Guidance Pack

Private sector participation in municipal solid waste management

Part III

TOOLS
for preparing for private sector participation

By Sandra Cointreau-Levine
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Annex A1: SUPPLEMENTARY DATA

Table A1.1 Global perspective on solid waste quantities

	Generation rates kg / capita.day		
	Low-income country	***Middle-income country***	***High-income country***
Mixed urban waste - large city	0.50 to 0.75	0.55 to 1.1	0.75 to 2.2
Mixed urban waste - small to medium city	0.35 to 0.65	0.45 to 0.75	0.65 to 1.5
Residential waste only	0.25 to 0.45	0.35 to 0.65	0.55 to 1.0

Notes:

1. Country categorization by income is based on 1992 GNP data from the 1994 World Development Report published by the World Bank. Waste data are based on a wet, "as received" condition (i.e. not oven dried).
2. For the purposes of this table, a small to medium city is assumed to be under 500,000 residents, and a large city is one above 500,000 residents.
3. Urban waste includes residential, commercial, industrial and institutional waste, as well as street sweepings and yard waste. Construction / demolition debris is not included.

Source: Sandra Cointreau-Levine 1999

Table A1.2 Global perspective on solid waste management costs versus income

	Units	***Low income country***	***Middle income country***	***High income country***
Average waste generation	tonnes/cap.yr	0.2	0.3	0.6
Average income from GNP	$ / cap.yr	370	2,400	22,000
Collection cost	$ / tonne	10 - 30	30 - 70	70 - 120
Transfer cost	$ / tonne	3 - 8	5 - 15	15 - 20
Sanitary landfill cost	$ / tonne	3 - 10	8 -15	20 - 50
Total cost without ***transfer***	$ / tonne	13 - 40	38 - 85	90 - 170
Total cost with ***transfer***	$ / tonne	16 - 48	43 - 100	105 - 190
Cost as % of income	per cent	0.7 - 2.6	0.5 - 1.3	0.2 - 0.5

Notes:

1. Incomes are based on 1992 Gross National Product data from the World Development Report 1994, published by the World Bank.
2. Costs are for owning, operation, maintenance, and debt service in 1995, assuming no equipment provision through grants.
3. If a sanitary landfill can be located within an economic ***haul*** distance, so that direct haul in collection vehicles is economical, the cost of transfer can be avoided. An economic haul time for a small truck carrying 2 to 6 tonnes is typically 30 minutes one-way from the collection area to the unloading point. Depending on traffic conditions, in 30 minutes a distance of 15 to 30 kilometers can be covered. The maximum economic haul distance for larger trucks is typically 30 to 50 kilometers one-way.
4. "$ / tonne" means US Dollars per metric tonne, and "$ / cap.yr" means US Dollars per capita and year.

Source: Sandra Cointreau-Levine, 1999

Annex A2: PERFORMANCE MONITORING MEASURES

Developed by Sandra Cointreau-Levine

A2.1 Performance monitoring measures for solid waste collection operations

Performance measures	***What is measured ?***	***How is it measured ?***	***Where is it measured ?***	***How often is it measured ?***	***By whom is it measured ?***	***Basis for sanction ?***
Cleanliness of service areas	Existence of litter Existence of ***clandestine*** waste piles Waste in drains Improperly placed waste bins Regularity and frequency of collection service Cleanliness around ***communal*** containers Weekly washing of communal containers Completeness of collection service – number of collection points unserved False loading of vehicle with water, stone, etc. to increase payments	Zone inspection reports Customer complaints register	Service zones	Daily	Assemblies Districts[1]	Yes
Safe disposal of collected wastes	Waste quantity delivered at official site Clandestine dumping	City-wide inspections Records at disposal site Complaints by witnesses of clandestine dumping	City-wide Disposal sites	Daily	Assemblies Districts	Yes
Customer satisfaction	Perception about cleanliness of zone Willingness to pay Willingness to participate with collection requirements	Surveys of customer satisfaction Surveys of willingness to pay	Service zones	Semi-annually	Assemblies Districts	No
Customer dissatis-faction	Complaints about improperly placed waste bins, damage of waste bins, uncollected wastes, rude behavior by collectors, poor appearance of collection vehicle and collection crew.	Zone inspection reports Records of complaints Records of follow-up of complaints Records on attainment of service frequency targets	Service zones	Weekly	Assemblies Districts	Yes
Worker productivity	Number of workers in service Waste quantity per worker each shift Absenteeism	Zone inspection reports Records at disposal sites Vehicle log books	Service zones Disposal sites	Weekly	Assemblies	No
Vehicle productivity	Number of vehicles in service Waste quantity per vehicle each shift Waste quantity per vehicle each day Vehicle ***downtime***	Records at disposal sites Vehicle log books Zone inspection reports Load inspections at landfill	Service zones Disposal sites	Weekly	Assemblies	No

[1] Each Local Government, whether it be a city, municipality, metropolitan area, or council, has its own terminology for its sub-areas. Assemblies and districts are among the terms most often used for such sub-areas.

Performance measures	***What is measured ?***	***How is it measured ?***	***Where is it measured ?***	***How often is it measured ?***	***By whom is it measured ?***	***Basis for sanction ?***
Recycling achievements	Types of ***secondary*** materials recycled Quantity of secondary materials recycled	Zone inspection reports Records from sales of ***recyclables***	Service zones Records from service provider	Monthly	Assemblies	No
Environmental controls	Exhaust emission control of vehicles ***Sump tank*** control of leakage from wastes in vehicles Control of litter from vehicles Washing of vehicles	Vehicle emission inspection reports Zone inspection reports Complaints about vehicle emissions and litter	Service zones Records from service provider	Weekly	Assemblies Districts	Yes
Occupational health and safety controls	Use of gloves Use of respiratory masks Use of uniforms Tools on vehicle to load loose waste Annual medical checks Provision of vaccinations Control over size and weight of lifted loads Operational status of vehicle lights (night lights, brake lights, and reversing lights) Number of accidents Adequate accident liability coverage (insurance)	Zone inspection reports Survey of workers Medical records Accident records Insurance policies	Service zones Records from service provider	Weekly	Assemblies	Yes
Fair labor practices	Wages paid - minimum or above Payment for overtime Medical expenses coverage Vacation and holiday allowances Adequacy of work breaks Proper hiring and justifiable termination procedures	Zone inspection reports	Service zones Records from service provider	Monthly	Assemblies	Yes
Hazardous waste segregation	Refusal to collect ***hazardous*** waste Provision of special collection for household hazardous waste	Zone inspection reports Inspection of loads at disposal sites	Service zones Disposal sites Records from service Provider	Monthly	Assemblies Districts	Yes
Fuel consumption	Fuel records showing consumption – per kilometer and per tonne Maintenance records on engine calibration Route rationalization	Vehicle log books Workshop vehicle records Zone inspection reports Route plans	Service zones Records from service provider	Monthly	Assemblies	No

Performance measures	*What is measured ?*	*How is it measured ?*	*Where is it measured ?*	*How often is it measured ?*	*By whom is it measured ?*	*Basis for sanction ?*
Reliability	Downtime of vehicles Number of accidents Worker strikes Absenteeism, illness and accidents of workers	Vehicle log books Workshop's vehicle records Medical records	Service zones Records from service provider	Monthly	Assemblies	No
Communi-cation	Notification of service problems Continuous radio accessibility Use of designated routes so vehicles can be located	Correspondence files Zone inspection reports Radio functioning between all trucks and central offices Adherence to route plans	Letters from service provider	Monthly	Assemblies	No
Finance	Payment of government property, income, VAT, and corporate taxes, etc., as required Regular payment of fair wages and benefits to workers	Financial records Reports of independent auditor	Records from service provider	Yearly	Assemblies	Yes

A2.2 Performance monitoring measures for solid waste landfill operations

Performance measures	*What is measured ?*	*How is it measured ?*	*Where is it measured ?*	*How often is it measured ?*	*By whom is it measured ?*	*Basis for sanction ?*
Quantity of waste received for landfill	Waste quantity per shift Waste quantity per day	Landfill inspection reports Landfill records Vehicle log books Zone inspection reports	Landfill	Daily	Assemblies Districts	No
Construction of landfill base according to design	Compaction of base soils at optimum moisture Slope of base soils Placement and sealing of impermeable ***liners*** Placement and slope of ***leachate*** collection system	Survey instruments observed to be used during construction Construction inspection reports	Landfill	During construction	Assemblies	Yes
Construction of landfill cell according to design	Daily delineation of ***working face*** boundaries Survey of coordinates and elevations of daily ***cell*** construction, including slope of working face Continuous on-site availability of design drawings and O&M manual Closure of cell when final design elevation is reached Respect of maximum angle for side slopes Respect of minimum requirement for base slopes	Survey instruments observed to be used daily Marking up of daily progress in cell construction on design drawings Topographic survey map of completed cell area when final design elevation is reached	Landfill	Daily	Assemblies	Yes

Performance measures	***What is measured ?***	***How is it measured ?***	***Where is it measured ?***	***How often is it measured ?***	***By whom is it measured ?***	***Basis for sanction ?***
Adequacy of internal access roads	Roads free of waste Roads usable in all weathers Adequate drainage to keep roads free of flooding	Vehicle log books (Operational delays of collection vehicles at landfill) Landfill inspection reports	Landfill	Daily	Assemblies Districts	No
Cleanliness of access routes to landfill	Litter Clandestine waste piles Waste in drains Improperly placed waste bins	Zone inspection reports	Service Zones	Daily	Assemblies Districts	Yes
Residents' and private haulers' satisfaction with landfill	Perception about environmental acceptability of landfill operation Willingness to pay Willingness to participate with service requirements	Surveys of customer satisfaction Surveys of willingness to pay	Area around landfill All haulers	Semi-annually	Assemblies Districts	No
Residents' dissatisfaction with landfill	Complaints about landfill noise, dust, odor, traffic, appearance and increase in ***vectors***	Inspection reports Records of complaints	Area around landfill	Monthly	Districts	Yes
Private haulers' dissatisfaction with landfill	Complaints about landfill noise, dust, odor, traffic, appearance Complaints about delays suffered by collection vehicles at landfill, damage to vehicles and tires, inappropriate tipping fee charges, operation of ***weighbridge***, difficulty in driving to working face	Inspection reports Records of complaints Records of follow-up to complaints	All haulers	Monthly	Assemblies	Yes
Worker productivity	Number of workers in service Waste quantity per worker and shift Absenteeism	Landfill inspection reports Records at landfill	Landfill	Weekly	Assemblies	No
Equipment productivity	Number of equipment units in service Waste quantity per equipment unit each shift Waste quantity per equipment unit each day Equipment downtime	Landfill inspection reports Records at landfill	Landfill	Weekly	Assemblies	No
Recycling achievements	Types of ***secondary*** materials recycled Quantity of secondary materials recycled	Landfill inspection reports Records from sales of recyclables	Landfill	Monthly	Assemblies	No

Performance measures	***What is measured ?***	***How is it measured ?***	***Where is it measured ?***	***How often is it measured ?***	***By whom is it measured ?***	***Basis for sanction ?***
Environmental controls	Control of equipment exhaust emissions Windblown litter Dust Noise Control of area of ***working face*** Daily compaction of deposited waste Use of adequate daily cover at the end of each day's work Washing of equipment Flies, rodents, birds Leachate treatment and discharges Control of landfill gas Drainage of surface water – adequacy and maintenance Presence of unauthorized people or animals Presence of ***hazardous*** wastes Recording of all collected waste loads Provision and maintenance of an attractive vegetative ***buffer*** around operational areas	Equipment emission inspection reports Landfill and area inspection reports Complaints about emissions, noise, dust and litter Fly count, rodent count, bird count Pesticide application records Size of daily refuse cell Monitoring of ***leachate*** treatment plant discharges Groundwater and surface water monitoring Monitoring of landfill gases Records of incoming waste loads	Landfill and surrounding area	Weekly	Assemblies Districts	Yes
Hazardous waste segregation	Refusal to accept industrial or commercial hazardous waste Provision of special collection and storage area for household hazardous waste	Landfill inspection reports Inspection of loads at disposal sites	Landfill Disposal sites Records from service provider	Monthly	Assemblies	Yes
Fair labor practices	Wages paid - minimum or above Payment for overtime Medical expenses coverage Vacation and holiday allowances Adequacy of work breaks Proper hiring and justifiable ***termination*** procedures	Landfill inspection reports Survey of workers	Landfill Records from service provider	Monthly	Assemblies	Yes

Performance measures	*What is measured ?*	*How is it measured ?*	*Where is it measured ?*	*How often is it measured ?*	*By whom is it measured ?*	*Basis for sanction ?*
Occupational health and safety controls	Use of gloves and boots Use of respiratory masks Functioning air conditioning on all equipment units Adequacy of roll-bars Replacement of filters on air conditioners Use of uniforms Annual medical checks Provision of vaccinations Control over size and weight of lifted loads Number of accidents Health and safety training of all landfill personnel Practice of emergency and evacuation procedures Continuous presence and functionality of fire protection and other emergency equipment Continuous on-site presence of health & safety manual Posting of health & safety telephone numbers Adequate accident liability coverage Operational night-time illumination Reversing lights and audio signals on all equipment	Landfill inspection reports Survey of workers Medical records Accident records Inspection of equipment units Insurance policies	Landfill Records from service provider	Weekly	Assemblies	Yes
Fuel consumption	Fuel records on consumption – per hour and per tonne Maintenance records on engine calibration	Equipment log books Equipment maintenance reports	Landfill Records from service provider	Monthly	Assemblies	No
Reliability	***Downtime*** of equipment Number of accidents Number of slides, erosion events Worker strikes Worker illness and accidents	Equipment log books Landfill inspection reports	Landfill Records from service provider	Monthly	Assemblies	No
Communication	Notification of service problems Continuous accessibility by radio	Correspondence files Landfill inspection reports Radio functioning between landfill and central offices	Letters from service provider	Monthly	Assemblies	No
Finance	Payment of government property, income, VAT, and corporate taxes, etc., as required Regular payment of fair wages and benefits to workers	Financial records Independent auditor reports	Records from service provider	Yearly	Assemblies	Yes

Annex A3: LICENSING CRITERIA FOR SOLID WASTE COLLECTION OPERATIONS

by Sandra Cointreau-Levine

The need for licensing has been discussed in Part II, Section 5.17. It is particularly important that private companies that contract directly with ***generators*** should be required to have and maintain a ***license***, so that government has control over the quality of the service and the disposal method that is used.

Activities for which private haulers might be licensed include collection of

- construction and demolition debris
- ***healthcare*** wastes
- ***hazardous*** industrial wastes
- collection of waste tires
- general wastes from large industrial and commercial generators
- domestic wastes from peripheral zones
- oversized yard wastes from residential areas

The list below suggests factors that should be considered in deciding whether a private organization should be allowed to collect waste by ***private subscription***. Some of these requirements presume that the company has been operating for some years, and so would exclude companies that are just beginning to operate. A degree of flexibility in interpreting some requirements might therefore be required.

Licensing criteria	***Factors to be considered***
Company equipment	■ Strength of ***chassis*** for ***density*** of load (especially for construction and demolition debris, for ***compactor*** trucks collecting domestic wastes having a high density, and where the road surfaces are poor); ■ Appropriateness of design for work to be done (considering health and safety aspects of loading and unloading methods; whether items can be blown or fall out of the ***body***, or liquids leak out; special requirements for particular wastes such as hazardous healthcare or industrial wastes); ■ Capacity of equipment (adequate for economic service, considering the required ***haul*** distance and time, and ***economies of scale***); ■ Number of equipment units in good working order (considering also the spare capacity needed when one or more vehicles are not available because of accident, maintenance or repair); ■ Age and condition of equipment units (They should be less than seven years old, unless significant spare capacity is available.)
Financial capacity of company	■ Assessed value of fixed assets (indicating adequate ability to obtain financing to cover the investment needs of the intended service); ■ Assessed value of liquid assets (adequate to cover the cash flow needs of at least three months of operation, and to replace stolen or broken equipment, as needed); ■ Cash flow over the previous "n" years (adequate to demonstrate the needed level of operational experience); ■ Payment of corporate and property taxes over the previous "n" years (to indicate reputable business practices).
Insurance and performance bonds	■ Collision and liability insurance on equipment units (full comprehensive insurance to replace equipment, if needed, and to cover liabilities without service interruption); ■ Medical insurance for personnel (Minimum requirements should be stated in license criteria for a ***level playing field*** – meaning that no company can gain an unfair financial advantage by providing inadequate medical care for its employees.)

Licensing Criteria	***Factors to be considered***
Staff qualifications	■ Ability of key staff to read and write (so that they can read health and safety documents, respond to emergencies, follow operating manuals, and interact with the public); ■ The provision of training for the work to be performed (The required training may include specialized training for key staff on health and safety procedures, operating methods, preventive maintenance of equipment, interaction with the public, and general sanitation awareness.) ■ The provision of training on handling special wastes, particularly ***hazardous*** wastes (This might include health and safety training for handling the wastes, including emergency and evacuation procedures.)
Owner's and organization's record of fair and honest business dealings	■ Police record of arrests and convictions; ■ Previous record of operational experience; ■ Tax records for the previous "n" years; ■ Audited business accounts for the previous "n" years
Operation and maintenance of equipment	■ Records of equipment availability and maintenance ("history" records for each item of equipment or workshop records); ■ Operational record of service delivery (customer satisfaction and complaint records).
Environmental controls on equipment and pollution ***mitigation*** measures	■ Records of regular equipment inspections (exhaust gas monitoring and fuel calibration testing).
Worker safety and health protection	■ Health and safety training for the work to be performed; ■ Record of vaccines and preventive medication provided to all staff who have contact with wastes; ■ Medical examination records for all staff; ■ Proof of a current and adequate health and safety plan (readily available to key staff, with emergency directions and telephone numbers displayed); ■ Reasonableness of work ***productivity*** targets, working procedures, and hours of operation (to level the playing field and demonstrate that workers will not be unfairly exploited).
Collection methods and disposal locations	■ Adequacy of proposals outlining how the work will be performed. (They should show the ability to plan both the operations and the finances, and an understanding of the difficulties that may arise during operations.)
Tariff structures and billing procedures	■ Adequacy of proposals for generating revenues (The plan should indicate a realistic view of the difficulties encountered in collecting revenues.); ■ Adequacy of office facilities and billing procedures for cost recovery; ■ ***Accountability*** of management and ***transparency*** of accounts.
Record keeping on services provided and customers	■ An assessment of the management information system (Will it provide sufficient and reliable information for managers to control the operations?); ■ Willingness and ability to work cooperatively and openly with the government staff who are supervising operations. (This may be difficult to assess except by experience of working together with the company, and any assessment may be somewhat subjective.)

Annex A4: SAMPLE PREQUALIFICATION NOTICE FOR PRIVATE COMPANIES

by Sandra Cointreau-Levine

Prequalification is the first stage in the selection process used by many clients or grantors to select an organization to provide a service. The prequalification stage is designed to identify which potential bidders are clearly unsuitable for the task being considered. If unsuitable bidders are excluded at this stage they do not waste time and effort preparing the much more detailed tender documents. To prequalify a ***firm*** or ***joint venture*** must meet the minimum qualifications listed in the prequalification documents. Only firms that prequalify are invited to prepare a full bid for the work on offer. Joint ventures with experienced foreign firms are commonly allowed.

Prequalification is done in two steps. The first step is to identify which private sector organizations meet the minimum prequalification requirements. The next step is to rank the organizations that satisfy these requirements so that a predetermined number of the firms with the highest ranking are considered for the bidding stage. Prequalification is also discussed in Part II, Section 6.7.3.

