

construct a bridge, rehabilitate local roads, plant trees, and construct storm drains. Recently, it won an award of 504 million TZS from the World Bank to help in the construction of infrastructure in the area.

It must be pointed out that a number of CBOs have clearly been formed with the aim of benefiting from external funds. Indeed, some of the better known CBOs are highly dependent on external agencies for funding and motivation, and this may not be a good thing, as such CBOs may lack sustainability if the external funding dries up. However, an increasing number of CBOs are inward looking, and their major objective is not to obtain external funds but to mobilize local resources.

The more common modes of dealing with solid waste in Dar es Salaam

A survey carried out for this study showed that the majority of urban residents have devised ways to deal with their own waste. Table 1 shows the ways in which interviewees reported dealing with their solid waste.

From Table 1 it will be clear that people do not throw solid waste haphazardly into their plots. It is either put in a pit within the plot or put somewhere outside the plot. Use of waste bins and waste bags is prevalent only in the privatized areas (Upanga and the city centre). The prevalence of waste bags in the low-income area of Buguruni is possibly a result of the activity of an environmental NGO (Plan International) in the area. With the exception of the city centre (where collection is relatively efficient), waste is overwhelmingly seen as a major irritating problem, and the services of the DCC are either bad or nonexistent. It is also clear from the data that the people of Dar es Salaam have hardly ever been involved by the DCC in issues of solid-waste management.

In many areas, solid waste is dumped on public or unused private land, including road kerbs and cemeteries, and in valleys and drains. In some areas an informal system of collection has developed; usually the collectors use handcarts to remove waste from houses or trade premises. The charge per load collected varies from 50 to 200 TZS. These collectors dispose of the solid waste in a common dumping area. Waste deposited at these informal dumping areas is commonly burned, usually by waste collectors or those living nearby. Sorting is rarely done at the households.

Table 1. Results of a field survey on aspects of urban residents' solid-waste management in selected neighbourhoods of Dar es Salaam's three districts, Dar es Salaam, 1995.

Topic and response options	% of respondents							
	Kinondoni		Ilala				Temeke	
	Manzese (n = 41)	Mnyamala (n = 40)	Upanga (n = 10)	City centre (n = 29)	Buguruni (n = 41)	Shauri Moyo (n = 39)	Mtoni (n = 42)	Tandika (n = 35)
Means of solid-waste disposal								
Thrown in plot	—	—	—	—	5	—	—	—
Thrown in pit in plot	34	33	—	—	17	26	98	23
Thrown outside plot	10	8	—	3.4	—	—	—	20
Thrown in pit outside plot	15	8	—	2.4	33	—	54	—
Put in waste bin	7	13	80	37.9	17	28	2.4	—
Put in waste bag	17	13	10	—	44	8	—	—
Other means (e.g., thrown in a distant open space)	22	35	10	58.5	10	10	—	—
Whether solid waste is a major irritating problem								
Yes	100	100	90	55	100	97	100	88.6
No	—	—	10	45	—	3	—	11.4
Rating of the DCC's solid-waste collection services								
Good	—	—	40	38	—	2	—	—
Bad	—	—	60	24	42	85	57	9
Nonexistent	100	100	—	38	59	13	43	91.4
Whether the respondent has ever been involved by the DCC in issues of solid-waste management								
Never	100	100	90	93	100	100	100	97
Ever	—	—	10	7	—	—	—	3
Willingness to pay for solid-waste collection								
Not willing to pay	37.6	17.5	10	20.7	25	15	24	34
≤99 ^a	14.6	2.5	—	3.4	12	8	19	6
100–299 ^a	26.8	50	—	13.8	22	36	31	40
300–999 ^a	17	20	20	24.1	24	31	26	17
1 000–9 999 ^a	4	10	70	10.3	17	10	—	3
≥10 000 ^a	—	—	—	6.9	—	—	—	—
Sum not stated	—	—	—	20.7	—	—	—	—

Source: Field survey, July 1995.

Note: TZS, Tanzanian shilling (in 1998, 665.8 TZS = 1 United States dollar [USD]).

^a Fee (TZS/month) that would be acceptable.

Informal sorting and scavenging take place. This reduces the waste and scatters it so that it more readily decomposes. Kaseva (1995) pointed out that 600 people scavenge in Dar es Salaam, but this is definitely a gross underestimation. These recyclers have no organized forum, nor do they have any relationship with the DCC. They use recyclable materials themselves or sell them to others.

Dealing with liquid waste

Much liquid waste is left to overflow onto common land, like roads, open spaces, and unused plots. However, a class of people, known locally as *Chura*, specializes in draining full pit latrines, usually by emptying the contents into a nearby pit, which is subsequently covered with earth. This process is known as *Kutapisha*. These people have no relationship with the DCC and operate on informal rules agreed on between themselves and their clients.

Dealing with industrial waste

Solid industrial waste is usually burned or buried on site, although some is transported to the city's dumping site. Some recycling is practiced. Liquid industrial waste is discharged through connections with the city's limited network into local oxidization ponds (many of which do not work) or, completely untreated, into local streams and drains.

Some general observations

The biggest problem with waste management in Dar es Salaam would appear to be that, although the generators remove waste from their immediate surroundings, a lot of it accumulates at dumping sites or on common grounds, with little coordinated remedial action.

The most common methods of dealing with waste have their own major problems:

- In high-density areas, no land is available to dig pits for solid waste, and no open spaces are available for draining liquid waste;
- Disposal of waste in open spaces, on common lands, or in valleys and drains is a major cause of pollution (smell, for example) and health hazards and can block natural or

artificial drains, erode civic morals, and have other aesthetically offensive results;

- People who dispose of waste indiscriminately do so in defiance of council bylaws, which prohibit the uncontrolled disposal of waste, and defying one law leads people to defy others; and
- Indiscriminate waste disposal has occasionally led to social conflict.

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THE POLITICS OF WASTE-MANAGEMENT ARRANGEMENTS

Historical perspective

During the colonial era, waste management, like other aspects of urban life, was conceived on the basis of racial bias. Urban infrastructure and services were concentrated in areas designated for the non-African races. These areas tended to be central-city and low-density residential areas, like Oyterbay in Dar es Salaam.

During the 1940s and 1950s, however, Tanzanian Africans agitated for better living conditions. Coupled with rapid urban growth and the prospect of independence, their protests forced the colonial government to address the question of servicing areas occupied by Africans in Dar es Salaam. The new, minimal services were concentrated in the areas planned for at that time, leaving out the growing unplanned areas.

During early independence, there was the need to modernize cities and to consolidate political power. Considerable emphasis was placed on urban infrastructure and servicing. However, the 1970s saw the centralization of political power, and Tanzania encountered economic problems. This distanced the government from the people, and the former began to lay less emphasis on urban services.

The 1980s have been years of economic crises, coupled with rapid urbanization. Dar es Salaam, for example, has grown at more than 7% per annum since the 1940s. Likewise, the urban proportion of the national population grew from 13.8% in 1978 to 27.6% in 1988. Between 1991 and 1995, the overall average growth rate was only 3.4%, but for the urban population it was 20.2%.

At least two political factors have shaped waste-management arrangements:

- Centralization of political power meant there was less sensitivity to local problems, although the central government and key politicians intervened now and then, on an ad hoc basis, to clean up the city. A major example of this was the emergency cleanup of Dar es Salaam in 1993/94. Some other interventions involved key personalities, such as the country's president and top ministers. They, however, did not go full throttle to ensure that urban authorities became serious in meeting their responsibilities.
- The tradition of cheap or free services and a lack of transparency and accountability made it politically difficult to introduce service charges, and this, together with a lack of resources, led to delivery constraints.

Waste management in Dar es Salaam is shaped less by popular political pressure than by international and national interventions and the need to avoid confrontation with the local populace. It is also shaped by the need to concentrate, at least symbolically, on politically important areas to the near total exclusion of the interests of people living in low-income areas, a level of neglect amounting sometimes to outright oppression.

International aspects of the governance of waste management

Several international interventions have occurred in various aspects of the management of Dar es Salaam. The Japanese government intervened in waste management in 1987 by financing studies on waste generation and management in Dar es Salaam and by following this up with a donation of several pieces of waste-management equipment, including tipper lorries and emptying trucks. The Italian government also intervened in 1991, with a grant of six compactor trucks. Possibly more significant is a generous international intervention with respect to the emergency cleanup of Dar es Salaam in 1993/94. This may have been because Dar es Salaam was the capital city, and many foreign diplomats stayed there. The SDP, which is trying to bring a new outlook to the governance of the city, including the privatization of waste management and the involvement of the community, is a foreign-conceived and -funded project.

