

Guidance Pack

Private sector participation in municipal solid waste management



Part IV

List of Terms and Definitions

Compiled by Adrian Coad

Definitions of some technical terms and clarifications of the way certain words are used in this Guidance Pack.

Words that appear in this list are generally written in *italics* the first time that they appear in a particular chapter in the Guidance Note.



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LIST OF TERMS AND DEFINITIONS

This includes a wide range of words for which dictionaries may not be a suitable source of help, because

- some of the words are technical terms which may not be found in most dictionaries;
- some words have several meanings, and this list explains how the words are used in this Pack;
- some words are used in different ways by different writers or in different countries, and this list explains the meaning given to particular words in this publication. (An example is the term "Public/private partnership", which many people use in a general way for all forms of private sector participation, but which has a more precise meaning in this Pack.)

It is anticipated that the readers of this Pack will come from many backgrounds – both in terms of formal education and mother tongue. No reader will need to refer to all definitions, but it is expected that most readers will benefit by consulting some of them.

After some definitions are references to sections in Part II where there is more information to help understanding of the

particular word or term. The explanations of some terms are much more than definitions, providing also perhaps some background information or an indication of importance.

The first time a word in this list is mentioned in each chapter of the Guidance Note, it is written in *italics*, so that the reader knows that a definition is available.

Following the definitions of words there is a short list of *abbreviations* with brief explanations of what they stand for.

This word list is provided as a separate document so that it can be used conveniently with either Part II or Part III. It will also be of some help in understanding the documents in Part V.

Definitions followed by the initials "ERM" are based on definitions in the word list of the World Bank/SDC *Planning Guide for Strategic Municipal Solid Waste Management in Major Cities in Low-income Countries* (ERM, 1998). Some definitions have been kindly provided by Prasad Gopalan of the International Finance Corporation.

WORD LIST

accountability

In general this word refers to the basic principle that the manager responsible for a service such as MSWM should have the authority to control all of the necessary functions of the organization. In return should take the responsibility for ensuring that the organization operates in a satisfactory and cost effective manner. (ERM)

In this pack the main emphasis is on the second aspect. Private sector service providers should sense that they are accountable to the people whose waste they collect and to the local government agency that has engaged or licensed them. The companies know that if they fail to provide the required service in the required way, there will be negative consequences. Such accountability results from a well prepared contractual agreement, from effective enforcement of the terms of the agreement, and from the understanding that there will be financial penalties if expectations are not met.

Many microenterprises draw their workforces from the communities that are served. The quality of the services they provide may benefit from the accountability that the laborers feel towards their neighbors who expect a fair and satisfactory service.

The public sector agency responsible for the service should also feel accountable to both the public and the elected representatives for the way it oversees the service. The accountability of the agency is increased if it is aware that it will be challenged if it does not ensure satisfactory standards.

acre

A measurement of area. 1 acre is 0.405 hectares and 1 hectare is 2.47 acres

affordability

Ability of an individual or a community to pay for the MSWM services as proposed. (ERM) A proposal is said to be affordable if it requires an individual expenditure below a certain percentage of the average or minimum wage. (See also *willingness to pay*)

- aftercare** This refers to the work that needs to be done to a sanitary landfill after it has been closed. (See also **closure**.) For perhaps twenty to thirty years after the closure of a landfill containing mixed municipal waste, the wastes in the landfill continue to produce leachate (polluted water) and gas, and the wastes settle or subside as a result of decomposition and compaction of the waste. Aftercare involves monitoring the “postclosure” effects of the landfill on the environment, and the elevation and topography of the cover over the waste, and taking any action that is necessary.
- amortization** This is the paying of a loan for a capital expenditure by regular (monthly) payments. These regular payments include a component of repayment of the capital sum (the principal) and a component to cover the interest.
- apex agency** Generally, this is the agency at a higher level which would be responsible for a collection of agencies. For example, an apex agency could be the ministry of urban development which could collectively negotiate for a group of smaller urban local bodies which need waste collection services. (Prasad Gopalan)
- arm roll** This is a type of mechanism used on a truck to enable it to pick up, empty and put down a large container that can be used to carry solid waste or other materials. The containers may be described as **roll-on containers**, and they typically have capacities between 6 m³ and 30 m³. Other terms for the same type of lifting mechanism are **hook lift** and **roll-on-roll-off**. The concept is illustrated in the following figure.

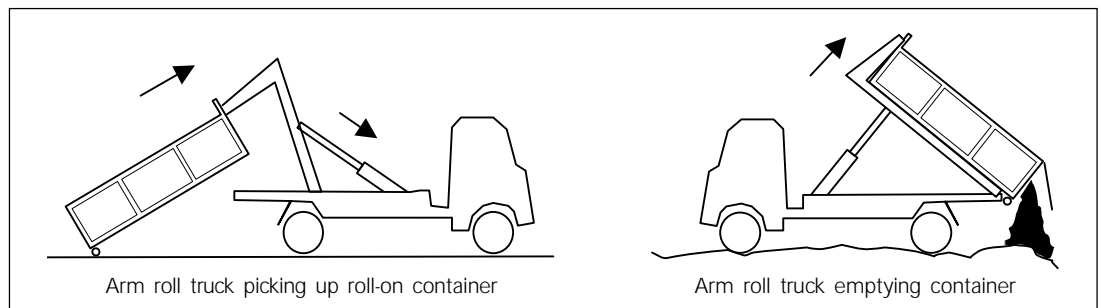


Figure IV-1 Arm roll truck

- arm's length company** An expression used in UK to refer to a company that is owned by a local authority but is at some distance (“arm’s length”) from the client and regulatory functions of the local authority in terms of its accounts, its management and staff, and, preferably, the location of its offices.
- attenuation** In the context of the management of leachate at a sanitary landfill, **natural attenuation** refers to natural treatment processes improving the quality of leachate as it filters down through the soil. Many waste management engineers regard this as a suitable strategy for leachate management when the flow is slow, the soil suitable for providing treatment, and the time taken for the treated leachate to reach groundwater resources is very long. The alternative approach is (i) to select a site where no leachate can escape into the soil, and collect and treat the leachate in a wastewater treatment system, or (ii) where the soil is not capable of preventing the movement of leachate, the site must be **lined**, and the leachate collected and treated.
- attrition** In the sense that this word is used in this publication, it refers to the reduction of the size of a workforce. Natural attrition is the reduction of the workforce without dismissing employees. Natural attrition relies on older staff retiring and others leaving voluntarily, to take up employment elsewhere.
- autonomy** An organization has autonomy if it has the authority and responsibility for all six organizational functions required to function effectively. (These six functions are planning, operations, commercial, financial, administrative support and monitoring.) Improving autonomy enhances accountability and responsibility for quality of performance. (ERM)

- availability** When applied to equipment or vehicles it means the percentage of time that the item is in a condition such that it can perform the work for which it is intended, and not required for any maintenance or testing purpose that would prevent it from being used for this work.
- bid bond** The corporate surety bond or a certified check drawn on a national bank, in the amount specified in the Instruction to Bidders, submitted with the bid as a guarantee that the bidder will, if called upon to do so, accept and enter into the Contract. *(Source NSWMA, see Part V)*
- bioaerosol** An aerosol is a collection of fine droplets of a liquid. The droplets are so small that they can stay suspended in the air for sufficient time that they can be inhaled (breathed in). If there are microorganisms within the droplets, infection can be transmitted by inhaling the aerosol. A bioaerosol contains living organisms (such as bacteria and fungi) within the droplets.
- block collection system** A reasonably low-cost method of collecting solid waste from houses. A vehicle stops at each block, or at street corners, and sounds its horn or plays an electronic tune (jingle), or someone rings a bell. At this signal someone from each neighboring household should come to the vehicle, bringing the solid waste so that it can be tipped directly into the vehicle. With this system there is no storage of waste in the street (a common cause of complaint) and the team of laborers with each truck can be small – one or two. However the system is not suitable if there are houses where there are no residents at home at the time that the truck comes, so the hours of working may be limited to one or two hours in the morning and a few hours in the evening. In some places the residents may not like to keep their waste on their property until the next time that the truck comes. The timing of the service must be very regular. (This system should not be confused with the house-to-house collection method in which a collection laborer rings a bell to ask the residents to have their waste ready for collection at their front gate.)
- body** The body of a refuse collection truck is the tray, box or lifting device that is fitted onto a truck chassis, as shown in the following sketch.

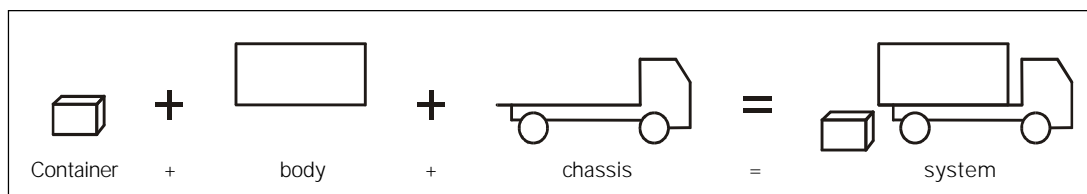


Figure IV-2 Sketch indicating the meaning of truck “body” and collection vehicle system.