The criteria described in the prequalification documents might include, but need not be limited to, the following.

Minimum criteria for prequalification:

1 Demonstrated experience in the management of labor and equipment operations and the maintenance of a ***fleet*** of vehicles comparable to the type required for the project and involving an annual turnover of at least $ ..... (or equivalent), over each of the last ..... years.
2. Demonstrated experience in civil works and equipment operations comparable to the type required for the project and involving an annual turnover of at least $ ..... (or equivalent), over each of the last ..... years.
3. Access to, or ownership of, liquid assets, unencumbered real assets, lines of credit and other financial means sufficient to meet the cash flow of at least ..... months of the proposed work, or at least $ ..... (or equivalent) over each of the last ..... years.
4. Experience in at least ..... projects requiring timely delivery of public services over a continuous period of at least ..... years and involving operational labor and a fleet of vehicles.
5. Audited balance sheets for the last ..... years, which demonstrate financial soundness and long-term profitability.
6. Proof of absence of arrests, litigation or arbitration history.

Ranking criteria to be used for numerical ranking for prequalification:

1 Number, qualification, and experience of key personnel, relevant to the range of professional skills and levels of competence required for the project.
2. Number, size, condition, and appropriateness of equipment and vehicles of the type required for the project.
3. Adequacy of office, repair, staging and maintenance facilities.
4. Experience in waste management services of the type required for the project.
5. Experience in managing contracts for public services.

Annex A5: SAMPLE CRITERIA FOR EVALUATING TENDERS

by Sandra Cointreau-Levine

Selection criteria, which could be used for evaluation of solid waste sector tenders, are listed below. If a prequalification exercise has been conducted, some of these criteria would already have been addressed and would not need to be repeated at this stage. Prequalification is recommended when the bidding process requires considerable effort and expense on the part of the bidders. By imposing the prequalification stage, government can minimize the number of firms which spend considerable time and money to produce detailed tender bids.

(For large design, build and operate concession projects, where a small number of bidders have been prequalified, it has been suggested that the winning bidder could be required to compensate the losing bidders by a predetermined fixed lump sum for the time and effort that they invested in preparing their bids. In such a case the cost of this compensation would be built into the tender bid or offered tipping fee. This is not common practice so any attempt to introduce such a requirement should be operated with caution.)

The recommended method for evaluating tenders is the two-envelope system that is described in Part II, Section 6.7.3. The first envelopes for all bidders are opened first. The first envelopes contain the technical details of the proposal, and the required documentary evidence. Any tender that does not meet with the technical or documentary requirements is rejected, and the second envelopes from such bidders are not opened. The satisfactory bids may be ranked according to their technical merit. Then the second envelopes of satisfactory tenders are opened, and the company offering the lowest price bid is invited for negotiation, as discussed in Section 6.7.3.

The criteria that are listed below refer to the contents of the first envelope, and so usually do not represent the reason for the final choice of the winning tender. The final choice is usually based on financial information which is in the second envelope.

Evaluation criteria for the prequalification stage and the technical proposal. (This list would be provided to each bidder to assist in the preparation of the contents of the first envelope.)

1. Appropriateness and adequacy of the technical proposal for how the services would be provided, including
   - the number and type of vehicles (or other types of equipment) which are already available for use and in good working order, and the vehicles or equipment which would need to be procured for the purposes of the proposed work.
   - the personnel who are already available for work and the personnel who would be hired for the purposes of the proposed work,
   - the layout and design of existing facilities and any required facilities which would be constructed for the purposes of the proposed work, and
   - proposed service ***routing***, frequency, quantity and methods.
2. The degree to which the firm demonstrates, through its technical proposal, an understanding of the work requirements.
3. The owner's experience in providing similar operational services, such as sweeping, drain cleaning, materials transport, and civil works.
4. The owner's experience in providing the type of services that are the subject of the tender, such as solid waste collection, transport, disposal or treatment services.
5. The owner's experience in maintaining, repairing, and operating a fleet of vehicles.
6. The professional experience of key managers and staff, with regard to training and experience in solid waste management planning, design, implementation, and operations activities.
7. The professional experience of personnel who will be responsible for planning routes, maintaining and repairing vehicles, accounting, operations management, and task organization.
8. The owner's experience in managing a business and a large staff of field workers.
9. Evidence that the firm has been a going concern for at least five years.
10. The owner's experience in dealing with labor and/or labor unions, and proof of regular payment of fair wages.
11. The reputation of the owner for being honest and reliable.
12. The working relationship of the firm with previous clients. Evidence of responsible and competent work in the recent past.
13. Relevance and quality of examples of work as described in reference letters from previous clients of the firm.
14. Financial statements of the proposing company certified by a nationally recognized firm of independent certified public accountants, including financial credit records including the debts of the owner and the company over the past 3 years.
15. The estimated value of assets owned by the company.
16. Proof of annual payment of owner's personal and corporate income and property taxes over the past five years.
17. Registration of the firm with government and designated boards or councils of relevance to the work to be done.
18. Membership of related professional organizations and participation in seminars, trade shows and training workshops in solid waste management over the past 3 years.
19. Current and proposed workloads of the firm, which might affect its ability to deliver the required services.
20. Evidence that the firm is capable of commencing service provision when required.

Annex A6: SAMPLE QUESTIONNAIRE ON EXISTING SOLID WASTE MANAGEMENT SERVICES, Public and Private

Developed by Sandra Cointreau-Levine

Note: Though primarily designed for interviews with solid waste managers in cities, this questionnaire can also be used to interview neighborhood associations or individual establishments which have engaged a private firm to provide solid waste services, as well as private firms involved in service provision.

This questionnaire might be given to a manager and collected at a later date, or it might be completed in the presence of a consultant. In the latter case it is useful for the consultant to note whether requests for detailed data are answered with the use of documents, or whether they are answered from memory, without referral to documentation. If documents are not used, this may indicate that the management information system is not well developed, and that some of the answers may be subjective and not very reliable.

If several ***respondents*** supply information independently for this survey, it is recommended that one form be used for each respondent.

Details of Respondent(s):

Name of City (or area being considered): .....

Name(s) and position(s) of Respondent(s): .....

.....

Date: .....

General:

1a Population of the City .....

1b Area of City: ..... square kilometers

2. What percentage of total population lives in areas intended for the following categories of land use within your City?

- ➔ Dense, old, medina or walled city ..... %
- ➔ Low-income spontaneous residential ..... %
- ➔ ***Laid-out*** (planned) residential ..... %
- ➔ Central city commercial ..... %
- ➔ Low density commercial or residential ..... %
- ➔ Industrial ..... %
- ➔ Other (Please describe) ..... %; .....

3. Describe in your own words the most important problems and needs your City is facing in relation to solid waste management.

.....

.....

Solid Waste System:

4.a What percentage of the total quantity of solid waste generated in the whole City is collected at least once a week? ..... %

4.b Of the total collected, roughly estimate the percentage, which is collected by each of the following methods: (Note that both the pick-up point and the transportation method are specified.)

Door-to-door Total percentage by various means ..... %

- ➔ Door-to-door by pushcart ..... %

➔ Door-to-door by animal with baskets ..... %
➔ Door-to-door by animal with cart ..... %
➔ Door-to-door by small ***pickup*** truck ..... %
➔ Door-to-door by farm tractor and trailer ..... %
➔ Door-to-door by open truck ..... %
➔ Door-to-door by compaction truck ..... %
➔ Door-to-door by other means (Please describe) ..... % .....

Communal collection points Total percentage by various means ..... %
➔ ***Communal*** collection point cleared by animal cart, farm tractor, or collection truck ..... %
➔ Communal collection point using containers which are emptied mechanically ..... %
➔ Communal, using ***skip containers*** lifted and taken away by a truck ..... %
➔ Communal, using a***rm-roll*** containers taken away by a truck ..... %

Other systems
➔ ***Block system*** by truck (truck stops at intervals and sounds signal) ..... %
➔ Other system (Please describe) ..... % .....

5. Roughly estimate the number of the following types of vehicles in your fleet which are ***available for service at least 70% of the time*** and are ***less than 7 years old.***

	Number of vehicles
Small pickup truck	.....
Farm tractor and trailer	.....
Non-compaction ***side-loading*** truck	.....
Open truck with non-tipping body	.....
Open tipping truck	.....
Compactor truck	.....
Skip container and lift truck	.....
Roll-on container and arm roll truck	.....
Others (Please describe)	.....

6. What is the average capacity (in cubic meters) of the following trucks, which have been noted above as achieving 70% availability and being less than 7 years old?

	Average capacity (in cubic meters)
Small pickup truck	.....
Farm tractor and trailer	.....
Non-compaction side-loading truck	.....
Open truck with non-tipping body	.....
Open tipping truck	.....
Compactor truck	.....
Skip container and lift truck	.....
Roll-on container and arm roll truck	.....
Others (Please describe)	.....

Solid Waste Facilities:

7. "Disposal sites" may be open dumps, ***controlled landfills*** (with periodic soil ***cover***), ***sanitary landfills*** (with daily soil cover, ***leachate*** management and gas ventilation systems), or composting plants. Describe the method of disposal for the solid wastes collected in your City and estimate how many disposal sites exist. What is the average distance (in kilometers one way) from the City center to a disposal site? How long is the trip (in minutes one-way) from the City center to a disposal site, at the time of day when the collection service is provided?

	Disposal method	Distance from City center (km)	Travel time from center (minutes)
1	.....	.....	.....
2	.....	.....	.....
3	.....	.....	.....
4	.....	.....	.....

8. ***Collection points*** receive only small quantities of solid waste (i.e., loads less than 1 cubic meter) from pushcarts or animals with baskets. From collection points, the wastes are loaded into collection vehicles that take the waste to either a ***transfer station*** or a final disposal site. Indicate the number of ***collection points*** in the City, according to the method used to remove the waste from them:

➔ Cleared by bullock carts. .....
➔ Cleared by open trucks. .....
➔ Cleared by compactor trucks. .....
➔ Cleared by skip containers and lift trucks. .....
➔ Cleared by roll-on containers and arm-roll trucks. .....
➔ Other (Please describe) .....

9. ***Transfer stations*** predominantly receive medium-sized quantities of solid waste (i.e., loads greater than one cubic meter and less than ten cubic meters) from animal carts and collection vehicles. At these transfer stations the waste is loaded into large transfer vehicles, usually with a capacity of more than 15 cubic meters, which take the waste to a final disposal site. Indicate the number of such transfer stations in the City according to the method by which the waste is loaded into the large transfer vehicles:

➔ Open ground with clearing by wheeled loaders .....
➔ Ramp and elevated unloading platform with clearing by wheeled loaders .....
➔ Ramp and elevated unloading platform served by roll-on containers and arm-roll trucks .....
➔ Other (Please describe) .....

Human resources engaged in solid waste management:

10. How many people work in the solid waste service? Note which, if any, of these categories are represented by unions.

	Number of staff	Union representation? (Y / N)
Administrative and professional staff	.....	.....
Operations supervisors	.....	.....
Collection vehicle drivers	.....	.....
Operators of other plant	.....	.....
Collection workers (loading and transporting waste)	.....	.....
Sweepers	.....	.....
Workshop staff (portion for solid waste vehicles only)	.....	.....
Sanitary inspectors or health inspectors	.....	.....

11. Of the people working in the solid waste service, what percentage are:

- ➔ Permanent government employees (i.e., on salary with social security benefits) ..... %
- ➔ Daily or casual employees (i.e., paid daily, no job security) ..... %
- ➔ Contract employees (i.e., job security only for short contract period) ..... %

12. Considering only the permanent government employees working in the solid waste service, roughly estimate what percentage will become eligible for retirement within the next 5 years.

Estimated percentage ..... %

13.a What is the amount of the total City recurrent budget for all services? ($ or other) .....

13.b What is the amount of the City's solid waste management budget that is for sweeping, small drain cleaning, solid waste collection, solid waste disposal and maintenance of the solid waste equipment? ($ or local currency) .....

14.a What percentage of the City's total recurrent budget is covered by property-based conservancy tax? ..... %

14.b What percentage comes from Central Government transfers? ..... %

15. Do you have a City byelaw requiring households and establishments to pay a solid waste user charge? Yes ☐ No ☐

16.a Within your City, is there a tariff structure for solid waste user fees which are payable by residents? Yes ☐ No ☐

16.b If so, is it based on waste quantity ☐, consumer income level ☐, or property size ☐?

17. Is the tariff structure for residents served by private sector systems different from the tariff structure for residents served by municipal systems? Yes ☐ No ☐

18.a What percentage of the City's total recurrent budget is covered by direct user charges for solid waste services? ..... %

18.b How are the charges collected?

- ➔ Separately, by door-to-door municipal bill collectors ☐
- ➔ Separately, by private, commissioned bill collectors ☐
- ➔ Directly, by the private firms providing the services ☐
- ➔ With water charges ☐
- ➔ With electricity charges ☐
- ➔ By neighborhood leaders ☐
- ➔ By NGOs ☐
- ➔ By direct bank deposit ☐
- ➔ Other (Please describe) ☐ .....

19. If you have a solid waste user charge, what is the method for increasing the tariffs periodically, (for example, annually)?

.....

.....

Private Provision of Services:

20. Please indicate (✓) which of the following types of private sector provision of service exist in the City.

- ➔ Pre-collection of residential solid waste - by ***private subscription*** ☐
- ➔ Collection of construction and demolition debris - by private subscription ☐
- ➔ Collection of industrial wastes from large factories - by private subscription ☐
- ➔ Collection of commercial wastes from large hotels, offices, markets or stores - by private subscription ☐
- ➔ Collection of ***healthcare*** wastes from hospitals or clinics - by private subscription ☐
- ➔ Collection of general municipal wastes from entire neighborhoods (transporting waste from collection point to disposal site) - by contract ☐
- ➔ Collection of general municipal wastes from entire neighborhoods - by franchise ☐
- ➔ Sweeping or cleaning of streets or open areas - by contract for labor pool ☐
- ➔ Repair of City solid waste equipment - by contract on an as-needed basis ☐
- ➔ Repair of City solid waste equipment - by contract on a long-term basis ☐
- ➔ Conversion of waste to compost - by concession ☐
- ➔ Operation of a transfer station and long distance hauling system - by contract or concession ☐
- ➔ Operation of a disposal site - by contract or concession ☐
- ➔ Removal of decomposed waste from a City disposal site for soil conditioner - by concession ☐
- ➔ Collection of user charges or waste taxes - by franchise with bill collection agents ☐
- ➔ Other ☐, please describe .....

21. Has the City had previous experience with private provision of solid waste services in the past? If any such services have been discontinued, please explain.

.....

.....

22. Does your City have a byelaw requiring households and establishments to cooperate with any private sector agents appointed by the City to provide solid waste services. (Such agents may be appointed under contract, franchise, or concession agreements, or they may be licensed to provide a service.). Yes ☐ No ☐

Give each type of private sector participation identified in Question 21 above a serial number and answer the following questions for each one. The abbreviation PSP stands for "private sector participation" and a "PSP arrangement" can be a contract, a franchise or concession agreement, or a licensing arrangement.

	Serial number	1	2	3	4	5
23.a	When did you begin planning and initiate steps toward implementation? (Write date)					
23.b	And when did the private firm actually begin to deliver the service? (Write date)					

24. For each of the examples of PSP, please explain the process by which private firms or organizations are awarded the contract, franchise, or agreement. For example, are the awards based on selection of the best firms from a qualified short list? Or, do the awards follow a competitive bidding process? Or, are the awards based on review of unsolicited proposals? (Write answers on a separate sheet.)

Serial number	1	2	3	4	5
25.a What is the duration in months of the current contracts, franchises or concessions?					

25.b If PSP arrangements are made for only one year or less, please explain why.

.....

.....

26. Are PSP arrangements automatically renewed at the end of the contract, license or franchise period if performance has been satisfactory, or are the firms required to compete anew for a new PSP arrangement? (Show by ✓)

Serial number	1	2	3	4	5
Automatically renewed					
Tender competition each time					

27. Do your PSP arrangements have cost escalation indices, which are tied to the rate of inflation, exchange rates, or a consumer price index?

Serial number	1	2	3	4	5
Response	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐

28.a Considering the PSP arrangements which you have in your city, please indicate the administrative level at which decisions concerning PSP arrangements and selection of service providers are made.

At the City level? ☐
At the Provincial or State level? ☐
At the Central Government level? ☐

28.b Is the level - at which decisions and selections for PSP arrangement are made – decided according to

the monetary size of the agreement ☐
the length of the agreement period ☐
or the involvement of capital investment? ☐

29. Do you arrange for PSP agreements to have a short duration or a small service area in order to keep the monetary size below a specific level? Yes ☐ No ☐

30. For each of the examples of PSP, describe the character of the community in which you first implemented this PSP system? Please describe the community in terms of ***land use***, (i.e., suburban ***laid out*** residential areas (SLR), central commercial or residential areas of high priority use (CC or CR), marginal densely populated neighborhoods (MD), new developments in peripheral areas (PN)), and other aspects such as ***density***, ***road access***, ***income level***, and ***location***.

Serial number	Land use	Density	Road access	Income level	Location
1					
2					
3					
4					
5					

31. In communities which are served by private contractors, does the type and level of service vary at all from the service provided by the municipal authorities? Yes ☐ No ☐

If "yes", please explain .....

.....

32.a Has the city done any comparative studies on the differences in performance between the municipality service and the private sector service? Yes ☐ No ☐

32.b Has it monitored differences in ***productivity*** per worker ☐, productivity per vehicle ☐, quality of service ☐, or cost of service ☐ ?

33.a On what basis do you pay the private firms which are under your PSP arrangements?

According to
- ➔ the amount of waste estimated for the area, ☐
- ➔ the amount of waste delivered to a disposal site, ☐
- ➔ the number of loads collected, ☐
- ➔ the size of the service area, ☐ or
- ➔ (other)? .....

33.b Does the payment from the city to the various private firms vary according to

- ➔ the difficulty of providing the service in a given area, Yes ☐ No ☐
- ➔ the travel time or distance to the transfer or disposal site, Yes ☐ No ☐
- ➔ the amount of waste to be collected? Yes ☐ No ☐

34. What inspection, supervision, and/or performance monitoring do you provide in the areas served by private sector systems?

.....

.....

35.a Do you have any penalty or sanction clauses in your PSP arrangements? Yes ☐ No ☐

35.b What course of action can you take if a private firm does not perform satisfactorily?

.....

.....

36. When PSP arrangements were being initiated, what kind of external technical or financial assistance did the City receive from central or provincial government, or from bilateral or multi-lateral agencies?

.....

.....

37. Did the city provide any land, buildings, equipment or human resources to support the private firms' activities initially?
land ☐, buildings ☐, equipment ☐, human resources ☐

38.a Did the city provide any support to the private firms to help them to obtain capital financing? Yes ☐ No ☐

38.b Did the city provide any guarantees, or did the city arrange a multi-year contract to enable Bank financing?
Yes ☐ No ☐ Please specify .....

39. Did the city provide community education, general public education, and public participation workshops initially to support the transition to a PSP system? Yes ☐ No ☐
If "yes," please provide further information .....

40. Are there any problems, observations or issues that you would like to share with us with regard to PSP systems and your experience with them (related to control ☐, reliability ☐, cost ☐, political intervention ☐, performance ☐, other ☐.)?

.....

.....

41. Are there any lessons that you have learned which you would like to share with us with regard to PSP systems and your experience with them? (Lessons related to performance specifications ☐, bonds ☐, cost ☐, other ☐.)