In addition, as pointed out above, many CBOs are foreign motivated and funded.

The preponderance of international interventions has repercussions. It convinces the DCC that it always has a good prospect of getting the international community to intervene and that it therefore does not need to seek local solutions to the problems of urban governance. This creates a dependency syndrome, and it transforms the DCC's outlook from one of policy-making to one of policy-receiving. Also, most proposals from international agencies are usually considered uncritically, even when they could be considered inappropriate, as the following examples show.

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- Even without the benefit of hindsight, hinging the success of privatization on business people paying 80 % of the RCCs a year in advance (see below) was definitely misguided, but the idea was accepted, possibly because it came from outside. Also, possibly as a result of the dependency syndrome, the DCC offers little input on the choice of technology. Whatever is offered by the donors is accepted. For example, a consultant for the SDP found (in February 1995) (MCAL 1995) that the small DCM Toyota trucks (3–7 t), procured by Multinet, were more efficient than the Isuzu or Calabresse trucks offered by the donors. They had lower loading and running costs. In fact, the Calabresse trucks donated by the Italian government were out of commission within 6 months for lack of spare parts. Even after they had been revived during the emergency cleanup of Dar es Salaam, the consultant noted that these Calabresse trucks had very high operating costs and recommended that they not be ordered again. Yet, the DCC had uncritically accepted the suggestion to buy these trucks.
- During the preparations to privatize solid-waste collection, the DCC's original acceptance of waste-collection points (where households would take their refuse for the contractor to pick up) was perhaps a result of foreign-consultant intervention, as these collection points had major disadvantages that would have been obvious to local people.

National political aspects of the governance of waste management

Being the seat of the central government, Dar es Salaam has generally been more favoured by government grants and subsidies than other urban areas. Although the total amount granted has only been a fraction of what the DCC wanted, it has been sufficient to insulate the DCC from any need to effectively tax its residents. Also, the central government has been less assertive in forcing the DCC to efficiently collect local revenue. This has resulted, again, in a dependency syndrome and insufficient revenue. Indeed, at critical moments, the central government has come to the rescue of Dar es Salaam with resources or even the personal intervention of key officials and politicians. For example, during the emergency cleanup, millions of shillings were poured into Dar es Salaam as a nonrecoverable grant. It is possible, moreover, that the emergency cleanup was funded with the 1994 local-government elections in mind. The ruling party originally won all the seats in the DCC. During the election campaign, public buses also ran to distant locations in Dar es Salaam as never before, and this stopped as soon as the election was over.

With such dependency, the DCC finds it much more expedient to rely on the central government for funding and to blame the same central government for not allocating sufficient resources to ensure, among other things, efficient waste management.

Local political aspects of the governance of waste management

City centre versus the rest of Dar es Salaam — Over the years, the efforts of the DCC in waste collection have been observably concentrated in the central area on the argument that this area had no alternative mode of disposing of waste. This is not entirely true. In the high-density unplanned areas, hardly any space is available to dispose of waste, yet the efforts of the DCC have never been concentrated in such areas. Ilala, where the city centre is located, is the most favoured of the three districts. Next is Kinondoni, which has the most well-off residential areas in Dar es Salaam. Temeke, considered the poorest of Dar es Salaam's three districts, usually gets the lowest preference. The central area is favoured because accumulated solid waste or uncollected liquid waste is visible there and creates a major political problem that concerns the national and

foreign governments, top business enterprises, and high-income households.

Social oppression at the landfill site — Solid waste in Dar es Salaam is collected from various parts of the city and deposited at a sanitary landfill at Vingunguti, which is a low-income area. The keen concern shown for removing waste from the central area is not shown for Vingunguti, where the waste is dumped. The people of Vingunguti now suffer from fumes, smell, noise, and vibrations as garbage collected from all over the city is simply dumped in their area, rather than entering the envisaged sanitary landfill. Although it is clear that the people of Vingunguti are suffering, consultants recently proposed that the road to the dumping site (which is breaking down because of the heavy lorries using it) be strengthened to enable it to take more vehicles and that lighting be provided at the dumping site to allow dumping to be done day and night. Little consideration is shown for the people of Vingunguti. Even the income collected at the landfill site is not necessarily used to improve conditions at the site. The people of Vingunguti can thus be ignored and oppressed by the DCC because it is a low-income area and the residents lack political muscle, such as that of the people of Tabata, who stopped the DCC from depositing waste in their area.

Poor relationship between councillors and officials — The governance of Dar es Salaam has suffered adversely from the poor relationship between the councillors and the officials. Issues of ethnicity, corruption, and education have directly or indirectly contributed to their sour relationship. It is now a political problem. In practice, the roles of the councillors and those of the officials have been improperly defined. Councillors look on the officials' plans, suggestions, or actions with suspicion, and in some instances it is clear that the councillors have had a vendetta against the officials. The result has been a high turnover of officials. Also, in February 1995, it was noted (Kironde 1995) that all key DCC officials were acting in the counterparts of their actual positions. On the other hand, the councillors promote their personal interests in council. Key interests have hinged on land allocation and acquisition, trade, and councillors' incomes. Waste management has not been among the key issues on the minds of the councillors, and the poor relationship between councillors and officials has prevented formulation and implementation of a clear waste-management policy.

Poor relationship between the councillors and the public — It has been observed that the councillors of Dar es Salaam have very little interaction with their electorate, and many consider themselves more as employees of the council, from which they benefit from hefty allowances, than as representatives of the people (Kironde 1994). Thus, issues that may be burning in the minds of the electorate — such as lack of roads, drains, and water or overflowing waste water and uncollected solid waste — do not get the attention they deserve. With multiparty democracy, the situation may perhaps change, but in the past councillors bothered little about the needs of their electorate.

It may be appropriate to conclude from general observation that the DCC is afraid of its people. This results in low taxation or none at all, which in turn means low revenue and less accountability to the people.

The politics of privatization — The privatization of solid-waste management in the central area of Dar es Salaam shows all signs of the part played by politics in determining the RCCs and the areas to be privatized. The central area was privatized first, not only because of its political importance, but also because it is occupied chiefly by Aborigines and business people. Here, the RCCs were much more likely to be accepted than in other areas. Charges were also determined so that business people paid 80 % of the expected charges, and residents in predominantly non-African areas paid as much as seven times the fees paid by residents in African areas.

The relationship between councillors and NGOs — The councillors do not seem to be any more keen on the emerging NGOs than they are on the officials. Many NGOs operate without the involvement or cooperation of the councillors. It has been suggested that the councillors see NGOs as eroding their own political position and status.

Political apathy — The electorate appear to be apathetic about what happens at the DCC. This is demonstrated in the poor voter turnout during local elections and by the electorate's failure to take action to force the councillors to respond to their needs and be transparent and accountable. Observers have wondered why non-performing councillors are elected year in and year out. Some have concluded that either the people of Dar es Salaam do not know their rights as citizens or voters are easily bribed by corrupt

politicians. Legislation requires urban governments to do a number of things, including removing waste, providing public toilets, and naming streets. Nonimplementation means breaking the law, yet no action is taken by the public against nonperforming authorities. Few members of the public attend council meetings or read the DCC's minutes, although these activities are allowed by the law. It may well be that this apathy is a hangover from the time of single-party rule. It is observable, moreover, that local politics in Tanzania has generally been shunned by the more educated in society, although this may now be changing. A lot of the management of Dar es Salaam's development could greatly improve if the councillors consulted the people and tried to find ways to solve their problems.

Surely, undisposed waste is a major political issue, but some of the councillors we talked with were content to say that their people had their own ways of disposing of waste and that the greatest part of the blame should go to the central government, which does not allocate sufficient resources to the DCC for this.

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THE ECONOMICS OF WASTE MANAGEMENT

Historical perspective

General urban management in Tanzania has not historically been based on economic considerations. The colonial government in Dar es Salaam lavished considerable services and infrastructure on low-density (that is, high-income) areas, with little consideration of cost. It paid little attention to servicing the high-density areas, which because of their high densities are cheap to service. Most services were provided either free or at subsidized rates or were not provided at all. Possible sources of revenue, such as land rent, were usually kept artificially low.

Economic considerations in waste management

An efficient waste-management service requires considerable capital and recurrent financing to, for example, purchase or maintain vehicles, lay and maintain the necessary infrastructure, pay labour, and enforce regulations (policing). In the past, public authorities attempted to institute user charges for certain aspects of waste management. For example, the DCC provides solid-waste collection free of charge to most domestic residents; a fee of 1 000 TZS

per trip is charged for collection of waste from commercial, industrial, and business premises. Likewise, the DSSD charges a fee for connection to a sewer or for emptying pit latrines or septic tanks. Nevertheless, these charges do not usually cover the necessary costs. The DDC spent an estimated 31 million TZS on solid-waste collection in 1987/88. It collected only 222 000 TZS for this service.