- buffer** In the context of a waste disposal or treatment facility, a buffer is a strip of unused land around the facility to separate it from the surroundings. The buffer serves to reduce the impact of the site or reduce pollution from the site that reaches the surrounding land users. The buffer may be left in its original state or planted with trees or shrubs.
- bundling** Bundling is the joining or grouping together of enterprises or operations, often for purposes of financial or management efficiency.
- byelaw** Refers to subordinate municipal legislation, applicable and enforceable only within the legal borders of the municipality. Byelaws or municipal ordinances cannot be contradictory to national legislation. (ERM)
- cadastral information** This refers to information that has been collected from land surveys or scale maps of the urban area. Information is collected about the location, shape and dimensions of every plot of land, and perhaps also about the sizes and number of storeys of the buildings on the land.
- calorific value** The quantity of heat generated when unit mass of a material undergoes complete combustion under certain specified conditions. It is expressed in terms of kiloJoules (kJ) or kilocalories (kcal) per kilogram for solid or liquid materials. (ERM). (1000 kcal/kg is equivalent to 4200 kJ/kg. The

higher (or “gross”) calorific value is for dry waste and the lower (or “net”) value includes the effect of the moisture in the waste.) It is vital to assess very thoroughly the lower calorific value of wastes before considering incineration, since it is not possible to incinerate the wastes of many developing countries without using large quantities of extra fuel (such as oil or gas). Determining reliable calorific values needs carefully designed field studies to obtain representative composition and moisture content data.

- capacity building** Improving and building the technical and managerial skills and resources within an organization. (ERM) This could include training in technical, managerial and administrative fields, the provision of extra staff, the development of computer software and administrative procedures, and new personnel management policies.
- capital cost** Investment cost. Includes items such as land, site development, infrastructure, plant and equipment, and license costs. (ERM)
- cartel** A cartel is an unofficial association of potential contractors or suppliers. The purpose of this association is to fix prices (of bids in this case) at levels that are higher than they would be under conditions of real competition. (See also **collusion**.)
- cell** Most modern methods of operating sanitary landfills divide the total area of the landfill into cells, such that one cell is filled before another cell is used. Each cell is usually separated from the rest of the site by a bund or wall made of soil or inert waste. By filling a landfill one cell at a time, water pollution can be reduced and operations can be supervised more effectively. Sometimes two cells are operated simultaneously, one being for a special type of waste (such as waste from hospitals).
- centroid** The centroid is analogous to the center of gravity. It is the mathematical center of a body which may have an irregular shape, and so it can be used as a reference point to represent an area. In the context of this publication, it is a point in an urban area that is used to represent the distance of that area (i.e. all the distances from different parts of the area) from an external reference point, such as a transfer station or disposal facility.
- change orders** In a construction contract, the construction contractor often works according to designs that were prepared by another organization. Often, during the construction process, it becomes apparent that the design should be modified in some way. The contractor is instructed to make these modifications by means of a “change order” or “variation order”. These modifications often result in extra work and expense for the building contractor, so he files claims asking the client for an extra payment to compensate for the extra work (that was originally unforeseen and that was not caused by any fault in his work.) Change orders are also used to add to the scope of services to be rendered beyond what was originally envisioned in the contract. (See disposal contracts, Part V.)
- chassis** (pronounced “shassee”) The wheels, motor, transmission and frame of a truck onto which a wide range of bodies can be fitted. See **body**.
- clandestine** Secret or unannounced. When waste must be transported a long distance to the disposal site, a driver may prefer to unload the waste at an unauthorized place that is nearer than the disposal site, in order to save time and effort. This is clandestine dumping because it is done without the knowledge of officials. If a contractor must pay a significant fee for disposal of waste at the official site, he may prefer to save money by unloading the waste secretly at an unauthorized point – clandestine disposal. Such clandestine dumping can cause serious pollution and degradation of land.
- closure** The procedure a landfill operator must follow when a landfill reaches its legal capacity for municipal solid waste disposal. It includes ceasing acceptance of municipal solid waste and placing a cap of soil on the landfill site, and landscaping.
- collection points** Places set aside for the transfer of waste from small vehicles (such as handcarts, tricycles and carts pulled by animals) to large vehicles. The incoming loads are generally less than one cubic meter in volume.

- collusion*** Potential contractors (which should be rivals, each developing a separate bid in secret) agreeing together on the prices they will bid so that the prices are higher than they would be under conditions of real competition. Such practices are unethical and usually illegal. (See also *cartel*)
- comfort letter*** A comfort letter is a document originating with the private sector firm (sponsor) and which forms a part of the contract documents. It indicates to the grantor the willingness of the sponsor to undertake certain desirable actions. For example, a contractor could provide a comfort letter indicating that there would not be any changes in management of the company or its technical partner. Alternatively a letter of comfort could be written to demonstrate access to equipment or key personnel who may be important to the contractual relationship sometime in the future. It is the "comfort" of the grantor that is of concern, and anything to satisfy the grantor's "level of comfort" is considered as a comfort letter. They are relevant to all types of contractual agreement. (Prasad Gopalan)
- commercialization*** This is the changing of a government organization so that it acquires some of the characteristics of a private commercial enterprise. Government agencies for solid waste management are restructured into quasi-private enterprises with some degree of government oversight, but with the management freedom to operate at optimum efficiency and generate revenues exclusively for their own use. Commercialization seeks to graft many of the strengths of the private sector onto a decentralized government organization. Various forms of commercialization, with varying degrees of autonomy, include private corporations, public corporations, semi-private corporations, and public authorities.
- Commercialization reduces government control over decision making. If the public organization has been fully commercialized, the only government ownership may be the shares and the only influence may be the Board appointments.
- Commercialization involves changing the financial arrangements of the solid waste organization, including creation of segregated accounts and separate revenue streams. As part of the commercialization process, the public solid waste organization is typically changed in its organizational structure so that has more autonomy and accountability. (See section 4.2.1)
- communal collection*** A system for waste collection in which individuals bring their municipal solid waste directly to a central point, from where it is collected. (ERM)
- communal storage*** A storage facility or location that is shared by a number of households. Communal containers are provided by the municipal authorities. (In the Indian Subcontinent the terms "community storage" or "community bins" are used because "communal" is used to refer to religious groupings.)
- compactor truck*** This is a vehicle that is specially designed for collecting low density solid wastes. There are several different types, but they are all designed to lift and compress wastes so that the body of the truck is filled with the full weight of wastes that the truck is designed to carry. These trucks have not been successful in many lower-income countries because the wastes are denser and so the trucks may be seriously overloaded (causing problems for the chassis and the roads), and also because of maintenance problems, and rapid corrosion caused by wet and abrasive wastes. A photograph of a compactor truck is shown as Photograph 2 in Part I. A detailed discussion about the suitability of compactor trucks in low- and middle-income countries is given in a book published by the United Nations Centre for Human Settlements (Habitat) entitled "Refuse Collection Vehicles for Developing Countries" ISBN 92-1-131066-0, and available from UNCHS, P O Box 30030, Nairobi, Kenya.
- concession agreement*** Refers to a concession awarded by a municipality (or other grantor) to a private company, via competitive tendering, to design, build and operate (DBO) a facility for treatment and disposal of municipal solid wastes. Variations include build, own and operate (BOO) when the finance is provided by the private sector company, and build, own and transfer (BOT) when the ownership transfers at an agreed date to the grantor. Such agreements provide for the municipality to pay a gate-fee for each tonne of waste delivered. (ERM) (See Box 4.2.)
- (Additional comments by Sandra Cointreau-Levine follow:) Concession agreements are commonly long-term agreements wherein the private firm builds and makes a significant portion of the

capital investment for a new facility. However, concession also means that a company is given the opportunity to make revenue from handling some aspect of the solid waste. That is why compost mining operations and billing operations could be referred to as concessions. The differences in usage are exacerbated by the French use of the term “franchise” in a manner which is different from the English usage.

However, to avoid confusion, in this publication the term “concession” will be used to refer to large DBOT or BOO projects which involve the construction of facilities. (Sandra Cointreau-Levine)

- concessionaire** A private company that has won a concession to provide a service by means of a facility, and has signed a concession agreement. This term may refer to the company as a whole or to the owner of the company. The pronoun “he” is used to refer to the owner of the company that has the concession, on the understanding that the owner could equally be male or female.
- consumables** Consumables are relatively small items that are required at relatively frequent and regular intervals. In the field of vehicle maintenance, oil filters, oil, tires and clutch plates could be described as consumables, whereas gearboxes would not be. Plastic bags for holding waste, and brooms could be classed as consumables, but a handcart would not be.
- contestability** Contestability is the degree to which it is easy for a contractor/franchisee to take up a contract/franchise or to stop working in this field. In a highly contestable situation there are no barriers to entry and no extra costs involved in beginning or ending contract work. For example, collection of solid waste using open trucks is highly contestable since any contractor with a few trucks (which may have previously been used for other purposes) can start working on waste collection without incurring significant costs. If he decides later to stop collecting waste, there is no financial loss because the trucks can be redeployed on other work. Similarly, if specialized waste collection trucks are used, but it is easy for a contractor to buy and sell them, the contestability is high. If there is a high degree of contestability, then it is realistic to expect competition since it is easy for a number of private companies or government agencies to join the bidding. If contestability is low there may be very few companies that are able to bid, and a monopoly situation may result. In the context of the Guidance Note, contestability is characterized by the opportunity for competition and comparisons between public and private sector operations. (See Box 1.1 and Section 3.6.)
- contiguity** See *economies of contiguity*.
- contract** As much as possible, this word is used only in the context of a contractual relationship (including service and management contracts) in which a contractor is paid for a service directly by the grantor. When franchises or concessions might also be included, the more inclusive word “agreement” is generally used. In this Pack **contractual** is used in a slightly different sense as defined below. (See Section 4.2.3.)
- contract documents** The Request for Bids, Instructions to Bidders, Contractor’s Proposal, Contract Specifications, the Contract, Performance Bond or Letter of Credit and any addenda or changes to the foregoing documents agreed to by the grantor and the contractor. (Source NSWMA, see Part V)
- contractor** As for **contract** above, in this publication, this word is used to refer to private sector operators who have an agreement with the grantor that the fee for the work will be paid directly by the grantor. The pronoun “he” is used to refer to a contractor, on the understanding that the owner of the contracting company could equally be male or female.
- contractual** In this publication, this word is used in a more general way than **contract** and **contractor**. It is applied to all types of agreement, including franchises and concessions, as well as for management and service contracts, and is used to emphasize that the agreement is legally binding on both parties.
- controlled landfills** The two extremes of land disposal are open dumping (with no measures to minimise environmental pollution) and sanitary landfilling (which employs modern techniques to minimise all forms of nuisance and pollution). However there are many possible operating techniques between

these two extremes. Rushbrook (1999) suggests that open dumps can first be upgraded to controlled landfills, then to engineered landfills, and finally to sanitary landfills. According to his definitions a controlled landfill uses some of the operating practices of sanitary landfilling – controlling the area where the wastes are placed and covering the wastes with soil each day, but there are no measures for containing or treating leachate.