.....

.....

42. Have you experienced any benefits from involving the private sector in solid waste services? If so, please explain what these benefits have been. (Some possible examples are: freedom to hire and fire employees ☐, flexibility in hours of work ☐, freedom from bureaucratic procedures and delays ☐, greater access to technical skills ☐, access to credit ☐.)
Other ☐.....

.....

.....

43. Based on your experience, would you recommend that other cities implement PSP systems similar to yours?
Yes ☐ No ☐

44. If you have not involved the private sector in solid waste management, please explain your concerns and reluctance to do so.

Is there concern about

➔ a greater likelihood that contracts would be audited for performance □,

➔ political interference in performance □,

➔ control □,

➔ cost □,

➔ reliability □,

➔ labor unions □,

➔ social issues □, or

➔ other factors □ .....

.....

.....

Annex A7: SAMPLE TERMS OF REFERENCE ZONING STUDY FOR PRIVATIZATION OF WASTE COLLECTION

by Sandra Cointreau-Levine

Introduction

These terms of reference are concerned with the development of zones for refuse collection in the urban area of (name of city). Some of the zones will be served by the private sector, and local government will serve others. To achieve optimum contestability, it is strongly recommended that the zones served by local government cover at least 30% of the population of the urban area. The solid waste that is to be collected includes residential, commercial, industrial, institutional, market, and garden wastes of a non-***hazardous*** nature. Collection includes street sweeping, cleaning of small open drains, pre-collection by cart, collection, and transport to the officially designated discharge location (transfer, treatment or disposal site).

Study Area

..... is a city of about
..... residents and generates about
..... tonnes/year of mixed municipal refuse.

Objectives

The objective of the zone definition exercise is to subdivide the city into equivalent zones for the delivery of solid waste collection services. Some zones will be served by the private sector and others by local government. If the zones are similar it is possible to compare the performances of the private sector and local government teams, and ***contestability*** is maximized.

Each zone should be relatively similar in terms of
- the difficulty of providing the service,
- the methods of operating that are suitable,
- the cost of providing the service, and
- commercial and non-commercial risks.

In determining the zones for collection operations the following issues should be considered:
- public education and the willingness of residents to cooperate with the collection system;
- the ability of residents to afford ***dustbins*** or bags for storage of their solid waste;
- the availability of space for dustbins and ***communal*** containers;
- the population density,
- the climate, and other conditions affecting required frequency of service;
- access road conditions that might affect collection equipment; and
- distance from the zone to the discharge point (transfer station, treatment facility or landfill).

(This list is not exhaustive; it may be necessary to consider other issues also.)

The privatization of solid waste collection will be implemented gradually over a period of 5 to 10 years. Local government should continue to provide the collection service in at least 30 per cent of the city. Therefore, the process of zoning shall be conducted in such a manner that it is possible to update or modify the proposals. For this reason, it is recommended that the various issues for zoning be dealt with through a series of map ***overlays***.

Scope of Work

This involves the preparation of a series of maps on transparent material so that they can be overlaid to show the combined effects of a range of parameters. It is likely that considerable effort will be needed to collect and compile the information needed for each map before the actual map can be prepared. (If a well-developed GIS system is already available, it may be simpler to print maps showing the required combinations of parameters, rather than preparing transparent overlays.)

Task 1. Develop a Base Map.

Develop a base map (showing all streets and major features) of the city for the zoning exercise. As much as possible, prepare the base map using existing maps available from government land use and public works agencies. Mylar, or another transparent material, will be used for the base map. From the base map, a series of similarly transparent copies will be printed. The copies will be used in the preparation of a series of transparent maps, each with different information of value to the zoning exercise, which can be overlain to develop the boundaries of the zones.

Task 2. Type of Land Use.

Compile information from the city's land use planning office for showing the distribution of existing land use on a city map. The land use categories should be in accordance with local designations such as: residential development of low, medium and high income; recently laid-out residential development, old congested, spontaneous urban, and semi-rural housing areas; commercial development; institutional (government office) development; industrial development; open spaces; and markets.

Task 3. Population Density.

Show on a city map the distribution of population by actual number and by density.

Task 4. Road Conditions.

Show on a city map all roads that can bear heavy truck traffic, such as trucks required for solid waste collection service. Indicate roads that are primary and paved, those that are secondary and paved, and those that are secondary and unpaved. Indicate road widths. Indicate roads which meet international design criteria for roads and bridges (including small bridges over culverts or canals) for carrying vehicles of a gross vehicle weight of 35 tonnes, or greater. (Vehicles serving a transfer station may weigh as much as this when loaded.) Actual weight limits depend on the national highway design standards.

Task 5. Traffic Condition.

Show on a city map the primary paved roads where traffic congestion significantly affects travel speeds. Indicate those primary paved roads where the travel speeds of motor vehicles are under 30 km/hour for more than two hours each day. Also, show on the same map the secondary unpaved roads that are occasionally flooded, so that access is limited or severe damage is likely during rainy seasons, or where there are other traffic constraints.

Task 6. Large Sources.

Show on a city map the location of all large waste generators where more than one cubic meter of solid waste needs to be collected each day. Include, as appropriate, large markets, hotels, hospitals, schools, restaurants, and office buildings.

Task 7. Community Organization.

Show on a city map the location of all communities or neighborhoods which are known to be relatively well organized and where the residents have displayed a willingness to cooperate with community activities. (Such communities generally have informal structures for communication, education, decision-making, and implementing improvements. Indicate those communities where the residents are already participating in a voluntary refuse collection scheme.

Task 8. Accessibility.

Show on a city map all neighborhoods where a door-to-door waste collection service cannot be provided by trucks because of access problems.

Task 9. Existing Services.

Show on a city map the location of all areas currently receiving solid waste collection and cleansing services. Indicate those areas which are receiving a door-to-door service, those served by communal containers, and those receiving a ***block*** collection service. Indicate the frequency of each existing service, (such as daily, twice weekly, once weekly).

Task 10. Waste Generation.

Compile waste generation information for the various land use categories that exist in the city. Map the distribution of waste generation in terms of tonnes per day per community, block or hectare. (These data can be generated using the known distribution of population and waste generation rates, or by site measurements.)

Task 11. Map the Privatization Zones.

Overlay these city map transparencies and define collection zones that are large enough for reliable operation and to benefit from ***economies of scale***, and ***equitable*** (or similar in operational requirements, as discussed Part II Section 5.8). Because it will be most difficult to ensure the desired degree of competition in the first round of privatization, it is especially important that these zones be comparable. Obtaining the cooperation of residents with the privatized service will be most difficult in these initial zones, therefore other factors affecting the difficulty of providing service need to be balanced so that the initial privatization activities have a reasonable chance of success.

For ***reliability***, a zone should require at least ***three*** vehicles of a single type, so that the zone can be served in a second shift when one of the vehicles is down for maintenance or repair.

Considering ***economies of scale*** and the ***span of management***, a zone should be served by at least five vehicles, (as discussed in Part II, Section 5.9). For economies of scale where joint ventures with international firms are desired, several of the above zones would be combined, to enable the joint venture to adequately utilize the technical expertise of the foreign partner. To this end, a zone for international firm participation would typically generate at least 50,000 tonnes/year and include at least 300,000 residents.

Consideration of many local factors, including access, waste quantities and travel times, leads to recommendations regarding the capacities of the required vehicles and the populations of each zone.

Based on the above, it is recommended that the City be subdivided into similar zones with populations of ……. to ……. , based on the selection of suitable technology and the distance that the waste must be carried. The private sector will be invited to submit bids for serving individual zones, or, if the potential involvement of international firms is desired, any combination of …… to …… zones. In this manner, it is intended that the tender will encourage the formation of ***joint ventures*** with international firms in bidding for the multi-zone combination.

To the extent possible, each zone (which may be within one single boundary or may be a combination of areas) will have its ***centroid*** equidistant (in terms of travel time) from the discharge location. Each zone will be similar and equitable, to the extent possible, in terms of:

- access for vehicles,
- road and traffic conditions,
- the collection methods that can be used (door-to-door, communal or block),
- the willingness of residents to cooperate with the storage and timing requirements of the collection system,
- the willingness of residents to pay the fees, and
- quantity of waste to be collected from large waste generators.

Deliverables

Provide five copies of each set of transparent and replicable maps showing baseline information and defining the collection/cleansing service zones. All originals and copies shall be on high quality Mylar material.

Schedule

Deliverables to be provided within four months of the starting date of the signed contract.

Team

The team shall include at least one urban planner who is experienced in land use planning and has had at least ten years of related experience in land use planning; and at least one solid waste specialist with at least ten years of experience in rationalizing solid waste collection systems.

Annex A8: SAMPLE TERMS OF REFERENCE for an INSTITUTIONAL, FINANCIAL AND PRIVATIZATION STUDY

by Sandra Cointreau-Levine

When local information has been inserted into the gaps, this Annex can be used as Terms of Reference for a study. This Annex is also reproduced in electronic format in Part V so that it can be conveniently used.

Introduction

This proposed study covers all developed areas of (name of the city or urban area). The study area has about …… residents, of which …… per cent live in built-up (semi-urban) settings and together generate from …… to …… tonnes per year of municipal solid waste (i.e., mixed refuse from residential, commercial, institutional, and industrial establishments). Currently, about …… per cent of the solid waste from residents in the built-up areas is collected by their municipal governments. All collected waste is taken to open dumps, landfills or other treatment facilities in each of the main municipalities.

Revenues to cover the recurrent (operation and maintenance) costs of solid waste management are currently generated as follows:

- ..... per cent from general tax revenues generated by the local government;
- ..... per cent from subsidies and transfers from provincial or central government;
- ..... per cent from ***direct user charge***s to households and establishments receiving collection services;
- ..... per cent from ***sanctions*** for littering, ***clandestine*** dumping and other public cleansing violations;
- ..... per cent from tipping fees at the existing disposal sites;
- ..... per cent from ***license*** fees paid by private haulers and franchisees; and
- ..... per cent from concessionaires permitted to extract recyclables or recover resources from the solid waste.

Capital investment costs for solid waste management in the past ten years have been covered as follows:

- ..... per cent from grants or loans from provincial or central government;
- ..... per cent from grants or loans from multilateral and bilateral development agencies;
- ..... per cent from commercial loans;
- ..... per cent from floating local government bonds; and
- ..... per cent from private sector participation.

Objective of the study

The main objectives of the study are

- to examine the financial and institutional dimensions of solid waste management in the built-up areas;
- to develop institutional, ***commercialization***, and financial arrangements to improve solid waste management for (the urban area under consideration); and
- to evaluate the feasibility and advisability of involving the private sector.

The Consultants are expected to recommend appropriate cost recovery mechanisms, tariff structures and cost recovery targets. They are also expected to recommend the optimal private sector participation strategy and prepare model bidding documents for soliciting private sector participation (PSP) in various solid waste activities.

More specifically, the Study will:

- determine the appropriate institutional, commercialization or ***corporatization*** strategy to improve solid waste management in the project area, including the definition of (i) appropriate roles and responsibilities for the participating entities, (ii) organizational structure and (iii) staffing.
- conduct a financial analysis of the sweeping, collection, transport and disposal systems taking into account operating and maintenance costs in the target areas. (It should also include reviewing the reliability of estimates of capital costs which have been developed by others for new transfer, disposal, and treatment facilities).
- survey different types of generators of solid waste regarding their preferences regarding collection methods and their ability and willingness to pay for various solid waste management service options (The different types of generators may include residents, commercial establishments, ports, and tourist establishments. The views of interfacing activities and employees providing services should also be obtained, by surveying individuals involved in pre-collection, collection, recycling, transfer, disposal, and composting.)
- analyze the feasibility of alternatives for full cost recovery or partial cost recovery and propose (i) financial plans, (ii) pricing or rate structures, and (iii) mechanisms for collecting charges. These financial proposals should accompany the proposed institutional arrangements.
- determine appropriate methods of involving the private sector in order to improve efficiency, and reduce cost and capital investment in collection, transfer, composting, recycling, healthcare waste management, and general waste disposal.
- examine the legal framework governing relationships among the local, provincial and central levels of government, and between them and potential private sector partners.

Scope of the study

The study shall entail the following specific tasks:

Task 1: Institutional, Commercialization or Corporatization Strategy and Structure

The Consultant shall examine a range of alternative institutional arrangements (including commercialization and corporatization options), which shall include municipal solid waste departments, provincial solid waste authorities, ***intermunicipal*** public enterprises (for selected activities of solid waste management), and provincial solid waste public-private partnerships. The Consultant shall propose a strategy by which delivery of solid waste collection, recycling, transfer, and disposal services can be optimized.

The recommendations shall specifically address any problems which might exist in the existing solid waste management system, including: possible problems of

- labor redundancy,
- low labor productivity,
- strikes,
- lack of management autonomy to allow selection of qualified staff,
- lack of management autonomy to terminate employment of non-performing personnel,
- lack of revenue generation capacity,
- lack of enforcement capacity,
- poor vehicle maintenance and low fleet availability,
- poor cash flow for recurrent expenditures,
- lack of capital,
- low status of the organization and its management, and
- corruption.

Each activity in the waste management chain should be examined and the Consultant should express an opinion on whether the solid waste system should be managed as a whole or sub-divided (for example, whether collection should be handled by local government and disposal should be handled by regional or provincial authorities). The Consultant should also examine the advantages and disadvantages of integrating solid waste management with any other services, such as water supply, water resources management, storm drainage, sewerage or wastewater treatment.

The proposed strategy should be accompanied by a recommended organizational structure with institutional relationships and responsibilities clearly defined. Corresponding management systems and operating procedures shall be formulated. Illustrative staffing plans should be prepared, including the type and level of skills required and identifying any shortages or excesses of labor within the system. A capacity development program for managers and technical staff shall be prepared if deemed necessary, identifying general training needs in terms of topic, mode, duration and source.

Task 2: Financial Analysis and Tariff Study

The Consultant shall conduct a comprehensive financial analysis of the solid waste collection and disposal systems (including pre-collection, recycling, transfer, composting and other means of treatment and resource recovery). This shall include a review of capital requirements for any new transfer, disposal, or treatment facilities and for vehicles and equipment for incremental developments of pre-collection, recycling, collection and transfer, as projected by previous technical work. The Consultant shall also prepare projections of operating and maintenance (O&M) costs for the first five years of the operation of the proposed new facilities and equipment. The land to be allocated to new facilities shall be appraised and valued.

The analysis must consider various public and private sector arrangements for the construction and operation of the proposed new facilities and for the pre-collection, collection and transfer system, and investigate the financial viability and technical advantages of alternative arrangements. The Consultant shall consider whether contestable and competitive solid waste collection services in various zones of the target areas should be provided through multi-year service contracts or franchises with private companies. The Consultant shall also investigate whether the new facilities should be implemented through concessions – either as build, operate and own or transfer (BOO or BOT), or as design, build, operate and own or transfer (DBOO or DBOT). If the authority takes responsibility for design and construction of the proposed new facilities, the Consultant shall consider whether they should be operated under service contracts. The Consultant shall determine the optimal capital structure(s) required to implement the proposed new facilities, together with the equity contributions of each participant.

The relative willingness and capacity of residents and corporations in the target areas to pay for solid waste management services shall be determined. (The sample questionnaire for assessing demand and willingness to pay in Annex A9 could be used for this purpose.) The feasibility of undertaking waste recycling as a source of revenue generation should be explored, together with on-site recycling and composting activities which minimize waste generation as a voluntary alternative to payment of the full service charge. The Consultant shall develop

a proposed schedule of fines and penalties for violation of solid waste management byelaws, rules, guidelines, and regulations. The Consultant shall investigate mechanisms for the collection of fees, including the collection of fees together with payments for other utilities (such as water, sewerage and electricity). Consideration should be given to the segregating of the accounts for all solid waste revenues.

Based on these considerations, and other factors deemed relevant by the Consultant, a tariff policy shall be recommended. Various cost recovery schemes may be proposed, together with the corresponding tariff structures for solid waste fees to be collected from residents, commercial and industrial establishments, and tipping fees. The Consultant shall recommend alternative funding sources and financing mechanisms to cover potential shortfalls and provide temporary subsidies. Such financing may include but not be limited to loans, grants, bonds and limited stock offerings. If subsidies are needed, the Consultant shall determine the financial capacity of the local authorities to meet this need.

Task 3: Private Sector Participation

The Consultant shall examine a range of private sector participation options available for collection, recycling, transfer, composting, and disposal of wastes, including special wastes such as hazardous healthcare wastes, port wastes, and construction and demolition debris. The options of service contracting, management contracting, franchised service, ***licensed*** private subscription, and concessions shall be included.

The study should take into account the capacity for delivering the required services that currently exists in each area and examine the comparative advantages of using public and private sector operators in collection, recycling, transfer, and disposal, giving careful consideration to supervision and enforcement. The ***economies of scale*** for appropriate sizing of facilities and collection zones shall be considered so that privatization strategies outlined by the Consultant are cost-effective.

Task 4: Legal Structure and Implementation

If there is a possibility of shared regional facilities requiring the participation of several public sector bodies, the Consultant shall identify the relevant laws, rules and regulations governing the association of several local authorities. This investigation should include the legal aspects of public-private participation in the establishment of such joint entities. Issues of jurisdiction must also be examined. The study shall identify the detailed process for registration and approval of the proposed legal structures by the appropriate authorities.

The Consultant shall also determine the legal options and mechanisms for implementing and enforcing the proposed tariff policy. The Consultant shall review existing byelaws that authorize private sector agents, and that require residents, visitors, and establishments to comply with the cost recovery arrangements. If necessary, changes shall be recommended. This shall include the legal arrangements for licensing private haulers of general and special wastes, and requirements that residents must not utilize the services of unlicensed haulers.
If private sector participation is recommended, the Consultant shall formulate the necessary bidding procedures within the framework of the laws and regulations that govern contract, franchise or concession agreements. The basic provisions and format for bid and tender documents should be developed in consultation with the legal departments of the relevant authorities. Performance and design specifications will be outlined separately by technical specialists. The Consultant shall closely examine recent relevant privatization experiences in other countries for useful ideas and models. The Consultant shall propose an appropriate financial framework against which bids will be assessed.

Expected outputs

The Consultant shall produce the following:

a) A report examining potential institutional strategies (including commercialization or corporatization) for various solid waste management activities, including recommendations for the preferred approach and the proposed organizational structure and staffing.
b) A report providing a comprehensive financial analysis of the solid waste management services of the project area, accompanied by detailed recommendations concerning tariffs, cost recovery, subsidy policies and the timing of their implementation. A financing plan reflecting the recommended institutional structures should be included.
c) A report examining existing laws and regulations applicable to the recommended institutional framework. It should also include proposals for appropriate modifications to the legal provisions.
d) A report on private sector participation with recommendations on which activities should involve the private sector, and how privatization can be achieved. It should also include the basic format and provisions of model bidding documents and ***procurement*** procedures, excluding performance and technical design specifications which would be developed by others.
e) An overall implementation plan which identifies the steps, decisions and actions needed to implement the

various recommendations of the study, including terms of reference for any technical assistance required for building the local institutional and financial capacity needed for effectively managing private sector participation.

Schedule

The Consultant shall provide monthly progress reports summarizing progress in this work, outlining problems and constraints encountered, and presenting issues for the Client's decision, as required.

Five copies of the initial draft report covering all progress shall be submitted six months after the notice to proceed with the above scope of work. Five copies of the final draft report (which shall include modifications in response to the Client's comments on the initial draft) shall be submitted 7.5 months after the notice to proceed with the above scope of work, assuming the Client shall have provided comments within two weeks after receiving the initial draft report.