144 In 1993, the DDC's total budget for solid-waste management amounted to around 194 million TZS, and around 150 million TZS of this was provided through a special intervention from the PMO as part of the emergency cleanup of Dar es Salaam. This did not include labour costs, budgeted separately by the DCC. It meant, however, that the DCC approved only 44 million TZS toward the fuel and maintenance costs of trucks and the landfill. These funds were insufficient to both operate the Vingunguti landfill and fuel the DCC's fleet of trucks. Thus, the DCC was only able to operate 8–10 of its fleet of 20 tipper vehicles and, at most, 1 of its compactor trucks during a single work shift. This was just one-sixth of the DCC's potential and met only a tiny fraction of the requirements.

In March 1994, it was calculated (MCAL 1994) that the DCC needed 517 million TZS/year to ensure waste collection in the central area alone and several times that to ensure collection throughout Dar es Salaam. Under existing circumstances, the DCC cannot possibly raise such an amount, as it may spend no more than 60 million TZS/year on waste management (including labour costs). As a result, the waste-management processes are unsustainable, as will be shown below in the case of vehicles.

Economic considerations also affect the choice of dumping area. Distant locations may be cheaper to run, but transportation costs will be high. Dumping in nearby locations needs to be effectively managed. Experience from Dar es Salaam indicates that managing a landfill to the required standards is almost impossible, chiefly as a result of lack of resources, and the DCC has used the sites earmarked for solid-waste disposal as crude dumping sites, rather than sanitary landfills. At the moment, the DCC has a major problem raising sufficient resources to manage its current landfill, let alone develop new ones.

Even with a more effective system for collecting local revenue, the DCC is highly unlikely to be able to raise or commit sufficient resources to ensure conventional waste management, that is, using the public sector to collect, transport, and dispose of all

the waste. Cost recovery, user charges, or a more efficient exploitation of current revenue sources is needed because this can allow the DCC to establish a number of partnerships. Privatization, support for alternative modes of waste management, especially by small-scale operators, and public participation would appear to be other avenues for effectively managing waste in the future.

Many times, issues related to cost recovery and user charges ignite an imbroglio of controversy about whether the people, particularly those in low-income households, can afford to pay the charges. Equity is another issue. Without more reliability of data on income and expenditure, however, the issue of affordability is difficult to resolve. Various studies (Gossi 1994) have established that many households and firms pay for the collection of their waste. Many people interviewed in this study showed a willingness to pay for waste collection (see Table 1), and many said that they already paid small-scale handcart operators to remove waste from their premises. In a study of the low-income area of Hannah Nassif, Rubindamayugi and Kivaisi (1994) found that 28% of the interviewees paid waste collectors: 100 TZS was paid per trip or 50 TZS for a 15-kg load. This means that on a monthly basis, low-income people in Hannah Nassif pay more for the collection of their refuse than people pay in the better-off central parts of the city (like Kariakoo) in areas 2 and 3 (Table 2), served by the private contractor, Multinet. They pay only 150 TZS/month. The possibility of generating more money from waste management is very high.

Privatization of solid-waste management in Dar es Salaam as a feasible economic venture

In the light of the DCC's persistent failure to manage waste, the SDP came up with the idea of privatization (SDP 1995). This undertaking in Dar es Salaam illustrates the potential of the privatization of solid waste. No major plan has been developed to privatize liquid-waste management, although private operators empty septic tanks.

In the early 1990s, external consultants were hired to advise the DCC on the process of privatizing solid-waste management. The consultants calculated (MCAL 1992) that waste collection could be turned into a profitable business that could earn the DCC

Table 2. Monthly RCCs under the *Dar es Saalam (Collection and Disposal of Refuse) Bye Laws* of 1993, Dar es Salaam, 1993.

Type of waste and type of premises	Area 1 (10 ³ TZS)	Area 2 (10 ³ TZS)	Area 3 (10 ³ TZS)	All areas (10 ³ TZS)
Domestic refuse ^a	0.9	0.15	0.15	
Trade refuse ^b				
Every trade licence holder				
Normal trade licence	3.5	1	1	
Nguvu Kazi licence	0.3	0.2	0.15	
Hotels and guest houses (rooms)				
1-10	20	3	2.5	
11-15	30	20	10	
16-25				55
26-50				75
51-75				100
76-100				150
> 100				200
Restaurants and bars	30	15	2.5	
Shops and offices (employees)				
1-5				5
6-10				7.5
11-15				15
16-20				20
21-25				30
26-50				55
51-75				75
76-100				100
> 100				150
Construction				
Skips (7-m ³ container)				10
Markets				
15-m ³ container				19
7-m ³ container				10

Source: *Dar es Saalam (Collection and Disposal of Refuse) Bye Laws* of 1993, Dar es Salaam City Council.

Note: Area 1, Upanga east and west, Kivukoni, Kisutu, Mchafukoge; area 2, Gerezani, Kariakoo, Jangwani; area 3, Mchikichini, Ilala. RCC, refuse-collection charge; TZS, Tanzanian shilling (in 1998, 665.8 TZS = 1 United States dollar [USD]).

^a Payable quarterly in advance.

^b Payable annually in advance.

considerable income and strengthen the public waste-collection service. The consultants proposed that privatization begin with the 10 central-area wards. After they were cleaned up, the service could be extended to other parts of the city. Multinet was then contracted to carry out waste collection in the city centre.

In October 1992, a draft Refuse Collection and Disposal Contract was drawn up. However, having a direct contract between the private waste collector and the DCC was seen as unworkable, owing to the financial unreliability of the DCC. The DCC envisaged cross-subsidization between high- and low-income areas. The DCC prepared draft bylaws and originally intended having the RCCs for commercial premises paid annually in advance and linked to the issuance of the business licences. For residential premises, payment was to be quarterly in advance. The DCC envisaged that, later on, the RCCs would be based on property values and linked to the payment of property rates.

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Because the DCC was unable to run its whole fleet of vehicles, it agreed to lease eight tipper trucks and six compactor trucks to the private contractor to supplement the council's budget. The contractor also agreed to lease part of the DCC's premises for its operations, pay refuse-disposal charges (RDCs) for the use of the Vingunguti landfill site, and install a weighbridge at Vingunguti to monitor the amount of waste discharged. The DCC envisaged that as it extended privatization, it would be able to restrict its role to one of monitoring the performance of the contractors and move out of any direct involvement in solid-waste management.

It was estimated (MCAL 1994), in March 1994, that the annual costs and revenue from the privatization exercise would be as is shown in Table 3 and that these activities would realize a profit of nearly 37 million TZS.

Envisaged financing of private solid-waste collection — The bylaws that enabled privatization, the *Dar es Salaam (Collection and Disposal of Refuse) Bye Laws* of 1993 set out a schedule of RCCs for different types of waste generators (for example, domestic) and different categories of trade refuse. The charges also differed according to wards. The privatized part of the city was divided into three areas, roughly according to the perceived income levels of the inhabitants. Area 1 included the city centre and the Upanga area, chiefly occupied by Aborigines and top business people. Areas 2 and 3 are supposed to be low-income areas occupied mainly by Africans and secondary business people. The DCC set charges for area 1 higher than those of areas 2 and 3. The RCC levels appeared to be politically motivated. It must have been conceived that households and firms in area 1 would more readily accept RCCs than those in the other two areas. In addition, the mayor of Dar es Salaam

Table 3. Expected annual costs and revenue from the privatization of solid-waste collection in Dar es Salaam city centre, March 1994.

	Amount (10 ⁶ TZS)
Annual costs	
Collection and disposal	
Operational costs	188.4
Salaries	98.0
Capital costs	73.5
Lease of trucks	76.0
Disposal costs	56.9
Road sweeping	
200 workers at 36 000 TZS/month	129.6
Supervision, 15 %	19.4
Total costs	641.8
Annual revenue	
RCCs	576.0
Market wastes (18 container loads/day at 19 000 TZS)	102.6
Total revenue	678.6
Profit	36.8

Source: MCAL (1994).

Note: RCC, refuse-collection charge; TZS, Tanzanian shilling (in 1998, 665.8 TZS = 1 United States dollar [USD]).

Table 4. Rates of domestic solid-waste generation, Dar es Salaam, 1988.