- co-opetition** is a new business philosophy that combines the advantages of competition with cooperation. (See Box 3.3 in Section 3.6.)
- corporatization** Corporatization refers to making the entity commercialized, which means having income relative to expenditures and a customer-based orientation. The corporatized entity is like a corporation, but is not a corporation. (Sandra Cointreau-Levine)
- cost recovery** Recovering the cost of municipal solid waste management, or other municipal services, from the users. Cost recovery may be by *direct* or *indirect* charges. (ERM)
- cover** In the context of landfilling, “cover” refers to a layer of soil or inert waste which is laid over the waste for various purposes. “Daily cover” is placed at the end of each working day, to reduce windblown litter, smells and numbers of flies, birds and rats. It also provides a surface for vehicles to drive on. As part of the closure process, “final cover” is used to prevent water from seeping down into the waste and go give a sufficient depth of soil so that vegetation can be planted.
- coverage** (or service coverage) is the percentage of generators who receive the particular service or the percentage of waste generated in a city, district or zone that is actually collected. So “60% coverage” could mean that 60% of the residents have a waste collection service or that 60% of the waste of the area concerned is collected.
- cross subsidies** One of the criteria for sustainability is often said to be that the income from user fees should cover the expenses of providing the service. The ability to pay for the service varies considerably within an urban area – residents who have very low incomes may not be able to pay their share, whereas prosperous residents or large commercial generators may be able to pay much more than their share of the costs. A system of cross-subsidization requires prosperous residents or commercial generators to pay more than their share, so that low-income residents can pay less than their share. The excess paid by prosperous or larger generators subsidizes the poor.
- curbside collection** Method of collecting domestic solid waste in which the householder is responsible for putting the waste (in a container) outside his property at the curb- or roadside at specified times for collection. The container should generally be kept within the property.
- debt service** Debt service on investment refers to the costs incurred by borrowing money. Most of this cost is interest on the sum borrowed, but there may also be other charges such as insurance premiums, not related to the items purchased with the borrowed money, but purely related to the loan itself.
- debt service coverage ratio** This is a standard financial term - and it means the ratio of the cash flows to the debt service obligations (interest and principal repayments) of a company over a period of time. (Prasad Gopalan)
- density** This term is commonly used in two senses in solid waste management.
- (1) The density of a housing area refers to the number of people living in one hectare or one square kilometre. Solid waste management problems are usually greater in high-density areas because the roads are generally smaller, and there is less space for storing wastes, either on the streets or within the yards of houses.
 - (2) The density of solid waste refers to the weight of one cubic meter of the waste. A high-density waste may have high proportions of soil, vegetable matter and moisture, whereas a low-density waste might be mostly plastic and paper packaging, with a low moisture content. The density of the waste has an important influence on the selection of methods for collecting the waste.

<i>depreciation</i>	Capital costs (of assets such as trucks or buildings) are spread over several years (the economic life of the asset). The value of the asset is reduced or depreciated each year so that it is zero when the asset is considered to have reached the end of its useful life. Depreciation provisions are 'costs' and not 'expenditures' of an investment. They do not involve cash outlays but are a measure of the annual value (or cost) of physical assets used up in the provision of the service. They must therefore be taken into account when assessing the full cost of providing the service. This is one of the principal differences between the largely cash-based accounting systems sometimes used and the accruals based accounting system. (ERM) Governments often define a standard period of time over which a particular type of asset should be depreciated; for vehicles this period is often five years.
<i>differentiated base user fee level</i>	It would be possible to match the magnitude of the user fee to the ability or willingness to pay for services. Since different segments of a population could place differing values on a specific service (say waste collection) the need to differentiate the fees may arise. (Prasad Gopalan).
<i>direct user charge</i>	<p>(1) Proportional: The user of the service is charged for the use of the service, related directly to the extent of use. Direct charges are used widely for the collection of commercial and industrial wastes (for example, an industry might be charged according to the number of containers taken away and emptied, or according to the weight of waste collected. Direct charges are not often used for the collection of household wastes (ERM)</p> <p>(2) Flat rate: A charge that is to be paid for a particular service (such as waste management) that is distinct from charges or fees that are for other services. The customer/generator is informed of the amount that is being charged for solid waste management.</p> <p>Definitions of direct charges and indirect charges vary. In this Pack, direct user charges can be collected with utility bills or separately, as discussed in Section 5.16. (The alternative method of revenue generation is to collect a general municipal tax to pay for a number of services. In this case the allocation to solid waste management is uncertain, depending on the priorities of the political leaders.)</p>
<i>discharge location</i>	The place where a vehicle (which is used to collect or transport waste) unloads its waste. It is usually a transfer point or station, or a treatment, recycling or disposal facility.
<i>disposal, (dispose)</i>	1. The final placement of MSW that is not salvaged or recycled. 2. The process of finally disposing solid waste in a landfill. (ERM) There is some difference of opinion as to whether composting and incineration are disposal processes, since both produce residues that are subsequently landfilled.
<i>down, downtime</i>	When used to describe the condition of mechanical equipment the word "down" means "not functional", "damaged", "in need of repair" or "undergoing maintenance or repair". "Downtime" is the time when the equipment cannot be used.
<i>downstream operations</i>	This term is based on the comparison of the movement of solid waste with the flow of a river. The waste is considered to flow from the generation stage (through pre-collection) to collection and transportation, through possibly transfer, sorting or processing, to final disposal. If collection is being considered (for example), downstream operations would refer to the stages of transfer, processing, sorting and disposal. (See also <i>upstream activities</i> .)
<i>drop-off station</i>	Where car ownership is common, it is desirable to provide facilities where householders can bring their wastes (especially bulky items) in their own cars. Such facilities may be provided for householders to bring materials that can be recycled. Other arrangements may be made for householders to bring unwanted items that are classed as hazardous (such as old paint, waste oil, and unwanted household and garden chemicals). Usually there is no charge to domestic generators bringing their own wastes. All such facilities can be referred to as "drop-off stations" or "drop-off centers"
<i>dustbin</i>	This is a container having a capacity of 60 to 90 liters which is specially designed for the household storage of domestic solid waste. It has handles and a lid, and may be made of plastic (usually PVC) or galvanized steel.

economies of contiguity This refers to the physical layout of a collection route. A collection route is contiguous if it includes all the sources of waste along that route. This is not the case when there are several collection agencies collecting from the same street under a private subscription (or open competition) arrangement, because in such a case one truck may collect waste from a house, then drive past several houses which are served by other companies. As a result each truck collects from only some of the houses in the street. Such an arrangement is not economical because it involves wasted time - travelling past houses where the waste is not collected -, and extra travelling – driving for more kilometers to fill the truck. This arrangement is said to lack economies of contiguity, and this lack is one of the main disadvantages of private subscription.

economies of scale Reductions in the unit cost of the production of a commodity or the delivery of a service resulting from production or delivery on an increasing scale. This is illustrated in the Figure VI-3.

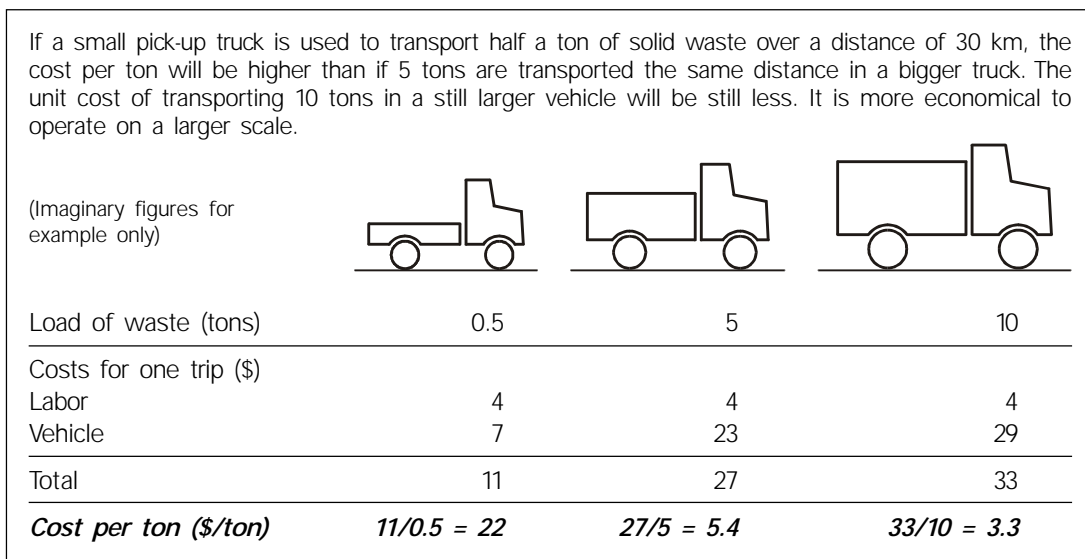


Figure IV-3 Example of economies of scale - long-distance transportation of waste (From Haan, 1998)

effectiveness The effectiveness of a service means the extent to which the objectives of the service have been met in practice. For example, a street sweeping service is effective if the streets are clean. (ERM)

efficiency A service is efficient if the available resources are used in the best possible way. (ERM)

environmental impact assessment (EIA) An environmental analysis prepared to determine whether and how an action (such as a proposed development project) would significantly affect the environment. It may also include the mitigation measures required to reduce the impacts to an acceptable level. (ERM)

equal opportunity This refers to legislation and concern that there should be no discrimination in awarding contractual opportunities or employment, in working conditions or in ensuring rights, that is based on gender, ethnic background, religion, political affiliation, or other factors not connected with the ability to perform the required function.

equitable collection zones When preparations are being made for the private sector to become involved in collection of solid waste, it is preferable to arrange the work so that there will be some competition between the various contractors, and between contractors and the municipal workforce. This requires that the area receiving the collection service be divided into a number of zones, such that several contractors bid for each zone. To allow comparison between the contractors working in the different zones the zones should be **equitable** – that is, equivalent or similar. If the zones are equivalent and the collection crews are facing similar circumstances in each, it is easier to compare their performance in a fair and useful way.