Team

The team shall include

- at least one financial analyst with over 15 years of related experience,
- one specialist in private sector participation, who is familiar with the solid waste sector, with over 15 years of related experience, and
- one specialist in solid waste management with over 15 years of related experience in technical and economic aspects.

Annex A9: DEMAND ASSESSMENT AND WILLINGNESS TO PAY SURVEY for SOLID WASTE COLLECTION AND DISPOSAL SERVICES

by Sandra Cointreau-Levine

Background

Multilateral and bilateral development agencies are increasingly emphasizing private sector provision of urban services, cost recovery from service recipients, demand-driven service provision, and community participation. To assess demand, willingness to pay, and affordability, there is a need to communicate with the potential recipients of services, asking them for their opinions regarding service options, costs, and methods of payment. Since private sector provision of urban services is a new approach in many places, it is important to demonstrate to the private sector that there is a real demand and willingness to pay. Then the private sector may be convinced that investment risks are acceptable. For areas where no demand exists or where there is no willingness to pay for a waste collection service, decisions will be required as to what action to take. Options include providing a collection service which is financed by a subsidy, advocating on-site systems (such as household recycling, burial and composting), and doing nothing.

After this introduction there is a model questionnaire form for asking residents in actual or potential solid waste service areas regarding their preferences and willingness to pay. Before developing a final version of this questionnaire and conducting the survey, there needs to be feasibility study to determine which service options could be viable, and to estimate the full ***amortization***, operating, and maintenance costs of each. Costs need to be developed in terms of costs per tonne and costs per capita per year. The cost recovery system should cover the costs for disposal as well as collection, so the viability and costs of disposal options also need to be studied.

There are costs that may not be covered by the cost recovery system and so government is obliged to pay them. Government payments commonly cover the costs of

- sweeping of public streets,
- cleaning of public parks,
- collection services to public hospitals, police and military barracks, government office buildings, and public schools.

During the initial stages of the development of a direct cost recovery system, government payments might also cover services to low-income residents. The cost of these services needs to be estimated and government's willingness and commitment to pay established, especially if the private sector is to be involved in collecting wastes from such areas. During the survey the ***costs must be presented to the residents in clear terms*** so that they can respond to questions in a meaningful way.

For the purposes of the survey, there needs to be selection of representative neighborhoods to give a comprehensive view of the range of conditions prevalent in the study area. Usually the following types of neighborhoods are surveyed:

- high income residential,
- middle income residential,
- low income residential,
- mixed commercial and residential, and
- market areas.

In addition, the representatives of the following types of establishments should be surveyed because they offer potentially high revenues which could cross-subsidize low revenue service areas:

- hotels,
- office buildings,
- department stores,
- industrial estates,
- airports and ports, and
- embassies and residences of ambassadors.

The data from the survey would enable balancing of the competing objectives of

- providing at least a minimum level of service to areas where the demand is low,
- providing adequately frequent and convenient services coverage to areas where demand and willingness to pay are high, and
- optimum cost recovery.

The data would help identify areas that might be suitable for ***pilot*** testing of privatization and cost recovery approaches.

A second survey should be undertaken after residents have experienced the service improvements. Comparison with the results of the first survey would show whether the waste generators have changed their expectations, demands, and willingness to pay after experiencing an improved service. Periodic surveys are recommended to monitor changes in demand.

Instructions

Identification of each household and establishment

The identification of each household and establishment needs to be specific enough and clearly recorded so that the same door can be found for subsequent surveys one or more years later.

Respondent

The person interviewed should be the head of the household (or establishment), or someone who is clearly involved in making decisions about the expenditures and commitments of the household or establishment.

Survey Purpose

The reason for the survey needs to be clearly explained to each respondent. If the survey may be followed by a ***pilot*** test, project, or service change, this should be clearly stated.

Service Options

Each collection system option needs to be described. Preferably, there should be drawings or photos to illustrate the various options, including the type of household container and the size and type of collection vehicle. For each option, the frequency needs to be stated. If the service involves participation by residents (such as carrying dustbins to the roadside early in the morning or taking waste to a communal container), the schedule, placement requirements, and walking distances should be described. The method of disposal following collection should also be described, as part of the income from fees should be used for environmentally safe disposal. Respondents should be invited to ask questions, and to express their doubts (which should be recorded for future reference).

Service Price

Before conducting the survey, the costs for each option must be carefully estimated. Respondents should be told the price of each collection system option during the survey. (Estimating the fee that should be paid involves determining the cost of the service and an assessment of the proportion of the households that will actually pay the fee. For example, it may be appropriate to assume that the service is provided to all the households and establishments within an area – because exclusion of households or establishments that do not pay is difficult – and to assume that fees are paid by only 80 per cent of service recipients.)

Service Preferences

The possible types of service provider - local government or a private company - need to be described. The survey should determine whether waste generators have a preference, and record their concerns and doubts about the possibilities.

Fee Collection Preferences

The options for fee collection need to be described. The fee can be collected by government, the private company that collects the waste, commissioned fee collectors, or an existing authority (such as a water or electricity authority). The fee can be collected from door to door, by mail, at banks or at government offices. The survey should determine whether respondents have a preference, and record their concerns and doubts about the options.

Additional Information

Any other information that might be useful in determining demand and willingness to pay should be collected. If the household (or establishment) has unusual circumstances, burdens or constraints (such as a sick or disabled family member, or recent loss of employment or markets) which might influence their responses, this should be recorded separately. If the household (or establishment) appears to have a surprisingly large income (apparent in the display of affluence inconsistent with the declared income, or because of informal sector income, or income from relatives overseas) which might not be readily apparent from their responses, this should be recorded separately.

Sample Size

For each type of community or area to be surveyed, a sample of between 100 to 200 respondents is desired. For example, if an area has 1000 houses and 100 respondents are desired, every 10th house along the routes in the area would be interviewed. The starting house should be picked randomly.

Analysis of Results

The survey data should be sorted according to factors that might influence responses. For example, the service preference and willingness to pay responses could be correlated to factors such as literacy, ethnic background, urban or rural background, income, and prior experience with a particular type of collection service. The results of such correlations would show whether these factors have a significant effect on preferences and willingness to pay.

Pilot Test

It is extremely important that the questionnaire be tested and refined. Particular attention during the testing needs to be paid to sections C and F, because these general questions might fatigue the respondents and therefore not provide meaningful data which can be used to correlate results. Surveyors should take care that the descriptions of the various possible collection systems are sufficiently understood.

MODEL SURVEY QUESTIONNAIRE FOR ASSESSING DEMAND AND WILLINGNESS TO PAY

Date of interview: .....

Name of interviewer: .....

Area: .....

A. Identification:

"I would like to ask you some questions that would assist the local government in determining how to improve the solid waste collection service to your neighborhood. These questions usually take about …… minutes. We are interviewing a sample of …… per cent of the households and establishments in your neighborhood, so your input is considered very valuable to this survey. Let me first ask you a few questions to identify this house (or establishment) and you."

A.1 Household (or establishment) identification: .....

A.2 Name of Respondent: .....

A.3 Position of Respondent:

Head of household (or establishment) □

Spouse of head of household (or establishment) □

Other □, please describe .....

A.4 How many people (children and adults) live in your household (or work in your establishment) on a regular basis? .....

B. Major Concerns:

(For this question, present the list in a different order on a random basis to each respondent)
"I would like to show you a list of possible problems that might be faced by your household (or establishment):

a) Difficult access to drinking water
b) Poor quality of drinking water
c) Inadequate disposal of residential wastewater
d) Inadequate disposal of human excreta
e) Flooding and inadequate drainage of stormwater
f) Poor access for motor vehicles
g) Lack of public transport
h) Unreliable electricity supply
i) Inadequate solid waste collection service
j) Presence of litter and illegal piles of solid waste
k) Nuisance from solid waste transfer points
l) Nuisance from solid waste disposal sites

B.1 Of these possible problems, which do you consider the most serious problem for your household (or establishment)?

Most serious problem ..... (Write letter – a to l)
Don't know □

B.2 And which do you consider the second most serious problem?

Second most serious problem ..... (Write letter – a to l)
Don't know □

B.3 (If item (i) was not listed) In your opinion, how serious is the problem of solid waste collection in this area?

Very serious	☐	a
Somewhat serious	☐	b
Not serious	☐	c
Don't know	☐	d

B.4 (If item (j) was not listed) In your opinion, how serious is the problem of littering and illegal piles of solid waste in this area?

Very serious	☐	a
Somewhat serious	☐	b
Not serious	☐	c
Don't know	☐	d

B.5 (If item (k) was not listed) In your opinion, how serious is the problem of nuisance from solid waste transfer points in this area?

Very serious	☐	a
Somewhat serious	☐	b
Not serious	☐	c
Don't know	☐	d

B.6 (If item (l) was not listed) In your opinion, how serious is the problem of nuisance from solid waste disposal or dumping in this area?

Very serious	☐	a
Somewhat serious	☐	b
Not serious	☐	c
Don't know	☐	d

C. Existing Situation Regarding Solid Waste:

"I would like to ask you some questions regarding the collection or removal of solid waste from your household (or establishment)."

C.1 Does your household (or establishment) have a durable metal or plastic container for storing solid waste?

Yes, we have metal or plastic container	☐	a
We have basket or carton container	☐	b
No, we do not have a container	☐	c
Don't know	☐	d

C.2 Does your household (or establishment) receive a collection service of any type?

Yes	☐	a	***Go to Question C.3***
No	☐	b	***Go to Section D***
Don't know	☐	c	***Try question C.3***

C.3 How frequently is your container usually taken out to be emptied?

Several times each day	☐	a
Daily	☐	b
Three times a week	☐	c
Twice a week	☐	d
Once a week	☐	e
Less frequently	☐	f
Don't know	☐	g

C.4 Who usually takes the container with its waste contents out to be emptied?

Head of household (or establishment)	☐ a	
Spouse of head of household (or establishment)	☐ b	
Another male adult	☐ c	(Please specify) .....
Another female adult	☐ d	(Please specify) .....
Any male adult	☐ e	
Any female adult	☐ f	
Any child between the ages of 13 and 18	☐ g	
Any child between the ages of 6 and 12	☐ h	
Don't know	☐ i	

C.5 Where is your container taken to be emptied?

The container is placed beside the road for emptying into a collection vehicle.	☐ a
The container is emptied into a larger container in the same building.	☐ b
The container is emptied into a communal container in the neighborhood.	☐ c
The container is emptied onto an open pile of waste in the neighborhood.	☐ d
The container is emptied at the final disposal, and the waste stays there.	☐ e
Don't know.	☐ f

C.6 Approximately how far or how many minutes walking time one-way is it to empty your container? (If possible the respondent should indicate to the questioner where it is, so that the questioner can later check the distance.)

..... meters one-way
..... minutes walking one-way
Don't know ☐

C.7 If your container is emptied into a larger container in the same building or into a communal container in the neighborhood, how often is that (larger) container emptied?

Daily	☐ a
Three times a week	☐ b
Twice a week	☐ c
Once a week	☐ d
Less than once a week	☐ e
Less than once in 2 weeks	☐ f
Less than once in 3 weeks	☐ g
Less than once a month	☐ h
Don't know	☐ i

C.8 If your container is emptied onto an open pile of waste in the neighborhood, how often is that pile removed?

Daily	☐ a
Three times a week	☐ b
Twice a week	☐ c
Once a week	☐ d
Less than once a week	☐ e
Less than once in 2 weeks	☐ f
Less than once in 3 weeks	☐ g
Less than once a month	☐ h
Don't know	☐ i

C.9 For how many years has this type of waste collection service been provided to your household (or establishment)?

Less than one year	☐ a
One to two years	☐ b
Two to five years	☐ c
More than five years	☐ d
Don't know	☐ e

C.10 Who collects the waste from the curbside, communal container, or pile?

Local government ☐ a
Local public authority ☐ b
Neighborhood group ☐ c
Private company ☐ d
Don't know ☐ e

C.11 Has the same organization been collecting the waste for the past five years, or has there been a change in who has been collecting your waste?

The same organization for the last five years ☐ a
There has been a change in the last five years ☐ b
Don't know ☐ c
If there has been a change, please give more details .....
.....

C.12 What is your opinion of the service that you are receiving for collection of solid waste from your household (or establishment)?

Very satisfied ☐ a ***Go to Question C.14***
Reasonably satisfied ☐ b ***Go to Question C.14***
Not satisfied at all ☐ c ***Go to Question C.13***
Don't know ☐ d

C.13 If you are not satisfied with service, would you state your ***primary*** reason?

The service is not reliable ☐ a
Frequency of service – the interval between collections is too long ☐ b
The location of the communal container or pick-up point is unsatisfactory ☐ c
Lack of clean appearance, odors, flies or fires at the communal container ☐ d
The collection workers are rude or impolite ☐ e
Lack of clean appearance of the neighborhood ☐ f
Other problem ☐ g Please explain .....
.....

C.14 Do you know where the collected waste is taken for final disposal when it leaves your neighborhood?

Yes ☐ a ***Go to Question C.15***
Don't know ☐ b ***Go to Section D***

C.15 Are you concerned about whether the final disposal is environmentally safe and acceptable?

Yes ☐ a
No ☐ b
Don't know ☐ c

D. Description of Proposed Service Options

"Plans are being developed to upgrade the solid waste system in your neighborhood. To understand your preferences, I would like to discuss the options with you. For each of these options, the cost is different. Households and establishments in your neighborhood will be expected to pay a fee for this improved service. The type of service provided will depend on the fee which you and your neighbors can afford and are willing to pay, as well as your preferences."

D.1 Would you like to ask any questions about the plans to upgrade the solid waste system?

Yes ☐ a ***(Record questions and answer them)***
No ☐ b

E. Demand Assessment:

"Different methods of collecting solid waste have different costs and require different levels of involvement from residents such as you. The vehicles used for collection could be either trucks or tractors, depending on the road conditions in your neighborhood. The main methods of solid waste collection are as follows:

a) Low Cost System

A large communal container - probably of 5 to 8 cubic meters capacity – (interviewer should demonstrate the size) would be placed in your neighborhood at a central location and each household and establishment would be expected to carry its container of refuse to empty it into the container. The container would have an attendant to sweep the area and keep it tidy. A vehicle would pick up the container and take it away to be emptied before it is completely full.

b) Low Cost System

A vehicle would come to the neighborhood on a scheduled basis and park for a few minutes at each block or road junction to collect solid waste. When the vehicle parks, it would ring a bell, sound its horn or play a musical jingle to summon residents to bring their containers out to be emptied. All waste in the neighborhood would be kept inside until the vehicle comes.

c) Medium Cost System

As with the first service option, a large communal container would be placed in your neighborhood. However, instead of you and your neighbors being required to carry their waste to the communal container, door-to-door collection would be arranged for an added fee. The door-to-door collection would be done by a worker using a pushcart or donkey, depending on which would work better in your neighborhood.

d) Higher Cost System

A vehicle would come to the neighborhood on a scheduled basis and provide a door-to-door service. At each building, containers of waste, which have been left at the curbside, would be emptied into the vehicle. The emptied containers would be placed neatly at the curb for residents to bring back into their household (or establishment). Residents would be required to adhere to the schedule and bring their waste to the curb in proper containers before the vehicle arrives."

E.1 Which of the service options just described do you prefer, giving consideration to the convenience and the cost?

Collection method (a)	☐ a	– ***Now go to Question E.2***
Collection method (b)	☐ b	– ***Now go to Question E.7***
Collection method (c)	☐ c	– ***Now go to Question E.10***
Collection method (d)	☐ d	– ***Now go to Question E.13***
Don't know	☐ e	– ***Ask if the respondent would like further explanation***

E.2 If your preferred collection method (***a***) were introduced, how far would you be willing to walk to the large communal container?

50 meters	☐ a
100 meters	☐ b
150 meters	☐ c
200 meters	☐ d
More than 200 meters	☐ e
Don't know	☐ f

E.3 If your preferred collection method (***a***) were introduced, would you be willing to have the communal container within 20 meters of your house (or establishment)?

Yes	☐ a	– ***Now go to Question E.5***
No	☐ b	– ***Now go to Question E.4***
Don't know	☐ c	– ***Now go to Question E.4***

E.4 If you answer is "no" or you are not sure, would you please describe your concerns about the container location?

.....

.....

E.5 The cost of collection method (a) is ..... per person per month. For your household (or establishment), which has ..... people, this amounts to ..... per month.

Would you be willing to pay this fee to cover the cost of the waste collection service?

Yes	☐ a	– ***Now go to Question E.21***
No	☐ b	– ***Now go to Question E.6***
Don't know	☐ c	– ***Now go to Question E.6***

E.6 What is the maximum fee per month that your household (or establishment) would be prepared to pay for the collection method that you have chosen (method a)?

..... per month	☐ a	– ***Now go to Question E.17***
Won't pay any fee	☐ b	– ***Now go to Question E.16***
Don't know	☐ c	– ***Now go to Question E.16***

E.7 If your preferred collection method (***b***) were introduced, are there certain times of day when you would find it most convenient to meet the vehicle when it comes to your block to collect waste? (More than one answer may be checked.)

Early morning before 9 a.m.	☐ a
Anytime in the morning	☐ b
Anytime in the afternoon	☐ c
Early evening after 5 p.m.	☐ d
Anytime during daylight	☐ e

E.8 The cost of collection method (b) is ..... per person per month if the collection vehicle comes ..... times per week. For your household (or establishment), which has ..... people, the fee would be ..... per month.

Would you be willing to pay this fee to cover the cost of the collection service?

Yes	☐ a	– ***Now go to Question E.21***
No	☐ b	– ***Now go to Question E.9***
Don't know	☐ c	– ***Now go to Question E.9***

E.9 What is the maximum fee per month that your household (or establishment) would be prepared to pay for the collection method that you have chosen (method b)?

..... per month	☐ a	– ***Now go to Question E.17***
Won't pay any fee	☐ b	– ***Now go to Question E.16***
Don't know	☐ c	– ***Now go to Question E.16***

E.10 If your preferred collection method (***c***) were introduced, would you be willing to have the communal container within 20 meters of your house (or establishment)?

Yes	☐ a
No	☐ b
Don't know	☐ c

E.11 The cost of collection method (c) is ..... per person per month for collection ..... times per week. For your household (or establishment), which has ..... people, this amounts to ..... per month.

Would you be willing to pay this fee to cover the cost of the collection service?

Yes	☐ a	– ***Now go to Question E.21***
No	☐ b	– ***Now go to Question E.12***
Don't know	☐ c	– ***Now go to Question E12***

E.12 What is the maximum fee per month that your household (or establishment) would be prepared to pay for the collection method that you have chosen (method c)?

..... per month	☐ a	– ***Now go to Question E.17***
Won't pay any fee	☐ b	– ***Now go to Question E.16***
Don't know	☐ c	– ***Now go to Question E.16***

E.13 If your preferred collection method (***d***) were introduced, what type of containers do you think that you and your neighbors should use for putting out your waste at the curbside?

Metal dustbins ☐ a
Plastic dustbins ☐ b
Plastic or nylon bags ☐ c

E.14 The cost of collection method (d) is …… per person per month for collection of your waste from the curbside …… times per week. For your household (or establishment), which has …… people, this amounts to …… per month.

Would you be willing to pay this fee to cover the cost of your preferred collection method?

Yes ☐ a – ***Now go to Question E.21***
No ☐ b – ***Now go to Question E.15***
Don't know ☐ c – ***Now go to Question E.15***

E.15 What is the maximum fee per month that your household (or establishment) would be prepared to pay for the collection method that you have chosen (method d)?