	Area			
	Mtoni	Manzese	Kariakoo	Mchafukoge
Number of people per household	8.4	6.7	5.7	5.1
Monthly income per household (TZS)	2 600	3 770	2 260	6 080
Waste-generation rate (kg/day per person)	0.37	0.35	0.32	0.30 ^a

Source: Haskoning and M-Konsult (1988).

Note: TZS, Tanzanian shilling (in 1998, 665.8 TZS = 1 United States dollar [USD]).

^a Average waste-generation rate was 0.34 kg/day per person.

was also the councillor for Kariakoo ward in area 2, which may account for the very low RCCs for areas 2 and 3.

The schedule of RCCs is shown in Table 4. Because waste generators were supposed to pay the RCCs in advance, the DCC thought that this arrangement would raise sufficient revenue to enable the contractor to carry out solid-waste management

without problems. The DCC was supposed to enforce the payment of the RCCs by taking any defaulters to court. In effect, however, the DCC has not met its responsibility.

Details of how the DCC determined the RCCs are unclear. But it did not base them on the cost of collecting the waste from the producers or on the amount of waste they generated. In any case, in the original proposals, waste producers were supposed to dump their waste at preestablished collection points; thus, the private contractor would not be in direct contact with the producers of the waste. Instead, the DCC based the RCCs on the type of waste producer (domestic, trade) and the location. In one sense, the DCC's determination of the RCCs was supposed to bring about a cross-subsidy between trade and domestic waste producers and between high- and low-income areas. This approach was apparently politically motivated, to get the majority of payers, that is, households, to accept the RCCs. Ease of collection, particularly from business people, was apparently another criterion.

Although the privatization undertaking is economically feasible, as detailed above under "The relationship between the private contractor and the DCC," it is operating under difficult conditions, emanating from the poor relationship between the contractor and the DCC. This is a clear example of bad governance.

The sociology of waste management

Observers of urban development in African cities sometimes argue that many Africans carry their rural habits to the urban areas. Some people, it is argued, may not be conscious of the need to keep their environment clean. This is a doubtful point of view. Almost all of our respondents (see Table 1) said that waste was a major nuisance. The survey therefore indicated no culture of waste.

Nevertheless, people seem to have become indifferent to the issue of waste. They have come to accept having to live with this waste in their environment. It only suffices for one to remove the waste from one's own backyard. Little consideration is shown for waste dumped in common areas, although the people interviewed agreed that this pollutes the environment. Many people, too, let their waste water flow onto common land, like roads, which, in many residential areas, double as playgrounds for children. This is perhaps a result of people's despairing of the DCC ever making things better.

Our study found that most people still rely on the city to solve the waste-collection problem. Most expressed the view that the DCC simply needs to have more vehicles, collect the waste more frequently, and make waste bins and bags available, as in the past. This attitude needs to be changed, and people must start to evaluate their own roles in the governance of waste management. However, in both Kariakoo and the Buguruni market, where private waste-collection systems are in place, people expressed the view that private arrangements for waste collection were the more promising solution.

Waste management involves some gender considerations. A survey carried out for this study found that moving waste from the household premises was overwhelmingly considered a female responsibility, whereas men chiefly collect waste and sort it for recycling. Such considerations may be important when it comes to formulating feasible waste-management policies.

When considering alternative waste-management methods, one must take cultural considerations into account. Rubindamayugi and Kivaisi (1994) found that there were some cultural barriers to waste sorting within households in their study area, Hannah Nassif. However, people sorted the waste at the dumping areas, and 98 % of the interviewees showed a willingness to be employed in waste management.

WASTE GENERATION AND HANDLING IN DAR ES SALAAM

Solid-waste generation

Various studies have been carried out in recent years on waste generation, storage, collection, transportation, and disposal in Dar es Salaam (Haskoning and M-Konsult 1987, 1988; MCAL 1992). The *Dar es Salaam Masterplan* of 1979 (Tanzania 1979) addressed the question of waste generation and concluded that average domestic waste generation was 0.17 kg/day per person in squatter areas and 0.33 kg/day per person in planned areas. Although results differ, recent studies have tended to conclude that average domestic waste generation in Dar es Salaam ranges between 0.34 and 0.39 kg/day per person.

A survey carried out in 1993 (Ame 1993) concluded that waste generation in Dar es Salaam differed according to income groups, as follows: high-income households, 0.45 kg/day per

person; medium-income households, 0.38 kg/day per person; and low-income households, 0.34 kg/day per person, with an average generation of 0.39 kg/day per person. On the other hand, Haskoning and M-Konsult (1988) found that waste generation was lowest in the high-income ward of Mchafukoge (see Table 4). This is contrary to conventional observations that poor people yield less waste than the rich. Rubindamayugi and Kivaisi (1994) found that the low-income Hannah Nassif area also had a rather high waste-generation rate of 0.605 kg/day per person. This must definitely be on the high side, accounted for by the high sand content in the waste studied. Another study carried out in the same area in the same year during the wet season found that the waste-generation rate was 0.30 kg/day per person, and this was also considered to be on the high side (Gossi 1994). What this suggests is that one should consider the data on waste generation with care.

The total daily waste generation in Dar es Salaam has been calculated variously over the years, as shown in Table 5.

One study carried out in 1992 by Manus Coffey Associates Ltd (MCAL 1992) showed that nearly 60% of the waste generated in Dar es Salaam was, as shown in Table 6, in the category food and vegetation. Although other studies differ in detail from this, it is generally concluded that food and vegetation is the major category of waste generated, and this has been the case over a number

Table 5. Calculation of daily waste generation from various sources, Dar es Salaam, 1988-95.

Waste category	Waste (t/day)		
	Haskoning and M-Konsult (1988)	MCAL (1992)	DCC (1995)
Domestic	650	860	935
Commercial	45	50	80
Institutional	60	80	185
Market	200	200	375
Industrial	—	—	225
Street cleaning	—	—	60
Car wrecks	185	230	40
Hazardous waste	—	—	50
Construction waste	—	—	15
Hospital waste	—	—	35

Source: DCC (1995a).

of years. The DCC currently accepts the figure of 2 000 t/day as representing the total waste generated in Dar es Salaam. However, figures seem to conflict for the central area, which over the years has been the major area of concern for the authorities. In a report (DCC 1995b) to the Health and Social Welfare Committee, written in January 1995, the acting city director pointed out that the central area generated 600–800 t of waste daily. On the other hand, Mpinga (1993), assuming a population of 183 859, calculated that the domestic waste generated daily in the central area was 236 t. But a consultant, called on in March 1995 to advise on the privatization of waste management, calculated that actually 140 t/day of waste was generated in the central area (MCAL 1995), as shown in Table 7.

This figure appears to more realistic, but it is clear that the figures for waste generated are unreliable, and policy decisions are therefore made on the basis of uncertain data.

The record of waste management by the authorities in Dar es Salaam is very poor. Within the central area, which has been privatized, waste collection has improved considerably. Some 100 t is collected daily, but this leaves another 35–40 t uncollected. The DCC itself is supposed to collect waste from the rest of the city,

Table 6. Typical waste components,
Dar es Salaam, 1993.

Waste component	% by wet weight
Food and vegetation	59.8
Paper	8.7
Metals	2.8
Plastics	1.9
Glass	0.4
Textile	0.9
Others	25.5

Source: MCAL (1993).

Table 7. Type and quantity of waste,
Dar es Salaam's central area, 1995.

Type of waste	Quantity (t/day)
Commercial waste	46.7
Market waste	35.3
Residential waste	57.8

Source: MCAL (1995).

including markets and hospitals, but its total collection is only between 30 and 100 t/day. Other institutional and private collection services deal with about 32 t/day. This means that only about 10 % of the waste generated in Dar es Salaam is collected.

In practice, no special arrangements are made for waste storage, although in the past the city gave out dustbins. People store waste using any possible means, including paper and plastic bags, bamboo baskets, and so on. The DCC used to have specified collection points in the city, but these have become dumping grounds, and the DCC has in fact discouraged their use. Skips are provided in some places, especially markets, but these are not regularly cleared, so they are sometimes completely buried under waste. Tipper lorries transfer the waste. The DCC has arrangements to provide and manage landfills for waste disposal, but they are not as sanitary as they should be. The DCC has no policy on recycling, although the SDP is trying to encourage recycling, and there are plans to establish a biogas plant (Takagas). Informal recycling, however, is done by scavengers at the dumping and landfill sites.

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Resources available to the DCC for solid-waste management

Human resources — The DCC employs 800 people to clean the city, 500 of whom are sanitary labourers. Table 8 shows the structure of human resources in the Cleansing Section. Shortage of equipment and low morale among the staff are two major problems

Table 8. Structure of human resources in the Cleansing Section of the DCC, Dar es Salaam, 1992.