<i>firm</i>	This word means the same as “company” in the sense that a private firm is the same as a private company.
<i>fleet</i>	Although conventionally the word “fleet” is used to describe a group of ships, it is also applied to a group of vehicles. So the phrase “municipal collection fleet” means all of the trucks that are owned by the municipality and used to collect solid waste.
<i>flow control</i>	This refers to the control of the flow or movement of solid waste, usually in the sense of directing a specified daily quantity of solid waste to a particular treatment or disposal facility so that the facility is economically utilized. For example, a concession contract for the operation of a composting plant may guarantee that the waste collection agency will deliver a minimum daily tonnage of solid waste to the plant, so that the plant can always operate at full capacity. See also <i>Take or pay</i> and Section 5.5.
<i>feasibility study</i>	1. Analysis of the practicability of a proposal. The feasibility study usually recommends the selection of a cost-effective alternative. 2. A small-scale investigation of a problem to ascertain whether a proposed research approach is likely to provide useful data. (ERM)
<i>feet, foot</i>	A measurement of length: 1 ft is 0.305 metres and one metre is 3.28 ft.
<i>force majeure</i>	A term widely used in contractual agreements to refer to events or situations which are outside the control of either party and that cannot be anticipated. Examples of such events are wars and earthquakes, but it might also include the refusal of a request to renew a permit, a decision of a court, or changes of laws. (The definitions sections of some of the contracts in Part V give further information on this term.)
<i>franchise</i>	In MSWM terms, it refers to the method and agreement by which a Municipality awards, via competitive tendering, a monopoly to a private company to deliver a particular service, in a defined area and for a fixed period. Generally the private company provides a performance bond to the municipality and pays a franchise fee to cover costs of monitoring service provision. (ERM, modified)
<i>franchisee</i>	A private company which has won a franchise to provide a service, and has signed a franchise agreement. This term may refer to the company as a whole or to the owner of the company. The pronoun “he” is used to refer to the owner of a company that has a franchise, on the understanding that the owner could equally be male or female.
<i>generator</i>	Any person or organization whose actions or processes generate municipal solid waste. (ERM) This term may be used in some situations instead of terms like <i>customer, consumer, user</i> or <i>beneficiary</i> . Waste is generated when a person decides that an item is of no further use or value and places it in a container or at a location from where he hopes it will be removed. A generator is not the same as a producer, since the producer of waste is considered to be the person or organization that manufactures the items that are later considered to be waste.
<i>government</i>	In this Guidance Pack this word is used to refer to the public sector in general, and includes local government (municipalities and city administrations), regional (provincial or state) government and national government.
<i>grantor</i>	The individual, party or organization that offers a contract and signs as provider. The grantor may also be referred to as the “client” or “employer”. In the case of solid waste management, the grantor is often the municipal organization that has legal responsibility for ensuring that a solid waste collection and disposal service is provided. In the case of contracting, the grantor pays the contractor, but this is not the case under a franchise agreement.
<i>haul distance</i>	The distance over which the wastes must be transported - either from (a) the last pick-up point of the collection vehicle or from (b) the transfer station - to the disposal site. (ERM)
<i>hauler</i>	The company that transports solid waste to a transfer station or disposal site.

<i>hazardous waste</i>	Waste generated during production, or other activities by society, that can pose a substantial or potential hazard to human health or the environment when improperly managed. Possesses at least one of the four characteristics – ignitability, corrosivity, reactivity or toxicity. (ERM) See also “healthcare wastes”.
<i>healthcare wastes</i>	These are wastes arising from the practice of medicine, including dentistry, alternative medicine (such as acupuncture), medical laboratories, home treatment and veterinary practices. Most healthcare wastes are no more hazardous than domestic wastes, but some can be very dangerous. It is important to remember that healthcare wastes do not only come from large hospitals, but also from small clinics and nursing homes, and even individual dwellings.
<i>hold harmless agreement</i>	An agreement to indemnify and protect (i.e. to save harmless) the grantor against any claims for financial compensation and to reimburse any expenses associated with any claims, damages, losses or expenses arising from or resulting from any injury, sickness, disease, death, or damage to, or destruction of, property, these claims etc. being attributable to the performance of the work or to an act or omission of the contractor. (Prasad Gopalan, modified)
<i>host fee</i>	This is an extra fee paid for receiving waste that is brought from outside the area of the local authority that is responsible for the disposal facility. In the case of a landfill that is operated as a concession, the operator usually pays a fee to the grantor for each ton of waste received, but pays extra for wastes received from outside the area of jurisdiction of the grantor. This extra payment is known as the host fee. (The concessionaire can maximize his profits by accepting as much waste as possible, but communities around landfills usually oppose waste being brought in from other communities. The host fee is a mechanism for reducing the incentive for the concessionaire to attract a large quantity of waste from other areas, and also for sharing any benefits from such waste with the receiving community.)
<i>informal sector</i>	The part of an economy that is characterized by private, usually small-scale, labor-intensive, largely unregulated and unregistered manufacturing or provision of services. In municipal solid waste management it refers to recycling activities (waste picking or scavenging). (ERM)
<i>intermunicipal</i>	An intermunicipal agreement involves – or is between – a number of distinct municipal administrations which have joined together for a particular project. An example is a disposal facility which is designed to serve a number of towns in a region in order to be large enough to benefit from economies of scale. The agreement defining responsibilities and rights regarding this facility is an intermunicipal agreement.
<i>iterative</i>	This refers to a process of design or decision-making where feedback inputs are received over a period of time and this feedback is used to design and make successive changes. Each step or iteration may alone be small, but each results in a significant development or modification so that the cumulative impact can be great. The word also includes the concept of gradually converging on the required result.
<i>joint venture</i>	This is the joining together of two or more different bodies for a specific enterprise. It may comprise a government body working with a private company (Box 4.1 in Section 4.2) or a combination of a local company with a foreign firm (Section 5.1).
<i>kickback</i>	Unofficial payment or bribe paid by a contractor to one or more individual(s) in the grantor organization for the purpose of obtaining payments that are due to the contractor, or to obtain these payments more promptly.
<i>laid out</i>	A housing or residential area is said to be “laid out” if the sizes and locations of the plots (on which the dwellings are built), and the roads serving them, were planned before construction was started, and adhered to during the construction of the dwellings. Some common words that imply the <i>opposite</i> to “laid out” are: “spontaneous”, “unplanned” and “squatter”.
<i>landfill</i>	Generally used to mean the same as <i>sanitary landfill</i> , though it may be used to indicate any disposal site where waste is deposited on land, rather than specifying the standard of the operation.

<i>layoff</i>	A colloquial expression for the firing, dismissing or retrenchment of employees in order to reduce the size of the workforce.
<i>leachate</i>	Leachate is polluted water which has become contaminated by its contact with solid waste in a landfill. It also includes water which has come from the waste itself - moisture that was in the waste when it was landfilled and water that is formed by decomposition processes within the mass of the waste. It is generally much more polluting than domestic or industrial wastewater, and a high concentration of ammonia is often a particular problem. It is usually black or dark brown in color, and sometimes has an oily appearance.
<i>letter of credit</i>	A written undertaking by a financial institution on behalf of the applicant (the Contractor) to pay the beneficiary (the City) for non-performance in amounts and under conditions as may be specified in the agreement. (Source: NSWMA see Part V)
<i>level of service</i>	See <i>service level</i>
<i>level playing field</i>	This is a picture of a situation in which competitors can compete on a fair basis, without either side having an unfair or unearned advantage. (Cartoon 2 in Section 3.4 shows the opposite - a steeply sloping games field where it is much easier for one team to get the ball (downhill) to the goal in which they are trying to score, than for the other team to get the ball uphill.) Competitors in a tendering competition could have an unfair advantage if they can successfully plan to ignore some of the requirements of the work, or if they have better information with which to plan their bid. In such cases the award of a tender could be based on knowledge not freely available or plans to provide an inadequate service, and so the competition would be unfair to reputable companies without access to inside knowledge. If a company feels that it suffers from a serious unfair advantage, it will be reluctant to participate in a tender competition.
<i>licensing</i>	This refers to the granting of permission for a private sector company to provide a service. Before a company is given a license it should be required to prove that it has the financial, human and physical resources to undertake the work. A company may be refused a license if it has been convicted in court of a financial or environmental offence. See Section 5.17.
<i>lien</i>	The legal right to hold another's property until a claim is met.
<i>lift</i>	This is a term used in landfilling to describe a depth of waste – either the depth of waste that is laid in one day or the depth that is laid before the operations are diverted to another cell.
<i>lined</i>	A lined sanitary landfill is one that has an impervious layer between the waste and the natural ground, so that no leachate can escape from the site. The leachate that is produced is collected and treated in a wastewater treatment plant. There are three major types of liner – (1) impervious soil (clay) which is carefully laid, (2) one or more layers of special, thick plastic sheeting very carefully joined, or (3) layers of high quality asphalt.
<i>liquidated damages</i>	This refers to compensation payments that are specified in a contract and payable if the contractor fails to provide a required service or facility in the specified way or at the specified time.
<i>low-income countries</i>	In the context of this publication, “low-income” refers to cities in low-income and lower-middle income countries as defined by the World Bank. The term “low-income country” is used to replace the term “developing country”. According to the World Bank Atlas classification system, low-income countries are those with a GNP per capita equal to or less than \$695 (in 1993 dollars). In comparison, lower-middle income countries have a GNP per capita between \$696 and \$2785, upper-middle income countries \$2786 to \$8625 and high-income countries have a GNP per capita equal to or more than \$8626. (ERM)
<i>managed competition</i>	Direct competition between municipal solid waste departments and private sector service companies for a publicly tendered service contract. (See Section 3.6.3).