…… per month ☐ a – ***Now go to Question E.17***
Won't pay any fee ☐ b – ***Now go to Question E.16***
Don't know ☐ c – ***Now go to Question E.16***

E.16 What is the reason that you are unsure or don't want to pay for a collection service?

.....

.....

E.17 (For those who stated that they are unsure or don't want to pay for the collection service from government, or are not willing to pay the government enough to cover the full cost of service.)

Would you be willing to pay the full cost of the collection service if a private company was providing the service and collecting the fee directly from you?

Yes ☐ a – ***Now go to Section F***
No ☐ b – ***Now go to Question E.18***
Don't know ☐ c – ***Now go to Section F***

E.18 What is your reason for not being willing to pay a fee to cover the full cost of a waste collection service from the government or a private company?

Can't afford to pay for the full cost ☐ a – ***Now go to Question E.20***
Don't believe that the service will be reliable ☐ b – ***Now go to Question E.19***
Don't consider the service important enough to pay for ☐ c – ***Now go to Question E.19***
Believe that general taxes should cover the cost of this service ☐ d – ***Now go to Question E.19***
Other ☐ e – Please explain .....
..... – ***Now go to Question E.19***

E.19 If you are not willing to pay for a collection service and government cannot afford to subsidize it for you, would you be willing to dispose of your wastes according one of the "do-it-yourself" systems described below, so that you do not pollute your neighborhood?

Separation of recyclable materials and composting of kitchen wastes in your yard or garden. ☐ a – ***Now go to Section F***

Separation of recyclable materials and burial of kitchen wastes in your yard or garden. ☐ b – ***Now go to Section F***

No ☐ c

Don't know ☐ d

E.20 If you are not able to afford to pay for the full cost of the collection method that you initially selected, would you consider an alternative method that offers a lower level of service or more effort on your part? Which of the following alternatives would be most acceptable to you? (More than one answer can be checked.)

- Selection of a method that has a lower cost ☐ a – ***Now return to Question E.1***
- Walking a longer distance to empty or place your container ☐ b
- Less frequent collection of waste ☐ c
- Participation as a volunteer in community efforts to help with collection ☐ d
- Participation as a volunteer in community efforts to regularly clean up uncollected waste ☐ e
- Other cost-saving suggestions ☐ f Please describe .....
  .....
- None of these ☐ g – ***Now go to Section F***
- Don't know ☐ h

E.21 If you have said that you are willing to pay for a collection service, whom would you prefer to provide the service to you?

- The local government ☐ a
- A private company ☐ b
- There is no difference ☐ c
- Don't know ☐ d

E.22 If you have said that you are willing to pay for a collection service, to whom would you prefer to pay the fee?

- To a government fee collector ☐ a
- To a fee collector working for a private company ☐ b
- To a neighborhood leader ☐ c
- They are all equally suitable ☐ d
- Don't know ☐ e

F. Demand Assessment:

"We will soon be ending this interview. Before we do end it, I would like to ask some questions about you and your family (or members of your establishment)."

F.1 What is your age? Under 24 ☐ a 25 to 34 ☐ b 35 to 44 ☐ c
45 to 54 ☐ d 55 to 64 ☐ e Over 65 ☐ f

F.2 What is your level of education (number of years of school)? ..... years

F.3 What is the level of education of the most educated member of your household (or establishment)? ..... years at school

F.4 (If a household) How many children under 15 years of age are in your household? .....

F.5 (If a household) How many people in your household contribute to the household income? ..... people

F.6 (If a household) What is the occupation of the principle income earner in the household?

- Self-employed as laborer ☐ a
- Self-employed as trader ☐ b
- Self-employed as consultant or professional ☐ c
- Employee of a private company ☐ d
- Employee of government (public sector) ☐ e
- Retired ☐ f
- Other ☐ g
- Don't know ☐ h

F.7 (If an establishment) What is the principle commercial activity of this establishment?

Trading in goods	☐ a	
Trading in produce, meat, poultry or fish	☐ b	
Professional services	☐ c	
Manufacturing, food preparation	☐ d	
Repair, maintenance	☐ e	
Inn or Hotel	☐ f	
Restaurant, café, bar	☐ g	
Bank	☐ h	
Other	☐ i	Please describe.....

"Thank you for your contribution to this survey. We hope to use these results to determine how best to provide affordable and desirable service to the people of your community.

F.8 If there is need to seek your advice further, may we contact you again?"

Yes	☐ a
No	☐ b
Don't know	☐ c

Annex A10: CHECKLIST OF ISSUES TO BE COVERED IN DIFFERENT TYPES OF MSWM AGREEMENTS

LIST OF CONTENTS

Annex A10: CHECKLIST OF ISSUES TO BE COVERED IN DIFFERENT TYPES OF MSWM AGREEMENTS

by Prasad Gopalan

A10.1 Preamble

A 10.1.1 Introduction to Annex A10

This Annex provides guidelines for developing arrangements for different types of agreements for the collection, transfer and disposal of municipal solid wastes by the private sector. Some examples of actual contracts and agreements are available in electronic format in Part V.

The intended uses of this Annex are:

1. To guide the preparation of documents that can become actual contractual documents.
2. To guide the preparation of contractual documents.
3. As a reference during final negotiations to select a contractor/franchisee/concessionaire.
4. To guide the development of regulatory guidelines and documentation.

This Annex considers private sector participation in the following municipal solid waste services:

- ➔ collection,
- ➔ transfer and
- ➔ disposal

This Annex provides guidelines for preparing the following types of basic contractual arrangements for each of these three municipal solid waste services:

- Collection – ***service contract***, franchise.
- Transfer – service contract, ***management contract***, build-operate-transfer (BOT) concession
- Disposal – service contract, management contract, build-operate-transfer (BOT) concession

There are three main areas that are considered in the preparation of agreements. The first is concerned with the different issues that need to be addressed under each type of contractual arrangement. The second aspect concerns the risks that should be shared and minimized. The third section provides typical contractual clauses that need to be included in each type of contractual arrangement.

This Annex assumes that the municipality has analyzed the need for private sector arrangements for MSWM services and has broad-based support for the program from all the relevant stakeholders. This Annex also assumes that the basic legal and regulatory statutes of the country allow the entry of private sector operators into this sector. Finally, the Annex assumes that the arrangements for generating income to pay for the services delivered are also feasible, and are generally accepted by the stakeholders.

A 10.1.2 Checklist of minimum issues to be covered in the agreement and regulatory documents

For each of the contractual arrangements for the municipal solid waste management (MSWM) services mentioned above, this Annex addresses the following key issues:

a) The parties to the agreements.
b) The objectives and scope of the technical services under the contractual arrangement.
c) The objectives and scope of the financial requirements under the contractual agreement.
d) The duration of the agreement and the scope for renegotiation, early termination, annulment, or abrogation of the agreement.
e) The rights and obligations of the private sector counterpart (contractor, franchisee or concessionaire).
f) The rights and obligations of the ***grantor***.
g) National, state and local regulatory requirements and consents or ***permits***.
h) Identification and management of key risks.
i) Performance measurement, monitoring, and payment.
j) Ownership and use of assets.
k) Dispute resolution and arbitration.

A10.2 Agreements for waste collection services

A 10.2.1 Parties to the agreement

The parties to an agreement comprise the grantor of the agreement (the public sector agency or agencies) and the contractor/franchisee (the private sector counterpart). This section describes the issues concerning the parties to the contractual agreement.

a. Grantor

The grantor of the agreement could be the national or the state government, a government ministry or a government-controlled agency, a municipality or a group of municipalities, a department of a municipality, or an independent regulatory body. Since the delivery of solid waste services is generally a local responsibility, it is very uncommon for national governments to enter into such agreements, except in small countries or countries with a low degree of decentralization of powers. If national or local regulations confer overlapping or joint responsibility for MSWM services to several agencies, then the grantor may consist of several organizations. Regulatory agencies should be party to the agreement if local law requires it in order to be able to enforce regulations on the contractor/franchisee. The key issue is to identify the particular agency (or agencies) which is vested with the power to grant agreements to the private sector for the MSWM service(s) in question.

If the agreement requires the transfer or leasing of the assets of multiple agencies to the contractor/franchisee, or use of them by the contractor/franchisee, then it may be relevant to include all the appropriate parties as co-grantors of the agreement.

b. Authority and legal standing of the grantor

The grantor of the agreement should have the legal powers to sign agreements with the private sector. The representatives of the grantor during the execution of the work covered by the agreement should also be clearly identified in the agreement. For example, an ***apex agency*** can represent several parties, or an independent auditor may represent the grantor to audit the financial statements of the contractor/franchisee to ascertain their accuracy. In addition, the chain of authority and legal responsibilities should be clearly defined if the original granting agency (that is party to the agreement) is dissolved, or if its powers to execute MSWM agreements are abrogated, or if it becomes bankrupt. Also, the role of a guarantor for the grantor, if required, should be investigated.

Such an agreement must be legally binding in order to allow the allocation of powers and responsibilities to the parties to the agreement, to form the basis for future dispute resolutions, arbitration, and negotiations, and to be able to offer security for obtaining financing for the venture.

The powers and duties of independent regulators that may affect the contractual arrangement must be recognized and understood by all parties. Since legal conditions may vary widely from country to country, it is highly recommended that local legal counsel be consulted well in advance of the preparation of an agreement.

c. Contractor/franchisee

The type of private sector entity that is party to the agreement should be clearly identified. (It might be a ***joint venture***, a local company, a partnership, a limited partnership, a micro- or a small-scale enterprise, a community-based organization, or a trust). Registration requirements for the contractor/franchisee should also be clearly outlined so that the contractor/franchisee and the grantor are clear about the relevant legal statutes. Also, any restrictions on foreign ownership and representation on the management or the board should also be reflected in the formation of the ***sponsor company***. The type of company involved in the agreement dictates its legal standing and it may, therefore, be subject to specific legal requirements. The legal standing of the private contractor/franchisee also affects his tax position, his ability to declare bankruptcy, his operation (management) and control (board), as well as his liabilities.

If a special purpose company is formed by several entities, but the key sponsor with the relevant experience in the sector is not party to the agreement, then the executor of the agreement should be satisfactory to the grantor. In these instances, additional surety such as letters of credit, guarantees, subordinated loans from the key actor, ***comfort letters***, and undertakings, may be required to support the contractor/franchisee. In addition, the ownership arrangements between the different entities that form the private sector counterpart should be clearly identified, and conflict resolution mechanisms between the shareholders defined to the satisfaction of the grantor. Moreover, the relationship between the contractor/franchisee and all other parties supporting the contractor/franchisee must be clear. (Supporting parties include the lenders, shareholders, key personnel, construction companies, design consultants, operating companies, insurers, guarantors, and export credit agencies.)

d. Regulatory Provisions

When they assign monopoly powers to the contractor/franchisee - either as rights to operate or rights to a concession, over a long period of time - the grantor and other public agencies take on the key role of regulating the private sector counterpart in the public interest. These regulatory issues form the background to a contractual arrangement and should be clearly stated in the agreement. They include:

- The opportunities for competition between private sector entities in the solid waste sector at specific stages of contractual engagements (i.e., RFQ, RFP, and bidding).
- The identity of agencies that will have regulatory powers on specific issues pertaining to the delivery of services under the solid waste agreement, such as:
  - the agency responsible for tariff setting and agreements and for hearing requests for re-assessments of fees,
  - the agency responsible for monitoring the agreement,
  - the pollution control agency,
  - the ministry of environment,
  - the ministry of labor, the ministry of finance, and
  - the department of transportation.
- Funding of regulatory activities - whether the contractor/franchisee or the grantor should pay for all permit administration, regulatory inspections, hearings, and other services delivered by the regulator(s) over the duration of the agreement.
- Limits to regulatory authority should be addressed. If there are overlapping responsibilities in the regulatory field, the agreement should clearly specify which regulatory authority has the leading role in order to minimize confusion and conflicts. Provisions for interpretation and arbitration should be included in the agreement, to resolve disputes when conflicts in regulatory provisions occur.
- The various regulatory responsibilities should also be integrated in preparation for transferring certain solid waste services to the private sector. (This could include the integration or harmonization of regulations pertaining to economics, public health, environment, occupational safety, etc.)
- In the procedures for regulating the contractor/franchisee it will be necessary to balance a number of factors, including
  - the need for cost-effective service,
  - any scope for efficiency improvements in operations,
  - the need for investments in the sector, and

– the opportunity for the contractor/franchisee to make a reasonable rate of return so that the work is seen as an attractive proposition by the private sector.

A 10.2.2 Object and scope of agreement

The collection agreement could be structured as a service contract wherein the contractor provides the collection services in the specified area(s) for a periodic fee to be paid by the grantor of the contract.

Another option for structuring the relationship could be to frame the agreement as a franchise wherein the franchisee gets monopoly rights for a specified period to deliver collection services in a specific zone, and charges the generators directly for the service. In return for granting the monopoly rights to the franchisee, the grantor receives a royalty or franchise fee. Aside from the modes of payment and the responsibilities for obtaining consents and approvals, the two types of agreements are almost identical in the manner in which services are delivered. The following sections consider the preparation of a collection service contract in general and point out specific issues pertaining to a franchise as and when they become relevant.

a. Scope of a collection service agreement

- Description of the service zone, service requirements in the collection zone, and the distribution of operational responsibilities between the service provider and other players (households, NGOs, etc.). Limits on service requirements.
- Scope for exclusivity in the zonal area of operation for the duration of the agreement. Scope for operation in more than one zone of service.
- Scope for amendments to the agreement to reflect dynamic service requirements in the zone of service, including scope for increasing the level of service.

b. Obligations of the provider of the collection service

The general and supplementary conditions of the agreement, together with the technical specifications, specify the obligations of the service provider. For solid waste collection, the specifications should address the following issues:

- The quality and type of service:
  - Coverage (defined using a street map of sufficient detail of the zone of service and the zoning map, the distribution of the types of establishments in the zone, road details, traffic patterns, and population densities).
  - Frequency and method (communal, block, curbside etc.) of the collection service as well as the routes of collection vehicles.
  - Required standard of cleanliness of the collection zone.
  - Types of wastes to be collected, including (if needed) provisions for handling construction and demolition debris, hazardous and healthcare wastes, and other special wastes.
  - The interface with ***downstream*** solid waste operations, which might include transfer, transport and disposal.
- The provision of materials, supervision, labor, equipment and other utilities and facilities for carrying out the services entailed under the agreement. Use of publicly- or privately-owned assets by the service provider. Valuation and transfer of assets at the beginning and at the end of the contract/franchise period.
- Recycling activities.
- The required types and minimum numbers of collection vehicles and containers to be used, and the required condition of this equipment.
- Compliance with relevant local, state and national laws, ordinances, codes and regulations.
- Interfacing with existing pre-collection and recycling activities.
- Responsibility for ***public education*** campaigns on solid waste collection issues and the participation of residents and other users.
- Personnel requirements, including the use of sub-contractors.
- Maintenance of appropriate health and safety standards during operations.
- Emergency operations.
- Issues pertaining to wages, performance bonding requirements, ***payment bonding*** requirements (in the case of the use of subcontractors, or in the case of franchise payments to local government), insurances, taxes and tolls, permits, acquisition of rights-of way, and indemnification requirements.
- Reporting requirements and inspection.
- Payment to the contractor for routine and emergency services, payment of franchise fee (if applicable) to the grantor, payment to the grantor or a third party for disposal. Modes of payment for service contract (payment by grantor) or franchise (direct user fees).
- Financing requirements and controls.

In relation to these considerations, the grantor may retain rights and responsibilities for some of the following activities:

- Inspection of the quality of work performed by the service provider.
- Inspection of the working conditions of personnel, and condition of ***plant*** (e.g., workshops and garages), equipment, and machinery.
- Approval or refusal of the use of sub-contractors.
- Obtaining and paying for permits and rights-of-way for the work.
- Public education and promotion of public participation.
- Ensuring timely payment for services as a consequence of the legal duty of the grantor for ensuring services.
- Preventing illegal/unauthorized dumping.
- Establishing service levels based on willingness to pay.
- Approval of limits on and modifications to insurance, bonds, letters of credit, as well as minimum wage requirements.
- Undertaking ***downstream*** waste management activities (including transfer, transport, and disposal) and specifying contractor/franchisee's interface with these activities.

- Authorizing the use by the service provider of the grantor's equipment, plant and personnel.
- Financing capital equipment.
- Making subsidy payments to contractor or franchisee for services rendered.
- Paying for services delivered (for service contracts).

As with any private sector participation, a balance should be struck between the need for the grantor to monitor and enforce the agreement in the public interest, and the incentive for the service provider to operate the collection service efficiently, without the excessive costs associated with undue interference from the grantor.

A 10.2.3 Specific issues in a collection agreement

The previous section mentioned some obligations of the contractor/franchisee and the grantor in a collection agreement. This section expands upon some of the important aspects of these obligations. The types of collection agreement discussed here are service contracts or franchises for exclusive service zones.

a. Payment issues

In a collection contract, the responsibility for assessing and collecting the fees for a collection service is with the grantor of the contract (typically the municipality). In the case of a franchise agreement, the franchisee collects the fees.

In the first case (the service contract mode), the grantor (municipality) levies and collects revenue - preferably a ***direct user charge*** based on the willingness and the ability of the generators to pay for the services. The grantor collects the fee from the generators by billing them either directly at monthly intervals (or at any other regular interval) or through the statutory powers vested with the grantor. The grantor then pays the contractor a fee on a monthly (or on any other periodic) basis. Often this fee is based on measurements or estimates of waste quantities delivered to transfer stations or disposal facilities. (There are cases where weighing the collected waste has proved to be an unsuitable basis for the payment to the contractor and so an alternative basis has been sought. In such cases contractors' employees artificially increased the weights measured at ***weighbridge***s by adding water or dense debris to the collected waste or arranging for colleagues to stand on the weighbridge with the truck.)

In the second case (franchise mode), the franchisee is given the authority to collect fees directly from the generators based on fee agreements negotiated between the generators and the franchisee. These agreements are negotiated at the beginning of the franchisee's involvement. In this case, the grantor may also offer targeted subsidies based on certain criteria (for example, when the franchisee's audited costs for delivering the specified service exceed revenues, or when certain customers are unable to pay for the services). In the case of a franchise, the franchisee is also required to pay a fraction of his monthly (or any other periodic) receipts as a franchise fee to the grantor to defray the costs of monitoring the franchisee.