Category	<i>n</i>
Cleansing superintendent	1
Health officer	1
Assistant health officers	5
Forepersons	23
Heads	65
Loaders and drivers	232
Street cleaners	337
Drain cleaners	86
Clerks	8
Casual employees	42

Source: DCC Health Department records.

Note: DCC, Dar es Salaam City Council.

facing the waste-disposal operations of the DCC. Loaders have no protective gear, for example. It was reported in mid-July 1995 that the DCC Cleansing Section workers had gone on a 1-day strike to protest against poor working conditions (*Majira*, 13 Jul 1995).

Technical resources — The Cleansing Section has 30 tipper trucks, each with a capacity of 7 t and a loading volume of 12 m³. Only 20 of the trucks are working. The allocation of trucks over the three districts is as follows: 19 in Ilala; 6 in Kinondoni; and 5 in Tememe. The trucks in Ilala work on two shifts; those elsewhere work on a single shift. Each truck makes one or two trips per shift each day. Trucks are loaded manually, using rakes and bamboo baskets. One should note the concentration of resources in Ilala, the district with the city centre, and the high-income, mainly Aboriginal-occupied area of Upanga. Since 1987 the DCC has procured 30 tipper, 3 container, and 6 compactor trucks and 3 bulldozers, but the number in operation has been dwindling, as shown in Table 9.

The DCC has had grossly inadequate equipment and money to purchase fuel and spare parts and to pay incentives to workers. Some of the vehicles have been unsuitable and have been plagued with spare-parts problems. Thus, although it could be argued that the vehicles, for example, are inadequate, the DCC is unable to operationalize even those few that it has. The DCC does not have enough resources to keep its fleet of trucks working. The fleet is working at less than 20 % of its 1995 potential capacity, as a result of the shortage of funds for fuel, maintenance, and labour. Consequently, the DCC leased some of these vehicles to the private waste-collection contractor.

Financial resources — The DCC pays for its waste-management operations out of its general financial resources, which it derives directly from central-government grants or subsidies or from its own sources of revenue. The efficiency of waste management depends on how much money the city has and how much it can allocate to waste management. As pointed out above, the DCC has had financial problems as a result of inadequate allocations from the central government and inadequate collection of local revenue. Waste management suffers further from inadequate allocation from the DCC itself, as the DCC does not regard waste management as priority.

Calculations for 1994 and 1995 suggest that the DCC spends no more than 60 million TZS/year on waste management,

Table 9. Acquisition of trucks and other equipment for waste management, Dar es Salaam, 1987–95.

Year	Equipment procured	Equipment in operation
1987	30 tipper trucks 3 container trucks	30 tipper trucks 3 container trucks
1988	—	30 tipper trucks 2 container trucks
1991	6 compactor trucks	28 tipper trucks 2 container trucks 6 compactor trucks
1992	—	28 tipper trucks 1 container truck 2 compactor trucks
1993	—	26 tipper trucks 4 compactor trucks 1 container truck
1994	3 bulldozers	24 tipper trucks 1 compactor truck 1 container truck 3 bulldozers
1995	—	20 tipper trucks 1 compactor truck 1 container truck 1 bulldozer

Source: Dar es Salaam City Council Health Department and Engineering Department records.

including running the vehicles and other equipment, operating the landfill, and paying labour costs. Yet, in March 1994, it was calculated (MCAL 1994) that the DCC needed 517 million TZS/year to ensure waste collection in the central area alone.

As noted above, from mid-1994, waste collection in the 10 central-area wards of Dar es Salaam has been privatized, and residents and business operators pay RCCs to the private contractor. The DCC expected to benefit from this financially, as the contractor was bound to pay hire charges for DCC's vehicles and a depot was leased to the contractor. As discussed above, this has not worked out. On the other hand, some revenue is generated from RDCs, paid for dumping waste at the Vingunguti landfill site. These were originally set at 800 TZS/t. This was based on the assumption that there would be a weighbridge and possibly that all

waste would be delivered by motor vehicles. But the weighbridge never materialized and the waste can be delivered by a variety of means. Consequently, RDCs are based on estimates, as follows: carts of less than 1 t, 400 TZS; pickups of 1–3 t, 1 600 TZS; lorries of 4–6 t, 2 400 TZS; lorries of 7–10 t, 4 000 TZS; and lorries of more than 10 t, 8 000 TZS.

Some evidence collected for this report indicates that the RDCs are not levied. Some people dump refuse early in the morning before the DCC workers report for duty; others use it after working hours. Considerable revenue is lost because of this.

It was reported that between January and May 1995, RDCs of 8.83 million TZS were collected at the landfill, a lower figure per month than in the previous year, when 7 million TZS was reportedly collected in 2.5 months from October 1994. But no separate account was opened for this income, apart from the normal DCC accounts, and the money was not necessarily used for landfill management.

Physical resources — Most of the waste that the DCC and the formal private sector collect is currently dumped at the landfill site in Vingunguti. This was supposed to be run as a sanitary landfill, but the site is used simply as a dumping area, and this is a major nuisance for the local residents.

Before the DCC started dumping waste at Vingunguti, it had a major problem finding a place to dump the waste. From the early 1960s to 1991, it dumped waste at a site in Tabata, which was destroyed by fire. As far back as 1979, the *Dar es Salaam Master-plan* (Tanzania 1979) suggested opening sanitary landfills along the urban periphery — at Kimara, Mbezi, Pugu, Mbagala, and Kivukoni — to replace the Tabata dump, which was then described as follows:

The Tabata site has been filled well beyond capacity for some time, and refuse tipping is presently encroaching on the Luhanga river, causing excessive downstream pollution. Besides, covering is not being practised and because of machine failure, proper spreading and compacting is not done.

(Tanzania 1979, p. 31).

A report prepared for the DCC in 1968 (cited in Tanzania 1979) had recommended the use of sanitary landfills for waste disposal. In 1976, the Dar es Salaam region decided to develop one of these sites at Kimara. The area was compulsorily acquired by

the government and was surveyed, but strong objections from residents led the DCC to postpone using the site, which was apparently subsequently abandoned. Thus, Tabata continued to be used as the dump (Tanzania 1979).

As urban growth overtook this site, dumping waste there became a major nuisance. Eventually, residents in the neighbourhood organized to have it removed. After a protracted struggle, residents won the battle, and the courts ordered the DCC to abandon the site. A new site was identified at Kunduchi, but here again, residents took the issue to the courts and the DCC was forced to abandon this site as well. Another site, identified at Mbagala, was similarly abandoned. This struggle demonstrated that people power can be effective but left unsolved the issue of where to dump Dar es Salaam's waste. Nobody, including councillors, wants a waste-dumping site in their area.

In early 1992, the DCC struck an agreement with the population of Vingunguti to use a large valley in the area as a sanitary landfill to control soil erosion. The negotiations were spearheaded by the local ruling-party chair and his supporters, who, it later transpired, had personal interests in the dump. Their goals were to stem soil erosion, which threatened some houses; to use waste to feed local livestock; and to engage in recycling, particularly of metals.

But after some 3.5 years, residents are no longer happy and have on occasion organized to block the continued use of Vingunguti as a landfill because of the nuisance it causes and because the DCC did not keep up its end of the bargain by improving the environment for the residents and by operating the site as a sanitary landfill (*Nipashe*, 13 May 1995). Indeed, the landfill was recently been described as "a cloud of flies and stench" (*Daily News* [Tanzania], 15 Apr 1995). A considerable concern is that the people of Vingunguti will at any time strike and block the continued use of the area as a waste-dumping site. In any case, the former ruling-party chair who was instrumental in bringing the dump to Vingunguti has lost his position. At the moment, therefore, the DCC has no reliable dumping site.

If the Vingunguti landfill was well managed, it could last for many more years, although according to some experts, Vingunguti is not at all suited for a landfill (Mgana 1993). Plans for a new landfill site at Kinzudi are not going well. It was reported in June 1995 that plans to fence the area to ward off encroachers were not

carried out because of lack of funds (SWMWG n.d.). The site does not seem to be favoured by foreign experts, although local experts say it is ideal. Another neighbourhood in the Mtoni area has invited the DCC to dump waste there, as a way of controlling erosion. Some waste is dumped there, but it is not treated in any way, and so it has again become a major nuisance for local residents. Nevertheless, it is a fact that Dar es Salaam has no reliable dumping site and has to depend on the charity of some neighbourhoods. The DCC does not seem to be worried, and it does not appear to take seriously any plans to get a permanent solution. The continued use of Vingunguti as a landfill site would appear to be hinged on the fact that "the whole area of Vingunguti is a low income area and is poorly served with roads or other infrastructure" (*Daily News* [Tanzania], 26 Apr 1995), and the efforts of the people to stop dumping in the area are easily ignored by the DCC. Also, scavenging may offer some benefits for the local residents.