<i>management contract</i>	A contract which engages expertise to direct manpower employed by the grantor and to use resources owned by the grantor. Management decisions are made by the contractor. The grantor pays only for management input. (For comparison see <i>service contract</i> .)
<i>market forces</i>	In many ways the enthusiasm for privatization has come from the belief that the desire to maximize profit is the best motivation for ensuring improvements in service provision and efficiency, provided that this takes place in an economic environment which is as free as possible from government intervention. If fair competition is allowed, the market (in other words, the preferences of consumers) will ensure that the best service or product generates the best financial return and so high standards are rewarded. These influences of competition in a relatively unregulated environment can be called market forces.
<i>metropolitan area</i>	A politically defined urban area set up for planning or administrative purposes that may combine several jurisdictions (municipalities or cities). (ERM)
<i>microenterprise</i>	A business, often family-based or a cooperative, that usually employs fewer than ten people and may operate <i>informally</i> . (ERM, modified) In Latin America a more restrictive definition is used; it includes the mechanism by which the enterprise is set up, as discussed in Box 4.3 in Section 4.3.
<i>mil</i>	A measurement of very small lengths, so in this context it is used to measure the thickness of plastic sheet or film. 1000 mils equal one inch. For example, a 60 mil HDPE liner is 1.5 mm thick.
<i>mile</i>	A measurement of length. One mile is 1.61 kilometres and one kilometre is 0.62 miles.
<i>mitigation, mitigative measures</i>	Mitigative measures are actions that are taken to reduce undesirable impacts, often on the environment. (ERM) These measures may be the installation of equipment (for example, to clean gases from an incinerator or filters to control odor) or modification to operational procedures (such as not accepting certain types of waste at a landfill or not operating on very windy days because of the scattering of paper and plastic.) Mitigative measures may also include design features (such the addition of an earth bund to hide operations from sight or reduce noise levels).
<i>monitoring</i>	Periodic or continuous surveillance or testing to determine the level of compliance with statutory requirements. (ERM)
<i>municipal solid waste (MSW)</i>	Includes non-hazardous solid wastes generated in households, commercial and business establishments and institutions, and non-hazardous industrial process wastes, agricultural wastes and sewage sludge. In practice, specific definitions vary from place to place. (ERM) A further discussion is given in (Schübeler 1996).
<i>municipal solid waste management (MSWM)</i>	“Management” refers to all activities that aim to minimize the impacts of municipal solid wastes on public health and the environment, including definition, characterization and measurement, storage, collection, transport, transfer, separation and resource recovery, processing and disposal. (See Schübeler, 1996)
<i>novation</i>	A novation clause in a contract refers to the situation when the contractor sells his company. Such a clause allows the new ownership to assume the rights and duties of the contract and releases the previous ownership from all obligation and liability. The new ownership would then be solely liable for any work and/or claims attendant to this agreement. A novation clause is not typical in a residential solid waste collection contract. However, since the sale of a business is not an unusual occurrence, it may be advantageous to provide a provision that lets the contractor out of the contract upon selling his business as a going concern to another entity. A novation is not an assignment of rights or a delegation of duties. The effect of a novation is that one of the original parties is discharged from the contract with the newcomer taking his place. A novation, as a discharge, relieves the removed party of future liability to perform a duty. (Information from NSWMA, see Part V)

NIMBY Acronym for “Not In My Back Yard”; an expression of resident opposition to the siting of a municipal solid waste management facility, because the particular location proposed is too close to their residence.

odometer This is a measurement indicator in cars and trucks to show the driver how many miles or kilometers the vehicle has covered since it was manufactured. The distance covered is important because it indicates when the vehicle needs regular servicing (such as oil changes) and can be used to monitor the use of fuel.

open burning The practice of setting fire to piles of waste at open dumps. Whilst it has the advantages of reducing the volume of the waste, reducing the content of biodegradable organics and reducing the presence of flies, it causes unacceptable air pollution and so should not be practiced as a means of disposal of municipal waste.

open competition Free competition between service providers. The Municipality generally compiles a register or issues licenses to companies considered competent to provide MSW collection, recycling or disposal services. These companies are then free to compete for contracts with individual householders and commercial establishments for MSW collection, recycling or disposal. Also known as “private subscription”. (See Box 4.2.)

open dump A site where solid waste is deposited in a careless, unplanned or unscientific way, with little or no concern for the environment nor for controlling the breeding of insects and rodents. The results can include water pollution, windblown litter, smoke and smell, hazards to the public, and the degradation of large areas of land.

open tipper A common type of truck that can be used for carrying a wide variety of loads. It has no roof or cover over the body that carries the load (open) and it unloads by inclining the body (tipper).

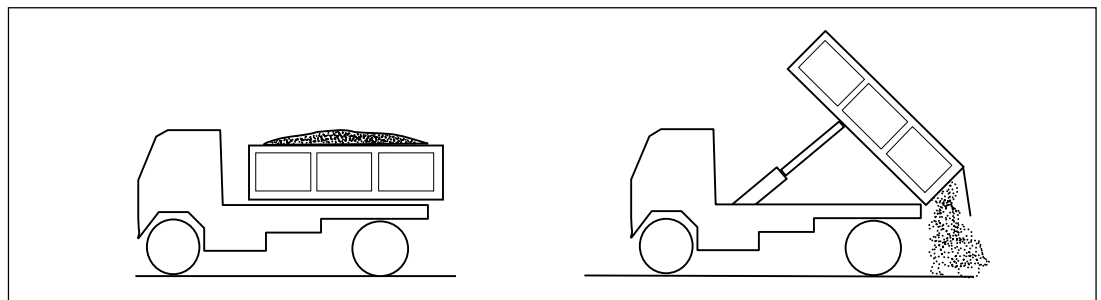


Figure IV-4 An open tipper truck

operating costs These costs are the day-to-day expenses of an operation. They include items such as labor, fuel, materials, chemicals, utilities, repairs and maintenance, and insurance. (ERM)

opportunity cost The opportunity cost of capital to be invested in a particular project is the income that that money could generate if it were used in another way, such as earning interest or being invested elsewhere. It is therefore the income that cannot be earned if the money is used for the project under consideration.

overlays (Annex A7) These are maps of a particular area drawn to the same scale on transparent paper or plastic film. Apart from the basic layout of streets, each map shows different features. (One might show population density, another the layout of the storm drains, a third areas that are prone to flooding.) By laying certain combinations of these overlays together, it is possible to see particular combinations of parameters and so answer questions related to spatial planning and operation of municipal services. The same can be achieved using GIS systems.

oversight Management oversight is used here to mean management inputs – always supervision, and often leadership, direction and control.

<i>payment bond</i>	Payment bonds are frequently required from a contractor who is to provide a public service such as the collection of residential waste. The purpose of such bonds is to afford a measure of protection to the laborers and other employees who deal with the contractor in performing his duties under this contract. These bonds are usually executed separately by a surety though their provisions for guaranteeing payment can be written in as terms of the performance bond. (Source: NSWMA; see Part V)
<i>performance bond</i>	A performance bond guarantees the faithful performance of the contractor's duties and obligations as provided for by the terms of the contract. It is a corporate surety bond that guarantees compensation to the grantor in the event that it must assume the obligations and/or duties of the contractor in order to continue the service as defined by the Contract's Specifications. The bond is used to cover costs incurred by the City should the Contractor fail to render service, forcing the City to deliver service itself or to contract with another hauler for the same service. A letter of credit guarantees the faithful performance of the Contractor's duties in a similar manner. (Source: NSWMA; see Part V)
<i>performance indicator</i>	Quantitative data related to service delivery, such as number of employees, length of streets or total tonnes of solid waste collected.
<i>performance measures</i>	The result of processing performance indicators, generally by relating them to either time or costs. Performance measures are the principal tool for performance monitoring. Examples include cost per tonne of solid waste disposed, and the length of streets swept per hour.
<i>performance monitoring</i>	Measuring the performance of a service on an on-going basis, in order to encourage the efficient use of available resources.
<i>permit</i>	An authorization, license or equivalent control document issued by a governmental body or an approved state agency in connection with the use of a facility. The permit indicates that the issuing agency is satisfied that the design, construction and proposed operating procedures will not cause unacceptable environmental pollution or other undesirable effect. The permit may also reflect the confidence of the issuing authority that the company concerned and the responsible staff are competent and capable to operate the facility. The legislation that requires the issuance of permits states that certain types of facility may not be operated without a permit and that failure to operate the facility in an acceptable way can lead to the loss of the permit. Permits may be required for the operation of transfer stations, recycling and treatment facilities and sanitary landfills. (In some countries this type of permit may be called a license, but in this publication the term "permit" is used for fixed facilities and "license" is used for companies wishing to offer a service.) See Section 6.6.
<i>permitting</i>	Although this word has the general meaning of "allowing"; it is used in a narrower sense in this publication to refer to the process of granting a permit in fulfillment of legal requirements.
<i>pickup truck</i>	A utility vehicle smaller than a truck but larger than a car, with an open load-carrying body at the rear. When used for carrying refuse, such trucks are usually fitted with higher mesh walls to increase their capacity.
<i>pilot test</i>	A trial run of a planned program conducted on a small scale to forecast the likely success or effectiveness of the planned program. Changes may be made to the program depending on the results of the pilot study. (ERM, modified) The pilot test may be used to collect data that will be needed for comparison with alternatives or for full-scale implementation.
<i>plant</i>	Though this word also means an item of vegetation, it is used here to refer to equipment – usually mechanical equipment – excluding vehicles that are used to transport people and materials on roads. Examples of plant used at disposal sites are bulldozers, pumps and lighting equipment.
<i>power tiller</i>	(Also known as a hand tractor or a two-wheeled tractor.) A small, motorized vehicle often used by farmers for pulling small trailers and other agricultural uses, as illustrated in Figure IV-5, and in Photograph 5.9.