In both cases, the grantor can use its legal powers through ***liens*** or penalties to deal with generators who do not pay for the services even though they are able to do so. The timing of the billing process and procedures for dealing with generators who refuse to pay should also be clearly outlined in the agreement as well as in the rules and regulations of the grantor. Ideally, in both cases, the willingness and ability of the generators to pay for the collection service should be analyzed prior to establishing the fee structure, in order to make the system sustainable (as discussed in Annex A9).
In addition to the above, the following pricing issues deserve attention:

- There should be a clearly defined procedure for assessing the level of the ***differentiated base user fee*** level (for franchises), or collection fee per unit weight of waste (for service contracts). The structures of such fees for collection services should be clearly defined. The fee for hauling wastes from specified collection points on the haul route should be clearly itemized in the agreement, as the basis for compensating the contractor/franchisee for the distances covered. In addition, where appropriate, the fees for hauling waste to transfer stations and directly to the disposal site should both be assessed.
- The processes and timing for
  - adjusting prices according to local economic conditions (e.g. price inflation or exchange rates),
  - changing cost structures due to changing micro- and macroeconomic conditions (such as costs of financing, prices of fuel, labor, etc.), and
  - incorporating improvements in operational efficiencies,

  should form a part of the tariff structure agreement.
- It may be beneficial to implement various different fee scales for generators depending upon the quantity of waste generated, the demand and the ability to pay for the service, in order to meet the overall operating cost recovery targets. (This arrangement is referred to as ***cross subsidization*** – subsidies (increased fees) being paid by some generators to help those less able to pay.) However, in some cases, there are legal restrictions on service price discrimination, prohibiting cross subsidies.
- The procedure for setting tariffs for new generators.
- Agreements on pricing for emergency or special operations.
- Long-term agreements on tipping fees (for either transfer or direct disposal by the collection contractor/franchisee), and corresponding requirements for payment of disposal charges.
- Compensation for extra, unforeseen costs incurred by the contractor/franchisee due to unexpected changes in the operating conditions, and the mechanism by which these costs can be recovered from generators. Such unforesee-

able costs may result from changes in byelaws or ordinances, increased transport distances to new disposal facilities, and changes in demand. Conditions that will trigger such requests for compensation should be identified in the agreement, if possible.

- Incorporation of costs of, or revenues from, recycling activities into the tariff structure.
- Assistance that will be available to the franchisee when he is unable to recover his operating costs through the direct levy of user charges. (This might include assistance in prosecuting generators who refuse to pay their fees.)
- The tariff structure should include provision for the taxes that the contractor/franchisee is liable to pay and for ***depreciation*** of assets.
- Provisions for handling delays in payments, including penalty assessments. (This should apply to payments that are to be made by either party.)
- Payment conditions that apply if agreement extensions are offered or if agreements are abrogated or terminated before expiry.
- The procedure for revising the franchise tariffs or requesting increased payments from the grantor.
- Provisions for auditing the contractor/franchisee's costs and capital base should be included for verification purposes. Mutually agreeable payment request procedures should be addressed in the agreement, along with the requirements for the documentation (certification) that should accompany each request for payment.
- Handling charges associated with foreign exchange transactions.
- Costs pertaining to licenses, patents, permits, etc. should be included within the tariff structure if they are part of the responsibility of the contractor or franchisee.

b. Customer education and customer relations

The agreement should contain provisions for either the contractor/franchisee or the grantor to educate the generators (as well as laborers involved in pre-collection, if appropriate) to place their waste in an acceptable way (in bins or bags, bundled, or in communal bins) at a designated place and at the scheduled time. In addition, the agreement should also include arrangements for circulation of information bulletins to generators about the types of waste that can be accepted for collection, definition of hazardous wastes, recycling procedures, source separation of wastes, and waste reduction. The educational package should also contain information on legal action and assessment of penalties in relation to the failure of generators to follow the prescribed codes. The agreement should specify provisions for reporting and preventing ***clandestine*** and unauthorized dumping of wastes by generators. The agreement should include provisions for education of generators about the billing and collection practices, specified standards of service, and complaints procedures relating to poor performance of the contractor or franchisee. In addition to service-related education, the agreement should also promote the raising of more general awareness regarding public health and cleanliness.

The agreement should address the need for either the grantor or the contractor/franchisee to solicit and receive public complaints and suggestions concerning the collection operations. The agreement should also specify proper procedures for responding to complaints and customer suggestions.

c. Renegotiations of agreements

Renegotiations of agreements may be needed for a variety of reasons. Often renegotiations take place when conditions change in ways which have not been explicitly referred to in the agreement and which affect either the quality or coverage of the service, or tariff levels. The important issues that are relevant to agreement renegotiations are outlined below:

- In the case of a major expansion of the scope of service under the agreement, the grantor may renegotiate the original agreement with the contractor/franchisee or open up the extension of service to fresh tenders. Provision for such renegotiations and the need to interface with a new contractor/franchisee should be addressed in the original agreement.
- The procedure for renegotiations, the frequency of renegotiations, and the limits on such negotiations during the validity of the agreement, should be clearly specified.
- Towards the end of the period covered by an agreement, the option of a negotiated extension may be considered by the grantor if it has been satisfied with the service. However, if the work is opened for new tenders, the current service provider should be encouraged to provide as much information about the work as possible so that other potential bidders are not disadvantaged - the playing field for potential bidders should be as level as possible.

d. Duration of agreement

- The agreements should be of sufficient duration to make them "bankable" – that is, they should be for a long enough period that the contractor/franchisee will be able to repay the loans that he has taken out to purchase equipment for the work. This increases the attractiveness of the work to private sector participants.
- There should be provisions within the agreements for the grantor to vary the duration of the agreement and the mechanism to do so should be clearly specified in the agreement. In particular, scope for extending the agreement should be included at the grantor's discretion and such scope for the grantor to amend the conditions of the initial agreement should be stated in the agreement. In addition, the way in which unforeseeable circumstances might trigger an extension of duration of the agreement should also be specified. Such circumstances could include force majeure events as well as other causes of operational delays beyond the control of the private sector partner or the grantor.
- In the case of delays in:
  - obtaining permits,
  - ***procurement***,
  - the selection of the contractor/franchisee, or
  - the start of work after the award of the agreement,

the agreement should contain adequate provision for adjustment as a result of these delays if they impinge on the overall duration of the agreement. If either party to the agreement is responsible for delays, ***liquidated damage*** assessment and payment issues must be specified.

- Whenever applicable, a detailed schedule, with clearly identified milestones, should form a part of the overall agreement. If the schedule depends upon the occurrence of certain events (such as the acquisition of special consent or permits, or the connection to electricity or water supplies), then these events should be clearly identified.
- The possibility of early termination of the agreement, together with the conditions that would trigger early termination, should be clearly identified. The steps leading up to an early termination should also be clearly stated.

e. Key (or major) risks and management of key risks

Very few short and simple contractual documents assess and allocate risks completely. Since service and franchise agreements are complex and often of long duration, it is virtually impossible to include and address the allocation of all risks under the agreement. However, the risks to both parties can be reduced through careful drafting of the agreements as well as through appropriate regulatory provisions. The remaining risks should be allocated as far as possible to the party that is best able to manage these risks.

In a collection agreement, the risks that need to be analyzed and allocated appropriately include operating risks, revenue risks, regulatory risks, and political risks. The issues related to each of these risks are discussed below:

e.1 Operating risks – issues for consideration

- Ensuring that the prime contractor/franchisee has adequate liability insurance cover (to enable payment of claims against the contractor/franchisee during the operational phase). Approved sub-contractors or approved assignees should also have sufficient cover for the entire duration of their involvement.
- Sanctions and penalties for non-compliance with standards and regulations relating to health and safety, traffic, environmental protection, etc.
- Response to improvements in productivity (or the lack of improvement), assessment of productivity improvements, and inclusion of a system of pricing based on productivity.
- Bankruptcy and non-performance of the contractor/franchisee, and non-performance of the grantor. Managing incidents of non-performance that are due to events or circumstances beyond the control of either the contractor/franchisee or the grantor.
- Definitions of benchmarks or criteria (such as measures of performance) that allow comparison with the performances of service providers which are engaged in similar work - in order to monitor operations more effectively.
- Guarantees by the grantor (or other counterparts) regarding the availability of, and charges for, services, equipment and facilities to be furnished by the grantor under the terms of the agreement. Examples of such items are trucks, electrical power, and office facilities.
- Guarantees by the grantor relating to the interface between ***downstream*** operations (such as disposal) and contractor/franchisee responsible for collection. Agreements and guarantees on tipping fees for waste delivered to transfer stations or directly to a disposal site.
- Handling complaints.
- Continuation of service and arrangements for taking over operations from the contractor/franchisee in case of default by the contractor/franchisee.

e.2 Revenue and financial risks – issues for consideration

- Distinguishing between capital expenditure and recurrent expenditure on operations and maintenance. Proper recording of such costs.
- Reliability of cash flows from user fees or taxes. In the case of contracts, the risk that some of the revenue from user fees or taxes will be diverted for other purposes, or be insufficient to meet the grantor's obligations. For franchisees this means a significant failure by generators to pay the fees due to the franchisee.
- Acceptability to the public of tariffs and quality of service. (What is acceptable? Who decides what is acceptable?)
- Government support for the revenues to be received by the contractor or franchisee
  - Revenue guarantees;
  - Administration of subsidy payments;
  - Short-term equity or debt infusion to help contractors/franchisees who are experiencing short-term operating cash flow problems;
  - Privileged tax status for contractor/franchisee and accelerated ***depreciation*** allowances;
  - Reductions in import duty for equipment to be used in the work;
  - Assurances on the availability of foreign exchange;
  - Assurances on long-term interest rate levels (or a mechanism for increasing fees to compensate for increased borrowing costs);
  - Guarantee of minimum rates of return or minimum tariff revenues;
  - Assurance of a monopoly for the franchisee in the designated service zone;
  - Coverage for the franchisee to compensate for a shortfall in revenue due to non-payment of user fees;
  - Grants, loans, and letters or lines of credit.
- Legal and regulatory changes required to allow government to extend any of these forms of support to the contractor/franchisee.
- Guarantees to creditors that government will comply with assurances.
- If supplementary revenues (over and above the tariff revenues) are required for servicing debt, what guarantees are available from government that the additional revenue will be made available to the contractor?
- Agreements between creditors on their priority regarding access to tariff revenues. Revenue distribution arrange-

ments to pay for debt servicing, foreign exchange, operation and maintenance of equipment, tariff stabilization, and capital/operating reserve fund. Establishment of a debt service reserve fund, if required.
- Minimum debt service coverage ratios and the ability and mechanism to maintain these requirements by modifying the tariff agreements.
- Level of sanctions and ***liquidated damages*** that should be paid in the event that the contractor/franchisee is unable to carry out his obligations. These obligations include provision of an uninterrupted service at a specified standard, compliance with environmental laws and health and safety standards, cooperation with pre-collection and recycling agencies, and reporting requirements.
- Penalty clauses affecting the contractor/franchisee including terms of payment, interest payments for lateness, conditions in which the payment of a penalty might be waived or postponed (e.g., bankruptcy).
- Design of subsidy payments - including monitoring of subsidy payments by the grantor, establishment of a separate subsidy account managed by an independent agent, and system of disbursement of subsidy upon proof of service.
- Financing of household collection bins through loans to residents by grantor or contractor/franchisee. Payment for bins by increases in tariffs.
- Payment of franchise fee to grantor/government.

e.3 Regulatory risks — issues for consideration

- The role and powers of the regulatory agency.
- Limits to the powers and discretion of the regulatory agency.
- Procedures for appeals against or arbitration with the regulatory agency.
- Compensation for accommodating changes in regulations.
- Coordination between economic, environmental, public health, and other relevant regulators, including the setting of rational standards.

e.4 Political risks — issues for consideration

- Stability of the political regime of the country, state or local authority.
- Availability of political risk guarantees from export credit agencies.
- Availability of private guarantees as cover for political risk.

f. Performance measurement and monitoring

Collection agreements typically specify the scope of services, the outputs, and the quality of such outputs required from the contractor/franchisee in delivering the service, the broad regulations within which the contractor/franchisee needs to function, and the rules for assessing the price for the service delivered. Once these conditions are specified, the contractor/franchisee is allowed to use his technical and financial ingenuity to operate most effectively in providing the service to the generators.

The monitoring of the performance of the work of the contractor/franchisee is aided by the definition of performance targets. The assessment of actual performance against these targets depends on information supplied by the contractor/franchisee and the capacity of the regulator (usually the grantor) to monitor the agreement. Such monitoring allows the grantor of the agreement to establish accountability and ensure a cost-effective waste collection service. Effective performance monitoring requires the information and activities that are suggested in the following list:

- Financial data, which should be independently verified and certified. Arrangements to enable the employment of an independent financial auditor to certify financial records. The rights (if any) of the general public to inspect these records.
- Data on the number and condition of physical assets (vehicles, equipment, depots etc.), including provisions and requirements for independent auditing. Arrangements to enable the employment of an independent technical auditor to approve such records. The rights (if any) of the general public to inspect these records.
- Information relating to the use of subcontractors, including information regarding how any subcontractor has been selected (such as a description of the competitive bidding processes for the ***procurement*** of services from subcontractors). Information related to payments to subcontractors for their services.
- If any aspect of the agreement has been assigned to a third party, all relevant documentation concerning the third party.
- Operations data to enable comparative assessment of collection performance, such as productivity of workers, vehicle downtimes, complaints and the responses to the complaints, and costs.
- Itemized and audited cost information/certification to explain and agree the basis for the setting of the collection tariff. Employment of an independent auditor by the grantor to check cost information that is used to justify a modification to the tariff structure.
- Reporting requirements for the end of the agreement period. (The agreement might be concluded, extended or renegotiated.)
- Technical information for reporting on collection agreements, including:
  - The weight of solid waste reaching the disposal site and/or transfer stations;
  - The level of service - types of waste collected, areas serviced, number and types of generators in the collection zone, frequency of collection, number and types of waste storage units used (communal containers, individual bins, etc.), types and number of collection vehicles, and labor employed;
  - The quality of the waste collection service, including a summary of the complaints and action taken in response to complaints;
  - Labor and equipment productivity. Records of maintenance and of the condition of equipment;
  - Emergency and/or special services performed;
  - Initiatives directed towards public information dissemination and customer education.

- Financial information for reporting on collection agreements including:
  - Cost accounting for individual collection tasks and activities, including projection of costs (and divergences from previous projections, when applicable);
  - User charges collected or requests for reimbursement for services rendered (either according to the tariff agreement, or with an explanation of the deviation from the tariff agreement) as well as for subsidizing the franchisee for shortfalls in cost recovery (according to subsidy arrangements in the agreement);
  - Financial computations for the calculation of tariffs or user fees, including projections;
  - Documentation relating to requests for incentive payments, if incentives are included in the agreement;
  - Calculations for franchise fee, if required by the agreement;
  - Income and cash flow statements - both current statements and past trends;
  - Financial statements and projections of the financial status of the contractor/franchisee, and of any subcontractor or third party to whom responsibility for any part of the work has been assigned. These statements should be provided at an appropriate frequency and in a format acceptable to the grantor;
  - Cases of non-payment of fees, including historical records of non-payments and associated penalties, and identification of the individuals so that the grantor can take appropriate action.

g. Consents

Some or all of the following consents may be required in order to provide the required service. These consents may be described as permission, permits or licenses, and vary according to what legislation is in place. Possible examples are: consents regarding capital mobilization, labor (foreign labor as well as requirements on use of existing workforce by contractor/franchisee, and wage rates), type of equipment used for collection, environmental consents, waste disposal consents, transportation consents, importation consents (for import of equipment) and other legal consents that may cover collection activities.

The onus for applying for and obtaining these consents could rest with either the contractor/franchisee or the grantor. The roles and responsibilities in this connection of the grantor and the contractor/franchisee should be clearly identified in the agreement. If the contractor/franchisee is responsible for obtaining the consents, the degree of assistance that he may expect from the grantor should be clearly specified.

The risk of delays to the work that might be caused by the processes of obtaining these consents should be clearly addressed in the agreement, together with recommendations for managing this risk. In addition, the duration of the validity of such consents should be sufficient to minimize the risks from adverse modification of these consents during the course of the agreement. If the consents do not cover the entire agreement period, the responsibility for renewing the consents needs to be assigned.

h. Dispute resolution

The mechanism for resolving disputes should be stated in the agreement. Common mechanisms are arbitration, court proceedings, and an expert panel. The responsibility for resolving any dispute should rest with both parties to the agreement. The agreement should include provisions that would ensure that the judgement (usually the payment of awards or penalties) that resolves any dispute can be enforced, whether on the grantor or on the contractor/franchisee. The legal framework governing the dispute resolution procedure and the responsibility for undertaking work during the dispute period need to be clearly stated in the agreement.

A10.3 Transfer stations – concessions

A 10.3.1 Introduction

Transfer stations can be designed and constructed by contractors and operated by the private sector on the basis of management or service contracts, or they may be implemented and operated under a concession agreement. The latter arrangement is considered in this section. Concession agreements may include some or all of the following elements:- design, construction, ownership, operation and transfer of ownership to the grantor.

A 10.3.2 Feasibility study

The decision on whether to include transfer stations in a waste management system, and the design and location of any transfer stations, requires an objective evaluation of alternatives and careful planning. Therefore, a detailed feasibility analysis or conceptual plan should be undertaken before deciding to include transfer. Such an analysis or plan is typically carried out by the grantor of the contract and should, at the very least, include consideration of the following issues:

- Historical and projected waste characteristics and volumes, and waste flow issues;
- The economics of transfer in comparison with direct hauling of the wastes to the disposal site by the collection vehicles;
- The scope for waste reduction and resource recovery to reduce the volumes to be handled;
- Possible methods of inspecting the incoming wastes to eliminate or minimize the quantities of hazardous and other unsuitable wastes that should be managed in another way;
- Siting, in the context of the location of existing and proposed disposal sites;
- Design of the transfer station and selection of the equipment and methods;

- Siting, considering public acceptance of the transfer station and its method of usage;
- Sizing of transfer operations and facilities;
- Regulatory and environmental requirements.

A10.3.3 Obligations of concessionaire

The general and supplementary conditions of a concession agreement, together with the technical specifications, should specify the obligations of the concessionaire. The results of the feasibility study should form the basis for the preparation of the detailed contractual specifications. Although agreements should be tailored to fit local conditions, the following issues provide a framework for structuring the contractual obligations:

Technical specifications, quality and type of service

- Pre-construction activities, including attendance at relevant public and regulatory meetings organized by the grantor in connection with the location, design and operation of the transfer station.
- Pre-design services, including site surveys, hydrogeological investigations and ***environmental impact assessments***.
- Determination of the types of wastes that will be accepted for transfer, and the anticipated waste characteristics and volumes.
- Obligation of the concessionaire to meet applicable facility design standards, and obtain all requisite statutory and non-statutory permits and approvals prior to construction. Design services should consider the following aspects:
  - Appropriate site plan and layout, with adequate traffic flow and control measures focussing on efficiency, safety and convenience; the areas should be based on an analysis of traffic flow patterns and consider delays and queuing requirements at peak times;
  - Number and type of unloading bays to accommodate peak traffic and waste flows as well as the types of collection and transfer vehicles;
  - Weighing facilities for assessing charges based on incoming loads;
  - ***Drop-off*** stations for recyclables, self-hauled wastes, household hazardous wastes, ***white goods***, and tires;
  - Fueling arrangements, and provision of adequate vehicle parking and maintenance facilities, including truck washing facilities;
  - The possibility of enclosing the operations of unloading the incoming vehicles and filling the transfer vehicles;
  - Office buildings and facilities for staff and drivers;
  - Scope for future expansion.
- Transfer equipment for moving waste material unloaded from arriving vehicles.
- Vehicles and mobile plant, including transfer trailers and other equipment used at the transfer station.
- Facilities for recycling at the transfer station.
- Preparation of cost estimates as part of the design work.
- Use of qualified, independent consultants to certify and approve the design, and the construction cost estimates.
- Provision of materials, labor, supervision, equipment, utilities and other facilities needed to meet requirements.
- Construction of facilities using approved and generally accepted standards of materials, plant, equipment and construction methods.
- Construction verification and certification by independent consultants to ensure that the site has been constructed according to the approved design.
- Conformance of the design, construction and operations to relevant local, state and national laws, ordinances, codes and regulations.
- Ownership of assets and use of assets by the concessionaire.
- Compliance with labor laws and hiring requirements.
- ***Performance*** and ***payment bonds***, patents, guarantees, warranties, insurance, taxes, and duties.
- Indemnification of the grantor in case of errors or omissions in the design, construction or operation of the facility.
- An operations and maintenance manual should be prepared by the contractor and approved by all relevant statutory and non-statutory authorities. This manual should set the standards of the daily operations at the facility and should address the following issues, in addition to those prescribed by applicable local laws and regulations:
  - Personnel issues, including staffing and training requirements and procedures;
  - Management information systems;
  - Use of approved sub-contractors;
  - Equipment requirements;
  - Maintenance of equipment and other assets;
  - Wet weather operations;
  - Transfer station operations, including duties of:
    - The ***weighbridge***/gate attendant,
    - The tipping floor supervisor, and
    - Transfer truck operators;
  - Environmental requirements, health and safety monitoring; fire prevention and control; accident reports;
  - Emergency preparedness, action plans and operations;
  - Site access, traffic ***routing*** and monitoring;
  - Waste unloading procedures;
  - Inspection of incoming loads;
  - Litter, dust, odor, vector and noise control; general housekeeping;
  - Recycling activities;
  - Instrumentation for weighbridge;
  - Site meetings;
  - Billing, collection of payments and record-keeping;
  - Site surveillance, security and communications.