The DCC has failed to run the Vingunguti site as a sanitary landfill. In November 1994, the residents closed the access road to the site, as the DCC had not maintained the road. Because the bulldozer lacked fuel and the tipping area was also blocked, waste could not therefore be properly managed. Multinet had to provide fuel for 2 months to keep the landfill site in operation, and the DCC clearly failed to take action or appreciate the urgency of the situation.

The landfill site is suffering from major technical and financial problems. A bulldozer and a road grader, purchased with Belgian and Canadian help, are now in operation, but getting them fuelled is sometimes a problem. Soon they will present problems of spare parts. In addition, the landfill site lacks cover material. A minimum of 500 t of fill material was required in March 1994 (MCAL 1994) to cover the existing waste. Only one truck was available to do this while the wheel loader was awaiting repairs. The loader had earlier been set on fire by street traders (locally known as *machingas*), as they were being evicted from the city centre.

Typically, the required fill material is equivalent to about 15 % of the waste. As the Vingunguti landfill is currently taking around 350 t/day, about 50 t of clay is required daily. Sites must be identified to provide this landfill material. The nearby hills proposed for this use are occupied by people, and the authorities' record of paying compensation in cases of expropriation is so poor

that these hills cannot possibly be used for this purpose. Apart from these sites, at least two heavy trucks and a wheel loader are required. Without this equipment, it is impossible to operate a landfill in a sanitary manner.

The Vingunguti landfill site is now used haphazardly. Surface water behind the landfill is also finding its way into the waste, thus increasing pollution. The consultants (MCAL 1994, section 5, p. 1) have called for immediate action to remedy the situation:

Unless tight control is kept over this landfill, it is inevitable that the past history of the DCC being evicted from one landfill after another must repeat itself, and Dar es Salaam will have another waste disposal crisis on their hands within a short period. The control of leachate from the landfill will now be difficult to manage as the wastes are spread over such a wide area and problems with pollution of the river and the ground water can be expected.

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Table 10 shows some data related to the use of the landfill in 1994. This information provides some insight into the operation of the emergency cleanup of the central area, as well as the operation of the various actors in waste management in Dar es Salaam. From Table 10, it is clear that the delivery of soil cover almost ceased at the end of the emergency cleanup in August.

Table 10. Waste deposited at the landfill site in Vingunguti, Dar es Salaam, 1994.

Quantity (t)				
	Waste brought by Multinet	Waste brought privately	Waste brought by DCC trucks	Soil cover delivered to the landfill site
Jan	—	897	3 540	430
Feb	—	1 107	3 123	930
Mar	—	786	3 006	900
Apr ^a	—	1 122	3 333	770
May	—	720	2 142	640
Jun	—	1 395	4 857	320
Jul	—	1 209	5 832	550
Aug ^b	—	1 392	2 685	20
Sep ^c	1 307	1 086	1 677	10
Oct	1 670	2 940	1 419	—
Nov	1 893	1 008	1 167	—
Dec	1 393	11 970	1 527	—

Source: *Annual Report on Sanitary Landfill*.

^a Privatization started.

^b Multinet started collecting waste in the city centre at the end of emergency clean up.

^c Bulldozer arrived from Belgium.

The landfill site provided 7 732 240 TZS in revenue in 1994. This, however, must represent a gross undercollection. With 55 430.8 t deposited, at 800 TZS/t, more than 44 million TZS should have been collected. If the waste brought by the DCC is set aside, still close to 17 million TZS should have been collected. From the above, it can be seen that the balance of the private sector deposited around 41 t/day at the landfill site.

Resources available to the private contractor for solid-waste management

The financial resources expected to be available to the private contractor were described above. The following highlights its human, technical, and physical resources.

Human resources — As of July 1995, Multinet employed 313 people, as shown in Table 11. However, these employees work under very difficult conditions. Multinet pays 1 000 TZS/day to the drivers and supervisors and 600 TZS/day for loaders for an 11-hour workday, without holidays. Consultants (MCAL 1995) evaluating Multinet's performance noted that rates of pay were very low, and the hours worked were excessively long. Indeed, in mid July 1995, the workers complained through the press that their employment terms were very poor. They were all casual employees, even after a

Table 11. Multinet's labour force,
Dar es Salaam, July 1995.

Category	<i>n</i>
Operational manager	1
Assistant operational manager	1
Office staff	7
Sweepers	90 ^a
Casual sweepers	20
Loaders	121 ^{a,b}
Casual loaders	30
Workshop workers	15
Collectors	12
Cash collectors	4
Transport officers	2
Checkpoint controllers	3
Watchpeople	5
Scouts	2

Source: Multinet records.

^a16 in this group are supervisors.

^b120 in January 1995.

year of being employed with Multinet. Thus, they received daily payment but had no other benefits; they had no specific working hours, many working from 7:30 AM to 8:00 PM without any over-time pay; and they could not protest, because whenever they complained, they were always threatened with the sack (*Majira*, 13 Jul 1995). Like the DCC workers, they lacked protective gear, and trucks were loaded manually, using bamboo baskets and rakes. The contractor argued that given the poor collection of RCCs (discussed above), it had no choice but to pay low wages.

However, the productivity of this labour is apparently much higher than that of the DCC, as these 313 men collect around 100 t/day, whereas the 800 DCC workers collect only between 30 and 60 t/day.

Technological resources — As of January 1995, capital equipment available to Multinet was as shown in Table 12. It will be recalled that some of this equipment was on hire from the DCC. For reasons discussed above, pertaining to the uncertainty of the collection of RCCs, Multinet has invested in only four 3-t tipper trucks (Toyota DCMs). At present, only 13 of the trucks are operational, but not on a daily basis. The collection fleet sometimes diminishes to seven trucks per day, as a result of breakdowns and lack of spare parts. Multinet complains that the vehicles leased to them under the terms of the contract were the worst in the DCC's operating fleet. The company has subsequently spent huge amounts of money on repairs.

Physical resources — During the emergency cleanup, six collection points were designated in Dar es Salaam, at Kidongo Chekundu, Kivukoni, Mkunguni, Shule ya Uhuru, the Buguni market, and

Table 12. Capital equipment required by and available to Multinet, Dar es Salaam, 1995.

Equipment	Number required	Number available
Tipper trucks (7 t)	1	9
Tipper trucks (4 t)	1	4
Compactor trucks	6	1
Skip trucks	2	—
Containers	Several	—

Source: Multinet records.

the Ilala market. Soon, however, people recognized the disadvantages of these collection points (Mpinga 1993):

- They were few and far between, with the result that unauthorized dumping points developed;
- Only part of the waste deposited got transported from these collection points, with the result that these points became permanently occupied by waste;
- The environment around these points was polluted and degraded from smells, flies, and litter, as a result of waste not being collected or of its being scattered by wind and scavenging;
- Dumping at collection points reduced the responsibility of the waste generators vis-à-vis waste management, and, because much waste remained uncollected, this convinced the public that nothing was done to collect the waste, which encouraged indifference to uncleanness;
- Collection points proved politically inexpedient, especially as 1994 was a local-election year; and
- Direct cost recovery was also made difficult after waste generators moved the waste from their premises.

However, the privatization contract required the contractor to rely on these collection points. The advantages were supposed to be ease of collection and lower costs. It is also possible that collection points were favoured because they involve less direct contact with the waste generators, which means less transparency and accountability.

As a result of these disadvantages, particularly the political problems, the DCC argued that it had been unable to find locations for collection points without creating a nuisance and therefore backed out of the collection-point option. The contractor now conducts a door-to-door collection.

As pointed out above, the contractor uses the city landfill site at Vingunguti and was supposed to pay RDCs. Owing to the problems with the collection of RCCs, the contractor is in arrears in its payment of RDCs.

Waste collection by the private contractor — Between 1 July and 31 December 1994, a total of 12 312 t of solid waste, or an average 90–100 t/day, was collected. Between January and June 1995, an

average of 121 t/day was collected. It is important, however, to consider these figures with care, as in actuality Dar es Salaam has no waste weighbridges and estimates are based on the tonnage of vehicles and the number of trips they make to discharge waste at the landfill site. Multinet and the evaluating consultants claim that 73–78% (MCAL 1995) of the refuse in the privatized area is collected daily. Although this is impressive, it leaves behind some 35 t of waste uncollected daily, and the dumping of waste in open spaces is still going on in the privatized area.