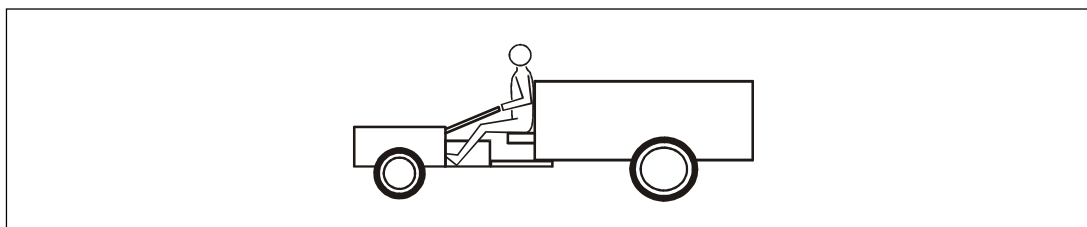


Figure IV-5 Power tiller

- pre-collection*** (also known as “primary collection”) The first stage in a collection and transport process that involves two or more stages before the waste arrives at the treatment or disposal point. Often pre-collection involves the collection of wastes from house to house using a handcart or animal-powered cart, and depositing them at a transfer point (from where they are picked up and taken away by a truck which provides secondary collection).
- private sector*** The part of the economy in which economic activity is carried out by private enterprise as distinct from the public sector. (ERM)
- private sector participation*** A partnership between the public and private sectors which allows the private sector to participate in service delivery. This term is preferred in the context of municipal solid waste management to “privatization” which implies that the public sector is no longer responsible for ensuring provision of the service. (ERM) Sometimes the term “public-private partnership” is used to mean private sector participation, but it is not used in this way in this publication, because it has a more precise meaning (see Section 4.2.2, Box 4.1).
- private subscription*** See ***open competition***. In the Guidance Note (Part II) this term is preferred to ***open competition*** for collection services since it stresses the individual relationship between each generator and the providers of the collection service.
- privatization*** Sometimes this word is used in a narrow sense to refer to the process of transferring the provision of an existing service or ownership of facility from government to the private sector. In this Guidance Pack ***privatization*** is used to refer to public sector participation in a general sense, without indicating that government reduces its responsibility for ensuring the provision or standards of the service.
- procurement*** In this Pack it usually refers to the process of finding and selecting a private sector service provider, and making the contractual arrangements for the service to be provided. In some cases it is used to refer to the purchasing of specific items, such as spare parts.
- productivity*** A measure of the output of (or useful work done by) a laborer or machine in a particular time. The productivity of a street sweeper could be expressed as the weight of waste collected by that laborer in one hour. The productivity of a waste collection vehicle could be expressed as the weight or volume of waste that it collects in one day.
- public awareness and education*** Public awareness and education campaigns can take many shapes and forms. Just a few examples are information leaflets, public hearings, radio programs, advertisements, lectures and school curriculum conventions. (ERM) Often public awareness campaigns have simple and clear goals, such as to change the habit or attitude of the public on a particular issue, or to encourage compliance with the requirements of a new collection system.
- public consultation*** This is the process of informing interested members of the public about plans for projects (in this case related to the storage, collection, transfer, treatment and disposal of solid wastes), and asking for their comments, ideas, reactions and preferences. In this way people who are not professionally involved can also take part in the decision-making process. The term “interested members of the public” generally means residents who live nearby, local businesses, or others who use land near any of the proposed sites (perhaps for recreational purposes), and NGOs with environmental concerns.

<i>public good</i>	This refers to commodities or services whose benefits are not depleted by additional users and for which it is generally difficult, if not impossible, to exclude people from its benefits, even if they are unwilling to pay for it. People that use public goods without paying for them are called "free riders". Municipal solid waste management exhibits the characteristics of a public good, and therefore it follows that the municipality (or another form of local government) has the overall responsibility for solid waste services. (See Section 2.1.)
<i>public/private partnership</i>	A joint venture established by government with the private sector to which each party contributes assets and resources, and each party assumes certain risks and responsibilities as defined in contractual agreements. While this term is sometimes used broadly to mean all public/private arrangements, it is a legally defined term in some countries (such as Indonesia) to mean a joint venture.
<i>pulmonary</i>	Related to or concerning the lungs. Waste management workers are exposed to airborne fungus (and other) microorganisms which can affect their breathing.
<i>put-or-pay agreement</i>	See <i>take-or-pay</i>
<i>recurrent costs</i>	<p>The costs incurred in operating municipal solid waste management services. They can include: direct operational expenditures, such as expenditure on wages, fuel, and maintenance; provisions (accrued expenses) for liabilities such as employee pension obligations and insurance payments; regular recurrent cash outlays, such as debt repayment and service charges (capital and interest); and a provision (depreciation) for recovering the value of the capital assets progressively used up in delivering the service. (ERM)</p> <p>It is important to note in this context that costs that the private sector must include as recurrent cost (roughly all the items mentioned above) may not be considered as recurrent costs by local government. For example, all capital expenditures of local government may be funded from another source (distinct from the source of recurrent expenditure), and so interest and loan repayments may not be included as recurrent costs for local government. Insurance may not be included. It is even possible that pension contributions will not be regarded as a recurrent cost for the solid waste collection service, because they are paid by another department. For these reasons the number of items included in recurrent costs by the private sector is often much more than for the public sector, and so the private sector may appear to have higher running costs.</p>
<i>recyclables</i>	Components in municipal solid waste that still have useful physical and / or chemical properties after serving their original purpose and that can therefore be reused, or re-manufactured into other products. (ERM, modified)
<i>redundancy</i>	<p>The reason given for dismissal from employment when the particular type of employees are no longer needed in previous numbers. In the context of this Pack, the public sector staff who are dismissed may have become redundant because the work has been taken over by the private sector, or because improvements in efficiency have reduced the requirement for employees.</p> <p>A <i>redundancy</i> can also mean a case of someone who is dismissed for this reason.</p>
<i>refuse</i>	(noun, accent on first syllable) Another term for municipal solid waste.
<i>regional</i>	For the purposes of this Pack, this refers to a geographical area within a nation that includes several adjacent local administrations or municipalities. One example of a regional area is a large metropolitan area that includes several municipalities, and in which it is necessary for economic reasons to share a facility such as a sanitary landfill. (The word is often used to mean several adjacent nations, but it is not used in this sense in this publication.)
<i>regulation</i>	Generally used for secondary national legislation; i.e. detailed instructions to implement a more general law. (ERM)
<i>respondents</i>	People who provide information and opinions for a questionnaire survey.

<i>restrictive labor practices</i>	This refers to actions or tasks that public sector laborers are not expected to undertake, usually as a result of strikes and pressure from labor unions. Restrictions may have been put onto certain tasks for health and safety reasons, or because they were unpopular with the workforce. Examples may be the handling of certain types of loads, the requirement that a truck driver must always be accompanied by an assistant, or the right of the crew of one collection truck to refuse to help the crew of another that is having difficulties. Private sector workers generally have much fewer of these restrictive practices, and so are able to operate more flexibly and to achieve higher productivities. The lack of restriction on working practices in the private sector is itself one of the key potential advantages of private sector participation.
<i>revenue</i>	Income, especially of large amount from any source (ERM).
<i>roll-on container</i>	See <i>arm roll</i> . A large container designed so that one can be loaded onto the back of a truck.
<i>routing</i>	The detailed assignment of MSW collection vehicles and labor to collection routes such that collection efficiency is maximized. (ERM) Routing often includes the actual route that a vehicle should take to minimize either the distance that it covers or the time that is taken to complete the collection assignment.
<i>sanction</i>	A penalty imposed as a result of a failure to act according to the requirements of a contractual agreement. This penalty often takes the form of a cash payment or deduction from the fee payable, but may take other forms.
<i>sanitary landfill</i>	A site where municipal solid waste is disposed to land in a satisfactory way. The site is located to minimize water pollution from runoff and leaching and other environmental nuisance. Solid waste is spread in thin layers, compacted and covered with a fresh layer of soil each day to minimize pest, aesthetic and disease problems, and air and water pollution. (ERM, modified) When no more waste is to be deposited there, the site is restored by covering it with a thicker layer of soil and planting grass or a similar ground cover. Sanitary landfills require monitoring and aftercare for many years after they are closed to allow for settlement of the waste and to prevent pollution of water resources.
<i>secondary materials</i>	1. Materials that have been manufactured and used at least once and are to be used again. 2. Secondary materials (e.g. paper, glass, metals, etc.) obtained from municipal solid waste by the process of reuse, recycling, and / or recovery carried out at the municipal solid waste treatment / processing facilities (ERM).
<i>segregated account</i>	It is a common municipal practice to pay all income into one general municipal account from which costs are paid according to political decisions. In such a system there is no motivation for leaders of sections or departments to try to raise the money that is needed to operate the services for which they are responsible. In contrast, a <i>segregated account</i> is reserved for one particular service or department. Income that is generated in connection with the service is paid only into that (segregated) account, and expenditure related to the service must be paid from that (segregated) account. The manager of the service should have full control of payments made from that account. The records for that account show the true income and expenditure related only to the particular service or department.
<i>septage</i>	This is sludge (a liquid with a high content of solids) which is pumped out of the bottom of septic tanks. Septic tanks are used to treat wastewater from individual buildings or small numbers of houses. Septage can be mixed with the organic components of solid waste in the composting process.
<i>service contract</i>	The grantor selects the company which receives the contract, based on qualifications and competitive bidding, and pays the private company for providing a service. The equipment needed for providing the service may be provided by the contractor or leased from the grantor.
<i>service level</i>	This refers to the quantity, frequency and quality of the municipal solid waste collection service. (ERM, modified). Generators may wish to pay more for a higher service level, such as a more convenient collection method or a more frequent service. (Also <i>level of service</i>)

severance pay

A large lump-sum payment made to employees who have permanent or indefinite employment status and who are required to leave their jobs before they have reached retirement age.