As in the case of the landfill concession agreement, the grantor may retain rights to carry out specific activities in conjunction with the allocation of duties under a concession agreement.

A10.4 Landfills – BOT concessions

A10.4.1 Introduction

A traditional BOT concession involves a qualified firm or a qualified consortium of firms designing, constructing, owning and operating a disposal facility (a landfill) for a certain period of time after which the ownership of the landfill and other associated assets is transferred to the public authority (the grantor of the concession). A BOT agreement is usually envisioned when there is a need for new facilities and there is a need for external financing to meet this need.

In a concession arrangement, the concessionaire is allowed to operate, for a specified period of time, disposal facilities that are owned by the grantor of the agreement. For the duration of the concession, the concessionaire is responsible for financing the operation, maintenance, and the expansion of the disposal facilities. After the specified period, the responsibility for operating the assets is transferred back to the grantor of the agreement.

A10.4.2 Parties to the agreement

The parties to a concession agreement comprise the grantor of the concession (the public sector agency or agencies) and the private sector counterpart (concessionaire). This section describes the issues that determine who the grantor and concessionaire may be.

a. Grantor

The grantor of the agreement could be the national or the state government, a government ministry or a government-controlled agency, a municipality or a group of municipalities, a department of a municipality, or an independent regulatory body. Since the delivery of solid waste services is generally a local responsibility, it is very uncommon for national governments to enter into agreements, except in small countries or countries with a low degree of decentralization of powers. If national or local regulations confer overlapping or joint responsibility for MSWM services to several agencies, then the grantor may consist of several organizations. Regulatory agencies should be party to the agreement if local law requires it in order to be able to enforce regulations on the concessionaire. The key issue is to identify the particular agency (or agencies) which is vested with the power to grant concessions to the private sector for the MSWM service which is being considered.

If the agreement requires the transfer or leasing of the assets of multiple agencies to the concessionaire, or use of them by the concessionaire, then it may be relevant to include all the appropriate parties as co-grantors of the agreement.

b. Authority and Legal Standing of Grantor

The grantor of the agreement should have the legal powers to sign agreements with the private sector. The representatives of the grantor during the execution of the work covered by the agreement should also be clearly identified in the agreement. For example, an independent auditor may represent the grantor to audit the financial statements of the concessionaire to ascertain their accuracy. Moreover, the chain of authority and legal responsibilities should be clearly defined in case the original granting agency (that is party to the agreement) is dissolved, or if its powers to execute MSWM agreements are abrogated, or if it becomes bankrupt. Also, the role of a guarantor for the grantor, if required, should be investigated.

Such an agreement must be legally binding in order to allow the allocation of powers and responsibilities to the parties to the agreement, to form the basis for future dispute resolution, arbitration, and negotiation, and to be able to offer security for obtaining financing for the venture.

The powers and duties of independent regulators that may affect the contractual arrangement must be recognized and understood by all parties. Since legal conditions vary widely from country to country, it is highly recommended that local legal counsel be consulted well in advance of the preparation of an agreement.

c. Concessionaire

The type of private sector entity that is party to the agreement should be clearly identified. (It might be a ***joint venture***, a local company, a partnership, a limited partnership, a microenterprise or a small enterprise, a community-based organization, or a trust.) Registration requirements for the concessionaire should also be clearly stated so that the concessionaire and the grantor are clear about the relevant legal statutes. Also, any restrictions on foreign ownership and foreign representation on the management or the board should also be reflected in the formation of the sponsor company. The type of company involved in the agreement dictates the legal standing of the entity and may, therefore, be subject to specific legal requirements. The legal standing of the concessionaire also affects his tax position, his ability to declare bankruptcy, his operation (management) and control (board), as well as his liabilities.

If a special purpose company is formed by several entities, but the key sponsor with the relevant experience in the sector is not party to the agreement, then the executor of the agreement should be satisfactory to the grantor. In these instances, additional surety such as letters of credit, guarantees, subordinated loans from the key actor, ***comfort letters***, and undertakings, may be solicited to support the concessionaire. In addition, the ownership arrangements between the different entities that form the private sector counterpart should be clearly identified and conflict resolution mechanisms between the shareholders defined to the satisfaction of the grantor. Moreover, the relationship between the concessionaire and all other parties supporting the

concessionaire must be clear. (These supporting parties include the lenders, shareholders, key personnel, construction companies, design consultants, operating companies, insurers, guarantors, and export credit agencies.)

d. Regulatory Provisions

If monopoly rights for disposal services are granted for a long period, there is a need for regulation of the concessionaire in the public interest. The potential environmental impacts from landfill operations require the institution and enforcement of environmental standards and regulations. Such regulatory provisions form the background to a BOT agreement for landfills. In addition, the following key regulatory issues should also be addressed to enable successful private sector entry into disposal operations:

- The scope for, and promotion of, competition in the solid waste disposal sector.
- Allocating responsibility for cost over-runs and adjudicating the apportionment of responsibility for such over-runs during construction.
- Identifying the agencies that will have regulatory powers on specific issues pertaining to the delivery of services under the solid waste agreement, such as:
  - the agency responsible for setting tipping fees and hearing requests for modification of the tariff structure;
  - the pollution control agency;
  - the ministry or department of the environment;
  - the ministry of labor;
  - the ministry of finance, and
  - the department of transportation.
- Funding of regulatory activities - whether the concessionaire or the grantor should pay for all ***permit*** administration, regulatory inspections, and other services delivered by the regulator over the duration of the agreement.
- Limits to regulatory authority should be addressed. If there are overlapping responsibilities in the regulatory field, the agreement should clearly specify which regulatory authority has the leading role in order to minimize confusion and conflicts. Provisions for interpretation and arbitration should be included in the agreement, to resolve disputes when conflicts in regulatory provisions occur.
- The various regulatory responsibilities should also be integrated before awarding the concession for the solid waste services. (This could include the integration of regulations pertaining to economics, public health, environment, occupational safety, etc.)
- The measures for regulating the concessionaire will need to balance a number of factors, including:
  - the need for efficiency improvements in operations,
  - the need for investments in the sector, and
  - the need to offer a reasonable rate of return to the concessionaire, so that the work is seen to be an attractive proposition for the private sector. There should be a mechanism to ensure that the income received by the concessionaire keeps ahead of increases in costs.

A 10.4.3 Object and scope of the BOT concession

a. Scope of BOT concession

The following aspects should be considered in the formulation of a concession agreement for landfilling of solid waste:

- The scope for exclusivity of operation over the duration of the agreement. (This restricts the setting up of competing operations and alternative disposal routes.)
- The scope for the BOT operator to undertake other activities. (For instance, may the BOT operator also participate in the collection and transport of waste, or propose to carry out resource recovery operations such as composting of received wastes? If so, under what conditions?)
- The scope for the BOT operator, if the grantor wishes, to operate the disposal service at existing facilities during the construction of the new facilities that are the subject of the concession agreement. If the grantor wishes that the existing facilities be developed and upgraded by the BOT concessionaire, then the requirements for the improvements should be identified.
- The scope for amendments to the agreement to accommodate changes in operations, including the scope for increasing or decreasing the volumes of waste accepted for disposal, perhaps by allowing acceptance of wastes from outside areas, or changing the types of waste that can be accepted.
- Imposition of conditions, requirements or restrictions on the BOT concessionaire by the grantor to improve ancillary conditions and infrastructure. This might include the improvement of access roads to the landfill site, assistance to informal recycling workers at the landfill, or local environmental improvements.
- Requirements relating to the interfaces with other current waste management operations, including collection and transport, and resource recovery processes.
- Requirements for closure and ***aftercare*** of the landfill by the BOT concessionaire - especially the long-term control of the environmental impacts of landfill leachate and gas migration (and allocation of liability for improper control).
- The design of the disposal facility as an integral part of the agreement.
- Requirements for the phasing of work, such as – improvements to existing operations, design (if required under agreement), obtaining ***permits***, construction, operation, maintenance, closure, and ***aftercare***.
- Availability of land for the operation, the financial arrangements for the transfer of land to the concessionaire, and the adequacy of the selected site for disposal operations.
- Allocation of responsibility for raising the finances for capital investment, as well as revenues for operations and maintenance expenditure.

b. Obligations of the BOT concessionaire

The general and supplementary conditions of the agreement, together with the technical specifications, specify the obligations of the concessionaire. Although the obligations of a

concessionaire should be tailored to fit local conditions, the following issues provide a framework for structuring these obligations:

b.1 Technical specifications, quality and type of service

- Types of wastes that will be accepted for disposal, anticipated quantities of wastes to be accepted, and projected changes in composition and quantities.
- Importation of acceptable wastes from outside the intended service zone.
- Provision of a system to measure and record weights of waste material entering the site.
- Pre-design services including site and access road surveys, assessment of hydrogeology and geotechnical subsurface conditions, and environmental impact assessments.
- Obligations of the concessionaire to meet applicable design quality standards and to obtain all statutory and non-statutory permits and approvals prior to construction. Design services should include appropriate plans for the following:
  - Liner and drainage systems, and leakage detection system;
  - Areas for waste reception and recycling, site roads;
  - Closure;
  - Landfill gas management system, including evaluation of feasibility of use of gas for power or heat generation;
  - Stormwater management system;
  - Settlement and stability analyses;
  - Leachate collection and treatment and/or recycling systems;
  - Office buildings for landfill operations staff and storage facilities.
- Preparation of an estimate of the construction cost as part of the design process.
- Use of qualified, approved independent consultants to certify and approve the design and the cost estimates.
- Preparation of an operations and maintenance manual by the concessionaire, to be approved by all relevant statutory and non-statutory authorities. This manual for the landfill should address the following issues in addition to those prescribed by local laws and regulations:
  - site security;
  - personnel issues, including staffing and training requirements;
  - requirements for subcontractors (needing approval by the grantor);
  - equipment requirements;
  - maintenance of equipment and other assets;
  - wet weather operations;
  - disposal sequence - for the filling of the cells;
  - intermediate cover;
  - drainage layer, final cover, grading, and topsoil requirements;
  - environmental monitoring;
  - emergency action plans;
  - leachate handling operations;
  - haul roads, access and exit ramps, traffic ***routing*** and monitoring, accident reports;
  - inspection of incoming waste to ensure that no unacceptable wastes are landfilled;
  - landfilling special wastes;
  - daily construction of ***lifts***, daily cover, periodic cover;
  - stormwater management, erosion and surface runoff control;
  - communications equipment;
  - litter, dust, vectors, odor and noise control;
  - occupational health and safety requirements;
  - recycling activities – accommodation of waste pickers or recyclers;
  - measurement of the density of the compacted wastes;
  - fire prevention and control;
  - gas well construction and venting requirements; requirements for power (and/or heat) generation;
  - operations and maintenance record-keeping requirements;
  - instrumentation and site topographic surveys;
  - closure and post-closure activities and requirements;
  - site meetings, and
  - procedures for unloading waste vehicles.
- Pre-construction activities include the attendance of the concessionaire at relevant public hearings that the grantor may hold in order to present and discuss landfill siting, design, and operations.
- Construction of the landfill according to an approved design. Use of approved and generally acceptable standards of plant, equipment and construction methods.
- Use of independent consultants to inspect and verify that the construction work has been according to the approved design. Certification of proper completion of the works according to specifications by independent consultants.
- Provision of materials, labor, supervision, equipment and other utilities and facilities for carrying out the work to meet the requirements of the permits.
- Recycling activities at the landfill - provision of separate sorting and recycling staging areas, perhaps accommodating existing recycling workers by retraining them for integration into the operations at the landfill.
- Compliance of all activities (design, construction, operation, closure and aftercare) with relevant local, state, and national laws, ordinances, codes and regulations.
- Ownership of the assets and the use of the assets by the concessionaire.
- Issues pertaining to minimum wages and transfer of staff from the grantor's workforce.
- Issues pertaining to performance and payment bonds, patents, guarantees and warranties, insurances, taxes, duties, permits, acquisition of rights-of-way, and indemnification of the grantor in case of errors or omissions in design, construction and operation of the disposal facility.

According to the allocation of duties under the agreement, the grantor may retain rights to carry out some or all of the following activities:

- To approve, or allow an independent consultant to approve, the design and construction methods proposed by the concessionaire with or without modifications.
- Making available adequate land of suitable quality for the construction of a landfill for the intended planning horizon - generally at least ten years for disposal.
- Inspection of the quality of the work performed by the concessionaire.
- Inspection of the working conditions of personnel, and condition of facilities (workshops and garages), equipment, and machinery.
- To conduct or permit independent, periodic monitoring of the quality of surface and underground water.
- To approve or reject the use of sub-contractors or independent consultants.
- Obtaining permits and rights-of-way for the concessionaire.
- Public relations.
- Approval of limits and modifications to insurance, bonds, letters of credit, guarantees, indemnification requirements, and minimum wage requirements.
- Assuming a proportion of the potential long-term liability for the landfill operations.
- Assuming a proportion of the costs of closure and aftercare.
- Coordinating with ***upstream*** waste management activities or specifying the concessionaire's interface with these activities.
- Authorizing the concessionaire to use equipment and plant owned by the grantor, and seconding staff to the concessionaire.
- Financing capital investments; ownership of assets (in the case of an operation services contract). Regulation of recurring capital investments and improvements.

As with any private sector participation, a balance should be struck between the need for the grantor to monitor and enforce the agreement in the public interest and the incentive for the concessionaire to operate the disposal service efficiently without the excessive costs associated with undue interference from the grantor.

A 10.4.4 Specific issues in a landfill BOT concession

a. Responsibility and requirements for capital investments

Under a BOT agreement, the responsibilities for the financing of capital and operating costs for the disposal facility should be clearly outlined. The key issues pertaining to the financial aspects of the agreement are listed below:

- Assignment of responsibilities for, and modes of, financing capital and operating investments over the life of the agreement. (Options include financing by the concessionaire, retained earnings from tipping fees, access to public authority financing through grants, etc.) Obligations pertaining to capital investments at the disposal facility during the life of the agreement.
- Allocation of responsibilities regarding planning, coordinating, supervising, and implementing capital investment programs.
- Fair handling of the ***depreciation*** of capital assets in order to ensure proper compensation to the concessionaire (if the financing responsibilities rest on the concessionaire) for the duration of the concession.
- Requirements pertaining to competitive procurement for goods and services by the concessionaire under the concession (such as the maximum value of procurements that can be made without competitive tendering being required, and conditions under which ***sole-sourcing*** is allowable.).
- Mechanism of disbursement of funds by the grantor if the grantor finances capital investments during the life of the concession (by extending advances, payment upon receipt of independently approved monthly invoices that indicate project progress, etc.).
- Mechanism to fund closure costs, long-term monitoring and aftercare expenses (such as by establishing special escrow accounts established by concessionaire or grantor).

b. Equity participation in the agreement

Equity investments from project sponsors are needed to attract debt financing for the concession arrangement. The issues pertaining to financing for the proposed BOT agreement include the following:

- Criteria for debt to equity ratios and minimum level of equity investment that the project sponsor must have. Possibility for transfer of existing debt from on-going operations.
- Timing of cash flows from both debt and equity contributions to meet capital and operating expenses. Timing of revenues from disposal fees to pay creditors and the return on shareholder's equity (if a minimum return is specified in the agreement).
- Bond holder covenants pertaining to shareholders agreement that prevents the liquidation of shares for a specified period of time (to mitigate the risk of bankruptcy, mainly during the period of the concession agreement when no revenue is being generated - such as the construction period). Alternatively, guarantees against such events may be obtained.
- Allocation of seniority for cash flow rights and control rights amongst the various equity holders.

c. Obligations of the grantor

In addition to the services identified in the preceding section, the grantor's obligation under the agreement may include the following:

- Supply of a guaranteed minimum quantity of waste and of specified type (perhaps based on definitions of sources) for the duration of the agreement. Making the necessary arrangements with upstream activities (such as the waste collection contractor, if there is one) for delivering the waste to the location that is prescribed in the agreement.
- Preliminary characterization of the solid waste to be received at the disposal facility and arrangements for accommodating any significant changes in the nature of the waste.

- Arrangements for mutually acceptable procedures for monitoring the nature of the wastes.
- Mechanisms for payment and guaranteeing the revenues of the BOT concessionaire. If the concessionaire is paid according to the amount of waste that is disposed of at the site, a minimum income can be guaranteed by a ***put-or-pay*** agreement (which undertakes to pay a minimum fee even if the fee – calculated according to the waste quantity delivered - is less).
- Ownership of the waste and assuming proportions of short-term and long-term liabilities arising from past and future disposal operations.
- Assisting the concessionaire in obtaining connections to utilities (such as water, electricity and telephones).

d. Payment issues

Payment within a BOT agreement for disposal of solid waste can be arranged in various ways.

- Payment for the design and construction phases of the work may be based on certificates of progress made in work under the agreement. The critical factor that determines the success of this mode is the participation of a credible, independent consultant to certify and approve the payment requests and ***change orders*** from the concessionaire.
- Another, more common, arrangement for payment in BOT agreements is for capital investments to be integrated into the operating payment schedule as a fixed component of a two part charge once the landfill starts operation.

Payment issues pertaining to the long-term operation phase of the concession require special attention because of the dependence on projections for estimating future costs and levels of service. The mechanisms for paying the tipping fees could be as follows:

- If the collection service is provided by the private sector, then the collection company passes on the tipping costs (plus a small administration fee) to the grantor as part of their agreement.
- If the public authority (grantor) provides the collection service, then the payment for tipping costs is made directly by the grantor based on the agreed tipping fee structure.