Under the contract, Multinet was supposed to provide a collection service 6 days a week from designated collection points within the central area and 3 times a week from designated collection points in the residential areas. Households and business people were supposed to deliver their waste to these collection points, at which point Multinet was to take charge of the waste. As pointed out above, this was not to be the case, and the contractor collects door to door, using a loudspeaker to call on people to bring their waste to the vehicles. Nevertheless, people are apparently ill-informed about the Multinet services. Also, collection is only possible during work hours, and working in shifts is impossible.

The collection service is relatively good in the prime commercial and residential wards of Mchafukoge and Kisutu, in the prime residential wards of Upanga East and West, and in the government-area ward of Kivukoni. The service is relatively inadequate in the other, lower status wards. However, a considerable number of people complain that the contractor fails to properly discharge its duties.

Liquid-waste generation and handling

Less than 5% of the population of Dar es Salaam (of 2.3 million people) is connected to the sewer system, which is 130 km long, grouped into 11 systems and supported by 17 pumping stations. This system covers the central areas, some industrial areas, and a few outlying residential areas. Effluent is discharged into oxidation ponds and local watercourses and directly into the ocean. The central areas discharge directly into a sea outfall, where the end of the 1 040 m long pipe lies in less than 2 m of water; numerous fractures discharge raw sewage onto the mud flats exposed at low tide. Many of the oxidation ponds no longer operate, as a result of a lack of maintenance, and raw sewage therefore discharges into the surface drainage system.

About 80 % of the 2.2 million people living outside the central areas have access to on-site facilities — 70 % of these use pit latrines; 30 %, septic tanks — and the remaining 20 %, or about 440 000 people, lack even elementary sanitary facilities. Even in areas served by water facilities, some residents have erected additional pit latrines for emergencies resulting from unreliable water supply (DCC 1992). In 1988, Dar es Salaam had a population of 1.7 million. The people, industries, and institutions generated each day some 126 t of biochemical oxygen demand, 133 t of chemical oxygen demand, 212 t of suspended solids, 372 t of dissolved solids, 18.7 t of nitrogen, and 3.77 t of phosphorus. An estimated 2.46 million inhabitant equivalents were being produced each day.

The DSSD and the Health Department operate tanker lorries to empty septic tanks and pits, usually at the request of people living in the area. Also, a number of parastatal organizations and private business people have their own emptiers. Nevertheless, few of the publicly owned vehicles are operational at any given time. The tendency is for people to remove the liquid but leave the base-load sludge. Water tables are high in most parts of Dar es Salaam, particularly during the rains, which exacerbates problems with poor sanitary conditions, as many septic tanks and pit latrines overflow into the surrounding public lands and drainage systems.

Groups of entrepreneurs offer manual pit-emptying services, but the waste is discharged into on-site trenches, rather than being transported to oxidization ponds. This considerably pollutes the surface drainage systems, the groundwater, and the ocean.

Industrial-waste generation and handling

During the first two decades of independence, Dar es Salaam introduced many industries to enhance economic development. These industries in Dar es Salaam include those for metal-working, steel, and iron; cotton textiles, leather, and sisal; chemical; food processing and beverages; paper and wood products; and nonmetal products, including cement and asbestos. Although most of these industries have had major problems since the 1980s and many are working at below 50 % capacity, they generate considerable waste. Indeed, their economic problems make this situation worse, as the machinery gets worn out and cannot be replaced, and they therefore have no resources to operate an efficient waste-disposal system.

The amount of waste generated was discussed above. Rough calculations suggest that about 94% of the industries in Dar es Salaam are connected to a piped-water sewerage system. About 6% are connected to septic tanks and soakaways. The major mode of treatment is through oxidization and stabilization ponds, and the treated waste is then usually discharged into rivers and thus ultimately into the ocean. Various studies suggest (Haskoning and M-Konsult 1989) that industrial waste is not pretreated before it is discharged into oxidization ponds. The level of water pollution is high, as is evident from findings on one of Dar es Salaam's major rivers, the Msimbazi, known for its clean water during the colonial times and currently the recipient of many industrial effluents.

The coliform count in the Msimbazi at entry into Dar es Salaam (at Kiserawe) is 75–100 per 100 mL of water, a relatively low count, indicating good-quality water. When the Msimbazi leaves Dar es Salaam (at Salander bridge), the coliform count is between 250 000 and 400 000 per 100 mL of water, indicating heavy contamination. This is more than 1 000 times the coliform count considered safe to just swim in. The lower stretch of the Msimbazi is, therefore, an open sewer. Causes of this pollution are varied, but they include the city's excessive reliance on on-site modes of sanitation and its tendency to discharge raw domestic and industrial effluents into rivers and natural channels (Yhdeghe 1991). Even toxic waste, including pathogenic waste from hospitals, is crudely dumped, without any pretreatment.

Although 58 pieces of legislation deal in one way or another with the environment, most of these laws are unknown, unenforceable, or outdated. The NEMC, created in 1986, lacks regulatory powers and can therefore only advise. Much industrial pollution is in practice uncontrolled.

EVALUATION

WASTE MANAGEMENT AS PROVIDED BY THE DCC

The DCC collects only a small fraction of the solid waste generated in Dar es Salaam, and its efforts are equally marginal in the collection of liquid and industrial waste. The city lacks an effective policy on waste storage and collection, with the result that many former collection points have become dumping places.

The waste is transferred from collection points to vehicles by hand-loading, and many workers lack protective gear. The productivity of the workers and the vehicles operated by the DCC is very low. A lack of a standardized system for waste storage makes transfer difficult. Currently, a lot of waste is left at the collection points. As noted, transportation is beset by a plethora of problems, hinging on the unsuitability of the vehicles and lack of funds to purchase fuel and spare parts and properly maintain the vehicles. Currently, Dar es Salaam lacks a waste disposal area, and the current landfill site at Vingunguti is not used as a sanitary landfill, but just as a dumping area, causing nuisance, pollution, and environmental degradation. It can therefore be correctly concluded that Dar es Salaam's waste-management system is grossly inadequate and very liable to break down, as it is operated haphazardly and unsustainably.

WASTE MANAGEMENT AS PROVIDED BY THE PRIVATE SECTOR

The private sector has been given a major role in solid-waste collection in the central area of Dar es Salaam. This has no doubt considerably improved the collection of waste in the privatized area. But the contractor has only been able to collect 10 % of the expected RCCs, even though it collects 70 % of the waste. It has not, therefore, made the expected investments in vehicles, buildings, and other equipment, and this keeps the collection service from being what it was intended to be.

On the other hand, with 13 vehicles on the road and just more than 300 workers, the contractor collects about 100 t/day of waste, whereas the DCC, with a fleet of 22 vehicles and 800 workers, collects around 50 t/day. This is definitely a positive measure of efficiency. However, it is important to emphasize that the contractor pays very low wages and the workers work long hours without benefits. There is also concern that privatization may suffer adversely if no improvement is made in the relationship between the DCC and the contractor. Waste generators who use the services of private collectors and emptiers, including small-scale operators, seem to be happy with the services, but these operators have not solved the problem of the final disposal of this waste.

EVALUATING WASTE-MANAGEMENT ARRANGEMENTS IN DAR ES SALAAM IN TERMS OF CERTAIN ASPECTS OF GOVERNANCE

Public participation

Official waste-management arrangements in Dar es Salaam are generally implemented with little or no participation of the key actors. Except in Upanga and the city centre, where around 10 % of the interviewees said that they had ever been consulted by the council, the residents are not consulted. Even the privatization was undertaken without public consultation. In particular, the business people, who were supposed to pay 80 % of the RCCs, were not involved in determining the amount or mode of payment. Local leaders, who could have helped in mobilizing the public to adopt specific methods for waste management or pay RCCs, were not involved in the exercise. Although this shortfall was made up later, and the consultants recommended remedial action, the DCC has yet to involve the local leaders in the whole issue of waste management.

The institutional setup of the DCC makes no provision for participation of the public or of local leaders. Everything hinges on the operation of the Health Department. It is noteworthy, too, that within the SDP, the Community Participation Working Group is the least active. The private contractor, the SDP, and a good proportion of the general public have decried the lack of public participation. The blame is generally laid on the DCC, which should, but does not, ensure that participation takes place.

Citizens' rights

As seen above, the citizens of Dar es Salaam are apathetic about what happens in the DCC. The council seems to take advantage of this to operate with little concern for citizens' rights. It does not seem to conceive of the right of the citizens to live in an environment without waste, and the citizens do not seem to be interested in fighting for this right. The DCC operates therefore in a system where citizens' rights are not pressed for, or cared about.