side loading truck

Also known as “side loader” and other names. This is a truck designed for carrying dense wastes in an enclosed body, so that if the openings are closed, the waste is not blown out of the body when the truck is moving fast. The openings are closed by shutters which slide up and down. The body tips to unload. It is usually difficult to load these trucks so that the body is completely full, so care must be taken when estimating the volume of waste in such trucks. Figure IV-6 shows the concept of these trucks.

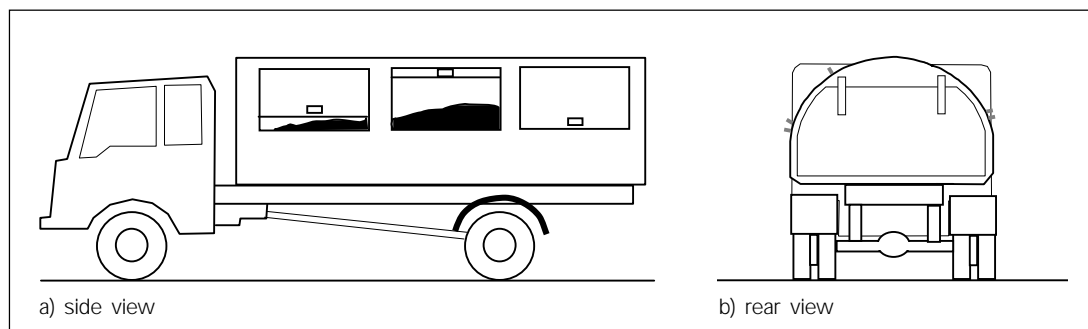


Figure IV-6 The side loading refuse truck

site screening

When a site is being chosen (for example, for a sanitary landfill) it is normal to identify a number of sites and then, as part of a selection process, **screen** them by asking a number of questions about each. Sites that are satisfactory in terms of these questions are considered to have passed this screening process and will be subjected to more detailed investigations. (“Screening” can also refer to a wall made of netting to catch paper and plastic, and to a wall (of soil or trees) that is used to hide the operations of a site from people living or passing nearby, but this word is not used in this sense in Part II.)

siting

The process of choosing a location for a sanitary landfill or a facility for treating or processing solid waste. (Also known as site selection.) (ERM)

skip

A large steel container (of capacity between 2 and 10 m³) which can be used for transporting municipal solid waste and construction and demolition wastes. The container is picked up by a “skip lift” truck with a hoisting mechanism, by means of chains attached to the container. The hoisting mechanism can also tip the container to empty it. These trucks are also known as “container hoist” and “dumper placer” trucks.

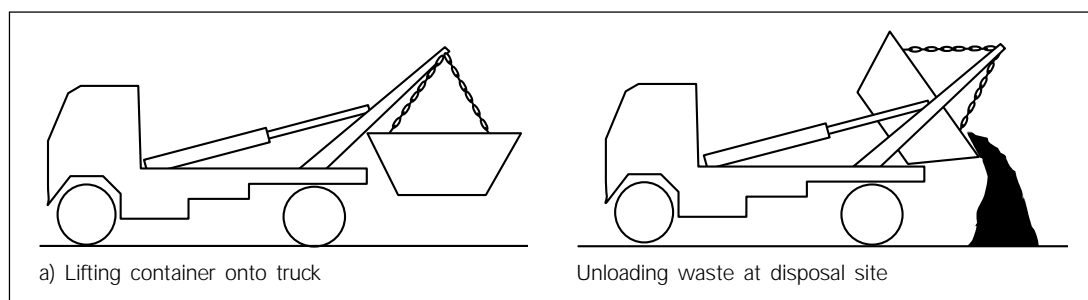


Figure IV-7 The concept of the skip lift truck

sole sourcing

In certain situations, to address a very urgent or unique situation (urgent situations are usually capped by a \$-limit), public agencies are allowed to procure services or equipment from certain vendors who are usually pre-qualified - not necessarily based on competitive bids but on types of services provided. For example, if a vehicle workshop needs a new gearbox (costing less than the ceiling of \$10,000) to repair a vehicle that is urgently needed - instead of going through a bidding system, the agency could immediately order it from a vendor it has already prequalified. (Based on definition from Prasad Gopalan.)

<i>span of management</i>	This is concerned with the ratio of supervisors to subordinates (in other words, the number of employees that are the responsibility of one person on the next level up in the organization chart). If the span of management is too large, the supervisor is not able to monitor adequately all the employees for which he or she is responsible. If the span of management is too small, the supervision overhead cost is high, and the total wages bill is more than it needs to be.
<i>sponsor company</i>	If a private sector actor forms a new company to handle the services under the contractual agreement, then the agreement would be between the company and the grantor. This company would be the sponsor company. If there is more than one sponsor, then the <i>key sponsor</i> could be either the party with: (a) control of the private sector entity (i.e. having the majority shareholding), or (b) the expertise to provide the services envisioned under the contractual agreement. Usually the key (or principal) sponsor(s) would be the one(s) involved in negotiating the contractual provisions and closing the transaction with the grantor. (Prasad Gopalan)
<i>stakeholder</i>	Person, group or institution with interests (often financial) in a project or program. (ERM)
<i>step-in rights</i>	If a company fails to provide the service according to the contractual agreement, the grantor may have the right to displace the company and start providing the service itself, or arrange for another company to provide the service. The legal conditions relating to such a displacement are known as the "step-in rights" and may include the circumstances under which the grantor may do this, and the associated financial conditions and penalties.
<i>storage</i>	(1) Temporary holding of MSW pending collection, transport, treatment or disposal (2) Containers (bins, sacks) and waste piles used for the above purpose. (ERM, modified)
<i>sump tank</i>	The reference in Annex A2 refers to a tank under the loading hopper of a compactor truck. When solid waste with a high moisture content is compressed in the body of a compactor truck, juices are squeezed out of the waste. Some compactor trucks are fitted with sump tanks to collect these juices so that they do not flow onto the road.
<i>take or pay</i>	This refers to a clause that may be found in a concession agreement for a treatment or disposal operation in which the grantor undertakes to pay a specified total tipping fee to the concessionaire, even if the quantity of waste that is delivered is less than the quantity specified in the concession agreement and on which the agreed daily tipping fee is based. (See also <i>put-or-pay</i>) For example, consider the case in which a concession agreement specifies that 10 000 tons of waste will be delivered each month to a sanitary landfill at a charge of \$ 15 per ton (resulting in a monthly fee of \$ 150 000). If only 9000 tons is delivered; the charge payable to the landfill operator would be (9000 x \$ 15 =) \$ 135 000 if there is no "take-or-pay" agreement, but if there is one, the charge to be paid to the landfill operator would be \$ 150 000, based on the minimum guaranteed monthly tonnage.
<i>termination</i>	(1) This word is used in this Pack in connection with the employment of individuals to refer to the dismissing of employees or the termination of their contracts of employment. As it is used here, the reason for termination of employment is usually that the size of the workforce needs to be reduced – in other words <i>layoffs</i> , retrenchment or redundancy, (though the term can also be used for dismissal for poor performance or unsatisfactory conduct). (2) <i>Termination</i> is also used to refer to the cancellation or revoking of a contract in the event that one of the parties does not meet its obligations, if such a provision for cancellation has been included in the terms of the contract.
<i>time-and-motion</i>	This is the study of work practices in typical conditions. It concerns the method by which a task is performed, the time taken to perform the task, and the output achieved. Data from time-and-motion studies can be used to compare the rate at which laborers are working, to compare different vehicles, crew sizes and systems, and to design new arrangements for solid waste collection. Work study (involving method study and work measurement) is a similar concept.
<i>tipping</i>	This refers to the unloading of waste at a disposal facility. It is the action of the transporter of the waste, not of the operator of the facility.