Additional issues pertaining to payments and tariff setting include that:

- The procedure for structuring the tipping fee should be clear and transparent. Components for capital costs and operating costs (which may be variable) should be included in the fee schedule. Is the disposal fee structure based on a reasonable rate of return on useful and usable capital works? If so, who decides what is useful and usable? Properly audited cost statements should form the basis of the fee schedule.
- The procedure, timing, and frequency for reviewing and, if necessary, adjusting the tipping fees should be specified in the concession agreement. Changes in the tipping fee might be necessary because of inflation or deflation, changes in the costs of service elements (such fuel, labor, utilities and supplies), changes in operating efficiency, changes in debt service levels and taxes, and other factors. Moreover, the proportional influence of each of these costs in the adjustment formulae should be specified. Local cost inflation indices are very useful for this purpose.
- Events that would trigger a revision of the tipping fee structure should be clearly identified.
- Special rates for large and small generators who take their own waste directly to the landfill (at separately negotiated rates and fee structures).
- If waste from areas outside the jurisdiction of the grantor may be accepted for disposal, consideration should be given to the payment of royalty or ***host fee*** to the grantor for accepting such wastes at the landfill.
- Assessment of tipping fees for special wastes including liquid wastes, bulky wastes and construction debris.
- Mechanism for inclusion of depreciation expenses and taxes into the tipping fee structure.
- Inclusion of new capital expenditures incurred during the period of the concession agreement into the tipping fee structure.
- Guarantees on the minimum tonnage of the waste delivered to the site by the grantor since the quantity of waste received at the landfill affects the operating revenues of the concessionaire and hence the profitability of the work.
- The mechanism and frequency of adjustments to the tipping fee as a result of foreign exchange rate fluctuations on specific cost components; specification of the index of foreign exchange to be used.
- Payment of penalties (for any failure by the concessionaire to meet performance obligations) should be clearly and separately specified.
- Procedures for appealing to the appropriate regulatory body for tipping fee adjustments should be clearly set out in the agreement.

e. Customer education and public relations

The education of drivers of waste collection or transport vehicles can have a beneficial and important impact on landfill operations. It is therefore desirable that the concessionaire should have the opportunity to train the drivers in proper driving and unloading practices at the disposal site. It is also important to educate the collection personnel so that they know what types of waste are acceptable at the landfill. This education of the collection personnel may be the responsibility of either the concessionaire or the grantor, or both.

As part of the customer relations efforts, the BOT concessionaire should publish the tipping fee structure, indicating the period of its validity. This allows transparency in the assessment of fees and enhances the concessionaire's credibility. The methods of payment of tipping charges should also be clear.

The BOT concessionaire should also continuously assist the grantor in promoting safe and effective disposal of solid waste as well as in increasing public acceptance of the

waste disposal methods. Various methods can be used to win public support, including press releases and publications on issues such as the operational safety of the landfill, its cost-effectiveness, and its environmental benefits.

f. Renegotiations of the agreement

- Renegotiations of an agreement may be needed for a variety of reasons. Often renegotiations take place when conditions change in ways that have not been explicitly referred to in the agreement, and which affect either the quality of the service or the charges.
- If there is a major expansion of the work under the concession agreement, the grantor may renegotiate the original agreement with the concessionaire or open up the new aspects of the work to fresh tenders. Provision for such renegotiation and the relationship with any new concessionaire should be addressed in the agreement.
- The procedure for renegotiation, the frequency of renegotiation, and the limits on such negotiations during the period of the agreement, should be clearly specified.
- Towards the end of the period covered by an agreement, the option of a negotiated extension may be considered by the grantor if it is satisfied with the service provided by the concessionaire. However, if the work is opened for new tenders, the current service provider should be encouraged to make available as much information as possible so that other potential bidders are not disadvantaged – the playing field for tendering should be kept as level as possible.

g. Duration of the BOT concession

The duration of the BOT concession is an important factor in making it attractive for competitive tendering. The key issues associated with agreement duration are as follows:

- The agreements should be of sufficient duration to make them "bankable"; that is, the tipping fee structure should be adequately designed so that the concessionaire can repay loans, service debts and provide a return on equity (when the concessionaire takes on the financing risk).
- There should be provisions within the agreement for varying the duration of the agreement and making corresponding changes to the original agreement conditions. In addition, the way in which unforeseeable circumstances might trigger an extension of the duration of the agreement should also be specified. Such circumstances could include ***force majeure*** events as well as other causes of operational delays beyond the control of the concessionaire or the grantor, and delays caused by the grantor.
- If the design and construction phases are included in the overall agreement duration, consideration should be given regarding how construction and design delays will be handled.
- Are adequate agreement conditions included to address the situation at the expiry of the agreement? These issues include the valuation and transfer of assets to the owner, re-tendering of the agreement, and questions on allocation of liability for environmental damages that may become apparent only in the future, although they are caused by past or current operations.
- The option of transferring assets after construction and initial operation back to the grantor so that the grantor enters into a long-term operations contract (BTO concession).

h. Key risks and management of these risks

Very few short and simple agreements can assess and allocate risks completely. Since solid waste agreements are complex and long-term, it is virtually impossible to include and address the allocation of all risks under the contractual agreement. However, the risks to both parties can be reduced by careful drafting of the agreements as well as through regulatory provisions. The remaining risks should be allocated as far as possible to the contractual party that is best able to manage these risks.

In a BOT concession for a landfill, the risks involved include construction risks, operating risks, revenue risks, regulatory risks, and political risks. The issues pertaining to each of these risks are discussed below:

h.1. Construction risks— issues for consideration

Construction of a landfill is a complex task that requires detailed planning and scheduling. Moreover, the construction of a landfill is not a one-step process. Rather, it is a continuous procedure that involves phased construction during the life of the site. Conditions that arise during construction may be different from what was expected at the design stage. In this situation, the risks that arise should be appropriately managed. This section highlights the various issues that are pertinent to risk allocation and mitigation during the construction phase of a BOT project:

- Accountability for delays in construction and cost overruns. Ability to structure a fixed price turnkey construction agreement to place construction risks with the concessionaire, including cost overruns and delays. Responsibility for financing cost overruns and conditions in which such financing might be available.
- Appropriateness of construction agreement specifications to the task of construction, including the schedule and milestones for construction activities. Policy on variations to specifications and ***change orders***.
- Responsibilities for obtaining permits and planning approvals.
- Warranties and guarantees for construction works and equipment.
- Responsibilities for land acquisition and the selection of a site that is suitable for constructing a cost-effective disposal facility. Timing issues pertaining to the access to, and acquisition of, land for site investigation and construction. Securing the appropriate land use permits or agreements and variances.
- Ability and rights of the grantor, creditors, and regulatory agencies to monitor the construction. Use of approved independent consultants to inspect and certify construction methods.

- Testing and approval of equipment, construction work, etc.
- Responsibilities for, and the durations of, pre-construction activities and their impact on the construction schedule. Such activities include geotechnical and hydrogeological surveys, site surveys, environmental impact assessments, and public notification and consultation.
- Responsibilities for providing or accessing utility services (electricity, water and telephone) for the landfill (during and after construction).
- Conditions under which sub-contractors can be employed, and regarding the assignment of all, or a proportion of, the financing and construction work to a subcontractor.
- Assistance from government in offering financial support for construction. The conditions for such financial support and the conditions for disbursement of funds should be clear. This might involve the maintenance of a separate fund account, the management of the fund by an independent agency or trust, and disbursement in advance or against certified periodic invoices.
- Assumption of liability for the performance and completion of work undertaken by the concessionaire, sub-contractors, equipment suppliers, etc. Requirement of performance bonds for ensuring that the work is done, and ***liquidated damages*** cover for delays in construction.
- Issues pertaining to ***payment bonds*** for claims by subcontractors. Incentive clauses for early completion of construction.
- Establishment of a separate construction reserve fund by the BOT concessionaire, with independent access for the grantor if repair and maintenance of the facilities must be paid for.
- Issues pertaining to new construction, and the mechanism for financing this construction during the operation phase of the landfill. Grantor support, if any, for new construction.
- The extent to which competitive bidding is required for the procurement of equipment, supplies and sub-contractor services.
- Clauses pertaining to insurance cover, ***hold harmless*** agreements, minimum wage schedules, labor use, ***equal opportunity*** and other legal mandates, during the construction period.

h.2. Operating risks — issues for consideration

- Ensuring adequate liability cover for concessionaire as well as for approved sub-contractors or approved assignees.
- Sanctions and penalties for non-compliance with standards and regulations concerned with health and safety, traffic, environment, etc.
- Bankruptcy and non-performance of the concessionaire, as well as the non-performance of the grantor. (Preparations for such possibilities may include training the grantor's staff to operate the landfill so that they can take over operations if the concessionaire fails to perform satisfactorily.)
- Non-performance of the concessionaire as a result of events beyond the control of either the concessionaire or the grantor.
- Definitions of benchmarks or criteria (such as measures of performance) that allow comparison of the performances of different landfill operators.
- Guarantees from the grantor regarding the supply and costs of services, plant and equipment to be furnished by the grantor under the terms of the agreement (Examples might be electricity, office facilities, and road-making plant.).
- Guarantees from the grantor relating to the interface between upstream operations (mainly waste haulage) with the disposal concessionaire. Agreements and guarantees on the fee structure and the quantities of wastes to be brought for disposal.
- Requirement for a dedicated operating fund.
- Responsibility for expansion of the landfill during the duration of the agreement.
- ***Force majeure*** risks – negotiations between the parties to allocate these risks to the party which is best able to assimilate and manage these risks. If agreements on allocation are not possible, responsibility for coverage by insurance should be addressed.
- The closure and aftercare requirements of the landfill, including management of long-term leachate and gas migration from the waste. (In this case "long-term" means beyond the life of the BOT agreement.)

h.3 Revenue and financial risks — issues for consideration

- Distinguishing between capital expenditure and recurrent expenditure on operations and maintenance. This represents an important first step in the assessment of costs and tipping fee structures. Capital investments include new investments that are made during the period of validity of the operations agreement, such as those associated with the staged expansion of the landfill.
- Determining the existing and usable capital base of the concessionaire (with which to assess rates of return for tipping fee setting). Determination of tipping fee for wastes brought from outside the jurisdiction of the grantor.
- Reliability of cash flows from tipping fees (including the risks that some customers will not pay or will delay making their payments).
- Reasonableness of tariffs and quality of service. (Do the customers regard the tariffs as acceptable? Are they satisfied with the condition of site roads and driving surfaces?)
- Government support for the financial situation of the concessionaire:
  - Minimum revenue or guarantees of minimum rates of return;
  - Administration of subsidy payments;
  - Short-term equity or debt infusion to help the concessionaire if he is experiencing a short-term operating cash flow problem;
  - Privileged tax status for the concessionaire and accelerated depreciation allowances;
  - Importation of equipment at favorable duty levels;
  - Assurances on the availability of foreign exchange and long-term interest rate levels (or mechanisms for passing on higher costs to upstream customers);
  - Assurances of a monopoly position in providing disposal services;

  - Cover for losses resulting from non-payment of charges by users of the landfill, and
  - Grants, loans, letters or lines of credit.
- Legal and regulatory changes required to enable government to extend any of these forms of support to the concessionaire.
- Guarantees for project creditors that government will comply with assurances.
- If supplementary revenues (over and above the revenues from tipping fees) are required to service debts, guarantees from government may be available to make additional revenue available to the concessionaire.
- Agreements between creditors on their priority regarding access to tariff revenues. Revenue distribution arrangements to pay for debt servicing, foreign exchange, operation and maintenance of equipment, tariff stabilization, and capital/operating reserve fund. Establishment of debt service reserve fund, if required.
- Covenants regarding minimum ***debt service coverage ratios*** and the opportunity for maintaining these requirements by modifying the tariff agreements.
- Level of sanctions and liquidated damages that should be paid in the event of inability of the concessionaire to carry out his obligations. These obligations include operating in conformity with environmental laws, health and safety standards, providing an uninterrupted service, maintaining service quality standards, and reporting requirements.
- Penalty clauses affecting the concessionaire including terms of payment, interest payments for lateness, as well as the conditions in which the regulator may waive or extend the period for payment of a penalty (such as concessionaire's financial distress or bankruptcy).
- Design of subsidy payments - including monitoring of subsidy payments by the grantor, establishment of a separate subsidy account managed by an independent agent, and the system of disbursement of subsidy upon proof of performance.
- Payment of royalty or other fee to grantor or other government agency.
- Establishment of an escrow account for contingencies, closure, and aftercare expenses.

h.4. Regulatory risks — issues for consideration

- The role and powers of the regulatory agency.
- Limits of the powers and discretion of the regulatory agency.
- Procedures of appeals against or arbitration with the regulatory agency.
- Compensation for agreeing to changes in regulations.
- Coordination between economic, environmental, public health, and other relevant regulators, including the setting of rational standards.

h.5. Political risks — issues for consideration

- Stability of the political regime of the country, state or local authority.
- Availability of political risk guarantees from export credit agencies.
- Availability of private guarantees as cover against political risk.

i. Performance measurement and monitoring

BOT agreements for disposal operations typically specify the scope of services, the outputs and the quality of such outputs required from the concessionaire in delivering the service, the broad regulations within which the concessionaire needs to function, and the rules for assessing the price for the service delivered. Once these conditions are specified, the concessionaire is allowed to use his technical and financial ingenuity to operate most effectively and provide a service that is satisfactory to the customers.

The monitoring of the performance of the work of the concessionaire is aided by the definition of performance targets. The assessment of actual performance against these targets depends on information supplied by the concessionaire and the capacity of the regulator (usually the grantor) to monitor the agreement. Such monitoring allows the grantor of the agreement to establish accountability and ensure a cost-effective waste disposal service. Effective performance monitoring requires the information and activities that are suggested in the following list:

- Financial data, which should be independently verified and certified. Arrangements to enable the employment of an independent financial auditor to certify financial records. The rights (if any) of the general public to inspect these records.
- Data on the number and condition of physical assets (equipment, depots etc.), including provisions and requirements for independent auditing. Arrangements to enable the employment of an independent consultant to approve such records. The rights (if any) of the general public to inspect these records.
- Information relating to the use of subcontractors, including information regarding how any subcontractor has been selected (such as a description of the competitive bidding processes for the procurement of services from subcontractors). Information related to payments to subcontractors for their services.
- If any aspect of the agreement has been assigned to a third party, all relevant documentation concerning the third party.
- Itemized and audited cost information/certification for justifying the tipping fee structure (and confirming payment, if necessary by the grantor). Employment of an independent auditor by the grantor to check cost information that is used to justify any modification to the structure of charges.
- Reporting requirements for the end of the agreement period. (The agreement may be either concluded, extended or renegotiated.)
- Technical information for reporting on BOT agreements for disposal include:
  - The weight of solid waste reaching the disposal site;
  - Operational data, including types of waste disposed,

number and types of customers (waste haulers) served, method of landfill operation, quantity and type of daily and intermediate cover used, types of equipment and number of each type which is used, details of workforce, design and quantities for final cover, closure and restoration, and postclosure monitoring (or aftercare);
  - Quality of waste disposal operations, including complaints and action taken is response to complaints, any incidents of pollution, flowrate and composition of landfill leachate, and methods use to manage and monitor leachate and landfill gas;
  - Labor and equipment productivity. Maintenance records and records from inspections of equipment;
  - Emergency or special measures undertaken. Construction works to be undertaken for expanding the landfill within the period of the BOT agreement;
  - Resource recovery program results;
  - Initiatives directed towards dissemination of information and public education.
- Financial information for reporting on BOT agreements for disposal includes:
  - Cost accounting for individual disposal tasks and activities, including projection of costs (and divergences from previous projections, when applicable);
  - Billing records for tipping fees and identification of shortfalls in cost recovery by concessionaire (in accordance with the contractual subsidy agreement);
  - Calculations for setting tipping fees, including projections;
  - Royalty or host fee payments and related computations, if such fees (for waste accepted from outside the service area) are included in the agreement;
  - Income and cash flow statements – both current statements and past trends;
  - Financial statements and projections of the financial status of the concessionaire, and of any subcontractor or third party to whom responsibility for any part of the work has been assigned. These statements should be provided at an appropriate frequency and in a format acceptable to the grantor;
  - Cases of non-payment of fees, including historical records of non-payments and associated penalties, and identification of the individuals so that the grantor can take appropriate action;
  - Capital investments needed during the period of the agreement for extending the landfill.

j. Transfer of assets to or from the BOT concessionaire

Under a BOT agreement, existing assets (such as land and disposal equipment) may be transferred from the BOT concessionaire to the grantor. If the assets are not transferred during the agreement period, they will be transferred back to the grantor upon expiry of the agreement, according to the conditions of the BOT agreement. The conditions for such asset transfers to and from the concessionaire at the beginning and the end of the BOT agreement should be clearly addressed in the concession documents. The following issues need close attention in relation to the transfer of assets:

- At the beginning of the agreement, the ownership of (i.e., the legal title to) the assets should be clearly stated in order to make the asset transfers effective. Such assets include the grantor's property, plant and equipment that are currently employed for disposal purposes.
- The number and nature of the assets should be clearly set out in the agreement. Before the agreement is issued, the condition of each of the assets should be assessed objectively and independently to estimate their true values. If inspections or inquiries conducted by the concessionaire or his financial partners prior to bidding on the agreement reveal conditions different than reported in the previous assessment, procedures for ascertaining the baseline conditions of the assets (on which a bid would be based) need to be clearly defined. Also, criteria for selling assets (such as unusable or unnecessary assets), and the use of the proceeds of such sales, should be defined in the agreement.
- The obligations and rights relating to making improvements and additions to the transferred assets should be outlined clearly in the agreement under an asset management plan.
- If capital additions are made during the period of the BOT agreement, the ability of the concessionaire to pledge them as security for loans should be addressed (and also the scope for the grantor to remedy the claims if the agreement is abrogated before expiry).
- The BOT arrangement may operate in a "sale-leaseback" mode (that is, the concessionaire sells the assets as soon as they are constructed and commissioned to the satisfaction of the grantor and leases them back to operate them on a long-term basis) or a simple lease mode. In both cases the scope for pledging the assets as security for loans should be addressed.
- At the end of the BOT agreement, the mechanism for transferring the assets back to the grantor must be clearly defined.

k. Consents

The agreement should refer to any necessary consents, permits or ***licenses***, such as regarding capital mobilization, labor (including wage rates, the use of foreign labor, and requirements on the concessionaire to use the existing workforce), and the types of equipment that may be used for disposal.

Environmental consents, health and safety consents, waste disposal consents, waste importation consents, transportation consents, consents for importing equipment, and other legal consents that may cover disposal activities (including proposed resource recovery activities) should be obtained prior to construction and operation of the facilities.

The onus for applying for and obtaining these consents could rest with either the concessionaire or the grantor. These roles and responsibilities of the grantor and the concessionaire should be clearly identified in the agreement. If the concessionaire is responsible for obtaining the consents, the form and degree of the assistance that should be provided by the grantor should be clearly specified. The agreement should also state the roles and responsibilities of the concessionaire and the grantor if there are delays in obtaining the required approvals.

Risks of delays in obtaining these consents should be clearly addressed in the agreement together with recommendations on managing such risks. The duration of the validity of such consents should be sufficient to minimize the risk that modification of these consents might have adverse effects during the course of the agreement. If the consents do not cover the entire period of the agreement, the responsibility for renewing or extending the consents needs to be addressed.

l. Dispute resolution

The agreement should specify procedures that are to be used for resolving disputes. These procedures might include arbitration, court proceedings, or an expert panel. The responsibility for resolving disputes should rest with both the entities that are party to the agreement. The agreement should ensure that it will be possible to enforce judgements, awards or penalties made according to the prescribed procedures on either party, according the decision that is reached. The law and the applicable legal framework governing the dispute resolution procedure need to be identified in the agreement. Responsibility for progress of work during the dispute period should be clearly allocated within the agreement.

Annex A11: LIST OF REFERENCES

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Web sites

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http://www.pubworks.org/

IP3 The Institute for Public-Private Partnerships:
http://www.ip3.org

International Union of Local Government Authorities:
http://www.iula.org/

International Council for Local Environmental Initiatives:
http://www.iclei.org/member.htm

SKAT The Swiss Centre for Development Cooperation in Technology and Management:
http://www.skat.ch

USAID local government projects in Eastern Europe:
http://www.info.usaid.gov/regions/eni/local_gov

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.