Accountability and transparency

The DCC generally operates with little accountability or transparency. Some suspect that the DCC's desire to avoid accountability was the reason it required the business people to pay 80 % of the RCCs for Multinet's service, although they generate only

33.4% of the central-area waste. Domestic households, which produce 41.3% of the waste, were supposed to pay only 20% of the RCCs. This meant fewer problems collecting the RCCs but also less transparency and accountability. A desire to avoid accountability and transparency was also the motive for the DCC's choice of collection points (with their many disadvantages) in the original privatization contract, rather than choosing house-to-house collection. The DCC chose collection points, despite the evidence of the Opinion Poll Concerning Waste and Environment of Residential Areas of Dar es Salaam, carried out in October 1993 (MCAL 1994), which showed that in Ilala district, 63.7% of the population was prepared to buy garbage bags and 83.3% of the households would use garbage bags if they had them. This suggests that house-to-house collection was both an acceptable and a more feasible system than the system of collection points originally adopted. In fact, the whole privatization exercise appears to have been conceived and effected with little transparency, and the new Dar es Salaam city director has admitted this.

Local neighbourhood and ward leaders also complained that they did not know how council budgets were arrived at or what allocation (for example, for solid-waste removal) the various neighbourhoods had. The DCC, rarely, if at all, comes back to its citizens to inform them about issues of finance or service delivery.

Financial efficiency

It was pointed out above that the DCC is inefficient in collecting its revenue and that the money that it has collected has not been spent on citizens' priorities. The waste-management system has high levels of inefficiency and low productivity. Moreover, the private contractor is apparently more efficient than the DCC, collecting more than the DCC but with less than half the human resources.

Sustainability

As shown, from the 1970s the Dar es Salaam waste-management system has been largely unsustainable. Capital equipment (vehicles, for example) may all be inoperative in a few years' time. Funds are usually not set aside to cover maintenance or depreciation. When things look like they are coming to a standstill, the DCC has recourse usually to the central government or to the donors. It is interesting to note that in 1994–95, despite privatization, the DCC

requested 89 million TZS from the central government to repair existing vehicles and equipment and buy new ones. Vehicles aside, the DCC usually lacks money to buy fuel. This study found that in each of the months of July and August 1994, work at the landfill site came to a standstill for 6 days for lack of fuel for the bulldozer.

This study found that most of the landfill sites earmarked in the 1979 masterplan (Tanzania 1979) have largely been occupied by builders, as the DCC failed to take them up or protect them. A similar process is now taking place at the earmarked landfill site at Kinzudi. The DCC does not seem to have any long-term plans for waste-disposal sites.

The SDP is geared to creating sustainability in Dar es Salaam. Yet, it was observed that the relationship between the DCC and the SDP may need to improve. At the moment, it appears that the SDP has set up its own system, parallel to that of the DCC, and that the SDP may be unsustainable without foreign assistance.

In principle, privatization of waste management would be sustainable if various impediments are removed, including the lukewarm attitude of the DCC, its ill-conceived policies, and the lack of public participation.

POLICY OPTIONS AND RECOMMENDATIONS

Waste management cannot be considered in isolation. Therefore, recommendations must cover wider issues related to general aspects of urban governance, as well as issues specific to waste management. For example, much of the planned part of Dar es Salaam lacks passable roads. Lack of surface-water drainage means that many existing roads are easily eroded or flooded during the rainy seasons. Moreover, by far the majority of Dar es Salaam's residents live in unplanned areas, with very limited space for roads. Any plans to improve Dar es Salaam's roads or any plans to upgrade Dar es Salaam's unplanned areas have a bearing on the ease with which waste can be collected and transported.

INSTITUTIONAL COORDINATION AND RATIONALIZATION

Many institutions — local, national, and international — have a considerable role in urban management. These need to come together and streamline their powers and roles, with a view to

improving the position of local governments. This is what the SDP is trying to do in Dar es Salaam, although success is still elusive, as many institutions still prefer to work in isolation.

CENTRAL-LOCAL GOVERNMENT RELATIONSHIPS

The ambiguity of the central government's treatment of local government needs to be addressed. In particular, it must start to show a drive to have strong local governments. A key aspect of this drive must be to enhance the collection of adequate local revenue and to manage local finances more beneficially. To some extent, the central government is aware of the financial and managerial problems of the DCC. The central government has made a number of statements in the past and appointed a number of probe committees. However, it has rarely acted on the recommendations of these committees. Such recommendations have included splitting Dar es Salaam into a number of smaller municipalities and strengthening the neighbourhood level of local government. Many such proposals remain unimplemented. The steps that are taken must not alienate the councillors but enhance the relationship between councillors and officials.

The complaint in Tanzania is that councillors generally have a low level of education, and the central government has a duty to rectify this. This includes popularizing knowledge of the role of councillors in local government. This needs to be remedied, and in particular, the civic spirit among the councillors must be revived.

A central government should encourage the effective decentralization of power from itself to the local governments, as well as encouraging decentralization of power within local governments. The idea of dividing Dar es Salaam into smaller municipalities appears plausible. Whether or not this division is accepted, powers need to be devolved to the ward and neighbourhood levels.

Together with decentralization, the central government needs to enhance public participation in local politics and activities. This includes sensitizing people so that they take part in local elections and take an interest in council plans, deliberations, decisions, and finances. It also entails encouraging people to establish local community organizations. Some have suggested that mayors and chairs be elected by popular vote, rather than being elected by the councillors, as one way of bringing more life and accountability into local politics.

The central government must show a drive to make local governments operate more transparently and with more accountability, both to itself and to the citizens. Both the central and local governments also need to see each other as partners in development, not as foes.

INTRA-LOCAL-GOVERNMENT RELATIONSHIPS

The relationships between councillors and officials in local government must be improved. Their roles and powers are ill defined and muddled up. Also, the DCC must enhance its relationship with its citizens. This is necessary if the DCC wants to collect more revenue from them and have them take up more of the burden of the provision of services.

As well, the DCC needs to work closely with local organizations, including the NGOs and CBOs that are emerging and trying to address local problems. Much of the local effort to deal with pressing local issues (including waste management) is frustrated by technical and legal problems and lack of coordination among various actors and between these actors and the DCC.

TECHNICAL ISSUES

The experience in Dar es Salaam indicates that privatization can be a feasible option, provided it has political support and the public is involved. It is possible to slowly privatize waste collection and disposal throughout Dar es Salaam, involving various kinds of actors and using various forms of partnerships. The DCC might begin to identify and plan for disposal sites, supervise the collectors, and enforce cleanliness regulations.

The kinds of partnerships envisaged might entail adopting processes and enacting waste regulations that include NGOs, CBOs, and small-scale collectors and sorters and that address issues like local dumping sites, waste-disposal pits, and ways to deal with waste locally, such as burning, burying, composting, recycling, manual and other forms of pit-emptying, and local treatment of waste. The regulations must be relevant to local problems and solutions and enforceable at the local level, depending on the type of waste. Waste should be discussed at a local level; a consensus should be reached; and regulations should be passed.

Such partnerships must also investigate appropriate technology. The current system is based on capital-intensive imported equipment. The role of hand-drawn carts and manual emptiers, for example, must be investigated. Harnessing of local resources for waste management is important. This must involve local leaders, including 10-cell leaders (neighbourhood leaders, originally each *loongi* after 10 houses), local elders, neighbourhood chairs, and religious leaders. As there is possibly no need to collect all the waste, the role of sections of households and other actors engaged in waste management should be investigated. This includes women, as they are the ones concerned with removing waste from the household premises. And it includes informal sorters, who are mostly men. Waste management definitely can generate income, particularly through recycling but, to a lesser extent, through composting and energy production.

Finally, a public-education campaign is needed to encourage people to participate in maintaining cleanliness, not just on their own premises, where current efforts are producing a satisfactory environment, but also in open or public areas.

CONCLUSION

The collection and disposal of liquid, solid, and industrial waste are major problems in Dar es Salaam. Although undealt with waste is a visible testament to failure in local governance, this is not a unique problem. Problems are experienced in other areas of urban governance, including the provision, management, and maintenance of infrastructure and other public services. These problems are rooted in the whole management arena of Dar es Salaam. Overlapping institutional arrangements, poor local revenue collection, poor relationships between councillors and officials, poor relations among the DCC, the citizens, the private sector, and the NGOs and CBOs, and lack of accountability and transparency have all contributed to poor urban governance that manifests itself in poor waste management. Waste management in Dar es Salaam is poor, despite the move toward privatization. Proposals have been advanced that may improve this situation, but they all hinge on overall improvement in the governance of Dar es Salaam.