<i>tipping fee</i>	A fee for unloading solid waste at a transfer station, treatment or recycling facility, or landfill. (ERM) The origin of the term "tipping fee" comes from the concept of unloading – or tipping. In an inter-municipal disposal facility, each municipality may pay tipping fees. At most disposal facilities, individual contractors and private vehicles from commercial and industrial sources commonly pay tipping fees. The term "gate fee" has the same meaning. (See also <i>user fee</i>)
<i>transfer</i>	This is a word that is used in many ways. <ol style="list-style-type: none"> (1) <i>Transfer</i> is used to refer to the transporting of solid waste from a transfer station to a disposal or treatment facility (such a landfill or a composting plant). When it is used in this sense it is used alone or together with the word <i>vehicles</i>. When it has this meaning it is shown in italics in Part II. (2) When used together with words such as <i>facility, station, point, and depot</i> it refers to the moving waste from one vehicle to another, as indicated in the following paragraphs.) (3) When used in the plural (<i>transfers</i>) it refers to sums of money that are sent from one government office to another. (4) In connection with concession agreements it refers to the ownership of facilities passing from a private company (the concessionaire) to the government grantor. (5) In connection with privatization, it refers to assets becoming considered as belonging to the private sector, having previously been in the public sector. (6) In connection with workers or employees, it refers to employees leaving government service and becoming employees of a private company.
<i>transfer point</i>	A designated point, often at the edge of a neighborhood, where small collection vehicles (such as handcarts) transfer municipal solid waste to larger vehicles for transport to a transfer station, recycling center or landfill site. <i>Transfer depot</i> (in Section 5.7) has the same meaning.
<i>transfer station</i>	A facility at which municipal solid waste from collection vehicles is consolidated into loads that are transported by larger trucks or other means to more distant landfill sites.
<i>transfer system</i>	A two-stage system for collecting solid waste in which waste collected in pre-collection vehicles (such as handcarts) is unloaded from these pre-collection vehicles at a transfer point or station and loaded into larger transfer vehicles that take the waste to the disposal site.
<i>transfer vehicle</i>	This is a vehicle with a large capacity which is used to transport solid waste from a transfer station to a disposal facility. Terms with similar meanings are <i>bulk refuse carrier</i> and <i>bulk transporter</i> .
<i>transparency</i>	A method of conducting affairs in which the criteria for making decisions are clearly specified and these criteria are clearly employed in any decision-making process. It follows that there is no secrecy regarding the reasons for the making of any decision. In the context of this Pack, the decisions for which <i>transparency</i> is of particular importance are the selection of private sector companies to provide services. <i>Transparency</i> is also desirable in connection with the management of public funds, so that the reasons for allocation of funds are clear to the public and so that there is no suggestion of corruption.
<i>unit cost</i>	The unit cost is the total cost divided by the number of tons or the number of cubic metres. For example, the unit cost of collection is the cost of collecting one ton or one cubic metre of waste. The calculation should include all costs, including amortization of capital costs, social benefits and overheads. Financial comparisons of different systems should compare unit costs.
<i>upstream activities</i>	By comparing the movement of solid waste (through the stages of solid waste management) to a river, <i>upstream activities</i> refer to those that take place earlier. For example, if disposal is being considered, upstream activities could be transport, transfer, processing or collection. (See also <i>downstream operations</i>)
<i>user charges</i>	Payment for a service by the users of that service. They are a preferred means of raising new revenue because they can be presented and justified to the public on the grounds that they are required for, and will be used in, the provision of an important public service such as municipal solid waste management. (ERM) (See also <i>direct user charges, user fee, tipping fee</i>)

<i>user fee</i>	User fees in solid waste management typically refer to payments made at the source of waste generation for collection services received at the source (as well as related costs for transporting and disposing of the wastes which were collected), whereas the term “tipping fees” refers to payments made a transfer, treatment or disposal site.
<i>utilities</i>	The exact meaning is organizations that provide services such as drinking water, drainage, electricity and telephone communications, but this word is often used to refer to the services themselves. “Paying for utilities” therefore refers to paying bills for electricity consumption etc.
<i>vector</i>	This refers to insects or animals by which diseases are spread. In solid waste disposal, the vectors of most concern are flies, mosquitoes, rats and birds.
<i>vigilance</i>	This word suggests watchfulness, and in the context of this publication it refers to supervision of the actions of others to make sure that they are performed according to requirements. <i>Vigilance</i> can also refer to looking out for corrupt or illegal practices with the aim of preventing them from taking place.
<i>weighbridge</i>	Also known as a truck scale. An installation for measuring the weight of a vehicle with and without its load, in order to determine the weight of the load.
<i>white goods</i>	This is a general term for household appliances such as refrigerators, cookers, and washing machines that have an outer shell made of steel plate (which is usually painted white).
<i>wildlife species</i>	There is growing concern that man's activities are reducing the numbers of different types of plants and animals that are found in nature. The continuous growth of farms and urban areas leaves less and less land (habitat) for plants and animals that have been in that area for perhaps thousands of years, but are considered by many to have no immediate economic importance. These original types of plants and animals are termed “wildlife species”.
<i>willingness to pay</i>	This signifies that an individual or community is prepared to contribute regularly a specified sum of money for a particular benefit. It is different from <i>ability to pay</i> in that a citizen may be unwilling to pay a required fee (even if able to do so) if (s)he feels that the organization to be paid should not be supported because it is inadequate (for example, unreliable or corrupt) or that the service to be provided is unnecessary or unsuitable.
<i>win-win</i>	In the world of sport most games are “win-lose” – one side wins and the other loses. A <i>win-win</i> situation is one in which both or all parties involved benefit and are pleased with the outcome.
<i>working face</i>	The working face of a sanitary landfill is the place where the waste is actually being deposited, leveled and compacted. The location of the working face moves within a cell during each day as more waste is added.
<i>yard collection</i>	This method of collection of domestic solid waste does not require the householders to carry their wastes outside their premises for collection. In yard collection the collection laborers enter the yards of the properties and either take the containers out to the collection vehicle to empty them, or transfer the waste into containers that they carry with them. This access through the property gate is not possible for reasons of culture or security in many situations.
<i>zone of service</i>	The geographical area that is the subject of a contract or agreement. For example, for a sweeping contract it would be area that the contract requires to be swept. In the case of solid waste collection it could also be referred to as a collection zone.

ABBREVIATIONS

BOO	Build, own and operate: A form of concession arrangement
BOT	Build operate and transfer: A form of concession agreement
BTO	Build, transfer, operate: A form of concession agreement in which ownership of the facility is transferred soon after it is constructed, but the concessionaire continues to operate the facility.
DBOT	Design, build operate and transfer: A form of concession arrangement in which the ownership of the facility is sooner or later transferred to the grantor
GIS	Geographical information system Computer hardware and software, coupled with extensive information of locations, services, land use etc, so that it is possible to generate maps of an area, and to select the features and parameters that are to be shown on particular maps. The effect is the same as overlaying several transparent sheets, as discussed in Annex A7. The amount of work required to collect and enter the data is great, so it would probably not be worthwhile to set up a GIS system solely for the purpose of the study that is described in Annex A7.
GTZ	Gesellschaft für technische Zusammenarbeit – the German agency for technical cooperation. This agency has extensive experience in projects involving solid waste management.
HDPE	High density polyethylene: A type of plastic (polymer) from which landfill liners are made.
MSW	Municipal solid waste: See definition in list above.
MSWM	Municipal solid waste management: See definition in list above.
O&M	Operation and maintenance: The ongoing use of a vehicle or item of machinery. Operation refers to putting the item to the use for which it was designed, and maintenance refers to all activities related to keeping it in a condition that enables it to be used for the intended purpose, or restoring it to such a condition.
PSP	Private sector participation: This refers to any arrangement which includes, in any way, the involvement of private companies in a service or activity that is, could be, or has been provided by government (national, provincial or local). It could also be extended to the involvement of community-based groups that are not registered as commercial companies. (See Private sector participation in the definitions section.)
RFP	Request for proposals
RFQ	Request for qualifications
RLC	Rear loading compactor truck: A vehicle specially designed for collecting low-density solid waste. Waste is put into a hopper at the rear of the vehicle, from where it is pushed into the storage part of the truck body. The waste is compacted so that it occupies less volume, allowing a heavier load to be carried by the truck. See Photograph 2 in Part I.
SDC	The Swiss Agency for Development and Cooperation. The address for Urban Development issues is Fachdienst IBU, Freiburgstrasse 130, CH - 3003 Bern, Switzerland.
SKAT	The Swiss Centre for Development Cooperation in Technology and Management, Vadianstrasse 42, CH - 9000, St.Gallen, Switzerland
SWM	Solid waste management: Like “MSWM” above, but with the possibility of including all types of solid wastes (most often adding construction and demolition debris and hazardous industrial waste).
UMP	The Urban Management Program: The address is the Technical Cooperation Division, UNCHS (Habitat), P O Box 30030, Nairobi, Kenya.
VAT	Value added tax - a tax which may be levied on goods and services.

The purpose of this document is to assist solid waste managers and key decision-makers in municipalities to decide whether to involve the private sector in solid waste services and, if so, how this should be done. The information in this book is not just theory; it is based on a wide range of case studies and examples from the Author's extensive international experience.

This *Pack* consists of five separate parts, divided up for the convenience of the users.

Part I, the **Executive Overview**, introduces the *Pack*, touching on highlights of the other Parts and directing the reader to more detailed discussions in the subsequent parts.

Part II, the **Guidance Note**, contains the arguments for private sector participation, reviews the options, explains the issues that must be considered, and suggests the steps leading to implementation of its recommendations. There are frequent references to experiences and lessons learned in Africa, Asia, and America.

Part III - the **tools** - provides lists of criteria, checklists, sample terms of reference and questionnaire forms that will be of great assistance to municipal managers and consultants who are preparing to involve the private sector.

Part IV is a comprehensive **word list** that will help many readers to identify the precise meanings of the technical terms found in this *Pack*.

Part V provides valuable **sample contracts and agreements** for both collection and disposal operations, allowing the reader to benefit from the experience of many cities and avoid making the mistakes that are often made when contractual agreements are initially drawn up. It also contains questionnaire forms so that they can quickly be adapted and used. The documents are provided on a CD-Rom.

Many readers will initially wish that this *Pack* had been produced some years ago, but when they discover the depth and breadth of the up-to-date experience that it contains, they will realize it has been worth waiting for. If it had been produced earlier it would not have had the benefit of many lessons that have recently been learned around the world.